

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC** Provide copies of all proposals submitted in response to the three RFPs  
**1\_1** issued on September 22, 2023 and all correspondence to and from  
Kentucky Power related to those proposals.

**RESPONSE**

Please see KPCO\_R\_AG\_KIUC\_1\_1\_ConfidentialAttachment1 for the requested proposals.

The Company is reviewing documents potentially responsive to this request and will provide any relevant, non-privileged documents in a supplemental response no later than October 2, 2024.

Witness: Zachary M. Yetzer

KPCO\_R\_AG\_KIUC\_1\_1\_ConfidentialAttachment1 is redacted in its entirety.

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
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**DATA REQUEST**

**AG\_KIUC  
1\_2** See Testimony of Wolfram at page 4, line 18 through page 5, line 2. See also Testimony of Wolfram at page 8, line 15 through page 9, line 5. Confirm that the REPA is necessary, at least in part, to offset the loss of the projected loss of the Mitchell Generating Unit capacity in 2028. If confirmed, then provide a more detailed explanation as to how the REPA will replace the Mitchell capacity in 2028, including how the Company plans to dispatch the REPA to meet its base load and peaking load requirements.

**RESPONSE**

Not confirmed. Although the Company's 2022 IRP identified an expanded capacity need as a result of the termination of the Company's undivided interest in Mitchell in 2028, a capacity need exists prior to the termination of the Company's interest in the Mitchell Plant. The Bright Mountain REPA will address that need in part. Specifically, as demonstrated in the Company's 2022 IRP, in 2027, the Company's Preferred Plan adds new solar resources while its interest in the Mitchell Plant is still active. The Bright Mountain REPA represents a portion of the solar resources identified to be added in 2027 consistent with the Company's Preferred Plan.

Witness: Tanner S. Wolfram

**DATA REQUEST**

- AG\_KIUC  
1\_3** See Testimony of Coon at page 5, line 4-5, where it states, “the REPA is a fixed-cost hedge on commodity price swings experienced by fossil generators.” See also Testimony of Wolfram at page 9, lines 6-9.
- a. Given that it seems to be fairly common for renewable developers to demand renegotiation of revenues to be received under purchased power agreements (for example, see Case No. 2022-00296, Electronic Application of Big Rivers Electric Corporation for approval of amendment to Power Purchase Agreement), discuss to what extent the costs under the REPA can accurately be described as “fixed”? Further, include in this discussion an analysis of all terms of the REPA protecting the Company and ratepayers from similar attempts to renegotiate payments and from default on the agreement entirely.
  - b. Identify and describe all risks assumed by the Company, including, but not limited to, increased pricing beyond the fixed pricing reflected in the contract due to increased capital expenditures and/or other factors, physical and financial losses due to weather or other catastrophic event, and PJM performance penalties.
  - c. Confirm that the “hedge” may be in or out of the money depending on the PJM energy market pricing and/or the Company’s variable cost of other generation and purchase contracts.

**RESPONSE**

- a. Kentucky Power objects to the characterization that “renegotiation of revenues” is “fairly common” under renewable power purchase agreements. The reference to a single power purchase agreement requiring an amendment does not make it “fairly common.” Moreover, unlike fossil fuel PPAs, there is no variable fuel component to the Contract Rate under the REPA. Kentucky Power’s costs under the REPA are limited to the Contract Rate, and the Contract Rate is fixed for the Term of the REPA. While there is a potential risk the Developer could ask for renegotiation of the Contract Rate, the Company has taken several steps to mitigate this risk. Please see, Article 3.4 Changes to Facility, Article 4 Commercial Operation, Article 6 Conditions Precedent, Article 8.2 No Payment Obligation, Article 11, Security for Performance, Article 12 Default and Remedies, Article 20.4 Rate Changes in Exhibit ZMY-4 in the Direct Testimony of Company witness Yetzer.
- b. The risks that Kentucky Power assumes under the REPA are related to Seller’s Capital Expenditures Costs under the REPA. Kentucky Power mitigated these risks by negotiating a provision where both Buyer and Seller have a mutual termination right in order to protect

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 2 of 2

both sides from increases in pricing related to the commissioning of the Project. Upon execution of the REPA, the Baseline Estimated Seller's Costs were established. Prior to Notice-to-Proceed (NTP), Seller must provide a Letter that states that Seller's costs did not surpass the Capex Cap or, in the event that Seller's costs did surpass the Capex Cap, a letter and a completed Appendix M that shows a revised aggregate sum of project costs. Please see Article 6 Conditions Precedent and Exhibit M in Exhibit ZMY-4 in the Direct Testimony of Company witness Yetzer for additional details relating to this mutual termination right.

c. Confirmed. That is the case with any hedging product whether physical or financial.

Witness: Zachary M. Yetzer

Witness: Nicole M. Coon

Preparer: Counsel (as to the objections)

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC  
1\_4** See Testimony of Wolfram at page 6, lines, “Proposals that met the Eligibility and Threshold Requirements underwent a detailed analysis that considered a variety of factors including the economic modeling of energy and capacity and other non-price factors. The scoring criteria used in the economic modeling, specifically as it related to some of the non-price factors, was set based on direction provided by Kentucky Power leadership.”
- a. Provide a copy of the scoring criteria in its entirety, specifically including the “non-price factors” that were set based on the direction provided by AEP and/or Kentucky Power management.
  - b. Provide a detailed description and the specifics of the quantifications where the criteria were calculated metrics and the specifics of the qualitative factors where the criteria were not calculated metrics.
  - c. Provide a copy of all communications related to Kentucky Power leadership’s direction on these non-price factors.

**RESPONSE**

a.-b. Please see KPCO\_R\_AG\_KIUC\_1\_11\_ConfidentialAttachment1.

c. There are no written communications responsive to this request; Kentucky Power’s President and former Vice President of Regulatory and Finance provided verbal direction regarding the application of non-price factors including facility location, economic development potential and impacts, and the type of resources to be considered (PPA v. owned).

Witness: Zachary M. Yetzer

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC  
1\_5**

Refer to the Direct Testimony of Witness Yetzer at 2 wherein he states: “My primary responsibilities include obtaining direction from AEP’s operating companies, including Kentucky Power, drafting RFPs on their behalf, and managing the RFP process which includes the processing of proposals, providing input for the economic analysis, leading due diligence activities, and negotiation of the associated agreements.

- a. Provide a copy of all “direction” received from Kentucky Power Company as to the scope of the RFP (“all resource RFP”), the evaluation of the bids received, and the rejection of all [REDACTED] resource bids.
- b. Provide a copy of all “direction” received from AEP as to the scope of the RFP (“all resource RFP”), the evaluation of the bids received, and the rejection of all [REDACTED] resource bids.
- c. Provide a copy of all analyses, studies, correspondence, and all other “direction” and/or documentation provided by either AEP or Kentucky Power Company that led to the conclusion that all [REDACTED] resource bids should be rejected and communicated the decision to do so to the bid evaluation teams.
- d. Identify the specific individuals by name, position, and entity that made the decision to reject all [REDACTED] resource bids.

**RESPONSE**

a.-d. The Company objects to this request on the basis that it mischaracterizes the Company’s testimony. Specifically, the Company has not made a decision to reject all [REDACTED] resource bids and continues to evaluate such bids. Subject to and without waiving this objection, the Company states it does not have any documents responsive to the request because it has made no such determination to reject all [REDACTED] resource bids.

The Company is reviewing documents potentially responsive to this request and will provide any relevant, non-privileged documents in a supplemental response no later than October 2, 2024.

Witness: Tanner S. Wolffram

Preparer: Counsel (as to the objections)

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC  
1\_6** See Testimony of Wolfram at page 13, lines 8-11. Discuss whether the REPA was compared to any alternative proposal which utilized non-renewable resources such as coal or natural gas generation resources. If such a comparison took place, discuss how the company accounted for the technical differences (specifically the intermittent nature of renewable generating resources) when determining a value for traditional and renewable resources respectively.

**RESPONSE**

Yes, the REPA was compared to alternative resources including non-renewable resources. Specifically, refer to the Company's response to AG-KIUC 1-11 and Confidential Exhibit ZMY-3 for the comparison of the Bright Mountain Facility to other resources. See also the Company's responses to KPSC 1-13 and AG-KIUC 1-11 for the scoring criteria which shows how the technical differences in the recourse types were scored.

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC**     See Testimony of Yetzer at page 9. Confirm that comparisons based on  
**1\_7**            LANCOE and LANCOC fail to accurately value the differences in  
                  functionality between traditional and renewable resources. If this assertion  
                  is not confirmed, provide all available support for the witness's position.

**RESPONSE**

Not confirmed. These metrics do highlight the differences between resource types. Traditional fossil-fueled resources such as gas peakers, which don't typically produce as much energy as wind and solar, will often score lower on LANCOE, because there are few MWh to spread fixed costs over but can score better on LANCOC because their capacity accreditation is relatively higher than renewables by RTOs. The opposite is true for renewables like wind and solar which produce more energy, so they can score well on LANCOE, but poorly on LANCOC because of their relatively lower capacity accreditation. Intermediate duty cycle resources such as combined cycles can score well on both metrics, because they can typically produce relatively larger quantities of energy while also being accredited by RTOs at a relatively high percentage of nameplate capacity.

These two metrics are best viewed collectively, not individually, to form an opinion when comparing across differing resource types, but they are valuable on their own as well. LANCOE and LANCOC each provide their own unique perspective on value based on the difference in denominators between the two calculations. Utilities like Kentucky Power need both energy and capacity to serve customers. They try to plan their systems to have a balanced mix of resources that provide both of them in large enough quantities to meet RTO obligations and mitigate market risks. Focusing only on one of these two metrics without also being aware of the other one can lead to incomplete conclusions.

Metrics which express costs and benefits per unit of capacity and energy terms provide information about the relative costs of both the energy and capacity attributes of any resource type. If a utility is looking to obtain large quantities of energy to mitigate energy market risk, it would be inclined to look closely to scoring per unit of energy, which LANCOE does. If a utility is primarily looking for accredited capacity, it will focus more on LANCOC.

Witness: Zachary M. Yetzer

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC 1\_8** See Testimony of Yetzer at page 9, at lines 11-17. There is the potential that Avangrid, and the energy industry as a whole, may experience development challenges due to future raw material, labor, supply chain, interconnection, and equipment availability and uncertainty during the period in which the Company is seeking regulatory approval with this Commission. These challenges, if realized, could have an economic impact on the project.
- a. Describe specifically how these challenges “could have an economic impact on the project.”
  - b. Describe all ways Kentucky “mitigated these risks.”
  - c. Specifically describe Kentucky Power’s rights (related to both enforcement of the contract generally and to specific pricing) under the REPA in the pre-construction, construction, and post-construction/operation phases of the project respectively, detailing whether Kentucky Power’s rights vary as the project proceeds through those phases.

**RESPONSE**

- a-b. The development challenges listed on Page 11, lines 11-17 in the Direct Testimony of Company witness Yetzer could have an economic impact on the project by causing a price increase for affected items. Please see the Company’s response to AG-KIUC 1-3 for a description of how the Company has mitigated these risks.
- c. Please see the Company’s response to AG-KIUC 1-3.

Witness: Zachary M. Yetzer

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
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**DATA REQUEST**

**AG\_KIUC** Provide a copy of all correspondence between the Company and either  
**1\_9** Bright Mountain Solar, LLC and/or Avangrid Renewables, LLC in  
regards to the Bright Mountain Solar REPA. The request includes copies  
of all letters, memos, emails, and/or other written communications  
between the two parties after the issuance of the RFP by the Company  
until the present.

**RESPONSE**

The Company is reviewing documents potentially responsive to this request and will provide any relevant, non-privileged documents in a supplemental response no later than October 2, 2024.

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
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**DATA REQUEST**

- AG\_KIUC 1\_10** Refer to the Application at page 5 and to the Direct Testimony of Witness Wolfram at page 4, line 18, in reference to the 2022 IRP.
- a. Provide copy of the confidential version of the 2022 IRP filing.
  - b. Provide a copy of the workpapers and assumptions supporting the generic resource modeling for the 2022 IRP. This should include details for the capital costs, O&M costs, and the operational parameters (generation profile, heat rate, etc.) of the modeled generic resources (Specifically, the solar and combustion turbine resources).

**RESPONSE**

- a. Please see KPCO\_R\_AG\_KIUC\_1\_10\_ConfidentialAttachment1 for the requested information.
- b. Please see KPCO\_R\_AG\_KIUC\_1\_10\_Attachment2 for the requested information.

Witness: Tanner S. Wolfram



**INTEGRATED RESOURCE PLANNING REPORT**

**TO THE**

**KENTUCKY PUBLIC SERVICE COMMISSION**

**Case No. 2023-00092**

**VOLUME A – PUBLIC VERSION**

**March 20, 2023**

**Table of Contents**

**TABLE OF CONTENTS.....I**

**LIST OF FIGURES..... VI**

**LIST OF TABLES..... X**

**EXECUTIVE SUMMARY ..... ES-1**

**1.0 INTRODUCTION..... 1**

**1.1 Overview..... 1**

**1.2 Integrated Resource Plan (IRP) Process ..... 1**

**1.3 Introduction to Kentucky Power ..... 3**

**1.4 Power Coordination Agreement (PCA) ..... 4**

**1.5 Significant Changes from the 2019 IRP ..... 4**

**2.0 LOAD FORECAST AND FORECASTING METHODOLOGY ..... 7**

**2.1 Summary of Kentucky Power Load Forecast..... 7**

**2.2 Forecast Assumptions ..... 7**

        2.2.1 Economic Assumptions ..... 7

        2.2.2 Price Assumptions ..... 8

        2.2.3 Specific Large Customer Assumptions..... 8

        2.2.4 Weather Assumptions ..... 8

        2.2.5 Demand Side Management (DSM) Assumptions..... 8

**2.3 Overview of Forecast Methodology ..... 8**

**2.4 Detailed Explanation of Load Forecast..... 10**

        2.4.1 General..... 10

        2.4.2 Customer Forecast Models ..... 11

        2.4.3 Short-term Forecasting Models..... 11

        2.4.4 Long-term Forecasting Models..... 12

        2.4.5 Internal Energy Forecast..... 16

        2.4.6 Forecast Methodology for Seasonal Peak Internal Demand..... 17

**2.5 Load Forecast Results and Issues ..... 18**

        2.5.1 Load Forecast..... 18

        2.5.2 Peak Demand and Load Factor..... 18

        2.5.3 Weather Normalization..... 19

**2.6 Load Forecast Trends & Issues..... 19**

        2.6.1 Changing Usage Patterns ..... 19

|             |  |           |
|-------------|--|-----------|
| 2.6.2       | Demand-Side Management (DSM) Impacts on the Load Forecast .....    | 21        |
| 2.6.3       | Interruptible Load .....   | 22        |
| 2.6.4       | Blended Load Forecast .....  | 22        |
| 2.6.5       | Large Customer Changes.....  | 23        |
| 2.6.6       | Wholesale Customer Contracts.....                                  | 23        |
| <b>2.7</b>  | <b>Load Forecast Scenarios .....</b>                               | <b>23</b> |
| <b>2.8</b>  | <b>Energy-Price Relationships .....</b>                            | <b>25</b> |
| <b>2.9</b>  | <b>Significant Changes from Previous Forecast.....</b>             | <b>27</b> |
| 2.9.1       | Energy Forecast .....  | 27        |
| 2.9.2       | Peak Internal Demand Forecast .....                                | 28        |
| 2.9.3       | Forecasting Methodology .....                                      | 28        |
| <b>2.10</b> | <b>Additional Load Information.....</b>                            | <b>28</b> |
| <b>2.11</b> | <b>Data-Base Sources .....</b>                                     | <b>29</b> |
| <b>2.12</b> | <b>Other Topics .....</b>  | <b>29</b> |
| 2.12.1      | Residential Energy Sales Forecast Performance.....                 | 29        |
| 2.12.2      | Commercial Energy Sales Forecast Performance.....                  | 29        |
| 2.12.3      | Industrial Energy Sales Forecast Performance .....                 | 30        |
| 2.12.4      | Peak Demand Forecast Performance .....                             | 30        |
| 2.12.5      | Forecast Data and Model Results .....                              | 30        |
| 2.12.6      | Forecast Updates.....  | 30        |
| <b>2.13</b> | <b>KPSC Staff Recommendations Addressed.....</b>                   | <b>31</b> |
| <b>3.0</b>  | <b>EXISTING RESOURCE EVALUATION.....</b>                           | <b>34</b> |
| <b>3.1</b>  | <b>Current Supply-Side Resources .....</b>                         | <b>34</b> |
| <b>3.2</b>  | <b>Existing Kentucky Power Generating Resources.....</b>           | <b>34</b> |
| <b>3.3</b>  | <b>Environmental Issues and Implications .....</b>                 | <b>36</b> |
| 3.3.1       | Clean Air Act (CAA) Requirements.....                              | 36        |
| 3.3.2       | National Ambient Air Quality Standards (NAAQS) .....               | 37        |
| 3.3.3       | Cross-State Air Pollution Rule (CSAPR) .....                       | 37        |
| 3.3.4       | Climate Change, CO <sub>2</sub> Regulation, and Energy Policy..... | 38        |
| 3.3.5       | Coal Combustion Residual (CCR) Rule .....                          | 39        |
| 3.3.6       | Clean Water Act Regulations.....                                   | 40        |
| <b>3.4</b>  | <b>Current Demand-Side Programs .....</b>                          | <b>41</b> |
| 3.4.1       | Existing Levels of Active Demand Response (DR) .....               | 42        |
| 3.4.2       | Existing Levels of Distributed Generation (DG) .....               | 43        |
| 3.4.3       | Cogeneration / Combined Heat and Power (CHP) .....                 | 43        |
| <b>3.5</b>  | <b>KPSC Staff DSM Recommendations Addressed.....</b>               | <b>44</b> |

|            |  |           |
|------------|--|-----------|
| <b>3.6</b> | <b>AEP-PJM &amp; Kentucky Power Transmission .....</b> | <b>45</b> |
| 3.6.1      | General Description .....                              | 45        |
| 3.6.2      | Transmission Planning Process.....                     | 47        |
| 3.6.3      | System-Wide Reliability Measure .....                  | 50        |
| 3.6.4      | Evaluation of Adequacy for Load Growth.....            | 50        |
| 3.6.5      | Evaluation of Other Factors .....                      | 50        |
| 3.6.6      | Transmission Expansion Plans .....                     | 51        |
| 3.6.7      | FERC Form 715 Information.....                         | 51        |
| 3.6.8      | Kentucky Transmission Projects.....                    | 53        |
| <b>3.7</b> | <b>Distribution .....</b>                              | <b>61</b> |
| <b>4.0</b> | <b>DEMAND-SIDE RESOURCE OPTIONS.....</b>               | <b>62</b> |
| <b>4.1</b> | <b>Energy Efficiency Benchmarking .....</b>            | <b>62</b> |
| 4.1.1      | Savings.....   | 62        |
| 4.1.2      | Costs.....   | 63        |
| <b>4.2</b> | <b>Energy Efficiency Bundles.....</b>                  | <b>63</b> |
| 4.2.1      | Determination of Bundles .....                         | 63        |
| 4.2.2      | Bundle Adjustments.....                                | 64        |
| <b>5.0</b> | <b>SUPPLY-SIDE RESOURCE OPTIONS .....</b>              | <b>66</b> |
| <b>5.1</b> | <b>Introduction .....</b>                              | <b>66</b> |
| <b>5.2</b> | <b>Base / Intermediate Alternatives.....</b>           | <b>66</b> |
| 5.2.1      | Natural Gas Combined Cycle (NGCC).....                 | 67        |
| <b>5.3</b> | <b>Peaking Alternatives .....</b>                      | <b>68</b> |
| 5.3.1      | Simple Cycle Combustion Turbines (NGCT).....           | 69        |
| 5.3.2      | Aeroderivatives (AD).....                              | 70        |
| 5.3.3      | Reciprocating Engines (RE) .....                       | 71        |
| 5.3.4      | Lithium-Ion Battery (Li-ion).....                      | 72        |
| <b>5.4</b> | <b>Renewable Alternatives .....</b>                    | <b>73</b> |
| 5.4.1      | Wind.....  | 74        |
| 5.4.2      | Solar .....  | 75        |
| <b>5.5</b> | <b>Advanced Generation Alternatives.....</b>           | <b>77</b> |
| 5.5.1      | SMR .....  | 77        |
| 5.5.2      | Carbon Capture and Storage Technologies (CCS) .....    | 79        |
| 5.5.3      | Hydrogen (H <sub>2</sub> ).....                        | 82        |
| <b>5.6</b> | <b>Long Duration Storage Alternatives.....</b>         | <b>85</b> |
| 5.6.1      | Pumped Thermal Energy Storage (PTES) .....             | 86        |
| 5.6.2      | Vanadium Flow Battery Storage (VFB) .....              | 87        |
| 5.6.3      | Compressed Air Energy Storage (CAES).....              | 89        |

|            |   |            |
|------------|---|------------|
|            | <b>5.7 Short-Term Market Purchase (STMP) .....</b>                        | <b>90</b>  |
|            | <b>5.8 Optimization of Supply-Side Resources .....</b>                    | <b>91</b>  |
|            | <b>5.9 KPSC Staff Supply-Side Modeling Recommendations Addressed.....</b> | <b>91</b>  |
| <b>6.0</b> | <b>PLANNING SCENARIOS AND UNCERTAINTIES.....</b>                          | <b>95</b>  |
|            | <b>6.1 Introduction .....</b>   | <b>95</b>  |
|            | <b>6.2 The Fundamental Market Forecast.....</b>                           | <b>96</b>  |
|            | <b>6.3 Reference Scenario Market Drivers and Assumptions.....</b>         | <b>97</b>  |
|            | 6.3.1 Reference Scenario Load .....                                       | 97         |
|            | 6.3.2 Reference Scenario Fuel & CO <sub>2</sub> Prices .....              | 97         |
|            | 6.3.3 Reference Scenario Reserve Requirements .....                       | 100        |
|            | 6.3.4 Reference Scenario Technology Assumptions .....                     | 102        |
|            | <b>6.4 IRP Scenario Inputs .....</b>                                      | <b>103</b> |
|            | 6.4.1 Scenario Load .....   | 105        |
|            | 6.4.2 Scenario Fuel & CO <sub>2</sub> Prices.....                         | 106        |
|            | 6.4.3 Scenario Technology Cost Assumptions .....                          | 108        |
|            | <b>6.5 Market Scenario Results.....</b>                                   | <b>110</b> |
|            | 6.5.1 Capacity Expansion Results.....                                     | 110        |
|            | 6.5.2 Effective Load Carrying Capability (ELCC) Results .....             | 113        |
|            | 6.5.3 Market Price Results .....  | 115        |
|            | <b>6.6 IRP Stochastics Inputs Development.....</b>                        | <b>117</b> |
|            | 6.6.1 Gas and Power Prices Stochastics.....                               | 118        |
|            | 6.6.2 Renewable Energy Output Stochastics .....                           | 120        |
| <b>7.0</b> | <b>PORTFOLIO ANALYSIS .....</b>   | <b>123</b> |
|            | <b>7.1 Introduction .....</b>   | <b>123</b> |
|            | <b>7.2 Scorecard Metrics.....</b>   | <b>124</b> |
|            | 7.2.1 Objective 1: Customer Affordability .....                           | 125        |
|            | 7.2.2 Objective 2: Rate Stability .....                                   | 127        |
|            | 7.2.3 Objective 3: Maintaining Reliability .....                          | 129        |
|            | 7.2.4 Objective 4: Local Impacts & Sustainability .....                   | 131        |
|            | <b>7.3 Portfolios Considered.....</b>                                     | <b>135</b> |
|            | 7.3.1 Resource Additions by Portfolio.....                                | 135        |
|            | 7.3.2 Winter Sensitivity .....  | 140        |
|            | <b>7.4 Scorecard Results .....</b>  | <b>141</b> |
|            | 7.4.1 Customer Affordability .....  | 141        |
|            | 7.4.2 Rate Stability.....   | 142        |



---

|            |   |            |
|------------|---|------------|
| 7.4.3      | Maintaining Reliability .....   | 146        |
| 7.4.4      | Local Impacts & Sustainability.....   | 148        |
| 7.4.5      | Evaluating the 2022 IRP Scorecard .....   | 151        |
| <b>7.5</b> | <b>Preferred Plan.....</b>  | <b>153</b> |
| 7.5.1      | Details of the Preferred Plan .....   | 153        |
| 7.5.2      | The Preferred Plan Best Achieves Kentucky Power’s IRP Objectives .....                    | 156        |
| 7.5.3      | Estimated Bill Impacts of the Preferred Plan.....   | 159        |
| 7.5.4      | Rate Impacts of the Preferred Plan .....  | 160        |
| <b>8.0</b> | <b>CONCLUSION .....</b>   | <b>162</b> |
| <b>8.1</b> | <b>Plan Summary .....</b>   | <b>162</b> |
| <b>8.2</b> | <b>Three-Year Action Plan .....</b>   | <b>163</b> |
|            | <b>APPENDIX.....</b>  | <b>164</b> |
|            | <b>EXHIBIT A – CROSS REFERENCE TABLE OF STAFF COMMENTS FROM 2019<br/>FINAL IRP REPORT</b> |            |
|            | <b>EXHIBIT B – CROSS REFERENCE TABLE OF RULE 807 KAR 5:058</b>                            |            |
|            | <b>EXHIBIT C – LOAD FORECAST TABLES</b>   |            |
|            | <b>EXHIBIT D – NEW GENERATION TECHNOLOGIES</b>  |            |
|            | <b>EXHIBIT E1 – CASE AND SCENARIO RESULTS – RESOURCE CAPACITY<br/>ADDITIONS</b>           |            |
|            | <b>EXHIBIT E2 – CASE AND SCENARIO RESULTS – COSTS &amp; ENERGY POSITIONS</b>              |            |
|            | <b>EXHIBIT F – TRANSMISSION MAPS</b>  |            |
|            | <b>EXHIBIT G – SUPPLEMENTAL DATA AND DETAILS</b>  |            |
|            | <b>EXHIBIT H – LOAD FORECAST MODEL DETAILS AND INPUT DATA</b>                             |            |
|            | <b>EXHIBIT I – LOAD FORECAST MODEL DETAILS AND INPUT DATA</b>                             |            |
|            | <b>EXHIBIT J – PJM CAPACITY MARKET ANALYSIS</b>   |            |
|            | <b>EXHIBIT K – ORGANIZATION OF THE 2022 KENTUCKY POWER IRP</b>                            |            |

**List of Figures**

Figure ES - 1. Kentucky Power "Going-In" Capacity Position throughout Planning Period (MW-UCAP)..... ES-2

Figure ES - 2. Kentucky Power Preferred Plan Summer Capacity Position (MW-UCAP). ES-3

Figure 1. Kentucky Power Service Territory ..... 3

Figure 2. Kentucky Power Internal Energy Requirements and Peak Demand Forecasting Method ..... 10

Figure 3. Eastern Kentucky Coal Production (Millions of Tons) 2000-2021 ..... 14

Figure 4. Kentucky Power GWh Sales (Weather Normalized History & Forecast)..... 18

Figure 5. Kentucky Power Peak Demand Forecast..... 19

Figure 6. Kentucky Power Normalized Use per Customer (kWh) ..... 20

Figure 7. Projected Changes in Cooling Appliance Efficiencies, 2010-2040..... 20

Figure 8. Residential Usage and Customer Growth, 2002-2037 ..... 21

Figure 9. Distributed Generation Capacity Growth ..... 21

Figure 10. Load Forecast Blending Illustration ..... 23

Figure 11. Load Forecast Scenarios – Energy Requirement (GWh) ..... 24

Figure 12. Kentucky Power "Going-In" Capacity Position throughout Planning Period (MW-UCAP)..... 35

Figure 13. EE IRP Bundles – MWh Savings Potential..... 65

Figure 14. Capital Cost Assumptions for NGCC..... 68

Figure 15. Capital Cost Assumptions for NGCT ..... 69

Figure 16. Capital Cost Assumptions for AD ..... 70

Figure 17. Capital Cost Assumptions for RE..... 71

Figure 18. Capital Cost Assumptions for Li-Ion..... 73

Figure 19. FOM Assumptions for Li-Ion..... 73

Figure 20. Capital Cost Assumptions for Onshore Wind ..... 75

Figure 21. FOM Assumptions for Onshore Wind..... 75

Figure 22. Capital Cost Assumptions for Utility-Scale Solar PV ..... 76

Figure 23. FOM Assumptions for Utility-Scale Solar PV ..... 77

|   |     |
|---|-----|
| Figure 24. Capital Cost Assumptions for SMR .....   | 78  |
| Figure 25. Capital Cost Assumptions for New Build CCS.....  | 80  |
| Figure 26. Capital Cost Assumptions for PEM Electrolyzer and H2 CT Components .....   | 83  |
| Figure 27. FOM Assumptions for PEM Electrolyzer .....   | 84  |
| Figure 28. Efficiency Assumptions for PEM Electrolyzer .....  | 84  |
| Figure 29. Capital Cost Assumptions for 20-hour duration PTES .....   | 87  |
| Figure 30. FOM Assumptions for 20-hour duration PTES.....   | 87  |
| Figure 31. Capital Cost Assumptions for 20-hour duration VFB .....  | 88  |
| Figure 32. FOM Assumptions for 20-hour duration VFB .....   | 88  |
| Figure 33. Capital Cost Assumptions for CAES.....   | 90  |
| Figure 34. FOM Assumptions for CAES.....  | 90  |
| Figure 35. PJM Capacity Price Outlook .....   | 91  |
| Figure 36. 2022 IRP Modeling Framework.....   | 96  |
| Figure 37. Reference Case PJM Energy and Seasonal Peak Demand Growth Rates<br>(2023-2037).....  | 97  |
| Figure 38. TCO Pool Natural Gas Prices (real \$ / MMBtu) .....  | 98  |
| Figure 39. CAPP Coal Prices (real \$ / short ton, FOB origin).....  | 99  |
| Figure 40. Moderate CO2 Price Forecast (\$2021 / Short Ton).....  | 99  |
| Figure 41. ELCC Assumptions for Solar Resources by Year.....  | 101 |
| Figure 42. ELCC Assumptions for Wind Resources by Year .....  | 101 |
| Figure 43. ELCC Assumptions for Storage Resources by Year .....   | 101 |
| Figure 44. Federal Tax Credit Assumptions Used in the 2022 IRP (2024-2037).....   | 103 |
| Figure 45. 2022 IRP Scenario Assumption Matrix.....   | 104 |
| Figure 46. PJM Load Growth 20-Year CAGR and Comparison with Reference Scenario...   | 105 |
| Figure 47. High and Low TCO Pool Natural Gas Price Forecasts (real \$ / MMBtu).....   | 107 |
| Figure 48. High and Zero CO <sub>2</sub> Price Forecasts (\$2021 / Short Ton).....  | 108 |
| Figure 49. Comparison of Capital Costs Under Advanced and Medium Outlooks for Wind<br>Technologies (2023-2037   Nominal \$/kW) .....  | 109 |
| Figure 50. Comparison of Capital Costs Under Advanced and Medium Outlooks for Solar<br>Technologies (2023-2037   Nominal \$/kW) ..... | 109 |

|   |     |
|---|-----|
| Figure 51. Comparison of Capital Costs Under Advanced and Medium Outlooks for Lithium Ion Technologies (2023-2037   Nominal \$/kW).....   | 109 |
| Figure 52. Comparison of 2022 and 2037 Nameplate Capacity by Technology in PJM.....   | 111 |
| Figure 53. Comparison of 2022 and 2037 Generation by Technology in PJM .....  | 111 |
| Figure 54. Comparison of Summer Peak Solar Credits by Scenario .....  | 114 |
| Figure 55. Comparison of Summer Peak Battery Storage Credits by Scenario .....  | 114 |
| Figure 56. Comparison of Summer Peak Onshore Wind Credits by Scenario .....   | 114 |
| Figure 57. Comparison of Summer Peak Offshore Wind Credits by Scenario .....  | 115 |
| Figure 58. Annual On-Peak PJM AEP Hub Electricity Price (\$2021 / MWh).....   | 115 |
| Figure 59. Annual Off-Peak PJM AEP Hub Electricity Price (\$2021 / MWh).....  | 116 |
| Figure 60. Sample Iteration of Daily Natural Gas Price Simulation for 2037.....   | 119 |
| Figure 61. Sample Iteration of Daily Power Price Simulation for 2037.....   | 119 |
| Figure 62. Range of Variable Inputs for Stochastic Analysis – Electric Prices.....  | 120 |
| Figure 63. Range of Variable Inputs for Stochastic Analysis – Natural Gas Prices.....   | 120 |
| Figure 64. Simulated Hourly Wind and Solar Capacity Factor for July.....  | 121 |
| Figure 65. Daily Average Wind Capacity Factor and Power Price, under Deterministic Reference Scenario vs. 250 Stochastic Iterations ..... | 122 |
| Figure 66. 2022 IRP Modeling Framework.....   | 124 |
| Figure 67. Elements of the 2022 Kentucky Power IRP Scorecard .....  | 125 |
| Figure 68. 2022 IRP Scorecard.....  | 134 |
| Figure 69. Annual Resource Additions in the Reference Portfolio .....   | 136 |
| Figure 70. Annual Resource Additions in the Reference High Cost Portfolio .....   | 136 |
| Figure 71. Annual Resource Additions in the CETA Portfolio .....  | 137 |
| Figure 72. Annual Resource Additions in the ECR Portfolio.....  | 137 |
| Figure 73. Annual Resource Additions in the NCR Portfolio .....   | 138 |
| Figure 74. Annual Resource Additions in the CC Portfolio .....  | 139 |
| Figure 75. Annual Resource Additions in the No Wind Portfolio.....  | 140 |
| Figure 76. Annual Resource Additions in the Winter Sensitivity.....   | 140 |
| Figure 77. Distribution of Revenue Requirements Based on Stochastic Analysis (2037) ....  | 144 |
| Figure 78. 2037 Generation Mix by Technology and Portfolio (MWh).....   | 148 |

Figure 79. 2022 IRP Scorecard Portfolio Results ..... 152  
Figure 80. Annual Capacity Additions in the 2022 IRP Preferred Plan ..... 154  
Figure 81. Kentucky Power Annual Energy Position (GWh) under Preferred Plan..... 154  
Figure 82. 2022 IRP Scorecard Preferred Plan Results ..... 156  
Figure 83. Bill Impacts (\$/Month) of Preferred Plan Compared to Reference Portfolio..... 160  
Figure 84. Kentucky Power Annual PJM Capacity Position under Preferred Plan (MW-UCAP)  
..... 162  
Figure 85. Kentucky Power Annual Energy Position under Preferred Plan (GWh)..... 163

**List of Tables**

Table 1. PJM Energy and Capacity Prices in 2019 IRP and 2022 IRP, in 2021 \$..... 5

Table 2. Natural Gas and Coal Prices in 2019 IRP and 2022 IRP, in 2021 \$..... 5

Table 3. Kentucky Power Existing Supply-Side Resources ..... 35

Table 4. Energy Efficiency Savings Inputs for the IRP ..... 62

Table 5. Operating and Heat Rate Assumptions for NGCC ..... 68

Table 6. Operating and Heat Rate Assumptions for NGCT..... 70

Table 7. Operating and Heat Rate Assumptions for AD..... 71

Table 8. Operating and Heat Rate Assumptions for RE ..... 72

Table 9. Operating and Heat Rate Assumptions for SMR..... 78

Table 10. Operating and Heat Rate Assumptions for New Build CCS ..... 80

Table 11. Operating and Heat Rate Differentials for Retrofit CCS ..... 81

Table 12. EPA Performance and Unit Cost Assumptions for CC Retrofits on Coal Plants .... 81

Table 13. Carbon Transport and Storage Schedule (\$2021 / tCO2) ..... 82

Table 14. Operating and Heat Rate Assumptions for PEM Electrolyzer and H2 CT ..... 84

Table 15. Portfolio Performance under Customer Affordability Metrics ..... 141

Table 16. The 15-Year CPW of the Portfolio Across Market Scenarios (\$Million) ..... 143

Table 17. Cost Risk - 50<sup>th</sup> to 95<sup>th</sup> Percentile Distribution Range (\$million)..... 144

Table 18. Average Net Energy Sales (Purchases) as % of Portfolio Load Across All Scenarios  
 ..... 145

Table 19. Planning Reserves Between 2023 and 2037 by Portfolio ..... 146

Table 20. The Amount of Dispatchable Capacity in 2027 and 2037 by Portfolio..... 147

Table 21. Local Impacts Metrics by Portfolio ..... 149

Table 22. CO<sub>2</sub> Emission Reductions by Portfolio..... 150

Table 23. Approximate Rate Impacts of Preferred Plan ..... 161

## **Executive Summary**

This Integrated Resource Plan (“IRP” or “Report”) is submitted by Kentucky Power Company (“Kentucky Power” or “Company”) based upon the best information available at the time of preparation. However, changes that affect this Plan can occur without notice. Therefore, this Plan is not a commitment to specific resource additions or other courses of action, as the future is highly uncertain. This IRP strives to maintain optionality in meeting Kentucky Power’s resource obligations in order for the Company to take advantage of market opportunities and technological advancements. Accordingly, this IRP and the action items described herein are subject to change as new information becomes available or as circumstances warrant.

The Kentucky Public Service Commission approved the acquisition of Kentucky Power by Liberty Utilities Company on May 4, 2022. On October 12, 2022, Kentucky Power filed a letter requesting to extend the date for filing its 2022 Integrated Resource Plan from December 20, 2022, to March 20, 2023, to accommodate a delay in the closing date for Liberty’s acquisition of Kentucky Power. The Commission approved this request with an expectation that it would allow Liberty to take an active role in the IRP planning. Subsequent to this approval, Kentucky Power collaborated with Liberty, similarly as with the external stakeholders, on modeling results to better understand their specific feedback.

An IRP explains how a utility company plans to meet the projected capacity (i.e., peak demand) and energy requirements of its customers. This IRP has been developed using long-term assumptions for:

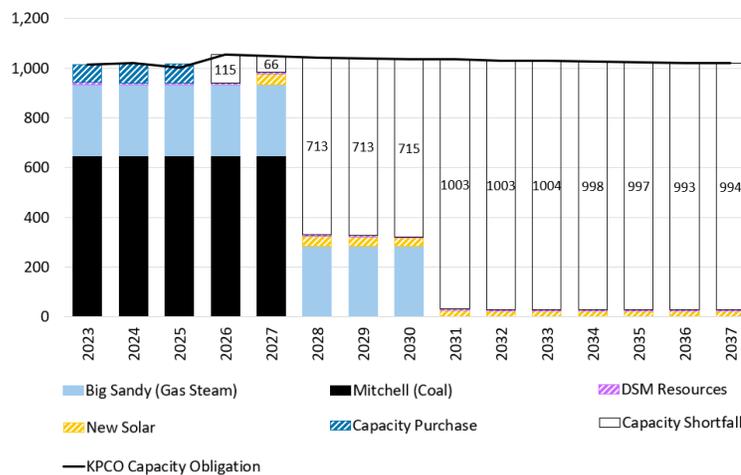
- customer load requirements – peak demand and energy;
- commodity prices – coal, natural gas, on-peak and off-peak power prices, capacity and emission prices;
- supply-side alternative costs – including fossil fuel, renewable resources, and advanced generation alternatives; and
- demand-side management program costs and impacts.

This IRP also considers the potential cost associated with some form of future regulation of carbon emissions, during the planning period, even though there is considerable uncertainty as to the timing and form future carbon regulation may take.

Kentucky Power defined four objectives for the 2022 IRP that align to customer and corporate priorities, these are: customer affordability, rate stability, maintaining reliability, and sustainability. Kentucky Power evaluated resource portfolios against these four objectives using the IRP Scorecard and considered trade-offs to identify the Preferred Plan. This report sets out how the Company is planning to meet the four objectives over the 15-year planning period for the benefit of its customers.

### Reliable and Affordable Power

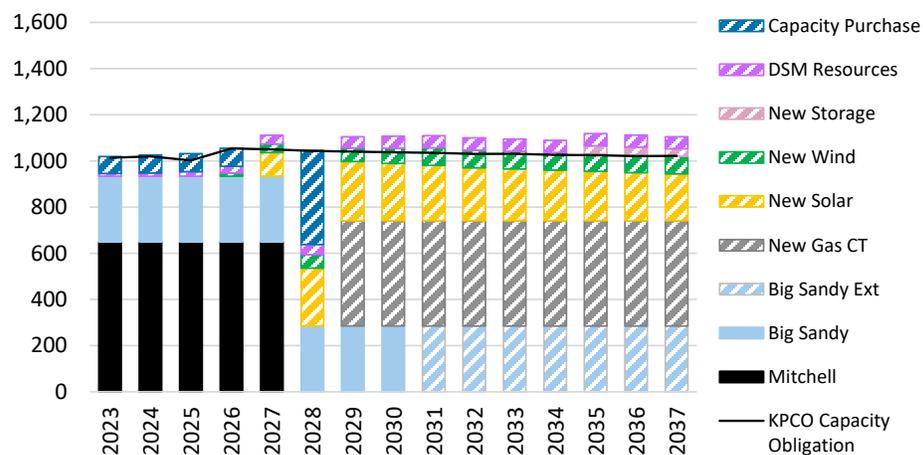
The Company's customers have come to expect reliable and affordable power and this IRP outlines how the Company intends to deliver on customers' needs. In this IRP, Kentucky Power started from evaluating a known "going-in" capacity position that shows current expectations about existing owned resources and contracts. Figure ES - 2 summarizes the "going-in" position.



**Figure ES - 1. Kentucky Power "Going-In" Capacity Position throughout Planning Period (MW-UCAP)**

This going-in position reveals a need for new capacity in 2028, reflecting the divestiture of Kentucky Power’s stake in Mitchell coal plant. The gap widens in 2031 with potential end of operations at Kentucky Power’s Big Sandy gas steam unit. Kentucky Power used the AURORA model to select a set of resources that provided the lowest expected costs to customers subject to certain constraints and balanced against the non-cost factors of the scorecard. The list of candidate resources considered in the 2022 IRP includes Energy Efficiency (“EE”) options that can be selected alongside, or as an alternative to, new utility-scale resources when meeting customer needs. The candidate resources reflect the priorities and objectives defined by Kentucky Power and are aligned to customer needs.

Kentucky Power determined that the Preferred Plan provides the best combination of supply-side and demand-side resources to meet Kentucky Power’s future customer needs. The plan maintains affordable and stable rates for Kentucky Power customers, is expected to maintain reliability, and creates opportunities for local development all while reducing greenhouse gas emissions. Figure ES - 2 summarizes the additions to the Kentucky Power portfolio over the 2023-2037 time period under the Preferred Plan.



**Figure ES - 2. Kentucky Power Preferred Plan Summer Capacity Position (MW-UCAP)**

Under the Preferred Plan, the Big Sandy steam gas unit operates for an additional 10 years through mid-2041. On the demand side, Kentucky Power proposes approximately 48 MW of demand-side resources between 2023 and 2037, which serve to offset approximately 52 MW of supply-side resources by 2037.

In addition to demand-side programs, Kentucky Power proposes to add 800 MW of new solar and 700 MW of new wind by 2037. The majority of these new renewable additions are made by 2028 and all by 2031. The Preferred Plan also proposes to add 480 MW of new gas CT units in 2029 following the removal of Kentucky Power's interest in the Mitchell coal plant. The Preferred Plan assumes that between 70-80 MW of short-term capacity purchases are made through 2026 and 407 MW in 2028 to bridge between the retirement of Mitchell and the addition of gas CT units. Finally, 50 MW of 4-hour lithium-ion battery storage is added in 2035 to bolster the Kentucky Power portfolio in later years.

### **Responsive to Changing Customers' Needs**

Kentucky Power's customers consist of both retail and sales-for-resale (wholesale) customers located in the Commonwealth of Kentucky. Currently, Kentucky Power serves approximately 163,000 retail customers in eastern Kentucky. The peak load requirement of Kentucky Power's total retail and wholesale customers is seasonal in nature, with distinctive peaks occurring in the summer and winter seasons. Kentucky Power's all-time highest recorded peak demand was 1,685 MW, which occurred in January 2005; and the highest recorded summer peak was 1,358 MW, which occurred in July 2005. The most recent (summer 2022 and winter 2022/2023) actual Kentucky Power summer and winter peak demands were 996 MW and 1,359 MW, occurring on June 16, 2022, and December 23, 2022, respectively.

Kentucky Power considered how customer's needs could change under five different market scenarios that consider different outcomes of fundamental factors that drive the demand for electricity, including changes in customer preferences and end-use technologies that affect Kentucky Power customer load patterns. Kentucky Power developed forecasts of customer load

that were used as inputs into the portfolio model. The result is a set of load assumptions that describe a base, high, and low outlook of the energy and capacity requirements to serve Kentucky Power's customers over the 15-year IRP forecast period.

Over the next 15-year period (2023-2037), Kentucky Power's service territory is expected to experience population decline at 0.6% per year and non-farm employment to decline 0.4% per year. Kentucky Power is projected to see customer count decline at a similar rate of 0.6% per year. Over the same forecast period, Kentucky Power's retail sales are projected at 0.2% growth per year with growth expected from the commercial class (+2.0% per year) while the residential and industrial classes experience decline of 0.7% and 0.2% per year, respectively, over the forecast horizon. It should be noted that growth for the commercial class is fueled by a large customer addition. Finally, Kentucky Power's internal energy is projected to show little growth and peak demand is expected to decline at an average rate of 0.3% through 2037.

Kentucky Power considered advanced and innovative supply options alongside demand-side resources to evaluate the best way to meet future customer needs. Kentucky Power considered emerging supply-side technologies such as hydrogen and small modular nuclear reactors, as well as long-duration storage technologies as solutions to meet customer requirements under different market conditions, including emission-constrained scenarios.

### **Empowering Customers with Choices**

In this IRP, Kentucky Power explored the potential to implement demand-side programs to the benefit of its customers and meet future capacity needs. This includes energy efficiency measures that can be selected alongside new utility-scale generation. These options empower customers with choices over how and when they interact with the energy system.

Under the Preferred Plan, Kentucky Power proposes to implement approximately 48 MW of additional demand-side resources between 2023 and 2037.

### **Planning for Uncertain Futures**

Kentucky Power knows the importance of reliability to its customers and set an objective for the Preferred Plan, to the extent practicable, to consider risks from high costs during unexpected or adverse market conditions. This IRP includes two methods for evaluating cost risks, the results of which inform the development of the Preferred Plan:

- The first approach is a scenario analysis where Kentucky Power tested portfolios over a set of five market scenarios that test plausible but materially different long-term views of fundamental external market conditions such as commodity prices, customer load and preferences, policy requirements, resource costs, and transmission availability.
- The second approach is a stochastic analysis where Kentucky Power subjected the portfolios to a large number of randomly drawn market simulations that combined volatility in power prices and natural gas prices with volatility in generator output to observe how each portfolio performed.

The Preferred Plan contains a diverse mixture of demand-side and supply-side resources. The Preferred Plan performs well across all customer objectives and mitigates risk while providing optionality for Kentucky Power.

### **Powering a Greener Future for All**

Under the Preferred Plan, Kentucky Power proposes to add 800 MW of new solar, 700 MW of new wind, and 50 MW of new stand-alone storage by 2037. In total, the Kentucky Power portfolio is expected to reduce emissions by 90% by 2037 relative to the 2005 baseline.

### **Consulting Stakeholders**

The stakeholder process is designed to allow key IRP stakeholders an opportunity to gain an understanding and comment on Kentucky Power's IRP process and the key assumptions to the 2022 IRP.

Kentucky Power held two in-person stakeholder meetings during this IRP. The first stakeholder meeting was held July 14, 2022, during which the Company discussed the IRP process, key inputs, and the market scenarios that would be evaluated. The second meeting was held on

January 25, 2023, during which modeling results were reviewed with the stakeholders. The stakeholders provided feedback addressing key issues and concerns which Kentucky Power considered in respect to this IRP.

This IRP also addresses the Commission Staff's 2019 IRP recommendations. A table showing the location of Kentucky Power's responses to the Staff's recommendations is included at the end of the Executive Summary and in Exhibit A of the appendix to this report.

### **Three-Year Action Plan**

Steps to be taken by Kentucky Power in the near future as part of its Three-Year Action Plan include:

- Pursue economic development opportunities to increase and diversify its industrial and commercial load.
- Initiate an All-Source Request for Proposal (RFP) to secure cost-effective market capacity purchases and firm resources.
- Further examine opportunities to increase cost effective levels of EE in alignment with the Preferred Plan.
- Seek to refine cost estimates and develop plans for a Big Sandy life extension
- Monitor this action plan and future IRPs to address changing circumstances.

The Preferred Plan is informed by an optimized analysis to meet the PJM minimum reserve margins given assumptions about resource availability and constraints on portfolio energy sales. However, this plan is based on an uncertain future regarding events that can impact the Company's capacity position, including uncertainty around load growth, new environmental and tax policy, reserve margins, contribution of intermittent resources, and existing unit performance. Consequently, the Company will continue to evaluate its capacity position relative to these risks and may consider adding additional resources in the future to ensure a capacity position in compliance with PJM's capacity reserve requirement.

**Cross Reference Table of Staff Comments from 2019 Final IRP Report**

| <b>Topic</b>  | <b>Staff Comment</b>   | <b>Reference</b>                        |
|---------------|--|---|
| Load Forecast | Provide a more detailed description and explanation of the county level historical, and forecast data obtained from Moody's Analytics (or any other source) and the process employed to tailor data to specific counties and to Kentucky Power's service territory. The explanation should also include a description of any alternative forecast scenarios provided by Moody's Analytics, such as optimistic and pessimistic growth scenarios reflecting different economic and demographic assumptions, which may influence the ultimate forecast data used by Kentucky Power. | Section 2.13                            |
|               | Provide a more detailed description of the different load forecast scenarios including how the base case assumptions were changed, how they differ from the base case, and a table depicting the all the various results.  | Section 2.13                            |
|               | Continue to provide an update on Kentucky Power's economic development efforts including the impact on its load and employment in its service territory.   | Section 2.13                            |
|               | Provide a comparison of the annual and seasonal peak forecasts of the residential, commercial, and large commercial and industrial sales classes with actual results for the period following the 2019 IRP.  | Sections 2.12.1, 2.12.2, 2.12.3, 2.12.4 |
|               | Include discussion and analysis of the potential for and any increases in distributed energy resources on the load forecasts. This should include behind the meter generation at residential, commercial and industrial customer locations. These should be evaluated separately and cumulatively including discussion of drivers encouraging and discouraging such development.   | Section 2.13                            |
| DSM/EE        | As required by the IRP regulation, 807 KAR 5:058, Kentucky Power should continue to define and improve procedures to evaluate, measure, and verify both actual costs and benefits of energy savings based on the actual dollar savings and energy savings. With the expiration of the Rockport UPA, the potential impact of new DSM programs will be much greater in the next IRP.   | Section 4.0                             |
|               | Continue to scrutinize the results of each existing DSM program measure's cost-effectiveness test and provide those results in future DSM cases, along with detailed support for future DSM program expansions and additions after the Rockport UPA capacity is no longer available.   | Section 4.0                             |

|                      |  |   |
|----------------------|--|---|
|                      | Evaluate the marginal benefits and costs, including opportunity costs of VVO and DR programs.  | Section 3.4<br>Section 3.5                    |
|                      | Examine additional low-income programs that allow for more participants and easier access to EE alternatives.  | Section 4.0<br>Section 3.5                    |
|                      | Continue to monitor the DG additions.  | Section 2.6.1<br>Section 2.13                 |
| Supply-Side Modeling | Provide a detailed cost benefit study demonstrating why it should continue to participate in PJM as an FRR versus RPM, and discussing the advantages of remaining an FRR company.  | Section 5.9                                   |
|                      | If not already included in the prior study, conduct a separate FRR versus RPM cost benefit study similar to the first, except that the analyses should explicitly assume the Mitchell station will continue generating beyond 2028 and then assume the Mitchell station will retire in 2028. | Section 5.9                                   |
|                      | Explicitly discuss how and demonstrate that its winter capacity requirements are being satisfied over the forecast horizon. The discussion should include the role the PCA plays in the satisfaction of Kentucky Power's seasonal capacity and energy requirements.                          | Sections 3.2, 5.9, 7.2.2, 7.2.3, 7.3.2, 7.5.1 |
|                      | Explicitly describe its evaluation of the inclusion of Kentucky base generation merchant plants and how those costs compare to other alternate supply-side resources.  | Section 5.9                                   |
|                      | Explain the costs and benefits of acquiring renewables through purchased power contracts or through the construction of the facility itself generally and specifically in support of any renewable capacity additions.   | Section 5.9                                   |
|                      | Explain the costs associated with upgrading the transmission system so to accommodate any renewable generation capacity.   | Sections 3.6.1, 3.6.2, 3.6.5, 5.9             |
|                      | Model the impact to the Mitchell Plant due to the publication of the final ELG rule along with any impacts to Kentucky Power's preferred supply side plan to meet its PJM reserve margin requirements and its anticipated winter capacity and demand requirements.                           | N/A   |
|                      | Model scenarios of differing renewable constraints and no constraints on the size or addition.   | Section 5.9                                   |
|                      | If Kentucky Power has not pursued any of the preferred plan options or has pursued another option by the next IRP, provide a detailed explanation of why and a detailed explanation and modeling of any alternate course taken.  | Section 5.9                                   |

## **1.0 Introduction**

### **1.1 Overview**

This Report presents the 2022 Integrated Resource Plan (IRP, Plan, or Report) for Kentucky Power Company (Kentucky Power or Company) including descriptions of assumptions, study parameters, models, and methodologies. The results integrate supply-side and demand-side resources.

The goal of this IRP process is to develop a plan identifying the amount, timing, and type of resources required to supply capacity and energy as part of the Company's obligation to ensure a reliable and economical power supply to its Kentucky Power customers.

In addition to developing a long-term plan for achieving reliability/reserve margin requirements as set forth by PJM, resource planning is critical to Kentucky Power due to its impact on such things as determining capital expenditure requirements, regulatory planning, environmental compliance, and other planning processes.

For this IRP, Kentucky Power engaged Charles River Associates ("CRA") to assist in the development and analyses. CRA is a leading global consulting firm that offers economic, financial, and business management consulting expertise and applies advanced analytic techniques and in-depth industry knowledge to complex engagements for a broad range of clients. The energy practice of CRA has staff located in Washington DC, Boston, London, and Toronto. CRA advises a range of clients on issues including resources planning, asset valuation, auction design and implementation, policy development, and procurement and planning strategies. Recently CRA has supported numerous investor- and publicly-owned utilities to develop long-term generation, transmission, and distribution plans that meet the evolving needs of customers, regulators, and other stakeholders.

### **1.2 Integrated Resource Plan (IRP) Process**

The Company defined a set of performance objectives and metrics and arranged them into a scorecard to provide a structured approach to compare the tradeoffs between different resource portfolios relative to the objectives defined by Kentucky Power.

These objectives and performance indicators were not just used to develop the scorecard. They also informed the assumptions and steps taken in the IRP analysis to create and evaluate portfolios.

This IRP is developed to align with Kentucky Power's objectives as follows:

- **Customer affordability** by considering a broad range of resource options including renewables to take advantage of tax credits for the Company's customers, and considering a demand-side energy efficiency resources;
- **Rate stability** by considering renewable resources to reduce uncertainties around future fuel prices and carbon policies, and using comprehensive scenario and stochastic analyses to inform portfolio choices to minimize rate risks to customers;
- **Maintaining reliability** by considering Kentucky Power's portfolio performance against seasonal reserve margins and adverse system events and;
- **Local impact & sustainability** through inclusion of renewable and advanced generation technologies as resource options to enable a greener future for all as well as responding to customers' other needs including demand for clean energy, electrification, and customer-sited generation.

The details of the 2022 IRP portfolio analysis framework and the scorecard elements are discussed below in Section 7.0.

This Report covers the processes and assumptions used to develop the IRP for the Company. This IRP is based upon the best available information at the time of preparation, but changes that may affect its results can, and do, occur without notice. Therefore, this IRP is not a commitment to a specific course of action and all the resource plans are subject to change.

The IRP process for Kentucky Power includes the following components/steps:

- Describes the Company, the resource planning process in general, and the implications of current issues as they relate to resource planning;
- Describe future customer needs and evaluate how those needs were likely to change over the 15-year period forecast in the 2022 IRP (see Section 2.0);
- Assess the adequacy of current resources, both demand- and supply-side, in meeting future customers' needs, taking into account near term changes in the portfolio and the potential impact of future regulation on resource performance (see Section 3.0);
- Identify a list of candidate resources that could be selected by the portfolio model to meet future customer needs. Candidate resources include both demand-side (see Section 4.0) and supply-side options (see Section 5.0) including energy efficiency measures, renewables technologies, and advanced generation technologies;
- Assess sources of future risks and uncertainties and devise market scenarios and stochastic analysis to represent those risks as part of portfolio optimization (see Section 6.0);
- Define the objectives or targets that the preferred resource plan should achieve, and evaluate all resource options to identify portfolio options (see Section 7.0); and
- Reflect stakeholder feedback in formulating the preferred resource plan and the associated three-year action plan (See Section 8.0)

In addition, the IRP addresses the requirements of 807 KAR 5:058 and Kentucky Public Service Commission (KPSC or Commission) Staff recommendations provided in the Staff Report on Kentucky Power's 2019 Integrated Resource Plan in Case No. 2019-00443. Cross-reference tables of where the Company addresses the requirements of Staff's recommendations from the 2019 IRP report and 807 KAR 5:058 can be found in Exhibit A and Exhibit B of the Appendix.

### 1.3 Introduction to Kentucky Power

Kentucky Power's customers consist of both retail and sales-for-resale (wholesale) customers located in the Commonwealth of Kentucky (see Figure 1). Currently, Kentucky Power serves approximately 163,000 retail customers. The peak load requirement of Kentucky Power's total retail and wholesale customers is seasonal in nature with distinctive peaks occurring in the summer and winter seasons. Kentucky Power's all-time highest recorded peak demand was 1,685 MW, which occurred in January 2005; and the highest recorded summer peak was 1,358 MW, which occurred in July 2005. The most recent actual Kentucky Power summer and winter (summer 2022 and winter 2021/22) peak demands were 996 MW and 1,187 MW, occurring on June 16, 2022, and January 27, 2022, respectively. Kentucky Power's annual peak demand for 2022 occurred on December 23, 2022, with a value of 1,359 MW. The Company's peak demand for winter 2022/23 has not been finalized. However, the December 2022 event will likely be the seasonal peak demand for winter 2022/23.



**Figure 1. Kentucky Power Service Territory**

#### **1.4 Power Coordination Agreement (PCA)**

Since January 1, 2014, Kentucky Power has been responsible for maintaining an adequate level of power supply resources to meet its own load requirements for capacity, including any required reserve margin. Kentucky Power is also a party to the Power Coordination Agreement (PCA).<sup>1</sup> The most recent change to the PCA was the addition of Wheeling Power Company (Wheeling Power) effective June 1, 2015. This addition was the result of Wheeling Power acquiring a 50% undivided interest in the Mitchell Plant. This change had no impact on Kentucky Power's obligations under the PCA. No further changes to the PCA are under consideration at this time. Pending an assumed completion of a transfer of Kentucky Power from AEP to Liberty Power, the Company will participate as a member of the Power Coordination Bridge Agreement (PCBA) through the 2023/2024 PJM Planning Year. The Company will then look to source bilateral capacity agreements as needed to support any capacity needs not fulfilled by its own firm resources.

#### **1.5 Significant Changes from the 2019 IRP**

Kentucky Power generally updates its load forecast and commodity price forecasts on an annual basis. Kentucky Power also monitors the cost of supply- and demand-side resources and incorporates the latest forecasts and trends into its analysis when preparing its IRP. The changes to the load forecast since the 2019 IRP filing are described in Section 2.9 of this report. Pricing and performance expectations for resource options are discussed in Section 5.0.

Energy pricing has increased in the earlier part of the planning horizon, due primarily to higher fuel prices. Natural gas prices have seen a run-up due to weak gas production growth and strong exports to international markets. The capacity price outlook has increased in the longer-term due primarily to an acceleration of coal retirements in the region and expected continuation of this trend. Table 1 and Table 2 below show, in constant 2021 dollars, the difference in the reference commodity price forecast for energy, capacity, and fuels.

<sup>1</sup> The Power Coordination Agreement currently provides Appalachian Power Company (APCo), Indiana Michigan Power (I&M), Kentucky Power and Wheeling Power Company (Wheeling Power) the opportunity to participate collectively (a) under a common Fixed Resource Requirement ("FRR") capacity plan in PJM, and (b) in specified collective off-system sales and purchase activities. Under the Power Coordination Agreement, generation is not planned on a single-system basis as it was under the previous Pool Agreement. Rather, APCo, I&M, Kentucky Power and Wheeling Power individually are required to own or contract for sufficient generation to meet their respective load and reserve obligations. Additional information regarding the PCA as it pertains to Kentucky Power can be found in FERC Docket No. ER13-234.

**Table 1. PJM Energy and Capacity Prices in 2019 IRP and 2022 IRP, in 2021 \$**

|      | On-Peak Energy Prices (\$/MWh) |          | Off-Peak Energy Prices(\$/MWh) |          | Capacity Prices (\$/MW-day) |          |
|------|--------------------------------|----------|--------------------------------|----------|-----------------------------|----------|
|      | 2019 IRP                       | 2022 IRP | 2019 IRP                       | 2022 IRP | 2019 IRP                    | 2022 IRP |
| 2022 | 32.05                          | 77.46    | 26.62                          | 63.36    | 86.88                       | 46.73    |
| 2023 | 32.75                          | 62.83    | 27.24                          | 49.30    | 79.78                       | 30.23    |
| 2024 | 33.50                          | 54.73    | 27.94                          | 41.97    | 73.55                       | 42.80    |
| 2025 | 33.95                          | 46.05    | 28.29                          | 34.44    | 68.22                       | 94.01    |
| 2026 | 34.30                          | 40.49    | 28.61                          | 31.36    | 63.76                       | 102.23   |
| 2027 | 34.97                          | 37.00    | 29.17                          | 28.88    | 60.20                       | 119.76   |
| 2028 | 42.18                          | 36.55    | 36.39                          | 29.09    | 57.51                       | 117.54   |
| 2029 | 41.62                          | 37.43    | 35.76                          | 30.05    | 55.70                       | 127.22   |
| 2030 | 41.74                          | 42.59    | 35.78                          | 34.50    | 54.80                       | 113.02   |
| 2031 | 41.67                          | 42.39    | 35.51                          | 34.80    | 54.76                       | 144.08   |
| 2032 | 42.21                          | 41.47    | 35.52                          | 34.71    | 55.62                       | 144.39   |
| 2033 | 42.33                          | 41.08    | 35.47                          | 34.89    | 57.35                       | 134.60   |
| 2034 | 42.53                          | 40.58    | 35.84                          | 34.85    | 59.98                       | 152.38   |
| 2035 | 42.53                          | 40.59    | 35.84                          | 34.93    | 59.98                       | 154.70   |
| 2036 | 42.53                          | 40.82    | 35.84                          | 35.14    | 59.98                       | 167.96   |
| 2037 | 42.53                          | 40.36    | 35.84                          | 35.76    | 59.98                       | 205.54   |

**Table 2. Natural Gas and Coal Prices in 2019 IRP and 2022 IRP, in 2021 \$**

|      | Natural Gas TCO Pool (\$/MMBtu) |          | Illinois Basin Coal (\$/ton) |          |
|------|---------------------------------|----------|------------------------------|----------|
|      | 2019 IRP                        | 2022 IRP | 2019 IRP                     | 2022 IRP |
| 2022 | 3.52                            | 5.05     | 41.86                        | 153.00   |
| 2023 | 3.65                            | 3.69     | 41.93                        | 91.50    |
| 2024 | 3.72                            | 3.03     | 42.51                        | 30.00    |
| 2025 | 3.84                            | 2.54     | 42.92                        | 29.50    |
| 2026 | 3.93                            | 2.36     | 43.76                        | 29.00    |
| 2027 | 3.99                            | 2.45     | 44.35                        | 28.50    |
| 2028 | 4.17                            | 2.62     | 44.18                        | 28.00    |
| 2029 | 4.19                            | 2.71     | 43.28                        | 27.50    |
| 2030 | 4.22                            | 2.76     | 42.33                        | 27.00    |
| 2031 | 4.33                            | 2.83     | 40.11                        | 26.80    |
| 2032 | 4.32                            | 2.85     | 39.10                        | 26.60    |
| 2033 | 4.36                            | 2.96     | 38.77                        | 26.40    |
| 2034 | 4.45                            | 2.98     | 36.75                        | 26.20    |
| 2035 | 4.45                            | 2.97     | 36.75                        | 26.00    |
| 2036 | 4.45                            | 2.95     | 36.75                        | 26.00    |
| 2037 | 4.45                            | 2.96     | 36.75                        | 26.00    |

A carbon proxy remains in the forecast, for the moderate view, beginning in 2030 at \$13.6/short ton of CO<sub>2</sub> emissions, escalating at 3.5% per annum on a nominal basis. The 2019 forecast assumed costs associated with CO<sub>2</sub> emissions would begin in 2028 at \$13.6/short ton, escalating at a rate of 3.5% per annum. For the high view, the carbon proxy begins in 2029 at \$36.3/short ton of CO<sub>2</sub> emissions, escalating at 5% per annum on a nominal basis.

The Inflation Reduction Act of 2022 (“IRA”) has a material impact on the economics of new low emissions resources. The previous policy provided federal tax incentives for wind via the production tax credit (“PTC”) at a rate of \$15/MWh (60% of \$25/MWh real \$2021 level) with eligibility through 2021 for start of service, and for solar via the investment tax credit (“ITC”) at a rate of 10% of upfront capital cost for start of service after 2025 (phasing down from 30%, 26%, and 22% ITC for projects commencing construction through 2019, 2022, and 2023, respectively,

and in service through 2025). The IRA extends eligibility for the PTC until start of service in 2032 at a rate of \$25/MWh (real \$2021), expands PTC to include solar, makes storage eligible for ITC until start of service in 2032 at a rate of 30% of upfront capital cost, and provides provisions for other low emissions technologies including hydrogen and CCS.<sup>2</sup> Kentucky Power modeled the IRA as part of the 2022 IRP. Section 6.3.4.1 provides more details about implementation.

Changes in the load forecast, commodity price forecast, and resource pricing assumptions have resulted in a resource plan recommendation that is different than the one proposed in 2019. A key assumption in the 2019 Preferred Plan that is not included in the current IRP was the continued stake in the Mitchell coal plant (780 MW), which is now divested in 2028.

<sup>2</sup> PTC and ITC rates from IRA assume meeting wage and apprenticeship requirements for full tax benefits.

## **2.0 Load Forecast and Forecasting Methodology**

### **2.1 Summary of Kentucky Power Load Forecast**

The Kentucky Power load forecast was developed by the American Electric Power Service Corporation (AEPSC) Economic Forecasting organization and completed in June 2022.<sup>3</sup> The final load forecast is the culmination of a series of underlying forecasts that build upon each other. In other words, the economic forecast provided by Moody's Analytics is used to develop the customer forecast, which is then used to develop the sales forecast, which is ultimately used to develop the peak load and internal energy requirements forecast.

Over the next 15-year period (2023-2037),<sup>4</sup> Kentucky Power's service territory is expected to see population decline at 0.6% per year and non-farm employment to decline 0.4% per year. Kentucky Power is projected to see customer count decline at a similar rate of 0.6% per year. Over the same forecast period, Kentucky Power's retail sales are projected to grow 0.2% per year with growth expected from the commercial class (+2.0% per year) while the residential and industrial classes experiences decline of 0.7% and 0.2% per year, respectively, over the forecast horizon. It should be noted that CAGR for the commercial class is fueled by a large customer addition. Finally, Kentucky Power's internal energy is projected to show little growth and peak demand is expected to decline at an average rate of 0.3% through 2037.

### **2.2 Forecast Assumptions**

#### **2.2.1 Economic Assumptions**

The load forecasts for Kentucky Power and the other operating companies in the AEP System incorporate a forecast of U.S. and regional economic growth provided by Moody's Analytics. The load forecasts utilized Moody's Analytics economic forecast issued in December 2021. Moody's Analytics projects moderate growth in the U.S. economy during the 2023-2037 forecast period, characterized by a 2.1% annual rise in real Gross Domestic Product (GDP), and moderate inflation, with the implicit GDP price deflator expected to rise by 1.9% per year.

<sup>3</sup> The load forecasts (as well as the historical loads) presented in this Report reflect the traditional concept of internal load, *i.e.*, the load that is directly connected to the utility's transmission and distribution system and that is provided with bundled generation and transmission service by the utility. Such load serves as the starting point for the load forecasts used for generation planning. Internal load is a subset of *connected load*, which also includes directly connected load for which the utility serves only as a transmission provider. Connected load serves as the starting point for the load forecasts used for transmission planning.

<sup>4</sup> Fifteen year forecast period begins with the first full forecast year of 2023.

Industrial output, as measured by the Federal Reserve Board's (FRB) index of industrial production, is expected to grow at 1.6% per year during the same period. Moody's projects employment growth to be flat during the forecast period and real regional income per-capita annual growth of 1.9% for the Kentucky Power service area.

### **2.2.2 Price Assumptions**

The Company utilizes an internally developed service area electricity price forecast. This forecast incorporates information from the Company's financial plan for the near term and the U.S. Department of Energy (DOE) Energy Information Administration (EIA) outlook for the East North Central Census Region for the longer term. These price forecasts are incorporated into the Company's energy sales models, where appropriate.

### **2.2.3 Specific Large Customer Assumptions**

Kentucky Power's customer service engineers are in frequent communication with industrial and commercial customers about their needs and activities. From these discussions, expected load additions or reductions are relayed to the Company.

### **2.2.4 Weather Assumptions**

Where appropriate, the Company includes weather as an explanatory variable in its energy sales models. These models reflect historical weather for the model estimation period and normal weather for the forecast period.

### **2.2.5 Demand Side Management (DSM) Assumptions**

The Company's long term load forecast models account for trends in EE both in the historical data as well as the forecasted trends in appliance saturations as the result of various legislated appliance efficiency standards (Energy Policy Act of 2005 [EPAct], Energy Independence and Security Act [EISA] of 2007, etc.) modeled by the EIA. The Company was directed by the Commission to suspend DSM activities until such time that the Company is either experiencing load growth or the Company has a capacity deficiency. The load forecast reflects no approved DSM program activity and no adjustments have been made to the load forecast.

## **2.3 Overview of Forecast Methodology**

Kentucky Power's load forecasts are based mostly on econometric, Statistically Adjusted End-use (SAE), and analyses of time-series data. This is helpful when analyzing future scenarios

and developing confidence bands in addition to objective model verification by using standard statistical criteria.

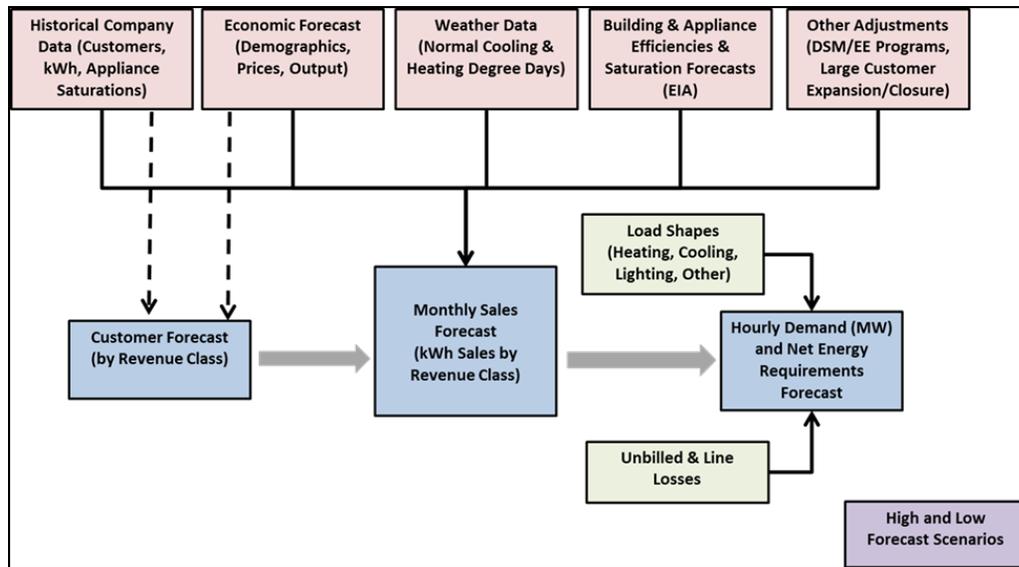
Kentucky Power utilizes two sets of econometric models: 1) a set of monthly short-term models, which extends for approximately 24 months and 2) a set of monthly long-term models, which extends for approximately 30 years. The forecast methodology leverages the relative analytical strengths of both the short- and long-term methods to produce a reasonable and reliable forecast that is used for various planning purposes.

For the first full year of the forecast, the short-term models generally govern the forecast values. The short-term models are regression models with time series errors, which analyze the latest sales and weather data to better capture the monthly variation in energy sales for short-term applications like capital budgeting and resource allocation. While these models produce extremely accurate forecasts in the short run, without logical ties to economic factors, they are less capable of capturing structural trends in electricity consumption that are more important for longer-term resource planning applications.

The long-term models are econometric, and SAE models, which are specifically equipped to account for structural changes in the economy as well as changes in customer consumption due to increased energy efficiency. The long-term forecast models incorporate regional economic forecast data for income, employment, households, output, and population.

The short-term and long-term forecasts are then blended to ensure a smooth transition from the short-term to the long-term forecast horizon for each major revenue class. There are some instances when the short-term and long-term forecasts diverge, especially when the long-term models are incorporating a structural shift in the underlying economy that is expected to occur within the first 24 months of the forecast horizon. In these instances, professional judgment is used to ensure that the final forecast that will be used in the peak models is reasonable. The class level sales are then summed and adjusted for losses to produce monthly net internal energy sales for the system. The demand forecast model utilizes a series of algorithms to allocate the monthly net internal energy to hourly demand. The inputs into forecasting hourly demand are internal energy, weather, 24-hour load profiles, and calendar information.

A flow chart depicting the sequence of models used in projecting Kentucky Power's electric load requirements, as well as the major inputs and assumptions that are used in the development of the load forecast, is shown in Figure 2, below.



**Figure 2. Kentucky Power Internal Energy Requirements and Peak Demand Forecasting Method**

## 2.4 Detailed Explanation of Load Forecast

### 2.4.1 General

This section provides a more detailed description of the short-term and long-term models employed in producing the forecasts of Kentucky Power’s energy consumption, by customer class. Conceptually, the difference between short- and long-term energy consumption relates to changes in the stock of electricity-using equipment and economic influences, rather than the passage of time. In the short term, electric energy consumption is considered as a function of an essentially fixed stock of equipment. For residential and commercial customers, the most significant factor influencing the short term is weather. For industrial customers, economic forces that determine inventory levels and factory orders also influence short-term utilization rates. The short-term models recognize these relationships and use weather and recent load growth trends as the primary variables in forecasting monthly energy sales.

Over time, demographic and economic factors such as population, employment, income, and technology influence the nature of the stock of electricity-using equipment, both in size and composition. Long-term forecasting models recognize the importance of these variables and include all or most of them in the formulation of long-term energy forecasts.

Relative energy prices also have an impact on electricity consumption. One important difference between the short-term and long-term forecasting models is their treatment of energy

prices, which are only included in long-term forecasts. This approach makes sense because although consumers may suffer sticker shock from energy price fluctuations, there is little they can do to affect them in the short-term. They already own a refrigerator, furnace or industrial equipment that may not be the most energy-efficient model available. In the long term, however, these constraints are lessened as durable equipment is replaced and as price expectations come to fully reflect price changes.

#### **2.4.2 Customer Forecast Models**

The Company also utilizes both short-term and long-term models to develop the final customer count forecast. The short-term customer forecast models are time series models with intervention (when needed) using Autoregressive Integrated Moving Average (ARIMA) methods of estimation. These models typically extend for 24 months into the forecast horizon.

The long-term residential customer forecasting models are also monthly but extend for 30 years. The explanatory jurisdictional economic and demographic variables include employment, population, housing stock, real personal income, employment and households are used in various combinations. In addition to the economic explanatory variables, the long-term customer models may employ a lagged dependent variable to capture the adjustment of customer growth to changes in the economy. There are also binary variables to capture monthly variations in customers, unusual data points, and special occurrences.

The short-term and long-term customer forecasts are blended, as was described earlier, to arrive at the final customer forecast that will be used as a primary input into both short-term and long-term usage forecast models.

#### **2.4.3 Short-term Forecasting Models**

The goal of Kentucky Power's short-term forecasting models is to produce an accurate load forecast for the first full year into the future. To that end, the short-term forecasting models generally employ a combination of monthly and seasonal binaries, time trends, and monthly heating/cooling degree-days in their formulation. The heating and cooling degree-days are measured at weather stations in the Company's service area. The forecasts relied on ARIMA models.

The estimation period for the short-term models was January 2012 through January 2022. There are models for residential, commercial, industrial, other retail, and wholesale sectors. The industrial models are comprised of 10 large industrial models and models for the remainder of the

industrial sector. The wholesale forecast is developed using models for the cities of Vanceburg and Olive Hill.

Off-system sales and/or sales of opportunity are not relevant to the net energy requirements forecast as they are not requirements load or relevant to determining capacity and energy requirements in the IRP process.

#### **2.4.4 Long-term Forecasting Models**

The goal of the long-term forecasting models is to produce a reasonable load outlook for up to 30 years in the future. Given that goal, the long-term forecasting models employ a full range of structural economic and demographic variables, electricity and natural gas prices, weather as measured by annual heating and cooling degree-days, and binary variables to produce load forecasts conditioned on the outlook for the U.S. economy, for the Kentucky Power service-area economy, and for relative energy prices.

Most of the explanatory variables enter the long-term forecasting models in a straightforward, untransformed manner. In the case of energy prices, however, it is assumed, consistent with economic theory, that the consumption of electricity responds to changes in the price of electricity or substitute fuels with a lag, rather than instantaneously. This lag occurs for reasons having to do with the technical feasibility of quickly changing the level of electricity use even after its relative price has changed, or with the widely accepted belief that consumers make their consumption decisions based on expected prices, which may be perceived as functions of both past and current prices.

There are several techniques, including the use of lagged price or a moving average of price that can be used to introduce the concept of lagged response to price change into an econometric model. Each of these techniques incorporates price information from previous periods to estimate demand in the current period.

The general estimation period for the long-term load forecasting models was 1995-2021. The long-term energy sales forecast is developed by blending of the short-term forecast with the long-term forecast. The energy sales forecast is developed by making a billed/unbilled adjustment to derive billed and accrued values, which are consistent with monthly generation.

#### **2.4.4.1 Supporting Models**

In order to produce forecasts of certain independent variables used in the internal energy requirements forecasting models, several supporting models are used, including natural gas price and coal production models for Kentucky Power's service areas. These models are discussed below.

##### **2.4.4.1.1 Consumed Natural Gas Pricing Model**

The forecast price of natural gas used in the Company's energy models comes from a model of natural gas prices for the state's three primary consuming sectors: residential, commercial, and industrial. In the state natural gas price models sectoral prices are related to East North Central Census region's sectoral prices, with the forecast being obtained from EIA's "2022 Annual Energy Outlook." The natural gas price model is based upon 1980-2021 historical data.

##### **2.4.4.1.2 Regional Coal Production Model**

A regional coal production forecast is used as an input in the mine power energy sales model. In the coal model, regional production depends on mainly Appalachian coal production, as well as on binary variables that reflect the impacts of special occurrences, such as strikes. In the development of the regional coal production forecast, projections of Central Appalachian and U.S. coal exports were obtained from EIA's "2022 Annual Energy Outlook." The estimation period for the model was 1998-2021.

Coal mining activity plays a significant role in the local economy of Kentucky Power's service territory. Figure 3 below provides coal production in Eastern Kentucky between 2000 and 2021. During this period coal production dropped from nearly 105 million tons to approximately 10.1 million tons or a decline of approximately 90%. The forecast is for production to hover around the 10 million tons level, benefitting in part from the coal export market.

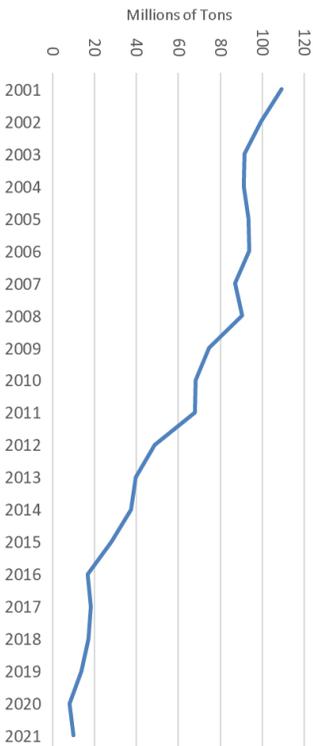


Figure 3. Eastern Kentucky Coal Production (Millions of Tons) 2000-2021

Source: The Energy Information Administration

#### 2.4.4.2 Residential Energy Sales

Residential energy sales for Kentucky Power are forecasted using two models, the first of which projects the number of residential customers, and the second of which projects kWh usage per customer. The residential energy sales forecast is calculated as the product of the corresponding customer and usage forecasts.

The residential usage model is estimated using an SAE model, which was developed by Itron, a consulting firm with expertise in energy modeling. This model assumes that use will fall into one of three categories: heat, cool, and other. The SAE model constructs variables to be used in an econometric equation where residential usage is a function of Xheat, Xcool, and Xother variables.

The Xheat variable is derived by multiplying a heating index variable by a heating use variable. The heating index incorporates information about heating equipment saturation; heating equipment efficiency standards and trends; and thermal integrity and size of homes. The heating use variable is derived from information related to billing days, heating degree-days, household size, personal income, gas prices, and electricity prices.

The Xcool variable is derived by multiplying a cooling index variable by a cooling use variable. The cooling index incorporates information about cooling equipment saturation; cooling equipment efficiency standards and trends; and thermal integrity and size of homes. The cooling use variable is derived from information related to billing days, cooling degree-days, household size, personal income, gas prices and electricity prices.

The Xother variable estimates the non-weather sensitive sales and is similar to the Xheat and Xcool variables. This variable incorporates information on appliance and equipment saturation

levels; average number of days in the billing cycle each month; average household size; real personal income; gas prices and electricity prices.

The appliance saturations are based on historical trends from Kentucky Power's residential customer survey. The saturation forecasts are based on EIA forecasts and analysis by Itron. The efficiency trends are based on DOE forecasts and Itron analysis. The thermal integrity and size of homes are for the East North Central Census Region and are based on DOE and Itron data.

The number of billing days is from internal data. Economic and demographic forecasts are from Moody's Analytics and the electricity price forecast is developed internally.

The SAE residential models are estimated using linear regression models. These monthly models are typically for the period January 1995 through January 2022. It is important to note, as will be discussed later, that this modeling *has* incorporated the reductive effects of the EPAct, EISA, American Recovery and Reinvestment Act of 2009 (ARRA) and Energy Improvement and Extension Act of 2008 (EIEA 2008) on the residential (and commercial) energy usage based on analysis by the EIA regarding appliance efficiency trends.

The long-term residential energy sales forecast is derived by multiplying the "blended" customer forecast by the usage forecast from the SAE model.

#### **2.4.4.3 Commercial Energy Sales**

Long-term commercial energy sales are forecast using SAE models. These models are similar to the residential SAE models. These models utilize efficiencies, square footage and equipment saturations for the East North Central Region, along with electric prices, economic drivers from Moody's Analytics, heating and cooling degree-days, and billing cycle days. As with the residential models, there are Xheat, Xcool, and Xother variables derived within the model framework. The commercial SAE models are estimated similarly to the residential SAE models. Commercial sales were boosted to reflect the expected addition of a significant large customer.

#### **2.4.4.4 Industrial Energy Sales**

Based on the size and importance of the Mine Power sector to the overall Kentucky Power Industrial base as well as the unique outlook for the mining sector in the long-run, the Company models Mine Power sales separately from the rest of the Industrial manufacturing sales in the long-term forecast models.

#### **2.4.4.4.1 Manufacturing Energy Sales**

The Company uses some combination of the following economic and pricing explanatory variables: service area manufacturing employment, petroleum industrial production index, Kentucky industrial gas prices, and service area industrial electricity prices. In addition, binary variables for months are special occurrences and are incorporated into the models. Based on information from customer service engineers there may be load added or subtracted from the model results to reflect plant openings, closures or load adjustments. The last actual data point for the manufacturing energy sales models is January 2022.

#### **2.4.4.4.2 Mine Power Energy Sales**

For its mine power energy sales models, the Company uses some combination of the following economic and pricing explanatory variables: regional coal production, and service area mine power electricity prices. In addition, binary variables for months are special occurrences and are incorporated into the models. Based on information from customer service engineers there may be load added or subtracted from the model results to reflect mine openings, closures or load adjustments. The last actual data point for the mine power energy sales models is January 2022.

#### **2.4.4.5 All Other Energy Sales**

The forecast of public-street and highway lighting relates energy sales to service area employment and binary variables.

Wholesale energy sales are modeled relating energy sales to economic variables such as service area employment, service area population, heating and cooling degree-days, and binary variables. The wholesale customers contract expires beginning June 2025. These entities have solicited proposals to serve them after the end of the current contract. Therefore, these entities are not included in the load forecast beyond June 2025.

### **2.4.5 Internal Energy Forecast**

#### **2.4.5.1 Blending Short and Long-Term Sales**

Forecast values for 2022 and 2023 are taken from the short-term process. Forecast values for 2024 are obtained by blending the results from the short-term and long-term models. The blending process combines the results of the short-term and long-term models by assigning weights to each result and systematically changing the weights so that by July 2024 the entire forecast is

from the long-term models. The goal of the blending process is to leverage the relative strengths of the short-term and long-term models to produce the most reliable forecast possible. However, at times the short-term models may not capture structural changes in the economy as well as the long-term models, which may result in the long-term forecast being used for the entire forecast horizon.

#### **2.4.5.2 Losses and Unaccounted-For Energy**

Energy is lost in the transmission and distribution of the product. This loss of energy from the source of production to consumption at the premise is measured as the average ratio of all Federal Energy Regulatory Commission (FERC) revenue class energy sales measured at the premise meter to the net internal energy requirements metered at the source. In modeling, Company loss study results are applied to the final blended sales forecast by revenue class and summed to arrive at the final internal energy requirements forecast.

#### **2.4.6 Forecast Methodology for Seasonal Peak Internal Demand**

The demand forecast model is a series of algorithms for allocating the monthly internal energy sales forecast to hourly demands. The inputs into forecasting hourly demand are blended revenue class sales, energy loss multipliers, weather, 24-hour load profiles and calendar information.

The weather profiles are developed from representative weather stations in the service area. Twelve monthly profiles of average daily temperature that best represent the cooling and heating degree-days of the specific geography are taken from the last 30 years of historical values. The consistency of these profiles ensures the appropriate diversity of the Company loads.

The 24-hour load profiles are developed from historical hourly Company or jurisdictional load and end-use or revenue class hourly load profiles. The load profiles were developed from segregating, indexing, and averaging hourly profiles by season, day types (weekend, midweek and Monday/Friday), and average daily temperature ranges.

In the end, the profiles are benchmarked to the aggregate energy and seasonal peaks through adjustments to the hourly load duration curves of the annual 8,760 hourly values. These 8,760 hourly values per year are the forecast load of Kentucky Power and the individual companies of American Electric Power (AEP) that can be aggregated by hour to represent load across the spectrum from end-use or revenue classes to total AEP-East, AEP-West, or total AEP System. Net internal energy requirements are the sum of these hourly values to a total company energy need

basis. Company peak demand is the maximum of the hourly values from a stated period (month, season, or year).

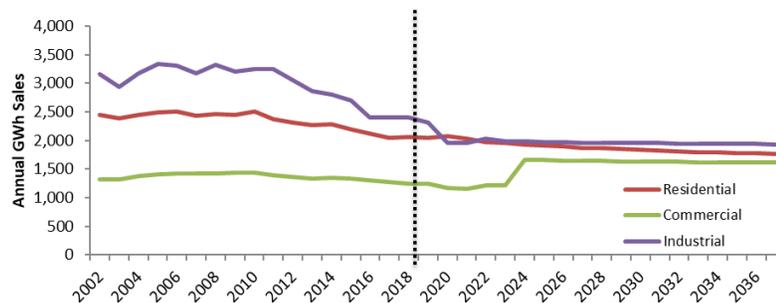
## 2.5 Load Forecast Results and Issues

All tables referenced in this section can be found in Exhibit C of the appendix to this report.

### 2.5.1 Load Forecast

Exhibit C-1 presents Kentucky Power's annual internal energy requirements, disaggregated by major category (residential, commercial, industrial, other internal sales and losses) on an actual basis for the years 2017-2022 and on a forecast basis for the years 2023-2037. Data for 2022 are six months actual and six months forecast. The exhibit also shows annual growth rates for both the historical and forecast periods. A further breakdown of forecast by sector and losses is provided in Exhibits C-2A and C-2B. Monthly forecasts of Kentucky Power energy by sector and demand for 2023 and 2024 are provided on Exhibits C-3 and C-4, respectively.

Figure 4 below provides a graphical depiction of weather normal and forecast Company residential, commercial, and industrial sales for 2002 through 2037.

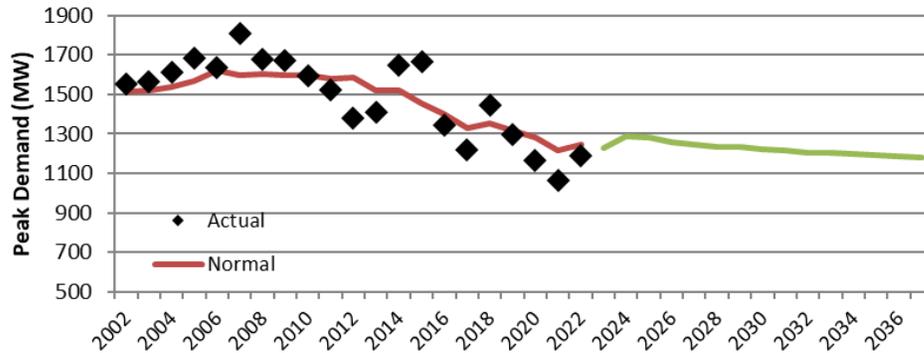


**Figure 4. Kentucky Power GWh Sales (Weather Normalized History & Forecast)**

### 2.5.2 Peak Demand and Load Factor

Exhibit C-5 provides Kentucky Power's seasonal peak demands, annual peak demand, internal energy requirements and annual load factor on an actual basis for the years 2017-2021 and on a forecast basis for the years 2023-2037. Data for 2022 are six months actual and six months forecast. The table also shows annual growth rates for both the historical and forecast periods.

Figure 5 presents actual, weather normal and forecast Kentucky Power annual peak demand for the period 2002 through 2037.



**Figure 5. Kentucky Power Peak Demand Forecast**

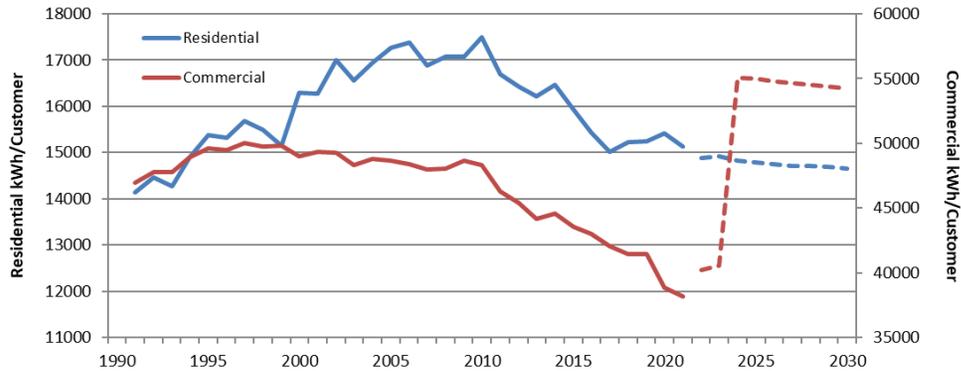
### 2.5.3 Weather Normalization

The load forecast presented in this Report assumes normal weather. To the extent that weather is included as an explanatory variable in various short- and long-term models, the weather drivers are assumed to be normal for the forecast period.

## 2.6 Load Forecast Trends & Issues

### 2.6.1 Changing Usage Patterns

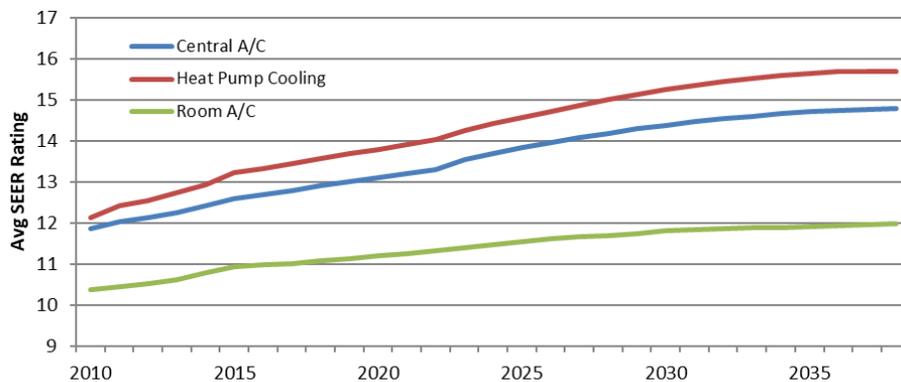
Over the past decade, there has been a significant change in the trend for electricity usage from prior decades. Figure 6, below, presents Kentucky Power’s historical and forecasted residential and commercial usage per customer between 1991 and 2030. During the first decade shown (1991-2000), residential usage per customer grew at an average rate of 1.4% per year, while the commercial usage grew by 0.2% per year. Over the next decade (2001-2010), growth in residential usage was at 0.8% per year while the commercial class usage decreased by 0.2% per year. In the last decade shown (2011-2020) residential usage declined at a rate of 0.9% per year while the commercial usage decreases by an average of 1.9% per year. It is worth noting that residential usage increased by 1.1% in the 2020 pandemic year. Meanwhile, commercial usage decreased by 7.3% with many businesses strongly affected by pandemic mandates. This residential decline is expected to moderate for the last ten years shown (2021-2030), declining at a rate of 0.4% per year. Commercial usage is buoyed by large customer additions in the near term and sees average annual growth of 4.0% over the 2021-2030. Over the last six years (2025-2030) shown on the graph, commercial usage declines by 0.3% year as efficiency gains become more prominent without additional large customer additions.



**Figure 6. Kentucky Power Normalized Use per Customer (kWh)**

The SAE models are designed to account for changes in the saturations and efficiencies of the various end-use appliances. Every 3-4 years, the Company conducts a Residential Appliance Saturation Survey to monitor the saturation and age of the various appliances in the residential home. This information is then matched up with the saturation and efficiency projections from the EIA, which includes the projected impacts from various enacted federal policies mentioned earlier.

The result of this is a base load forecast that already includes some significant reductions in usage as a result of projected EE. For example, Figure 7 below shows the assumed cooling efficiencies embedded in the SAE models for cooling loads. It shows that the average Seasonal Energy Efficiency Ratio (SEER) for central air conditioning is projected to increase from 11.9 in 2010 to 14.4 by 2030. The chart shows a similar trend in projected cooling efficiencies for heat pump cooling as well as room air conditioning units.



**Figure 7. Projected Changes in Cooling Appliance Efficiencies, 2010-2040**

Figure 8 below shows the impact of appliance, equipment and lighting efficiencies on the Company's weather normalized residential usage per customer. This graph provides weather

normalized residential energy per customer and an estimate of the effects of efficiencies on usage. In addition, historical and forecast Kentucky Power residential customers are provided.

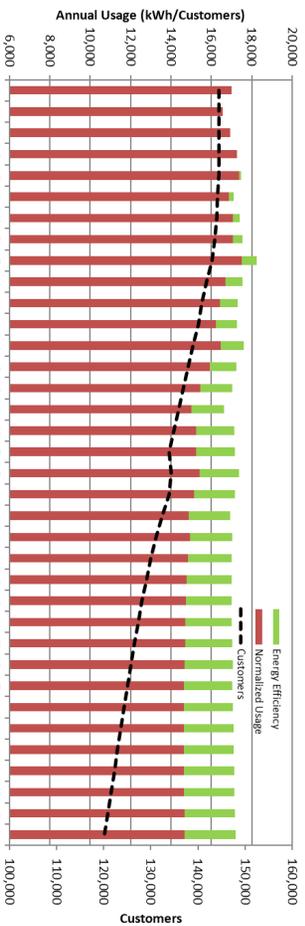


Figure 8. Residential Usage and Customer Growth, 2002-2037

Additionally, distributed generation in the form of rooftop solar is driven by customer decisions and continues to grow. The Company has developed a forecast of the number of units and capacity shown in Figure 9, estimating an annual growth rate of approximately 5% from 2020-2040. While the net impact to the load forecast is not explicitly quantified, to the extent that it affects consumption trends, it is implicitly captured in the load forecast.

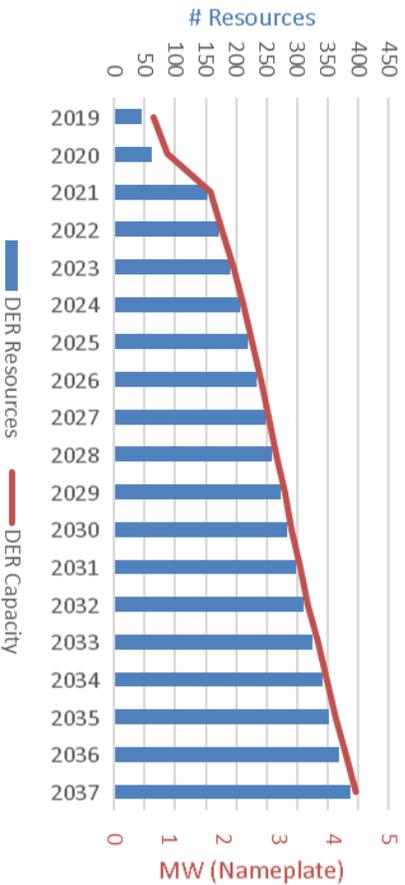


Figure 9. Distributed Generation Capacity Growth

### 2.6.2 Demand-Side Management (DSM) Impacts on the Load Forecast

The end-use load forecasting models account for changing trends and saturations of energy efficient technologies throughout the forecast horizon. Historically, DSM and EE programs have further accelerated the adoption of energy efficiency technology. DSM and EE programs have

been paused in the past years while the Company load was not growing, and the Company was not capacity deficient.

For the near-term horizon (through 2023), the load forecast uses assumptions from the Commission's directive regarding DSM programs. The Company's load forecast does not reflect any on-going adjustments for DSM.

Exhibit C-6 provides the DSM/EE impacts incorporated in Kentucky Power's load forecast provided in this Report. For this load forecast, there was no DSM/EE included. Annual energy and seasonal peak demand impacts are provided for the Company.

### **2.6.3 Interruptible Load**

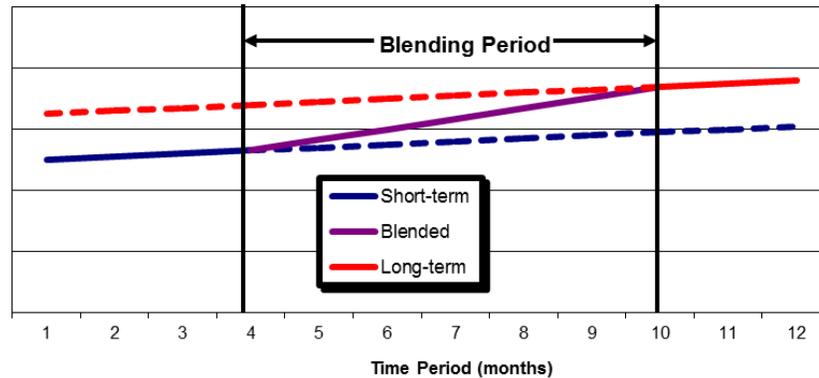
The Company has three customers with approximately 6.0 MW available for interruption in emergency situations in Demand Response (DR) agreements. The load forecast does not reflect any load reductions for these customers. Rather, the interruptible load is seen as a resource when the Company's load is peaking. As such, estimates for DR impacts are reflected by Kentucky Power in determination of PJM-required resource adequacy (*i.e.*, Kentucky Power's projected capacity position). Further discussion of the determination of DR is included in Section 3.4.1.

### **2.6.4 Blended Load Forecast**

As noted above, at times the short-term models may not capture structural changes in the economy as well as the long-term models, which may result in the long-term forecast being used for the entire forecast horizon. Exhibit C-7 provides an indication of which retail energy and customer models are blended and which strictly use the long-term model results. In addition, all of the wholesale forecasts utilize the long-term model results.

In general, forecast values for the year 2022 were typically taken from the short-term process. Forecast values for 2023 are obtained by blending the results from the short-term and long-term models. The blending process combines the results of the short-term and long-term models by assigning weights to each result and systematically changing the weights so that by July of 2024 the entire forecast is from the long-term models. This blending allows for a smooth transition between the two separate processes, minimizing the impact of any differences in the results. Figure 10 illustrates a hypothetical example of the blending process (details of this illustration are shown in Exhibit C-8). However, in the final review of the blended forecast, there may be instances where the short-term and long-term forecasts diverge especially when the long-

term forecast incorporates a structural shift in the economy that is not included in the short-term models. In these instances, professional judgment is used to develop the most reasonable forecast.



**Figure 10. Load Forecast Blending Illustration**

### 2.6.5 Large Customer Changes

The Company's customer service engineers are in continual contact with the Company's large commercial and industrial customers about their needs for electric service. These customers will relay information about load additions and reductions. This information will be compared with the load forecast to determine if the industrial or commercial models are adequately reflecting these changes. If the changes are different from the model results, then additional factors may be used to reflect those large changes that differ from the forecast models' output.

### 2.6.6 Wholesale Customer Contracts

Company representatives are in continual contact with wholesale customer representatives about their contractual needs. The customers have provided a request for proposals to provide their energy requirements when their contracts expire at the end of May 2025. These customers loads are excluded from the load forecast beginning June 2025.

### 2.7 Load Forecast Scenarios

The base case load forecast is the expected path for load growth that the Company uses for planning. There are a number of known and unknown potentials that could drive load growth different from the base case. While potential scenarios could be quantified at varying levels of assumptions and preciseness, the Company has chosen to frame the possible outcomes around the base case as a reasonable balance of likely outcomes. The Company recognizes the potential desire

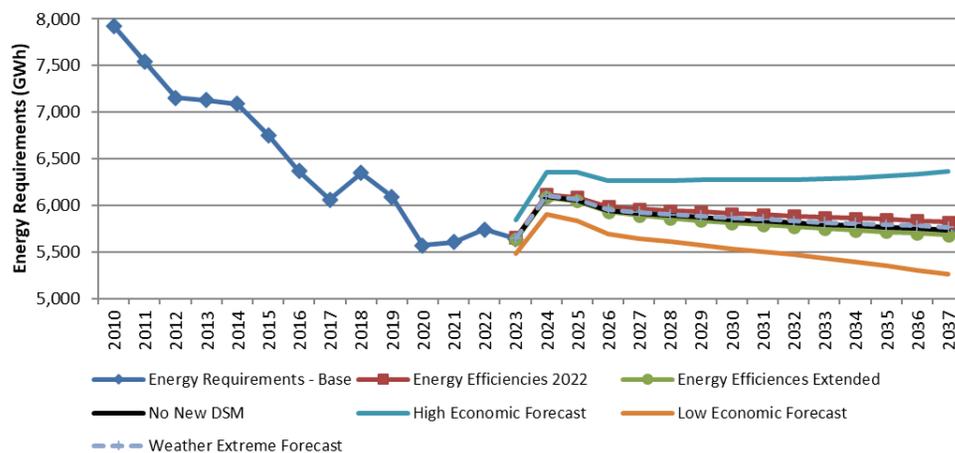
for a more exact quantification of certain outcomes, but the reality is if all possible outcomes were known with a degree of certainty, then they would become part of the base case.

Forecast sensitivity scenarios have been established which are tied to respective high and low economic growth cases. The high and low economic growth scenarios are consistent with scenarios laid out in the EIA's 2020 Annual Outlook. While other factors may affect load growth, this analysis only considered high and low economic growth. The economy is seen as a crucial factor affecting future load growth.

The low-case, base-case and high-case forecasts of summer and winter peak demands and total internal energy requirements for Kentucky Power are tabulated in Exhibit C-9.

For Kentucky Power, the low-case and high-case energy and peak demand forecasts for the last forecast year, 2035, represent deviations of about 8.2% below and 11.0% above, respectively, the base-case forecast.

During the load forecasting process, the Company developed various other scenarios. Figure 11 provides a graphical depiction of the scenarios developed in conjunction with the load provided in this report.



**Figure 11. Load Forecast Scenarios – Energy Requirement (GWh)**

The no new DSM scenario is the same as the base load forecast as no new DSM was reflected in the load forecast. The energy efficiencies 2022 scenario keeps energy efficiencies at 2022 levels for the residential and commercial equipment. The energy efficiencies scenarios result in a load forecast greater than the base forecast.

The energy efficiencies extended scenario has energy efficiencies developing at a faster pace than is represented in the base forecast. This scenario is based on analysis developed by the Energy Information Administration. This forecast is lower than the base forecast due to enhanced energy efficiency for residential and commercial equipment.

The weather extreme forecast assumes increased average daily temperatures for both the winter and summer seasons, which results in diminished heating degree-days in the winter and increased cooling degree-days in the summer. This analysis is based on a potential impact of climate change developed by Purdue University<sup>5</sup>. This scenario results in increased load in the summer and diminished load in the winter, with the net result being a higher energy requirements forecast. Exhibit C-10 provides graphical displays of the range of forecasts of summer and winter peak demand for Kentucky Power along with the impacts of the weather scenario for each season.

All of these alternative scenarios fall within the boundary of the Company's high and low economic scenario forecasts. The Company's expectations are that any reasonable scenario developed will fall within this range of forecasts.

## **2.8 Energy-Price Relationships**

In every load forecast, Kentucky Power Company takes electricity price and the effects of its changes into consideration. This is true for the forecast included in this IRP. The following provides a discussion of the impacts of prices on electricity sales and how price is accounted for in the load forecast.

An understanding of the relationship between energy prices and energy consumption is fundamental to developing a forecast of electricity consumption. In theory, the effect of a change in the price of a good on the consumption of that good can be disaggregated into two effects, the "income" effect and the "substitution" effect. The income effect refers to the change in consumption of a good attributable to the change in real income incident to the change in the price of that good. For most goods, a decline in real income would induce a decline in consumption. The substitution effect refers to the change in the consumption of a good associated with the change in the price of that good relative to the prices of all other goods. The substitution effect is assumed to be negative in all cases; that is, a rise in the price of a good relative to other substitute goods would induce a decline in consumption of the original good. Thus, if the price of electricity were to rise,

<sup>5</sup> <https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1000&context=climatetr>

the consumption of electricity would fall, all other things being equal. Part of the decline would be attributable to the income effect; consumers must make decisions on how to allocate their budget to purchase electricity services and other goods and services after the price of electricity rises. Part would be attributable to the substitution effect; consumers would substitute relatively cheaper fuels for electricity once its price had risen.

The magnitude of the effect of price changes on consumption differs over different time horizons. In the short-term, the effect of a rise in the price of electricity is severely constrained by the ability of consumers to substitute other fuels or to incorporate more electricity-efficient technology. The fact that the Company's short-term energy consumption models do not include price as an explanatory variable is a reflection of the belief that this constraint is severe.

In the long-term, however, the constraints on substitution are lessened for a number of reasons. First, durable equipment stocks begin to reflect changes in relative energy prices by favoring the equipment using the fuel that was expected to be cheaper. Second, heightened consumer interest in saving electricity, backed by willingness to pay for more efficiency, spurs development of conservation technology. Third, existing technology, too expensive to implement commercially at previous levels of energy prices, becomes feasible at the new, higher energy prices; and fourth, normal turnover of electricity-using equipment contributes to a higher average level of energy efficiency.

For these reasons, energy price changes are expected to have an effect on long-term energy consumption levels. As a reflection of this belief, most of the Company's long-term forecasting models, including the residential, commercial, manufacturing and mine power energy sales models, incorporate the price of electricity as an explanatory variable. The residential SAE Model uses price in development of explanatory variables. There are a variety of short- and long-run elasticities utilized in this analysis. In addition to electricity prices, the residential SAE model utilizes the price of natural gas as associated cross-price elasticities. Likewise, the commercial SAE model incorporates electricity price and an associated price elasticity to develop explanatory variables. Manufacturing and mine power have price as an explanatory variable. In these cases, the coefficient of the price variable provides a quantitative measure of the sensitivity of the forecast value to a change in price.

## **2.9 Significant Changes from Previous Forecast**

### **2.9.1 Energy Forecast**

During the three years since the last filing with the Commission, Kentucky Power's service area economy continues to be sluggish and therefore the load forecast for Kentucky Power reflects a modest outlook.

Exhibit C-11 provides a tabular comparison of the 2019 and 2022 forecasts of total internal energy requirements for the forecast horizon provided in the 2019 IRP. Exhibit C-12 shows the comparison for Kentucky Power in graphical form. As these exhibits indicate, Kentucky Power's 2022 energy forecast is lower than the 2019 forecast in terms of magnitude (304 GWh, or 5.0%, lower for year 2034) and long-term average annual growth rate is higher in 2022 IRP (0.2% vs. -0.2%).

An examination of the sectoral changes in the Kentucky Power forecast may provide a better understanding of the changes in the aggregate forecast. The forecasted levels of the sectoral components for the year 2034 did not change uniformly with the 5.0% decrease in the forecast of total energy requirements. Specifically, the residential, industrial and other internal energy sales forecasts were decreased by 1.6%, 25.5%, and 90.3%, respectively. Meanwhile, commercial energy sales and losses forecasts were increased by 38.7% and 5.5%, respectively.

While the residential energy sales forecast change is relatively small, factors contributing to the decrease include impacts of a sluggish economy and deteriorating residential customer base. The sharp increase in commercial energy sales is associated with the addition a large industrial customer with significant energy requirements. In the longer term the sector will still have downward pressure on sales attributed to efficiency gains in lighting and equipment.

For the industrial sector, the decrease reflects plant closures and the continued erosion of the coal mining industry. Both the manufacturing and coal mining sectors experienced a significant downturn in the 2020 pandemic year and neither sector reflected much rebound in 2021. This along with known plant closures contributed to the lowering of the industrial forecast provided in 2019.

The big change in other internal sales forecast is the omission of the wholesale customer when their contracts expire in 2025. In the 2019 forecast, these customers' loads were assumed to be part of internal going forward.

### **2.9.2 Peak Internal Demand Forecast**

Exhibit C-13 provides a tabular comparison of the 2019 and 2022 forecasts of the winter and summer peak internal demand for both. This exhibit indicates that for the winter of 2034/35, Kentucky Power's 2022 peak demand forecast is 5.5% lower than the 2019 forecast. Likewise, the Company's 2022 peak demand forecast for summer 2034 is 3.3% lower than 2019 forecast. These decreases reflect the change in the forecast for total energy requirements and an evaluation of the weather normal peak experience.

### **2.9.3 Forecasting Methodology**

Opportunities to enhance forecasting methods are explored by Kentucky Power on a continuing basis. The Company evaluates each sector for changing growth patterns and determines the factors that may be the underlying causes for such changes. For example, the Company continues to evaluate the erosion of the customer base for residential and commercial customers and the effects of equipment and lighting efficiencies on consumption.

### **2.10 Additional Load Information**

Additional information provided for the purposes of this report includes the following:

**Exhibit C-14:** Kentucky Power, Average Annual Number of Customers by Class, 2017-2021.

**Exhibits C-15 and C-16:** Kentucky Power, Annual Internal Load by Class (GWh), 2017-2021.

**Exhibits C-17 and C-18:** Kentucky Power Recorded and Weather-Normalized Peak Internal Load (MW) and Energy Requirements (GWh), 2017-2021. In addition, Normalized Annual Internal Sales by Class (GWh), 2017-2021 are provided.

**Exhibit C-19:** Kentucky Power, Profiles of Monthly Peak Internal Demands, 2016, 2021 (Actual), 2031 and 2036.

The historical profiles presented in Exhibit C-19 have not been adjusted to reflect normal weather patterns and, therefore, may vary to some degree from the forecast patterns projected for 2031 and 2036. These patterns also reflect the expectation that Kentucky Power will continue to experience its annual peak demand in the winter season.

Currently, the Company has three customers with interruptible provisions in their contracts.

The Company conducted its most recent residential customer survey in the fall of 2021. The results of the survey were utilized in the development of the Company's residential forecast. As in the past, this survey provides information on appliance saturations, along with other useful information to better understand the residential load.

## **2.11 Data-Base Sources**

Sources from within the Company that were used in developing the Company's load forecasts are as follows:

1. Sales for Resale Reports (Form ST-18);
2. daily, monthly, and annual System Operation Department reports;
3. monthly financial reports;
4. monthly kWh and revenue SIC reports; and
5. residential tariff schedules and fuel clause summaries for all operating companies.

The data sources from outside the Company are varied and include state and federal agencies, as well as Moody's Analytics. Exhibit C-20 identifies the data series and associated sources, along with notes on adjustments made to the data before incorporation into the load forecasting models.

## **2.12 Other Topics**

### **2.12.1 Residential Energy Sales Forecast Performance**

Exhibit C-21 provides a comparison of actual vs. the 2019 forecast of Kentucky Power's residential energy sales for the years 2019-2021. The gap between actual and forecast residential energy sales varied from year-to-year over the three-year period. It should be noted that 2019 data in the 2019 IRP were nine months actual and three months forecast. During this period the number of residential customers declined. Another factor affecting sales is the impact of more stringent efficiency standards being mandated by Congress. Both of these factors will continue to have major influences on residential energy sales over the forecast period. Sales were positively influenced by COVID-19 pandemic that resulted in people working remotely and/or staying at home more. There was a carry-over of this effect in 2021.

### **2.12.2 Commercial Energy Sales Forecast Performance**

Exhibit C-22 provides a comparison of actual vs. the 2019 forecast of Kentucky Power's commercial energy sales for the years 2019-2021. The gap between actual and forecast commercial energy sales was dramatically different in 2020 and 2021 due to the impacts of COVID-19

pandemic on the local economy. Sales were sharply off in 2022 and no recovery was experienced in 2021. The sector is expected to be affected by continued efficiency gains.

### **2.12.3 Industrial Energy Sales Forecast Performance**

Exhibit C-23 provides a comparison of actual vs. 2019 forecast of Kentucky Power's industrial energy sales for the years 2019-2021. As with the commercial energy sales forecast, the industrial energy sales forecast was significantly greater than the actual sales due to the impacts of the COVID-19 pandemic. The Company experienced some manufacturing plant closures and the coal mining sector further deteriorated in 2020.

### **2.12.4 Peak Demand Forecast Performance**

Exhibit C-24 provides a comparison of actual vs. the 2019 forecast of Kentucky Power's seasonal internal peak demands for 2019-2021. The exhibit also compares the calculated weather-normalized demands with the forecast values, thus indicating the extent to which weather affected actual demands.

There have been many changes in the local service territory over the three years since the 2019 forecast was filed. For, example the residential customer base has eroded, there have been additional energy legislation enacted and the commercial and industrial sectors experienced load decreases between 2019 and 2021. Items, such as these, have contributed to a diminished outlook for peak demand growth. In addition, recent trends in normalized demand growth are evaluated when developing the forecast. As with the energy sales, peak demand was adversely affected by the impacts of the COVID-19 pandemic.

### **2.12.5 Forecast Data and Model Results**

Exhibits G, H and I of the appendix provide input data, model statistics and model results for the short- and long-term energy and peak demand models for the Company.

### **2.12.6 Forecast Updates**

Each year the Company provides updates to the load forecast in response to requests related to Administrative Case 387.

### **2.13 KPSC Staff Recommendations Addressed**

On February 15, 2021, the Staff issued its Report on Kentucky Power's 2019 Integrated Resource Plan and recommended that the Company address certain items in its next IRP report (this report). The following items pertaining to load forecasting are restated from the Staff report and addressed below:

- 1. Kentucky Power should provide a more detailed description and explanation of the county level historical, and forecast data obtained from Moody's Analytics (or any other source) and the process employed to tailor data to specific counties and to the Kentucky Power's service territory. The explanation should also include a description of any alternative forecast scenarios provided by Moody's Analytics, such as optimistic and pessimistic growth scenarios reflecting different economic and demographic assumptions, which may influence the ultimate forecast data used by Kentucky Power.**

The counties used by the Company for service area economic and demographic drivers are provided in Exhibit C-25. The Company sums the data from the counties shown in that exhibit to get service area level drivers for modeling purposes. These counties were selected as the Company serves at least the majority of each county. Moody's Analytics does not develop scenarios at the county level. Also, the Company does not subscribe to Moody's Analytics scenarios for national level data.

- 2. Kentucky Power should provide a more detailed description of the different load forecast scenarios including how the base case assumptions were changed, how they differ from the base case, and a table depicting the various results.**

The Company developed six scenarios with the load forecast. The efficiencies 2022 scenario keeps the efficiencies in the residential and commercial SAE models at the 2022 levels throughout the forecast. The extended efficiencies scenario reflects the potential for additional efficiency standards beyond what has currently been enacted. This scenario relied on an EIA estimate for that potential change, it affects the residential and commercial SAE model analysis. The no DSM scenario excludes any new DSM. For this IRP, it is the same as the base forecast. The Company developed a mini model of total load to gauge the impact of high and low economic growth. The Company relied on national level economic growth scenarios provided by EIA and assumed similar bounds for high and low economic growth for the Company's service area. The weather scenario relied on potential

changes to heating and cooling degree days similar to the Purdue University study. The scenario affected those entities that have heating and cooling degree days as drivers. Exhibit C-26 provides the internal energy requirements under each of these scenarios.

**3. Kentucky Power should continue to update on Kentucky Power's economic development efforts including the impact on its load and employment in its service area.**

It is well documented that the Company's service area faces many negative economic pressures. The sluggish economy and significant coal mining activity reduction have contributed to the Kentucky Power service area seeing a 10% reduction in population since 2000. In comparison, the Commonwealth of Kentucky, which has a much stronger economy, experienced a 10% population increase over the same period. A more vibrant economy in the Company's service area will help stem the tide of declining population and its associated negative impacts. Company-sponsored economic development activities will contribute to strengthening the local economy. These impacts will not only be the effect of the direct employment of workers by these new activities, but it will also include the effects of items purchased from local suppliers and income to the workers in these industries.

The IMPLAN input-output model provides a method to estimate the direct, indirect and induced impacts as the result of a new project in the service area. The direct impacts represent the impacts associated with a firm for either an expansion or a new facility. The indirect impacts are representative of purchases from local suppliers as a result of the new activity. The induced impacts estimate the impacts of spending activities of the employees of direct and indirect firms. Since 2016, the Company's economic development team has identified 22 projects that could play a significant role in either a new firm entering the local economy or an existing firm expanding its operations. When these projects become operational, they are expected to create or support 1,291 new direct jobs. After evaluating these projects with the IMPLAN model, the Company estimates that these jobs will create or support nearly 2,500 jobs, which reflects the direct, indirect and induced effects.

These 22 projects will also increase load needs from the Company. If these projects develop as anticipated, they are projected to need 45 MW of demand and 258 GWh of energy, when fully operational.

- 4. Kentucky Power should provide a comparison of the annual and seasonal peak forecasts of the residential, commercial, and large commercial and industrial sales classes with actual results for the period following the 2019 IRP.**

See sections 2.12.1, 2.12.2, 2.12.3 and 2.12.4.

- 5. Kentucky Power should include discussions and analysis for the potential for and any increases in distributed energy resources on the load forecasts. This should include behind the meter generation at residential, commercial, and industrial customer locations. These should be evaluated separately and cumulatively including discussion of drivers encouraging and discouraging such development.**

The Company has seen two items that have potential for affecting energy sales but are not significant enough to have impacts on load forecast. Exhibit C-27 provides the Company's scenarios for electric vehicle adoption in Kentucky Power. While adoption growth is expected, it is not forecast to significantly affect energy sales. The Company also monitors distributed energy resources in the service area. Figure 9 and Exhibit C-28 provides the number of these items and kW capacity associated with them. As with electric vehicles, distributed energy resources are expected to grow but still do not have a significant impact on the load forecast.

### **3.0 Existing Resource Evaluation**

#### **3.1 Current Supply-Side Resources**

An initial step in the IRP process is the demonstration of the capacity resource requirements. This “needs” assessment must consider projections of:

- Existing capacity resources—current levels and anticipated changes;
- anticipated changes in capability due to efficiency and/or environmental considerations;
- changes resulting from decisions surrounding unit disposition evaluations;
- regional and sub-regional capacity and transmission constraints/limitations;
- load and peak demand;
- current DR/EE; and
- PJM capacity reserve margin and reliability criteria.

#### **3.2 Existing Kentucky Power Generating Resources**

The underlying minimum reserve margin criterion to be utilized in the determination of Kentucky Power’s capacity needs is based on the current PJM Installed Reserve Margin (IRM) of 14.7% for the 2024/2025 PJM Planning Year. The IRM continues at this level for the remainder of the planning period which ends with the 2037/2038 Planning Year.<sup>6</sup> The ultimate reserve margin is determined from the PJM Forecast Pool Requirement (FPR), which considers the IRM and PJM’s Pool-Wide Average Equivalent Demand Forced Outage Rate (EFOR<sub>D</sub>).<sup>7</sup> The PJM FPR is 8.9% for the 2024/2025 PJM Planning Year and continues at this level for the remainder of the planning period. Currently, Kentucky Power is an FRR entity within PJM. This allows the Company to plan to the lower IRM and be compensated for resources above the required reserve margin. For the recently completed DY 24/25, the PJM RPM reserve margin was calculated as 21.7%.

Table 3 below, displays key parameters for the supply-side generation resources currently utilized by Kentucky Power.

<sup>6</sup> Per Section 2.1.1 of PJM Manual 18: PJM Capacity Market (Effective: September 21, 2022). PJM Planning Parameters are updated each year prior to the upcoming Base Residual Auction. These values can be obtained from <http://pjm.com/markets-and-operations/rpm.aspx>. This IRP uses the PJM Planning Parameters published on December 2, 2022, which reflect PJM’s Capacity Performance proposal as currently interpreted by Kentucky Power.

<sup>7</sup> Per Section 2.1.4 of PJM Manual 18: PJM Capacity Market (Effective: September 21, 2022).

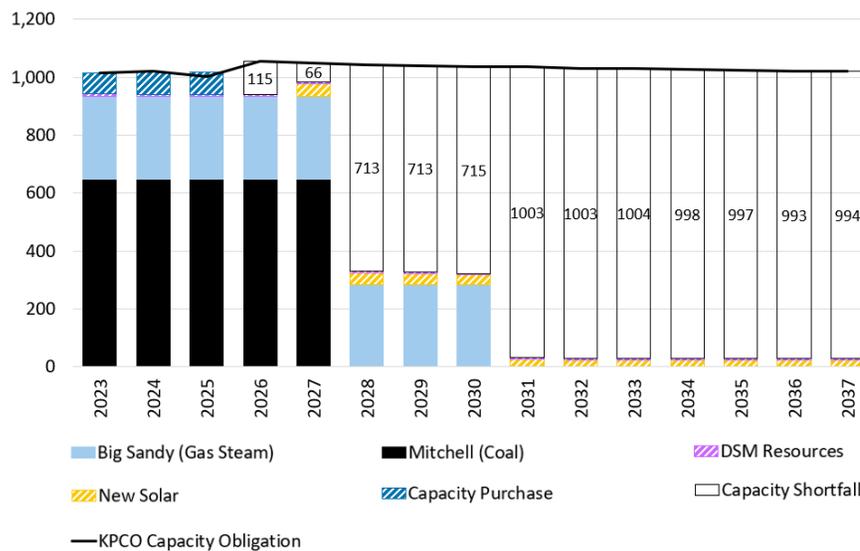
$FPR = (1 + IRM) * (1 - EFOR_D)$ . Reserve Margin = FPR – 1.

**Table 3. Kentucky Power Existing Supply-Side Resources**

| Plant     | Unit | Location        | Fuel        | In-Service Year | PJM ICAP Rating <sup>A</sup> | PJM UCAP Rating <sup>B</sup> |
|-----------|------|-----------------|-------------|-----------------|------------------------------|------------------------------|
| Big Sandy | 1    | Louisa, KY      | Natural Gas | 1963            | 295 <sup>C</sup>             | 285                          |
| Mitchell  | 1    | Moundsville, WV | Coal        | 1971            | 385 <sup>D</sup>             | 292 <sup>D</sup>             |
|           | 2    |                 |             |                 | 395 <sup>D</sup>             | 357 <sup>D</sup>             |

<sup>A</sup> ICAP = Installed Capacity  
<sup>B</sup> UCAP = Unforced Capacity  
<sup>C</sup> Big Sandy Unit 1 was converted from coal to natural gas in 2016  
<sup>D</sup> Represents Kentucky Power's 50% Ownership Stake in Mitchell Units 1 and 2

Figure 12 below illustrates Kentucky Power's "Going-In" capacity position with respect to the Company's obligation. The "Going-In" position represents how Kentucky Power's existing and planned capacity resources compare with the capacity requirements absent any incremental changes. Kentucky Power's capacity obligation is determined using the PJM capacity obligation attributed to Kentucky Power's zone in PJM up through 2025. After 2025, PJM does not offer a projection of capacity requirements for the Regional Transmission Organization (RTO). Beginning in 2026, Kentucky Power's capacity obligation is based upon the Company's own internal forecast of demand at the projected time of PJM's annual peak.



**Figure 12. Kentucky Power "Going-In" Capacity Position throughout Planning Period (MW-UCAP)**

Currently, Kentucky Power's supply-side resources consist of fossil-fuel fired generation from the Mitchell Plant and the Big Sandy Plant. Capacity from the Rockport Plant UPA for 393 MW expired on December 8, 2022. The capacity associated with Kentucky Power's share of the Mitchell Plant will cease after the 2027/2028 PJM Planning Year. Furthermore, the "Going-In" assumption is for the Big Sandy Plant to be retired at the end of 2030/2031 PJM Planning Year.

The Big Sandy Plant was, however, included as a resource option to extend its operations for 10 years in the IRP modeling.

For the purposes of this IRP and in line with agreements assuming a successful transfer to Liberty, Kentucky Power will work with other AEP operating companies in the PCBA to meet its obligations through the end of May 2024. For the PJM Planning Year beginning June 1, 2024, Kentucky Power will arrange to meet its capacity obligations through a combination of existing resources, the addition of new resources and the bilateral market or other means yet to be determined. Kentucky Power is currently working toward the addition of 100 MW of solar generation. Currently, this resource is planned to be on-line in 2027 and its impact is reflected in all portfolios in this IRP and is included in Figure 12.

Details on potential additional demand-side and supply-side future resources included in the AURORA model are discussed in Section 4.0 and Section 5.0.

### **3.3 Environmental Issues and Implications**

It should be noted that the following discussion of environmental regulations is based on the requirements currently in effect and those compliance options viewed as most likely to be implemented by the Company and incorporated into its analysis within this IRP. Activity including but not limited to Presidential Executive Orders, litigation, petitions for review, and Federal Environmental Protection Agency (EPA) proposals may delay the implementation of these rules, or alter the requirements set forth by these regulations. While such activities have the potential to materially change the compliance options available to the Company in the future, all potential outcomes cannot be reasonably foreseen or estimated, and the assumptions made within the IRP represent the Company's best estimation of outcomes as of the filing date. The Company is committed to closely following developments related to environmental regulations and will update its analysis of compliance options and timelines when sufficient information becomes available to make such judgments.

#### **3.3.1 Clean Air Act (CAA) Requirements**

The Clean Air Act (CAA) establishes a comprehensive program to protect and improve the nation's air quality and control sources of air emissions. The states implement and administer many of these programs and could impose additional or more stringent requirements. The primary regulatory programs that continue to drive investments in AEP's existing generating units include: (a) periodic revisions to National Ambient Air Quality Standards (NAAQS) and the development

of State Implementation Plans (SIPs) to achieve any more stringent standards, (b) implementation of the regional haze program by the states and the Federal EPA, (c) regulation of hazardous air pollutant emissions under the Mercury and Air Toxics Standard (MATS) rule, (d) implementation and review of Cross-State Air Pollution Rule (CSAPR), a Federal Implementation Plan (FIP) designed to eliminate significant contributions from sources in upwind states to non-attainment or maintenance areas in downwind states and (e) the Federal EPA's regulation of greenhouse gas emissions from fossil fueled electric generating units under Section 111 of the CAA.

Notable developments in significant CAA regulatory requirements affecting the Company's operations are discussed in the following sections.

### **3.3.2 National Ambient Air Quality Standards (NAAQS)**

The CAA requires the EPA to establish and periodically review NAAQS designed to protect public health and welfare. Revisions tend to increase the stringency of the standards, which in turn may require the Company to make investments in pollution control equipment at existing generating units, or, since most units are already well controlled, to make changes in how units are dispatched and operated. In January 2023, the EPA announced its proposed decision to strengthen the primary (health-based) annual PM<sub>2.5</sub> standard. The Biden administration has previously indicated that it is likely to revisit the NAAQS for ozone, which were left unchanged by the prior administration following its review. Management cannot currently predict if any changes to either standard are likely to be finalized or what such changes may be and will continue to monitor this issue and any future rulemakings.

The EPA has also issued information to assist the states in developing plans that address their obligations under the interstate transport provisions of the CAA. On November 7, 2018, EPA issued a final rule to provide state and local air management agencies with rules and guidance on planning to meet the 2015 ozone standard and setting SIP submittal deadlines for various elements of the 2015 standard. The earliest SIP revision was due within two years of the effective date of the non-attainment designation, during year 2020. In June of 2021, EPA announced that it was reconsidering the 2020 decision to leave the NAAQS standards unchanged.

### **3.3.3 Cross-State Air Pollution Rule (CSAPR)**

CSAPR is a regional trading program designed to address interstate transport of emissions that contribute significantly to non-attainment and maintenance of the 1997 ozone and PM NAAQS in downwind states. CSAPR relies on SO<sub>2</sub> and NO<sub>x</sub> allowances and individual state

budgets to compel further emission reductions from electric utility generating units. Interstate trading of allowances is allowed on a restricted basis.

In January 2021, the EPA finalized a revised CSAPR rule, which substantially reduces the ozone season NOx budgets in 2021-2024. Several utilities and other entities potentially subject to the Federal EPA's NOx regulations have challenged that final rule in the U.S. Court of Appeals for the District of Columbia Circuit and oral arguments were held in September 2022. Management cannot predict the outcome of that litigation but believes it can meet the requirements of the rule in the near term, and is evaluating its compliance options for later years, when the budgets are further reduced. In addition, in February 2023, the EPA Administrator finalized the denial of 2015 Ozone NAAQS SIPs for 19 states. A FIP that further revises the ozone season NOx budgets under the existing CSAPR program in those states, including Kentucky, is expected to be finalized in spring of 2023 and will likely take effect for the 2023 ozone season. Management is evaluating the impact of changes in the rule.

Collectively, the installed SCR and FGD systems' respective emission reductions of NOx and SO<sub>2</sub>, the use of allocated NOx and SO<sub>2</sub> emission allowances in conjunction with adjusted banked allowances, and the purchase of additional allowances as needed through the open market position Kentucky Power well moving forward for compliance with CSAPR.

### **3.3.4 Climate Change, CO<sub>2</sub> Regulation, and Energy Policy**

In 2019, the Affordable Clean Energy (ACE) rule established a framework for states to adopt standards of performance for utility boilers based on heat rate improvements for such boilers. However, in January 2021, the U.S. Court of Appeals for the District of Columbia Circuit vacated the ACE rule and remanded it to the EPA. In October 2021, the United States Supreme Court granted certiorari and combined four separate petitions seeking review of the District of Columbia Circuit Court decisions. Oral arguments were held in February 2022 and on June 30, 2022, the United States Supreme Court reversed the District of Columbia Circuit Court's decision and remanded for further proceedings. The EPA must take some action before anything is required of the utilities as a result of this decision. At a minimum, if the EPA intends to implement the ACE rule, it must conduct additional rulemaking to update its applicable deadlines, which have all passed. Alternatively, the EPA may abandon the ACE rule and proceed to regulate greenhouse gases through a new rule, the scope of which is unknown. The EPA has announced it expects to propose a new rule in 2023. Management is unable to predict how the EPA will respond to the Court's remand.

In 2018, the EPA filed a proposed rule revising the standards for new sources and determined that partial carbon capture and storage is not the best system of emission reduction because it is not available throughout the U.S. and is not cost-effective. That rule has not been finalized. The EPA has indicated that it intends to conduct a comprehensive review of the existing standards and, if appropriate, amend the emission standards for new fossil fuel-fired generating units. A proposed rule is expected in 2023. Management continues to actively monitor these rulemaking activities.

Kentucky Power continues to analyze the available information and engage with the states and other stakeholders in an effort to understand the available program design options and their potential impacts on its operations.

### **3.3.5 Coal Combustion Residual (CCR) Rule**

The EPA's CCR rule regulates the disposal and beneficial re-use of CCR, including fly ash and bottom ash created from coal-fired generating units and FGD gypsum generated at some coal-fired plants. The rule applies to active and inactive CCR landfills and surface impoundments at facilities of active electric utility or independent power producers.

In 2020, the EPA revised the CCR rule to include a requirement that unlined CCR storage ponds cease operations and initiate closure by April 11, 2021. The revised rule provides two options that allow facilities to extend the date by which they must cease receipt of coal ash and close the ponds.

The first option provides an extension to cease receipt of CCR no later than October 15, 2023 for most units, and October 15, 2024 for a narrow subset of units; however, the EPA's grant of such an extension will be based upon a satisfactory demonstration of the need for additional time to develop alternative ash disposal capacity and will be limited to the soonest timeframe technically feasible to cease receipt of CCR.

The second option is a retirement option, which provides a generating facility an extended operating time without developing alternative CCR disposal. Under the retirement option, a generating facility would have until October 17, 2023 to cease operation and to close CCR storage ponds 40 acres or less in size, or through October 17, 2028 for facilities with CCR storage ponds greater than 40 acres in size.

Under both the first and second options, each request must undergo formal review, including public comments, and be approved by the EPA. The Company filed an application for

an extension of time to cease receipt of coal ash at the Mitchell Plant. That application is still pending before EPA.

Kentucky Power's Mitchell Plant is equipped with a dry fly ash handling system and dry ash landfill to meet current permit requirements, and these in-place controls position the plant well for future compliance with the CCR rulemaking.

In January 2022, the EPA proposed to deny several extension requests filed by the other utilities based on allegations that those utilities are not in compliance with the CCR Rule (the January Actions). In November 2022, the Federal EPA finalized one of these denials. The Federal EPA's allegations of noncompliance rely on new interpretations of the CCR Rule requirements. The January Actions of the Federal EPA have been challenged in the U.S. Court of Appeals for the District of Columbia Circuit as unlawful rulemaking that revises the existing CCR Rule requirements without proper notice and without opportunity for comment. Management is unable to predict the outcome of that litigation.

### **3.3.6 Clean Water Act Regulations**

The EPA's ELG rule for generating facilities establishes limits for FGD wastewater, fly ash and bottom ash transport water and flue gas mercury control wastewater, which are to be implemented through each facility's wastewater discharge permit. A 2020 revision to the ELG rule established additional options for reusing and discharging small volumes of bottom ash transport water, provided an exception for retiring units and extended the compliance deadline to a date as soon as possible beginning one year after the rule was published but no later than December 2025. The Mitchell Plant's NPDES permit has been modified to include the requirements of the 2020 ELG Rule. On March 7, 2023, federal EPA signed proposed revisions to the ELG Rule which, if finalized, would establish a zero discharge standard for flue gas desulfurization wastewater and bottom ash transport water, and more stringent discharge limits for combustion residual leachate. Pursuant to the Commission's order in case 2021-00004, costs associated with ELG Rule compliance will be borne solely by Wheeling Power<sup>8</sup>.

<sup>8</sup> Order, In The Matter Of: Electronic Application Of Kentucky Power Company For Approval Of A Certificate Of Public Convenience And Necessity For Environmental Project Construction At The Mitchell Generating Station, An Amended Environmental Compliance Plan, And Revised Environmental Surcharge Tariff Sheet, Case No. 2021-00004 (Ky. P.S.C. July 15, 2021)

In January 2023, the EPA finalized a new rule revising the definition of “waters of the United States,” which will become effective in March 2023. The new rule expands the scope of the definition, which means that permits may be necessary where none were previously required and issued permits may need to be reopened to impose additional obligations. Kentucky Power is evaluating what impacts the revised rule will have on operations.

In October 2022, the United States Supreme Court heard an appeal related to the scope of “waters of the United States,” specifically which wetlands can be regulated as waters of the United States. Management cannot predict the outcome of that litigation.

### **3.4 Current Demand-Side Programs**

Demand-Side programs, also known as Demand-side Management (DSM) collectively includes utility programs aimed at influencing both the level of, and timing of, customer use of grid supplied electricity. These types of programs are structured to counter the ongoing need for increased supply resources through customer energy conservation or direct intervention in how customers use electricity. Typically, customer influence is achieved through some form of monetary or product enticement either through utility rebates or electric bill credit payments. Several demand-side programs typically available including Energy Efficiency (EE), Demand Reduction (DR), Conservation Voltage Reduction (CVR) and Distributed Generation (DG).

Generally, EE programs pay rebates directly to customers that are designed to encourage either end-use conservation or energy use reduction through the installation of or upgrade to more efficient end-use technologies. Some EE programs do not pay a cash rebate but instead encourage customers to reduce their annual energy consumption, or better manage their cost of electricity. Other types of EE programs seek to influence the manufacture and supply of more efficient end-use technologies through upstream rebate payments to end-use technology providers that reduce the technology cost to end-use customers. EE programs provide both energy and demand savings. Energy savings are accounted for as an around-the-clock energy reduction impact while demand

savings are accounted for in terms of their point-in-time, peak coincident use reduction on an hourly basis.

Generally, DR programs offer electric bill credits through tariff pricing mechanisms to elicit point-in-time energy use reductions (also known as demand, or coincident peak demand reductions). DR programs require specific action to monitor and control electricity use during periods of peak usage. Direct load control (DLC) programs allow utility control over customers' end use loads to achieve the specific peak period use reduction. Other types of DR programs allow customers to reduce use during peak periods on their own accord and pay bill credits based on the actual level of usage during peak period events. Demand response programs primarily provide peak coincident demand impacts but can provide energy impacts as well depending upon the extent of use reduction that occurs. For this IRP, incremental DR programs were not modeled however, the Company will continue to review opportunities to offer a program for its customers.

DG typically refers to small-scale customer-sited generation behind the customer meter. Common examples are Combined Heat and Power (CHP), residential and small commercial solar applications, and even wind. Currently, these sources represent a small component of demand-side resources, even with available federal tax credits and tariffs favorable to such applications. Kentucky Powers retail jurisdictions have "net metering" tariffs in place which currently allow excess generation to be credited to customers at a reduced retail rate. For this IRP, incremental DG resources were assumed to be captured within the Company's load forecast as discussed in section 2.6.1.

CVR (a.k.a. Electric Energy Consumption Optimization (EECO) or Volt-VAR Optimization (VVO)) is a process by which the utility systematically reduces voltages in its distribution network through the installation and use of sensors and controllers on the grid, resulting in a proportional reduction of load on the network. This voltage reduction still maintains minimum levels needed by customers but elicits lower energy use from end-use customer appliances without any changes in behavior or changes to appliance efficiencies. For this IRP, VVO resources were not included in the model as part of the available resources as the Company continues to review existing circuits and their performance.

### **3.4.1 Existing Levels of Active Demand Response (DR)**

Kentucky Power currently has active DR capability totaling 6.2 MW of peak DR Capability. This is achieved through demand response agreements with three customers.

### **3.4.2 Existing Levels of Distributed Generation (DG)**

As of December 2022, Kentucky Power had 184 net metering system installations including 156 residential systems and 27 commercial systems and 1 industrial system for a total of 2.5 MW of net metered photovoltaic DG (i.e., rooftop solar) throughout the service territory.

### **3.4.3 Cogeneration / Combined Heat and Power (CHP)**

Kentucky Power currently does not have any CHP customers within its territory. Kentucky Power has been and will continue to be open to discussing the possibility of CHP resources and how they fit into the Company's current tariffs.

### 3.5 KPSC Staff DSM Recommendations Addressed

As mentioned earlier, in its report on Kentucky Power's 2019 Integrated Resource Plan the Commission Staff recommended that the Company address certain items in its next IRP report (this report). The following items pertaining to DSM are restated from the Staff report and addressed below:

- 1. As required by the IRP regulation, 807 KAR 5:058, Kentucky Power should continue to define and improve procedures to evaluate, measure, and verify both actual costs and benefits of energy savings based on the actual dollar savings and energy savings. With the expiration of the Rockport UPA, the potential impact of new DSM programs will be much greater in the next IRP.**

The Company has initiated a detailed Market Potential Study to identify energy efficiency programs beneficial to its territory. For this IRP, a preliminary estimate of realistic potential was modeled as a proxy for economic selection of energy efficiency programs as part of the overall portfolio.

- 2. Kentucky Power should continue to scrutinize the results of each existing DSM program measure's cost-effectiveness test and provide those results in future DSM cases, along with detailed support for future DSM program expansions and additions after the Rockport UPA capacity is no longer available.**

The Company has only one currently approved DSM program, the Targeted Energy Efficiency program, which is a low-income weatherization program. Potential future DSM programs will be evaluated in the Market Potential Study and presented to the Commission for review and approval in a subsequent filing.

- 3. Kentucky Power should evaluate the marginal benefits and costs, including opportunity costs of VVO and DR programs.**

The Company currently has more than 20 circuits with VVO technology installed and will need to further evaluate their performance and benefits prior to the installation of VVO on additional circuits. With the potential transition to Liberty, additional studies will be needed to further understand the required technology transfers for ongoing support of this resource.

- 4. Kentucky Power should examine additional low-income programs that allow for more participants and easier access to EE alternatives.**

As part of the Market Potential Study being performed at the time of this IRP, low-income programs will be evaluated. An estimate of low-income energy efficiency program savings was included in all portfolios modeled in this IRP.

## **5. Kentucky Power should continue to monitor the DG additions.**

The Company continues to monitor the growth of DG additions in its territory as discussed in Section 2.13 and further illustrated in Section 2.6.1

### **3.6 AEP-PJM & Kentucky Power Transmission**

#### **3.6.1 General Description**

The AEP eastern transmission system (Eastern Zone) consists of the transmission facilities of the eleven eastern AEP operating or Transmission companies including I&M, Appalachian Power Company (APCo), Ohio Power Company (OPCo), Kentucky Power Company (Kentucky Power), Wheeling Power Company (WPCo), Kingsport Power Company (KgPCo), AEP Appalachian Transmission Company [APTC], AEP Indiana Michigan Transmission Company (IMTC), AEP Kentucky Transmission Company (KYTC), AEP Ohio Transmission Company (OHTC), and AEP West Virginia Transmission Company (WVTC). The Eastern Zone is composed of approximately 14,950 miles of circuitry operating at or above 100kV and includes over 2,120 miles of 765kV transmission lines overlaying 3,550 miles of 345kV lines and over 9,000 miles of 138kV circuitry. This expansive system allows the economical and reliable delivery of electric power approximately 21,610 MW of customer demand connected to the AEP eastern transmission system that takes transmission service under the PJM open access transmission tariff.

The Kentucky Power transmission system is composed of approximately 1,263 transmission circuit miles operating at or above 34.5 kV, which is connected with the AEP eastern transmission system, and takes transmission service under the PJM Open Access Transmission Tariff (OATT). The transmission circuit miles in Kentucky include approximately 258 miles of 765 kV, 168 miles of 345 kV, 48 miles of 161 kV, 359 miles of 138 kV lines, 416 miles of 69 kV, 166 miles of 46 kV lines, and 1 mile of 34.5kV lines. Exhibit F includes a map of the entire AEP System-East Zone transmission grid, as well as a map of Kentucky Power's transmission grid.

The AEP eastern transmission system, which includes Kentucky Power, is part of the Eastern Interconnection, the most integrated transmission system in North America. The entire AEP eastern transmission system is located within the ReliabilityFirst Corporation (RFC)<sup>9</sup>

<sup>9</sup> Responsible for the reliability and security of the electric grid in the Great Lakes and Mid-Atlantic areas of the United States, which includes all or portions of Delaware, New Jersey, Pennsylvania, Maryland, Virginia, Illinois, Wisconsin, Indiana, Ohio, Michigan, Kentucky, West Virginia,

geographic area. On October 1, 2004, AEP's eastern zone joined the PJM RTO and participates in the PJM regional planning, operations and markets.

The AEP eastern transmission system can be influenced by both internal and external factors from its geographical location, expanse, and numerous interconnections. Facility outages, load changes, or generation re-dispatch on neighboring companies' systems, in combination with power transactions across the interconnected network, can affect power flows on AEP's transmission facilities. As a result, the AEP eastern transmission system is designed and operated to perform adequately even with the outage of its most critical transmission elements or the unavailability of generation. The eastern transmission system conforms to the NERC Reliability Standards and applicable RFC standards and performance criteria.

The eastern transmission system conforms to the North American Electric Reliability Corporation (NERC) Reliability Standards and applicable RFC standards and performance criteria.

Over the years, AEP, and more recently PJM, entered into numerous study agreements to assess the impact of the connection of potential generation to the eastern transmission system. AEP companies, in conjunction with PJM, have interconnection agreements in their service territories with several plant developers. Other generation additions are planned to be connected to the eastern transmission system over the next several years (including upgrades to existing facilities, once studied and approved through the PJM Generation Interconnection queue process) and additional generation is under study for potential interconnection.

The integration of the generation now connected to the eastern transmission system required incremental transmission system upgrades, such as installation of larger capacity transformers and circuit breaker replacements. Other transmission system enhancements will be required to match general load growth and allow the connection of large load customers and any other generation facilities. In addition, transmission modifications may be required to address changes in power flow patterns and changes in local voltage profiles resulting from operation of the PJM and adjacent markets, such as MISO and NYISO. Over the years, numerous studies have been performed to assess the impact of the connection of potential merchant generation to the eastern transmission system.

Tennessee, and the District of Columbia under Federal Energy Regulatory Commission approved delegation agreements with the North American Electric Reliability Corporation.

There is one area in particular where the planned transmission enhancements will allow the reliable operation of the Kentucky Power transmission system. The transmission network in the Hazard-Wooton area that serves approximately 300 MW of load is connected to TVA's 161 kV system at TVA's Pineville Station and to LG&E's 161 kV system at Wooton Station. A comprehensive plan has been developed that will address these issues and has been the subject of past and present filings before the Kentucky Public Service Commission.<sup>10</sup>

### **3.6.2 Transmission Planning Process**

AEP and PJM coordinate the planning of the transmission facilities in the AEP Eastern Zone through a "bottom up/top down" approach. AEP will continue to develop transmission expansion plans to meet the applicable reliability criteria in support of PJM's transmission planning process. PJM will incorporate AEP's expansion plans with those of other PJM member utilities and then collectively evaluate the expansion plans as part of its Regional Transmission Expansion Plan (RTEP) process. The PJM assessment will ensure consistent and coordinated expansion of the overall bulk transmission system within its footprint. In accordance with this process, AEP will continue to take the lead for the planning of its local transmission system under the provisions of Schedule 6 of the PJM Operating Agreement and Attachment M-3 of the PJM tariff. By way of the RTEP, PJM will ensure that transmission expansion is developed for the entire RTO footprint via a single regional planning process that considers both regional and local needs and solutions, thus ensuring a consistent view of needs and expansion timing while minimizing expenditures. When regional system upgrade requirements are identified under the RTEP, PJM determines the individual member's responsibility as related to construction and costs to implement the expansion. This process identifies the most appropriate, reliable, and economical integrated transmission reinforcement plan for the entire region, while blending the local planning expertise of the transmission owners such as I&M with a regional view and formalized open Stakeholder input.

AEP's transmission planning criteria are consistent with North American Electric Reliability Corporation (NERC) and RFC reliability standards. The AEP planning criteria are filed with FERC annually as part of AEP's FERC Form 715 and these planning criteria are posted on the AEP website. Using these criteria, limitations, constraints and future potential deficiencies on

<sup>10</sup> *Application Of Kentucky Power Company For Certificate Of Public Convenience And Necessity To Construct A 161 kV Transmission Line In Perry And Leslie Counties, Kentucky And Associated Facilities*, KPSC Case Nos. 2017-00328 and 2019-00154.

the AEP transmission system are identified. Remedies are identified and budgeted as appropriate to ensure that system enhancements will be timed to address anticipated deficiencies. Similarly, AEP also identifies local needs and solutions through the Attachment M-3 planning process that drives Supplemental and asset management projects in the RTEP. All projects affecting the topology of the grid, whether PJM identified or Transmission Owner identified (TO Projects), are subject to the stakeholder process within PJM. While PJM does not formally “approve” TO Projects, these projects are submitted to PJM and reviewed with the Transmission Expansion Advisory Committee (TEAC) and Subregional RTEP Committee – Western on a periodic basis in accordance with the provisions in Attachment M-3 of the PJM Tariff. All TEAC and Subregional RTEP Committee- Western meetings are open and any transmission stakeholder can attend. TO Projects are subject to multiple rounds of review and detailed project information, including needs and alternative solutions. The Attachment M-3 process ensure stakeholders have an opportunity to review TO Projects and include the following meetings and posting requirements:

- Separate stakeholder meetings to discuss:
  - Criteria, assumptions, and models used to plant TO Projects (Assumptions Meeting);
  - Needs underlying TO Projects (Needs Meeting); and,
  - Potential solutions to meet those needs (Solutions Meeting).
- Posting of criteria, assumptions, and models at least 20 calendar days prior to the Assumptions Meeting and accepting post-meeting comments for ten days after this meeting;
- Posting of criteria violations and drivers at least ten days in advance of the Needs Meeting and accepting post-meeting comments for ten days after this meeting;
- Posting of potential solutions and alternatives identified by PJM Transmission Owners or stakeholders at least ten days in advance of the Solutions Meeting and accepting post-meeting comments for ten days after this meeting; and,
- Opportunity to submit final comments for PJM Transmission Owner review and consideration at least ten days before the Local Plan is integrated into the RTEP.

PJM also coordinates its regional expansion plan on behalf of the member utilities with neighboring utilities and/or RTOs, including the MISO, to ensure inter-regional reliability. The Joint Operating Agreement between PJM and the MISO provides for joint transmission planning. AEP, working on behalf of Kentucky Power and PJM, coordinate the planning of the transmission facilities in the AEP System-East Zone through a “bottom up/top down” approach. AEP will

continue to develop transmission expansion plans to meet the applicable reliability criteria in support of PJM's transmission planning process. PJM will incorporate these expansion plans with those of other PJM member utilities and then collectively evaluate the expansion plans as part of its Regional Transmission Expansion Plan (RTEP) process. The PJM assessment will ensure consistent and coordinated expansion of the overall bulk transmission system within its footprint. In accordance with this process, AEP will continue to take the lead for the planning of its local transmission system under the provisions of Schedule 6 of the PJM Operating Agreement. By way of the RTEP, PJM will ensure that transmission expansion is developed for the entire RTO footprint via a single regional planning process, ensuring a consistent view of needs and expansion timing while minimizing expenditures. When the RTEP identifies system upgrade requirements, PJM determines the individual member's responsibility as related to construction and costs to implement the expansion. This process identifies the most appropriate, reliable and economical integrated transmission reinforcement plan for the entire region, while blending the local expertise of the transmission owners such as Kentucky Power with a regional view and formalized open stakeholder input.

Limitations, constraints, and potential future deficiencies on the Kentucky Power transmission system are identified using the AEP planning criteria, which are posted on the AEP website.<sup>11</sup> The AEP planning criteria are filed with FERC annually as part of AEP's FERC Form 715 and pursuant to PJM's M-3 Process, are made available for review by PJM and transmission stakeholders. Projects that affect the topology of the grid and are necessary to address limitations, constraints and future potential deficiencies on the Kentucky Power transmission system are submitted to PJM and subjected to two rounds of review with the Transmission Expansion Advisory (TEAC) and Sub-regional RTEP Committee-Western. All transmission stakeholders may attend and participate in the TEAC and Sub-regional RTEP Committee-Western meetings. After stakeholder input is vetted through this committee meeting process, solutions are budgeted and implemented as appropriate to ensure that system enhancements will be timed to address anticipated deficiencies.

<sup>11</sup><https://www.aep.com/assets/docs/requiredpostings/TransmissionStudies/docs/2019/2019%20AEP%20PJM%20FERC%20715%20FINAL%20Part%204.pdf>.

PJM also coordinates its regional expansion plan on behalf of the member utilities with the neighboring utilities and/or RTOs, including MISO, to ensure inter-regional reliability. The Joint Operating Agreement between PJM and MISO provides for joint transmission planning.

### **3.6.3 System-Wide Reliability Measure**

Transmission reliability studies are conducted routinely for seasonal, near-term, and long-term horizons to assess the anticipated performance of the transmission system. The reliability impact of resource adequacy (either supply- or demand-side) would be evaluated as an inherent part of these overall reliability assessments. If reliability studies indicate the potential for inadequate transmission reliability, transmission expansion alternatives and/or operational remedial measures would be identified.

### **3.6.4 Evaluation of Adequacy for Load Growth**

As part of the on-going near-term/long-term planning process, AEP and PJM use the latest load forecasts along with information on system configuration, generation dispatch, and system transactions to develop models of the AEP transmission system. These models are the foundation for conducting performance appraisal studies based on established criteria to determine the potential for overloads, voltage problems, or other unacceptable operating problems under adverse system conditions. Whenever a potential problem is identified, PJM and AEP seek solutions to avoid the occurrence of problems. Solutions may include operating procedures or capital transmission reinforcements. Through this on-going process, AEP works diligently to maintain an adequate transmission system able to meet forecasted loads with a high degree of reliability.

In addition, PJM performs a Load Deliverability assessment on an annual basis using a 90/10<sup>12</sup> load forecast for areas that may need to rely on external resources to meet their demands during an emergency condition.

### **3.6.5 Evaluation of Other Factors**

As a member of PJM, and in compliance with FERC Orders 888 and 889, AEP is obligated to provide sufficient transmission capacity to support the wholesale electric energy market. In this regard, any committed generator interconnections and firm transmission services are taken into

<sup>12</sup> 90% probability that the actual peak load will be lower than the forecasted peak load and 10% probability that the actual peak load will be higher than the forecasted peak load.

consideration under AEP's and PJM's planning processes. In addition to providing reliable electric service to Kentucky Power's retail and wholesale customers, PJM will continue to use any available transmission capacity in AEP and Kentucky Power's transmission system to support the power supply and transmission reliability needs of the entire PJM – MISO joint market.

A number of generation requests have been initiated in the PJM generator interconnection queue. AEP, through its membership in PJM, is obligated to evaluate the impact of these projects and construct the transmission interconnection facilities and system upgrades required to connect any projects that sign an interconnection agreement. The amount of this planned generation that will actually come to fruition is unknown at this time.

### **3.6.6 Transmission Expansion Plans**

The transmission system expansion plans for the AEP system, which includes Kentucky Power, are developed and reviewed through the PJM stakeholder process to meet projected future requirements. To evaluate future transmission upgrades, AEP and PJM use power flow analyses to simulate normal conditions, and credible single and double contingencies to determine the potential thermal and voltage impact on the transmission system.

As discussed earlier, Kentucky Power, in coordination with PJM and transmission stakeholders, will continue to develop transmission reinforcements to serve its own load areas to ensure compatibility, reliability and cost efficiency.

### **3.6.7 FERC Form 715 Information**

A discussion of the AEP Eastern Zone reliability criteria for transmission planning, as well as the assessment practice used, is provided in AEP's 2021 FERC Form 715 Annual Transmission Planning and Evaluation Report, which can be found in Appendix Volume 3, Exhibit A. That filing also provides pertinent information on power flow studies and an evaluation and continued adequacy assessment of AEP's eastern transmission system.

As the transmission planner for AEP and AEP eastern subsidiaries, including Kentucky Power, PJM performs all required studies to assess the robustness of the Bulk Electric System. All the models used for these studies are created by and maintained by PJM with input from all transmission owners, including AEP and its subsidiaries. Information about current cases, models, or results can be requested from PJM directly. PJM is responsible for ensuring that AEP meets all NERC transmission planning requirements, including stability of the system.

Performance standards establish the basis for determining whether system response to credible events is acceptable. Depending on the nature of the study, one or more of the following performance standards will be assessed: thermal, voltage, relay, stability, and short circuit. In general, system response to events evolves over a period of several seconds or more. Steady state conditions can be simulated using a power flow computer program. A short circuit program can provide an estimate of the large magnitude currents, due to a disturbance, that must be detected by protective relays and interrupted by devices such as circuit breakers. A stability program simulates the power and voltage swings that occur as a result of a disturbance, which could lead to undesirable generator/relay tripping or cascading outages. Finally, a post contingency power flow study can be used to determine the voltages and line loading conditions following the removal of faulted facilities and any other facilities that trip as a result of the initial disturbance.

For the eastern AEP transmission system, thermal and voltage performance standards are usually the most constraining measures of reliable system performance.

Sufficient modeling of neighboring systems is essential in any study of the Bulk Electric System. Neighboring company information is obtained from the latest regional or interregional study group models, the RFC base cases, the Eastern Interconnection Reliability Assessment Group (ERAG) Multiregional Modeling Working Group (MMWG) power flow library, the PJM base cases, and neighboring companies themselves. In general, sufficient detail is obtained to adequately assess all events, outages, and changes in generation dispatch, which are contemplated in any given study. A discussion of the eastern AEP System reliability criteria for transmission planning, as well as the assessment practice used, is provided in AEP's 2019 FERC Form 715 Annual Transmission Planning and Evaluation Report. That filing also provides transmission maps, and pertinent information on power flow studies and an evaluation and continued adequacy assessment of AEP's eastern transmission system.

As the transmission planner for AEP and Kentucky Power, PJM performs all required studies to assess the robustness of the Bulk Electric System. All the models used for these studies are created by and maintained by PJM with input from all transmission owners, including AEP. Information about current cases, models, or results can be requested from PJM directly. PJM is responsible for ensuring that AEP meets all NERC transmission planning requirements, including stability of the system.

Performance standards establish the basis for determining whether system response to credible events is acceptable. Depending on the nature of the study, one or more of the following performance standards will be assessed: thermal, voltage, relay, stability, and short circuit. In

general, system response to events evolves over a period of several seconds or more. Steady state conditions can be simulated using a power flow computer program. A short circuit program can provide an estimate of the large magnitude currents, due to a disturbance, that must be detected by protective relays and interrupted by devices such as circuit breakers. A stability program simulates the power and voltage swings that occur as a result of a disturbance, which could lead to undesirable generator/relay tripping or cascading outages. Finally, a post contingency power flow study can be used to determine the voltages and line loading conditions following the removal of faulted facilities and any other facilities that trip as a result of the initial disturbance.

The planning process for AEP's transmission network embraces two major sets of contingency tests to ensure reliability. The first set, which applies to both bulk and local area transmission assessment and planning, includes all significant single contingencies. The second set, which is applicable only to the Bulk Electric System, includes multiple and more extreme contingencies. For the AEP system, thermal and voltage performance standards are usually the most constraining measures of reliable system performance.

Sufficient modeling of neighboring systems is essential in any study of the Bulk Electric System. Neighboring company information is obtained from the latest regional or interregional study group models, the RFC base cases, the Eastern Interconnection Reliability Assessment Group (ERAG) Multiregional Modeling Working Group (MMWG) power flow library, the PJM base cases, and neighboring companies themselves. In general, sufficient detail is obtained to adequately assess all events, outages and changes in generation dispatch, which are contemplated in any given study.

### **3.6.8 Kentucky Transmission Projects**

A brief summary of the major transmission projects in Kentucky Power's service territory is provided below. This list includes projects which have recently been completed, projects which will be completed within the next three years, and projects which will begin in the next three years.

- **Hazard – Wooton 161 kV Project**

This project addresses thermal violations, equipment material condition, performance, and risk concerns identified with the Hazard-Wooton 161 kV line and 161/138 kV transformer. Specifically, this project will rebuild approximately 6.6 miles of the Hazard - Wooton 161 kV line and replace three, single phase 161/138 kV transformers at Hazard with a single higher capacity three-phase transformer. Additionally, this project will replace the existing 138/69 kV

transformers with new 138/69 kV 130 MVA transformers due to identified equipment material condition, performance, and risk concerns. The revised in-service date for this project is December 2022.

**Hazard – Wooton 161 kV Line**

Existing Summer Emergency Conductor Capacity: 215 MVA Proposed Summer  
Emergency Conductor Capacity: 390 MVA

**Hazard 161/138 kV Transformer**

Existing Nameplate Capacity: 135 MVA Proposed Nameplate Capacity: 350 MVA

**Hazard 138/69 kV Transformer #1**

Existing Nameplate Capacity: 50 MVA  
Proposed Nameplate Capacity: 130 MVA

- **Wooton - Stinnett 161 kV Project**

The proposed project would rebuild the approximately 11 mile Wooton - Stinnett 161 kV line. The project would address equipment material conditions, performance, and risk concerns associated with the 1940's wood structure line. Current projected in service date for the project December 2024.

**Wooton – Stinnett 161 kV Line**

Existing Summer Emergency Conductor Capacity: 215 MVA  
Proposed Summer Emergency Conductor Capacity: 390 MVA

- **Stinnett – Pineville 161 kV Project**

The proposed project would rebuild the approximately 30 mile Wooton – Stinnett 161 kV line. The project would address equipment material conditions, performance, and risk concerns associated with the 1940's wood structure line. Current projected in service date for the project November 2030.

**Stinnett - Pineville 161 kV Line**

Existing Summer Emergency Conductor Capacity: 215 MVA  
Proposed Summer Emergency Conductor Capacity: 390 MVA

- **Leslie Transformer Replacement**

This project will replace the 161/69 kV transformer at Leslie station. The transformer is being replaced due to insulation and short circuit strength breakdown. Current projected in-service date for the transformer replacement is November 2024.

**Leslie Transformer**

Existing Nameplate Capacity: 90 MVA  
Proposed Nameplate Capacity: 130 MVA

- **Kewanee-Enterprise Park 138 kV Transmission Line Project**

This project will address thermal and voltage violations identified on the Pikeville 46kV network by establishing a new substation (Kewanee) to the west (~1.5 mi.) of the existing Fords Branch Station, potentially in/near the new Kentucky Enterprise Industrial Park. This new station will consist of four -138 kV breaker ring bus and two step-down distribution voltage transformers and a 28.8 MVAR Cap Bank. The project will construct approximately 5 miles of new double circuit 138 kV line in order to loop the new substation into the existing Beaver Creek – Cedar Creek 138 kV circuit. The current projected in-service date is May 2023.

- **Beaver Creek – Kewanee 138kV Line**

- Proposed Summer Emergency Conductor Capacity 378 MVA

- **Kewanee – Cedar Creek 138kV Line**

- Proposed Summer Emergency Conductor Capacity 378 MVA

- **Middle Creek BESS and Middle Creek – Prestonsburg 46kV Rebuild**

This project will address needs on ~23 miles of the Falcon – Prestonsburg 46kV circuit. Falcon – Prestonsburg 46kV line consists of 1940s wood structures. As part of the solution, A BESS (Battery Energy Storage Solution) will be installed at Middle Creek substation. The project will retire ~14.5 miles of 46kV lines between Falcon and Middle Creek substations. The project will rebuild ~8.5 miles of 46kV line between Prestonsburg and Middle Creek station. The current projected in-service date for the project is November 2025.

- **Middle Creek – Prestonsburg 46kV Line**

- Existing Summer Emergency Conductor Capacity: 23 MVA

- Proposed Summer Emergency Conductor Capacity 70 MVA

- **Garrett Area Improvements**

This project will construct ~9.3 miles of single circuit 138kV from Soft Shell to Garrett picking up Salt Lick Co-op via Snag Fork along the way. The Project will also construct ~3.5 miles of single circuit 138kV from the Eastern station to Garrett station, a short extension from the new Eastern station to the existing Hays Branch metering point, a short extension to existing Morgan Fork – Hays Branch 138 kV circuit from Eastern station, and a double circuit cut into existing Hays Branch - Morgan Fork line to tie into new Hays Branch S.S PoP switch. The Project will also require installation of a new heavy double circuit dead-end tap structure on the existing Hays Branch – Morgan Fork 138kV Line (Due to unequal loading on the transmission line). In addition, the Garrett station will be expanded to install a 138kV three breaker ring bus (If space becomes a constraint, a straight bus arrangement with two 138 kV breakers and a circuit switcher on the high side of the transformer may be installed), and a 138/12kV 30 MVA transformer. A new 138 kV

substation (Eastern) will be constructed south of the existing Hays Branch station and will include two 138kV breakers (3000A 40kA) on exits toward Morgan Fork and Garrett station. Finally, the Project will construct a new Snag Fork Switch Station and install a 3-way phase over phase motorized (automated) switching structure near Saltlick to serve the EKPC co-op. The current projected in-service date is November 2024.

**Eastern - Garrett 138kV Line**

Existing Summer Emergency Conductor Capacity: 29-50 MVA

Proposed Summer Emergency Conductor Capacity 253 MVA

**Garrett – Soft Shell 138kV Line**

Existing Summer Emergency Conductor Capacity: 29-50 MVA

Proposed Summer Emergency Conductor Capacity 253 MVA

- **Inez Station Improvements**

At Inez station, replace Breakers B, B2, C and C1. Install three new 138kV breakers and create third string in the existing breaker and half configuration. Replace 138/69kV Inez Transformer #1 with a 138/69kV/12kV 90 MVA autotransformer. Move the new Inez 139/69/12kV Transformer #1 and Martiki 138kV feed to the new string. Install Breaker B1 towards Johns Creek to complete the string. Installation of Breaker B1 and the third string addresses dissimilar zones of protection between the #1 bus and 20+ mile Inez to Johns Creek 138 kV circuit and dissimilar zones of protection between the 138 kV bus #2, 138/69 kV transformer #1, and the 138 kV circuit to the Martiki coal service point. Replace Cap bank switchers CS-BB and CS-CC with 138kV circuit breakers. Replace obsolete relays at Inez substation. Retire 69kV Capacitor Bank and the circuit switcher AA. Projected in-service date for this project is December 2022.

**Inez Transformer**

Existing 138/69kV Nameplate Capacity: 50 MVA

Proposed 138/69kV Nameplate Capacity: 90 MVA

- **Fleming Station Rebuild**

Rebuild the Fleming station in the clear; Replace 138/69kV Fleming Transformer #1 with 138/69 kV 130 MVA transformer with high side 138 kV CB; Install a 5 breaker 69 kV ring bus on the low side of the transformer, replace 69 kV circuit switcher AA, replace 69/12kV transformer #3 with 69/12 kV 30 MVA transformer, replace 12 kV CB A and D. Retire existing Fleming substation. The current project in-service date for this project is September 2023.

**Fleming 138/69kV Transformer**

Existing 138/69kV Nameplate Capacity: 130 MVA

Proposed 138/69kV Nameplate Capacity: 130 MVA

- **Allen Station Improvement**

Rebuild Allen Station in the clear. A 0.2 mile segment of the Allen-East Prestonburg 46 kV line will be relocated to the new station. The McKinney-Allen line extension will walk around the south and east sides of the existing Allen station to the new Allen Station being built in the clear. A short segment of new single circuit 69 kV line and a short segment of new double circuit 69 kV line (both operated at 46 kV) will be added to the line to tie into the new Allen Station bays. A segment of the Stanville-Allen line will have to be relocated to the new station. A 0.25 mile segment of the existing Allen-Prestonburg single circuit will be relocated. Remote end work will be required at Prestonburg, Stanville, and McKinney stations. The current projected in-service date for this project is June 2024.

- **Stanville - Allen 46kV Line**

- Existing Summer Emergency Conductor Capacity: 47 MVA

- Proposed Summer Emergency Conductor Capacity 50 MVA

- **New Camp Loop**

In conjunction with the baseline work identified under B3288 which would install new 69kV line between Stone and New Camp via Orinoco substation, the following is proposed under this solution to address the identified needs on the Sprigg – Stone 46kV line. Replace Belfry substation with Orinoco substation by installing a 69KV box bay and 12KV rural bay to be built in the clear southwest of existing Belfry station. Install 69/12kV 20 MVA transformer and two 12kV breakers. Retire Belfry 46kV substation. Retire 46kV equipment from Stone substation. At Hatfield substation, replace MOAB Y with a 69KV Circuit Breaker towards Stone 69kV line via New Camp and Orinoco. Retire the 46kV equipment at Sprigg station towards Stone (via Belfry). Retire Turkey Creek Tap. Retire the ~8.23 miles of the 46kV Sprigg – Stone 46 KV circuit. The current projected in-service date for this project is November 2025.

- **New Camp - Orinoco 69kV Line**

- Proposed Summer Emergency Conductor Capacity: 142 MVA

- **Orinoco – Stone 69kV Line**

- Proposed Summer Emergency Conductor Capacity: 142 MVA

- **Elwood Station Replacement**

Construct a greenfield 138KV Myra Station to replace Elwood Station. Install 138KV double box bay with two 138kV circuit breakers and line exits to Fremont & Beaver Creek. Install 138/34.5 kV transformer with high-side circuit switcher and associated 34.5kV breakers. Install fiber connectivity for upgraded relaying. Construct a new ~2 mi double circuit 138 kV line to the proposed Myra substation. Reconfigure the existing Beaver Creek - Fremont 138kV circuit to

facilitate the construction of the new double circuit Myra Extension 138kV Line to feed the proposed Myra Substation. Install two replacement structures in order to bypass Elwood station. Transfer wires from old structure to new structure. Tie new structure to Cedar Creek-Henry Clay 46kV Line. The current projected in-service date for this project is September 2026.

**Beaver Creek - Myra 138kV Line**

Proposed Summer Emergency Conductor Capacity: 310 MVA

**Myra – Fremont 138kV Line**

Proposed Summer Emergency Conductor Capacity: 310 MVA

- **Burton Station Replacement**

Construct a greenfield 69/12 KV Osborne Station to replace Burton Station, including a high side 69KV Phase Over Phase switch, fiber connectivity, a circuit switcher, and one 69/12kV 12/16/20MVA transformer and associated distribution feeders. Construct a greenfield 69/12 KV Osborne Station to replace Burton Station, including a high side 69KV Phase Over Phase switch, fiber connectivity, a circuit switcher, and one 69/12kV 12/16/20MVA transformer and associated distribution feeders. Construct a new ~0.5 mi double circuit 69 kV line to the proposed Osborne substation. Reconfigure the existing Beaver Creek - Fleming 69kV line to facilitate the construction of the new double circuit Osborne 69kV line to feed the proposed Osborne Substation. The current projected in-service date for this project is November 2023.

**Beaver Creek - Osborne 69kV Line**

Proposed Summer Emergency Conductor Capacity: 75 MVA

**Osborne – Weeksbury 69kV Line**

Proposed Summer Emergency Conductor Capacity: 75 MVA

- **Dewey Station Upgrades**

In the 2025 Winter RTEP case, there are voltage violations at Stanville and Hays Branch 138kV buses, Mayo Trail and West Paintsville 69kV buses and Kenwood, Prestonsburg, East Prestonsburg, Allen, and Middle Creek 46KV in the event of an N-1-1 scenario. To mitigate the voltage violations at Dewey substation, Install 138 kV circuit switcher on the 138/69 kV transformer #1 and 138/34.5 kV transformer #2 at Dewey. Install 138 kV 2000 A 40 kA breaker on Stanville line at Dewey 138 kV substation. The current projected in-service date for this project is November 2025.

**Dewey 138/69kV Transformer**

Existing 138/69kV Nameplate Capacity: 50 MVA

- **Prestonburg – Thelma Rebuild and Thelma Transformer Replacement**

In 2026 RTEP Winter case, voltage magnitude and voltage drop violations at McKinney, Salisbury, Allen, East Prestonsburg, Prestonsburg, Middle Creek, Kenwood 46kV buses are identified for multiple N-1-1 contingency pairs. In 2026 RTEP Winter case, the 46kV winding of the Thelma TR#1 is overload for multiple N-1-1 contingency pairs. To address the voltage violations, Rebuild Prestonsburg - Thelma 46kV circuit, approximately 14 miles. The project also proposes to retire Jenny Wiley SS. To address thermal violations, Replace Thelma Transformer #1 with a 138/69/46kV 130/130/90 MVA transformer and replace 46kV risers and relaying towards Kenwood substation. Existing TR#1 to be used as spare. The current projected in-service date for this project is November 2026.

**Thelma 138/69/46kV Transformer**

Existing 138/69/46kV Nameplate Capacity: 62.5/62.5/35 MVA

Proposed 138/69/46kV Nameplate capacity: 130/130/90 MVA

**Prestonsburg – Thelma 46kV Line**

Existing Summer Emergency Conductor Capacity: 50 MVA

Proposed Summer Emergency Conductor Capacity 85 MVA

- **Bellefonte Station Upgrades**

In 2026 Summer RTEP case, the 69kV risers between 69kV Bus #2 and 69kV winding of TR#3 are overloaded for multiple N-1-1 contingencies. In 2023 RTEP short circuit case, Bellefonte 69kV breakers JJ, C, I, AB, Z and G are overdutied. To address short circuit violations, replace overdutied 69kV breakers C, G, I, Z, AB, and JJ in place. The new 69kV breakers to be rated at 3000 A 40kA breakers. To mitigate the thermal violations, Replace Bellefonte 69kV risers on the section between Bellefonte TR#3 and 69kV Bus #2. The project also proposes remote end relaying at Point Pleasant, Coalton and South Point 69KV substations.

Apart from baseline violations at Bellefonte substation, Bellefonte substation has multiple yards, each with a set of needs. The proposed work in the 138kV yard, will retire Transformer #5, #1. Depending upon the 34kV yard retirement schedule, replace Transformers #2 with 120/160/200 MVA Transformer. Install 138kV circuit switchers on the new transformer. Replace the underground cables. The proposed work in the 69kV yard, will replace breakers H, T relocate the Raceland 69kV feed to 69kV Bus #1, relocate and replace the 69kV Cap bank switcher to 69kV Bus #1 along with the 69kV Cap bank. The proposed work in the 34kV yard, will retire the 34kV yard. Bellefonte substation has substantial number of relays that need replacement will also be replaced as part of proposed substation upgrade work. The current projected in-service date for this project is June 2026.

**Bellefonte 69kV Risers**

Existing Summer Emergency Conductor Capacity: 168 MVA

Proposed Summer Emergency Conductor Capacity: 210 MVA

**Bellefonte 138/69kV Transformer #2**

Existing 138/69/46kV Nameplate Capacity: 196 MVA

Proposed 138/69/46kV Nameplate capacity: 200 MVA

- **Hatfield Station Upgrades**

The existing Hatfield substation is need for rehab. To address the supplemental needs at Hatfield substation, the proposed Hatfield Station upgrade project proposes to replace Ground switch MOAB “X1” with a new 138 kV circuit switcher, replace MOAB 11 with a 138kV breaker, replace Circuit Breaker B, replace electromechanical and static relaying identified in the validation summary and retire the 46/7kV 111 MVA transformer #2. This will address equipment material condition, performance and risk as well as improve operational flexibility and performance of Hatfield Station and the Hatfield - Sprigg 138 kV line. The current projected in-service date for this project is November 2025.

**Hatfield 138/69/46kV Transformer**

Existing 138/69kV Nameplate Capacity: 130 MVA

- **Breaks – Dorton conversion**

In 2027 Winter RTEP case, Dorton, Pike 29, Rob Fork, Burdine, Henry Clay, Draffin 46KV buses (along the Cedar Creek - Elwood and Breaks - Dorton – Elwood 46KV circuits) experience voltage magnitude and drop violations under multiple N-1-1 contingency scenarios. Convert Dorton – Breaks 46kV line section to 69kV. Construct Henry Clay and Draffin stations to 69kV standards. Retire Cedar Creek – Elwood 46kV circuit. Retire ~ 5 mi Henry Clay – Elwood 46kV line section. This proposal completely addresses identified supplemental needs on Cedar Creek – Elwood 46kV under Need AEP2019-AP032 (presented 8/29/2019 W-SRRTEP) and identified supplemental needs on Breaks – Dorton – Elwood 46kV circuit under AEP-2020-AP012 (presented 2/21/2020 W-SRRTEP). The proposal proposes retirement of roughly 23.4 mi of obsolete 46kV line. The current projected in-service date for this project is November 2027.

**Breaks - Dorton 69kV Line**

Proposed Summer Emergency Conductor Capacity: 142 MVA

In addition, several other projects outside of the Kentucky area have also been completed or are underway across the AEP System-East Zone. These projects contribute to the robust health and capacity of the overall transmission grid, which benefits all customers.

AEP's transmission system is anticipated to continue to perform reliably for the upcoming peak load seasons. AEP will continue to assess the need to expand its system to ensure adequate reliability for Kentucky customers.

### **3.7 Distribution**

Kentucky Power manages the distribution system to the National Electric Safety Code standards using AEP guidelines and engineering practices. The distribution system has been enhanced over the years with the construction of new substations and distribution lines to meet customers' needs and improve service reliability and quality. Substation transformer and circuit loads are monitored, and load forecasts are developed for an annual, 5-year and 10-year planning period to meet customer load growth and/or load shifting as the economic downturn impacts the local communities. Since 2019, the Company has upgraded distribution substations with plans to either upgrade or add additional substations through 2037, mainly for service improvement opportunities. The Company evaluates Distributed Energy Resources including Energy Storage as alternatives when planning for capacity and reliability upgrades. The Company focuses on the worst performing circuits to make necessary quality improvements. These include replacing aging station equipment, poles and wire. In rough terrain areas, the Company makes efforts to relocate inaccessible facilities to be truck approachable to reduce response and repair time.

## 4.0 Demand-Side Resource Options

### 4.1 Energy Efficiency Benchmarking

#### 4.1.1 Savings

The energy efficiency savings inputs for the IRP are based on the results of a benchmarking exercise conducted by the GDS Associates who is conducting a specific Market Potential Study for Kentucky Power. GDS reviewed the results from recent market potential studies conducted by GDS in Kentucky and Indiana and determined that savings were approximately 1% of utility sales on an incremental annual basis at the achievable potential level. GDS also reviewed EIA Form 861 data<sup>13</sup> for all investor-owned utilities in the United States and found the average annual energy savings to be approximately 1% per year in 2020, with a slightly higher average annual savings from the residential sector compared to the commercial/industrial sector.

Based on the results of the benchmarking, GDS assumed that Kentucky Power could ramp up to a 1% annual savings level over four years, with a starting point of 0.4% annual savings in 2023. From 2027-2042, the savings were held steady at about 1% annually. The table below provides the assumed incremental annual savings level, by sector, and in total (not inclusive of income-qualified programs), across the four years of ramping up of savings (2023-2026) and then for the remaining years of the IRP timeframe (2027-2042).

**Table 4. Energy Efficiency Savings Inputs for the IRP**

| Incremental Annual Savings (MWh) | 2023         | 2024         | 2025         | 2026         | 2027-2042    |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|
| Residential                      | 0.50%        | 0.70%        | 0.95%        | 1.20%        | 1.20%        |
| Commercial                       | 0.50%        | 0.70%        | 0.95%        | 1.20%        | 1.20%        |
| Industrial/                      | 0.25%        | 0.40%        | 0.55%        | 0.70%        | 0.70%        |
| <b>Total (All Sales)</b>         | <b>0.40%</b> | <b>0.59%</b> | <b>0.81%</b> | <b>1.02%</b> | <b>1.02%</b> |

Savings levels attributable to income-qualified programs/measures within the residential sector in 2023 are based on a 2.5% increase over 2022 planning estimates, with future savings growth ramping up over four years in the same manner described above and holding steady from 2027-2042.

<sup>13</sup> Annual Electric Power Industry Report, Form EIA-861 detailed data files, Schedule 6 Part A;

<https://www.eia.gov/electricity/data/eia861/>

#### **4.1.2 Costs**

The energy efficiency costs inputs for the IRP are also based on the benchmarking exercise. The GDS Team leveraged the results of one of its recent potential studies to calculate a utility cost and total resource cost per unit of energy saved (\$/MWh). These per unit of energy costs were multiplied by the MWh savings resulting from the savings as a percent of annual sales by sector.

### **4.2 Energy Efficiency Bundles**

#### **4.2.1 Determination of Bundles**

For the IRP analysis, EE measures were modeled to compete directly with supply-side resources. For the modeling, the EE measures were aggregated into blocks of resources to limit the IRP's capacity expansion model run-time. The GDS Team identified three residential bundles, one income-qualified bundle, and two C&I bundles for IRP inputs.

The income-qualified bundle consists of measures that would be offered to qualifying residential customers through a program offering a variety of low-cost direct install measures as well as higher cost and high savings equipment and building retrofit measures such as efficient heat pumps and attic insulation.

The residential bundles consist of a low/medium cost bundle, a high-cost bundle, and a behavioral bundle. The low/medium cost bundle consists of measures which cost less than \$100/MWh. The low/medium cost bundle has an overall cost of ~\$40/MWh. The high-cost bundle includes measures which cost more than \$100/MWh. The behavioral bundle separates out measures which have an effective useful life ("EUL") of one year to prevent these measures from affecting the overall EUL of a bundle which might include both behavioral and non-behavioral measures.

The C&I bundles were similarly created, using a \$100/MWh cutoff to create a low bundle and a high bundle. For the C&I measures, the cutoff incidentally created a low bundle, consisting of all non-behavioral measures, and a high bundle, consisting of just behavioral measures.

Based on measure-bundle assignment, the GDS Team then mapped the savings from those identified in the energy efficiency benchmarking exercise into the identified EE bundles for IRP model input. It is important to note that the bundles are not equal in measure counts or overall magnitude of savings. Select bundles are as small as a single measure type, while other bundles represent a comprehensive suite of measures across various end-uses.

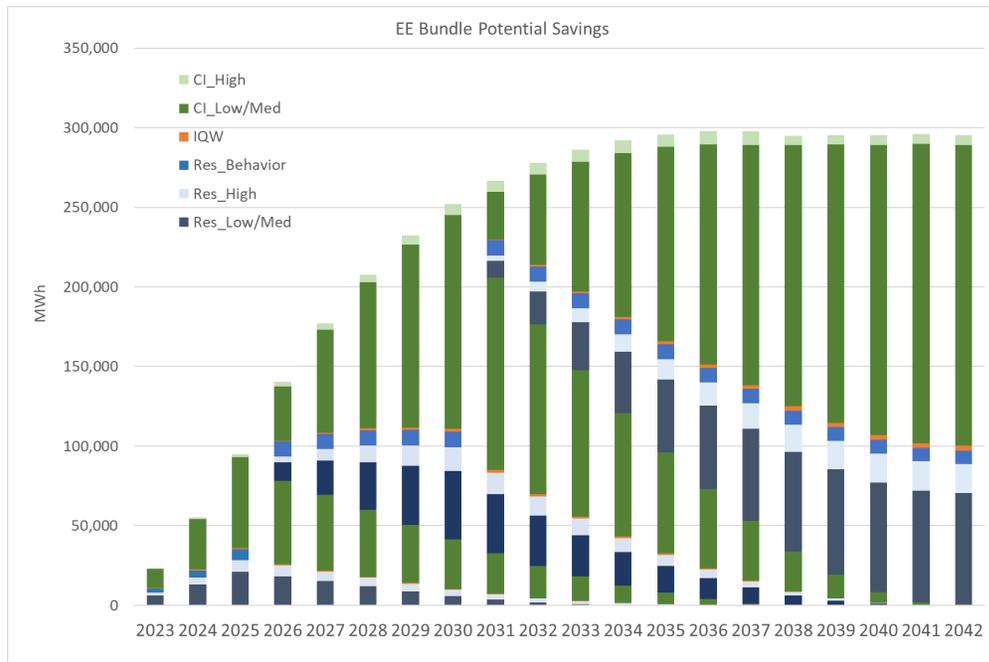
#### **4.2.2 Bundle Adjustments**

Two adjustments to the savings and an additional adjustment to cost inputs from the energy efficiency benchmarking were made prior to including in the IRP. The first adjustment was to provide the program potential savings at the generator level. The savings in the benchmarking are at the meter, and thus needed to be adjusted to the generator level. This adjustment was made by multiplying the meter-level savings by the Kentucky Power line loss factor. The second adjustment was made to align the projections of future gross energy efficiency potential accounted for in the load forecast as discussed in section 2.6.2.

On the cost side, because the IRP's Capacity Expansion Model does not calculate avoided transmission and distribution (T&D) benefit associated with DSM measures, the GDS Team provided Kentucky Power with energy efficiency costs that have been adjusted to net out an avoided T&D benefit of \$11.5/kW-yr based on a 3 year average estimate.

The energy efficiency provided to Kentucky Power for IRP modeling, is illustrated in Figure 13 below. The GDS team provided the energy efficiency IRP inputs across three different vintage bundles: 2023-2025, 2026-2030, and 2031-2042 to better optimize the value of energy efficiency to the system over time periods that align with subsequent planning periods. The energy efficiency MWh and MW impacts for each vintage block provide the cumulative annual lifetime savings. Conversely, because energy efficiency program costs are only incurred during the year of measure installation, costs are only reflected during the first identified year in each vintage block.

In addition to the annual impacts shown in the tables above, typical hourly (8,760) shapes for each EE bundle, that were assumed to reflect the various measures and end-uses assumed in each EE bundle based on the distribution of end-use savings consistent with the benchmarking analysis, were provided to the Kentucky Power modeling team to permit the IRP model to assess the value of energy savings on an hourly basis. The GDS Team disaggregated the EE bundle savings based on publicly available end-use load shapes for Kentucky that are published by NREL in order to produce an overall bundle 8,760 savings profile. As a result, the 8,760 shapes are unique for each EE sector and vintage bundle.



**Figure 13. EE IRP Bundles – MWh Savings Potential**

## **5.0 Supply-Side Resource Options**

### **5.1 Introduction**

The future landscape of generation technologies has become increasingly uncertain. The roles of traditional technologies in providing baseload and intermediate-load electricity are being challenged by zero marginal cost renewable technologies. The emergence of advanced generation technologies could significantly change the future economics of generation rendering certain technologies obsolete and leading to a risk of premature retirements. The evolving electricity generation mix may also require a more diverse set of resources that can provide different system needs at different times to maintain system reliability particularly under extreme weather conditions.

The supply-side resource options considered by Kentucky Power in this IRP fall into six categories: base/intermediate alternatives, peaking alternatives, renewable alternatives, advanced generation alternatives, long-duration storage alternatives, and short-term market purchases.

Unless stated otherwise, Kentucky Power relied on EIA's 2022 AEO as the starting point for the technology cost and performance assumptions for new utility scale generation in the PJM footprint. Reference case changes to technology cost and performance over time are based on the medium case of the 2022 National Renewable Energy Laboratory's ("NREL") annual technology baseline ("NREL ATB 2022") report.<sup>14</sup> Cost assumptions for advanced technologies are generally based on a compilation of estimates from different external sources, reflecting uncertainties associated with cost estimates for technologies under development. Capital Costs shown are in nominal dollars starting from a base year of 2021, reflecting the Producers Price Index for Energy (PPI).

### **5.2 Base / Intermediate Alternatives**

Baseload electricity is the minimum level of electricity demand in the system. Traditionally, baseload electricity demand is met by baseload power plants optimized for continuous running. Baseload plants include coal and nuclear plants which generally cannot vary their outputs quickly. However, the electricity supply mix is changing with increased intermittent renewable generation. Furthermore, regulations and changing customers' needs have made new

<sup>14</sup> NREL Electricity Annual Technology Baseline (ATB) 2022: <https://atb.nrel.gov/electricity/2022/data>

coal and nuclear plants economically infeasible. As such, coal without carbon capture and storage and traditional nuclear are not part of supply-side resource options in this IRP.

Intermediate power plants adjust outputs as electricity demand fluctuates. This role has been traditionally met by older and relatively less efficient power plants. But as these power plants retire, new capacity will be needed. For this IRP, natural gas combined cycle is considered as a resource option for intermediate power plants.

### **5.2.1 Natural Gas Combined Cycle (NGCC)**

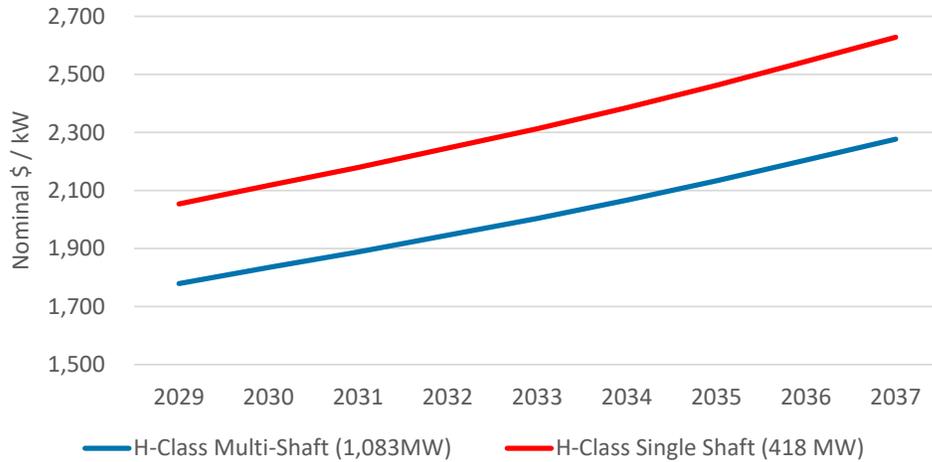
Natural gas combined cycle units combine a steam and a gas turbine cycle to generate electricity. In the gas turbine cycle, atmospheric air is pressurized using a compressor, injected with fuel and ignited to generate high-temperature pressurized gas that expands to drive the turbine and generate electricity. The waste heat from the gas turbine is then used to generate steam to drive a steam turbine to generate additional electricity, increasing overall efficiency.

Modern NGCCs have moderate capital costs, high generating efficiency, relatively low carbon emissions (per MWh) compared to older fossil fuel units, and the ability to load-follow. These characteristics make the technology desirable for baseload and intermediate applications.

NGCCs are modeled in AURORA as a standard dispatchable resource, assigned to run when economic on a short-run variable cost basis, subject to any operational constraints. Two NGCC configurations in the model are available for selection, including the H-class turbine single shaft configuration with 418 MW capacity and the H-class turbine multi-shaft configuration with 1,083 MW capacity.<sup>15</sup> These resources are made available in the model with a first operating year of 2029, reflective of the minimum anticipated period required for approval, siting, engineering, and construction.

Overnight capital cost assumptions for NGCC options are shown in Figure 14. The variable operations and maintenance cost (“VOM”), the fixed operations and maintenance cost (“FOM”) and heat rate assumptions are shown in Table 5.

<sup>15</sup> The smaller single shaft NGCC block size can also be considered as a proxy for a partial ownership option for a larger multi-shaft NGCC where Kentucky Power would coordinate the addition of this resource with other parties.



**Figure 14. Capital Cost Assumptions for NGCC**

**Table 5. Operating and Heat Rate Assumptions for NGCC**

|           |                | H-Class Multi-Shaft<br>(1,083 MW) | H-Class Single<br>Shaft (418 MW) |
|-----------|----------------|-----------------------------------|----------------------------------|
| VOM       | \$2021 / MWh   | 1.96                              | 2.67                             |
| FOM       | \$2021 / kW-yr | 12.77                             | 14.76                            |
| Heat Rate | Btu / kWh      | 6,370                             | 6,431                            |

### 5.3 Peaking Alternatives

Peaking sources have traditionally provided generating capacity during times of highest demand. Given the low utilization of peaking generators, the focus in the past has been on minimizing capital and fixed costs instead of on fuel efficiency and other variable costs.

More recently, greater amounts of intermittent renewable generation in the market combined with more extreme weather patterns have necessitated more flexible resources. For example, an unanticipated drop in wind generation during the day will require quick response from other generators to keep supply and demand in balance. A string of extreme cold weather days will require top-up generating capacity beyond the few hours each year traditionally supplied by peak generators. Certain peaking technologies can also provide ancillary services such as frequency response, black start, and inertia that help keep the system reliable. In this IRP, four peaking sources considered are simple cycle combustion turbines, aeroderivatives, reciprocating engines, and lithium-ion batteries.

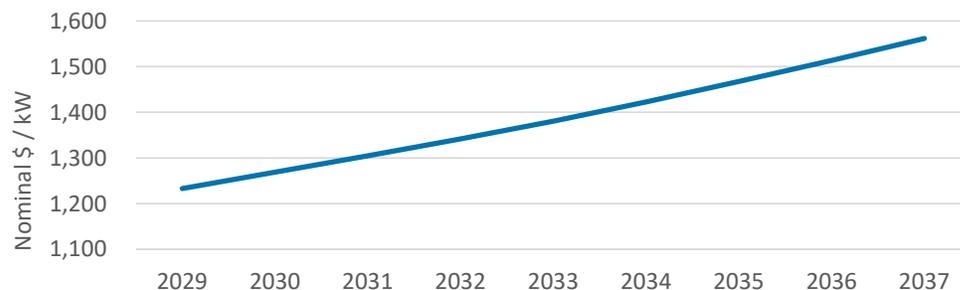
### 5.3.1 Simple Cycle Combustion Turbines (NGCT)

A combustion turbine system uses a compressor to pressurize atmospheric air, which is injected with fuel and ignited to generate high-temperature pressurized gas that expands to drive the turbine and generate electricity. Unlike NGCCs, unused energy is released as exhaust gases into the atmosphere instead of being recovered. NGCTs are usually expected to start up once per day and operate at full capacity during peak demand hours, making them well suited for a power system with predictable peak patterns.

In addition, turbine manufacturers are developing the ability of new gas turbines to burn increasing volumes of hydrogen in the gas stream. Recent turbines can burn up to 30% hydrogen by volume<sup>16</sup> in the gas stream and can potentially be retrofitted to burn 100% hydrogen when the hydrogen supply chain is sufficiently developed. Section 5.5.3 provides further details on the modeling assumptions associated with retrofitting NGCT units to burn hydrogen exclusively.

NGCTs are modeled in AURORA as a standard dispatchable resource, assigned to run when economic on a short-run variable cost basis, subject to any operational constraints. One NGCT configuration is available for AURORA to select, i.e. the 240 MW F-Class unit. These resources are made available in the model with a first operating year of 2029, reflective of the anticipated period required for approval, siting, engineering, and construction. The maximum annual capacity addition is 480 MW and a cumulative total of 720 MW.

The NGCT overnight capital cost assumptions are shown in Figure 15. FOM, VOM, and heat rate assumptions are shown in Table 6.



**Figure 15. Capital Cost Assumptions for NGCT**

<sup>16</sup> Gas turbines in the US are being prepped for a hydrogen-fuelled future (2021). Retrieved from <https://www.nenergybusiness.com/features/gas-turbines-hydrogen-us/>

**Table 6. Operating and Heat Rate Assumptions for NGCT**

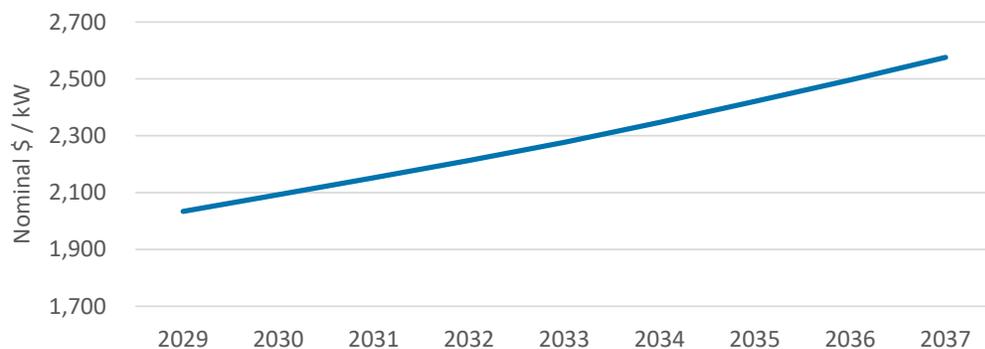
|           |                | F-Class CT (240 MW) |
|-----------|----------------|---------------------|
| VOM       | \$2021 / MWh   | 0.62 <sup>17</sup>  |
| FOM       | \$2021 / kW-yr | 7.33                |
| Heat Rate | Btu / kWh      | 9,905               |

### 5.3.2 Aeroderivatives (AD)

Aeroderivative units are aircraft jet engines used for power generation. Their operating characteristics make them well suited with high renewable penetration as they can quickly respond to significant shifts in supply and demand conditions in the power system. For example, the GE 9E series NGCT requires 30 minutes to start up whereas the GE LM6000 AD unit requires only 5 minutes. This allows AD units to operate at full load even for a small amount of time. In addition, AD units are more efficient in a simple cycle operation than NGCTs for capacities less than 100 MW. However, AD units are relatively more expensive than NGCTs.

AD units are modeled in AURORA in 105 MW units as a standard dispatchable resource, assigned to run when economic on a short-run variable cost basis, subject to any operational constraints. These resources are made available in the model with a first operating year of 2029, reflective of the anticipated period required for approval, siting, engineering, and construction. The maximum annual capacity addition is 210 MW.

The AD overnight capital cost assumptions are shown in Figure 16. FOM, VOM, and heat rate assumptions are shown in Table 7.



**Figure 16. Capital Cost Assumptions for AD**

<sup>17</sup> Start cost of \$79/MW was applied additional to VOM for NGCT

**Table 7. Operating and Heat Rate Assumptions for AD**

|           |                | <b>AD (105 MW)</b> |
|-----------|----------------|--------------------|
| VOM       | \$2021 / MWh   | 4.92               |
| FOM       | \$2021 / kW-yr | 17.06              |
| Heat Rate | Btu / kWh      | 9,124              |

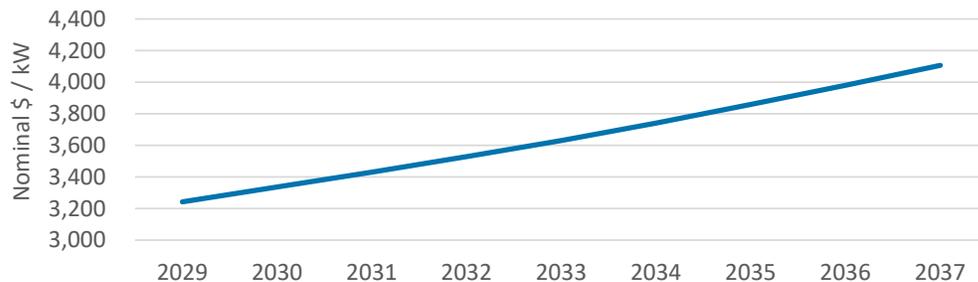
### 5.3.3 Reciprocating Engines (RE)

Like NGCTs, REs rely on the combustion of air mixed with fuel to generate hot pressurized gases. Unlike NGCT, the expansion of these gases is used to drive pistons and a crankshaft in a rotating motion to generate electricity. Multiple RE units are usually incorporated into a larger generating set for main grid applications.

RE generating sets can usually start and reach full load in less than five minutes, making them even faster than AD units in responding to system needs. RE generating sets can also run more efficiently at partial load as individual RE units within the generating set can be shut down to reduce output while allowing remaining units to run at full load. Unlike NGCTs or ADs, RE units can be started multiple times in a day without incurring substantial additional maintenance costs. These characteristics make RE units well suited for power systems that require frequent but short-duration dispatches.

REs are modeled in AURORA in 21 MW units as a standard dispatch resource, assigned to run when economic on a short-run variable cost basis, subject to any operational constraints. These resources are made available in the model with a first operating year of 2029, reflective of the anticipated period required for approval, siting, engineering, and construction. The maximum annual capacity addition is 105 MW.

The RE overnight capital cost assumptions are shown in Figure 17. FOM, VOM, and heat rate assumptions are shown in Table 8.



**Figure 17. Capital Cost Assumptions for RE**

**Table 8. Operating and Heat Rate Assumptions for RE**

|           |                | RE (21 MW) |
|-----------|----------------|------------|
| VOM       | \$2021 / MWh   | 5.96       |
| FOM       | \$2021 / kW-yr | 36.81      |
| Heat Rate | Btu / kWh      | 8,295      |

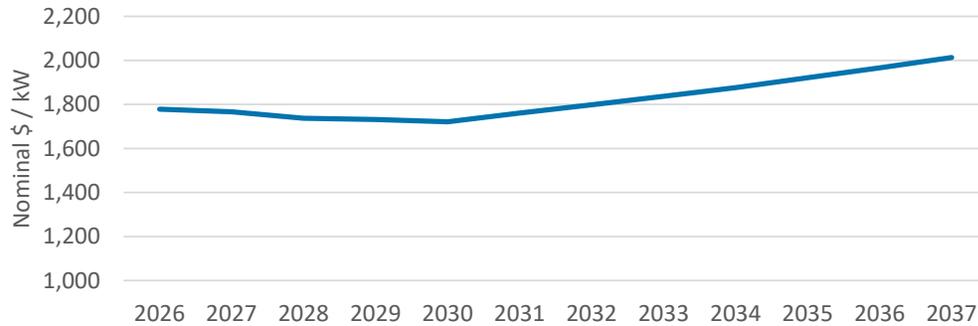
### 5.3.4 Lithium-Ion Battery (Li-ion)

Li-ion batteries store and discharge energy through the movement of lithium ions between a negative and positive electrode, separated by an electrolyte. Unlike other peaking technologies considered, Li-ion batteries do not provide additional energy. Instead, they provide additional capacity during periods of peak energy demand through the discharge of energy stored generally during periods of low demand. Accordingly, increased deployment of Li-ion in the system can smooth out energy price volatility.

Li-ion batteries are experiencing rapid growth in deployment in utility-scale storage applications. This reflects advantageous operating characteristics that include high round-trip efficiency, high energy density, and lower self-discharge. The batteries can also respond to systems within a second, making them well suited for primary frequency regulations, i.e. providing initial immediate response to deviations in grid frequency driven by sudden demand spikes or supply losses. However, Li-ion batteries have limited cycle life due to degradation; battery augmentation is required during the project lifetime to maintain performance.

Li-ion batteries are first made available in AURORA from 2026 and are modeled as an energy storage option with a duration of four hours. AURORA optimizes charging and discharging of the resource against projected PJM hourly electricity prices, taking into account a round-trip efficiency of 85% and a self-discharge rate of 0.2% per hour. As a duration-limited resource, the ability of Li-ion batteries to meet demand peaks will decline as greater amounts of renewable generation widen the length of demand peaks. Therefore, the capacity credit for Li-ion batteries is assumed to decline from 82% today to 62-80% by 2037, depending on the amount of storage resource in the scenario (see section 6.5.2). Li-ion batteries are made available in a configuration of 50 MW. The maximum annual capacity addition is 200 MW and the cumulative maximum is 500 MW.

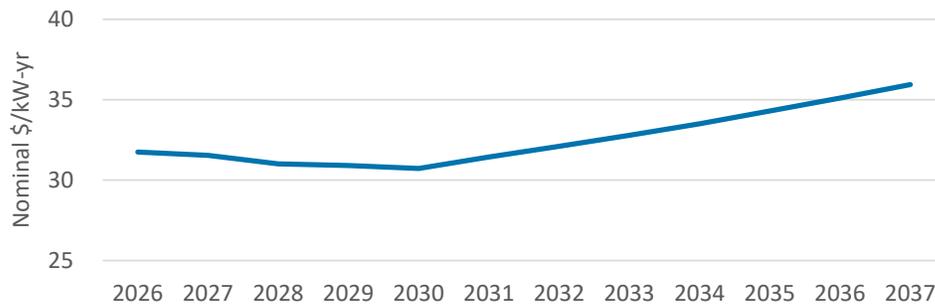
The overnight capital cost assumptions for Li-ion batteries are shown in Figure 18.



**Figure 18. Capital Cost Assumptions for Li-Ion**

Investment Tax Credit (“ITC”) value is assigned to the project by applying a reduction in modeled upfront capital cost at a rate of 30% for projects entering service before the end of 2032. After 2032, ITC tax credits reduce to 22.5%, 15% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>18</sup>

Figure 19 shows the assumed FOM for a Li-ion battery built in each specific year.



**Figure 19. FOM Assumptions for Li-Ion**

#### 5.4 Renewable Alternatives

The cost of renewable generation alternatives is expected to continue to decline, providing an opportunity to increase affordable clean energy to address future electricity needs, consistent with Kentucky Power’s aim of enabling a greener future. These technologies can provide a hedge against future uncertainties in fuel prices and carbon policies as they have zero carbon emissions

<sup>18</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.

and zero marginal costs. Renewables are likely to remain competitive against other technologies as fuel prices fluctuate. The impact of increased renewable generation on the electric system is further discussed in Section 6.5.2.

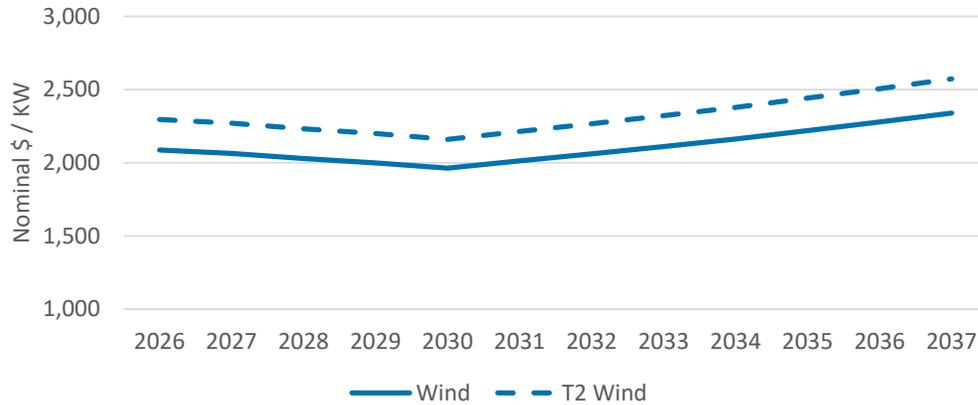
In this IRP, two renewable alternatives considered are onshore wind and utility-scale solar photovoltaic. These two technologies are made available as resource options in AURORA. In addition, AURORA can also choose to pair utility-scale solar photovoltaic with lithium-ion battery where a paired solution is economic.

#### **5.4.1 Wind**

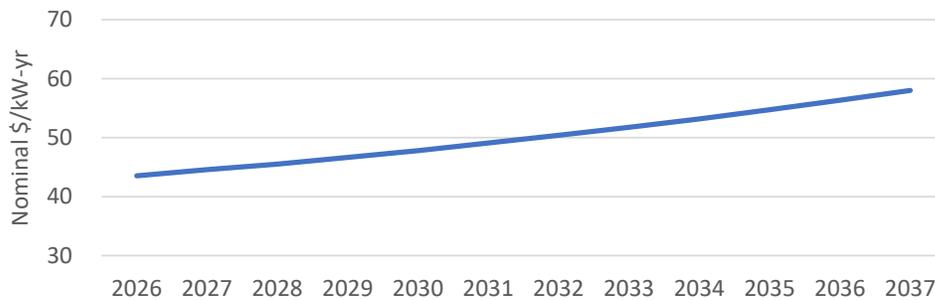
Wind energy is based on exploiting the air pressure differential across two sides of the blade, causing the rotor to spin and generate electricity.

Wind is first made available as a resource option in AURORA at the end of 2026. It is modeled as a generation resource dispatching according to a generic production profile representative of the region with an average capacity factor of 35%. Both the hourly production profile and average capacity factor are estimated based on AURORA national database information representative of resources in the region. As an intermittent resource, wind may not be generating at full capacity during the time of system peak. Therefore, the capacity credit for wind is assumed to decline from 16% today to 11% by 2037. Wind is made available in a configuration of 100 MW. Two pricing tiers, Tier 1 and Tier 2, were modeled to reflect the range of potential RFP responses that might be received. The maximum annual capacity addition is 100 MW for lower cost Tier 1 sites and 300 MW for Tier 2 sites. The cumulative maximum is 1200 MW.

The overnight capital cost for onshore wind in 2023 is based on EIA AEO 2022. The cost reduction curve from NREL ATB 2022 is applied to the capital cost to project the capital costs for 2026 and beyond, as shown in Figure 20 below. Figure 21 illustrates the FOM cost assumptions for onshore wind.



**Figure 20. Capital Cost Assumptions for Onshore Wind**



**Figure 21. FOM Assumptions for Onshore Wind**

Projects whose construction begins by the end of 2032 are eligible for a Production Tax Credit (“PTC”), added to the project value at a rate of 100% of the PTC, or \$25/MWh<sup>19</sup>, which is implemented in AURORA as a negative variable cost adder. After 2032, PTC tax credits reduce to 75%, 50% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>20</sup>

#### 5.4.2 Solar

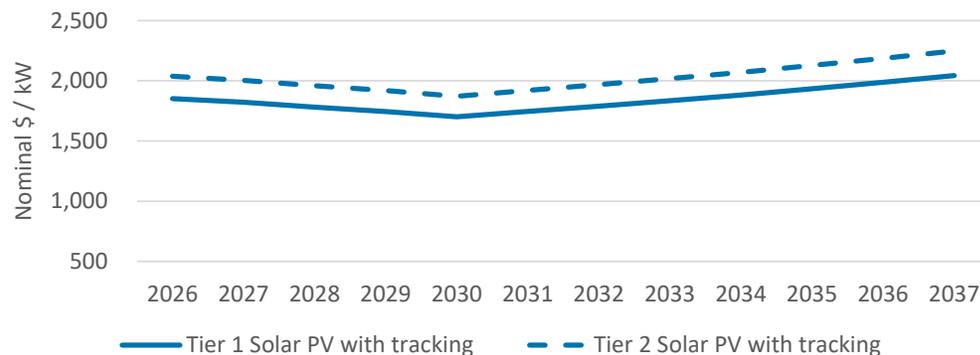
Solar photovoltaic (“solar PV”) uses semiconductor materials surrounded by protective layers to convert sunlight into electricity. The system has a modular structure which allows it to be scaled to meet different levels of energy needs, large or small.

<sup>19</sup> In 2021 dollars; 10 year tax credit.

<sup>20</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.

Utility-scale solar PV is first made available as a resource option in AURORA from 2026. Like wind, solar generation is modeled as a must-run resource with a generic hourly production profile representative of the region with a capacity factor of 23%. The hourly production profile and average capacity factor are based on production estimates for Kentucky Power solar resources under development. Solar capacity credit for summer is estimated at a percentage of ICAP. Currently that percentage is 54% but it declines to 23-28% by 2037, depending on the scenario (see Section 6.5.2). Solar is made available in a configuration of 50 MW. Two pricing tiers, Tier 1 and Tier 2, were modeled to reflect the range of potential RFP responses that might be received. The maximum annual capacity addition is 150 MW for lower cost Tier 1 sites and 300 MW for Tier 2 sites. The cumulative maximum is 1800 MW. Hybrid 3:1 solar+storage systems are available in 50 MW blocks, up to 300 MW annually and a cumulative maximum of 600 MW.

The overnight capital cost assumptions for solar PV are shown in Figure 22.



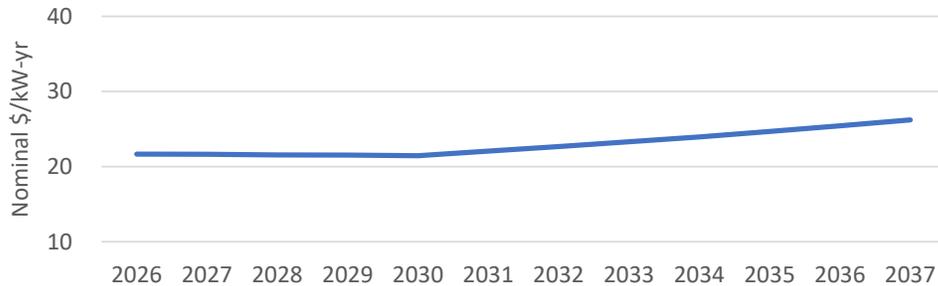
**Figure 22. Capital Cost Assumptions for Utility-Scale Solar PV**

Projects whose construction begins by the end of 2032 are eligible for a Production Tax Credit (“PTC”), added to the project value at a rate of 100% of the PTC, or \$25/MWh<sup>21</sup>, which is implemented in AURORA as a negative variable cost adder. After 2032, PTC tax credits reduce to 75%, 50% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>22</sup>

Figure 23 shows the FOM cost assumptions for solar PV.

<sup>21</sup> In 2021 dollars; 10 year tax credit.

<sup>22</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.



**Figure 23. FOM Assumptions for Utility-Scale Solar PV**

## 5.5 Advanced Generation Alternatives

Advanced generation technologies are low-carbon technologies that are still in the development stage but could be commercially available during the planning horizon of this IRP. When they are available, they could potentially render specific generation technologies obsolete leading to their premature retirement. Including advanced generation technologies in this IRP allows Kentucky Power to consider the impact of future technology uncertainties on the Company’s generation portfolio and identify technologies that are available today but might be at risk of obsolescence. This informs the selection of the preferred portfolio that minimizes technology risks and allows Kentucky Power to continue to deliver reliable and affordable power to customers.

Based on a survey of literature on generation technologies, three advanced generating technologies are potentially available within the planning horizon of this IRP, namely small modular reactor (“SMR”), carbon capture and storage (“CCS”), and hydrogen.

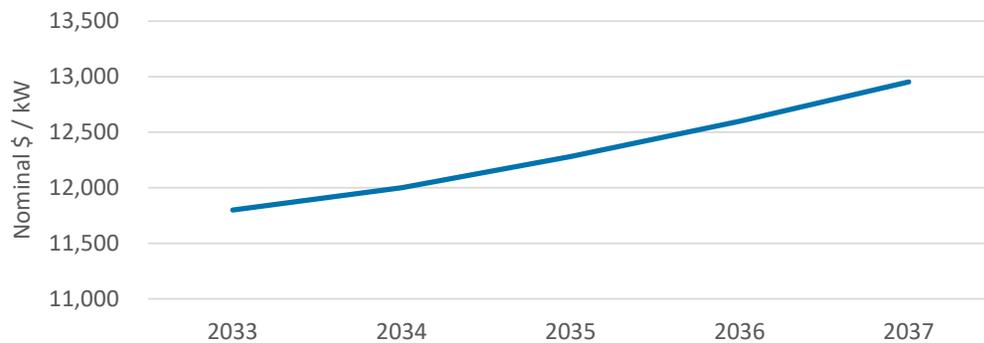
### 5.5.1 SMR

Small Modular Reactor (SMR) is a new generation of nuclear fission technology utilizing smaller reactor designs, module factory fabrication, and passive safety features. Key features of an SMR include:

- Small physical footprints;
- Limited on-site preparation, leading to faster construction time and scalability;
- Siting flexibility including sites previously occupied by coal-fired plants; and
- Passive safety features, allowing the reactor to safely shutdown in an emergency without requiring human interventions.

SMR can be a zero-carbon alternative for providing base-load electricity. Its siting flexibility and improved safety features allow it to be sited closer to demand centers, reducing transmission investments. However, it is subject to the same economic challenges facing base-load power plants today, namely the erosion in value of base-load electricity as a result of increased intermittent generation.

SMR is still in the early stages of development and there remain uncertainties over the cost, performance, and availability of the technology. The cost assumptions for the First-of-a-Kind (“FOAK”) are taken from the EIA AEO 2022. The Nth-of-a-Kind (“NOAK”) cost assumptions in this IRP are based on projecting the FOAK cost forward using a learning rate from a Department of Energy (“DOE”) study on the learning rate for SMR<sup>23</sup>. The DOE study provides a learning rate as a cost reduction in real terms per each doubling of installed capacity. As such, it is further assumed for the purpose of projecting SMR cost reduction that the first SMR unit with FOAK cost assumptions will be built in 2028 and subsequently one new SMR plant will be built each year in the first five years, two new SMR plants for the next five years, and four new SMR plants for the five years after that. Figure 24 below shows the assumed overnight capital cost of SMR cost over time.



**Figure 24. Capital Cost Assumptions for SMR**

**Table 9. Operating and Heat Rate Assumptions for SMR**

|           |                | <b>SMR</b> |
|-----------|----------------|------------|
| VOM       | \$2021 / MWh   | 3.14       |
| FOM       | \$2021 / kW-yr | 99.46      |
| Heat Rate | Btu / kWh      | 10,443     |

<sup>23</sup> Department of Energy (2013), Small Modular Nuclear Reactors: Parametric Modeling of Integrated Reactor Vessel Manufacturing Within a Factory Environment Volume 2, p. 59

Like traditional nuclear, SMR cannot adjust its output to match fluctuating electricity demand easily. Therefore, SMR is modeled in AURORA as a must-run resource. It is assumed that SMR will not be available for commercial deployment until 2033 in a block size of 600 MW.

### **5.5.2 Carbon Capture and Storage Technologies (CCS)**

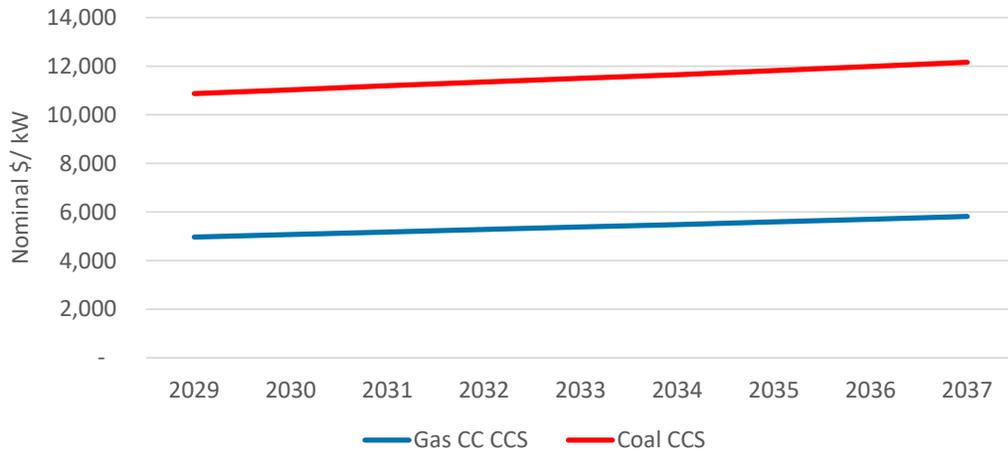
CCS technology provides another alternative for producing reliable low-carbon baseload electricity. Carbon dioxide (“CO<sub>2</sub>”) in the flue gas from the combustion of fossil fuels is captured by an amine-based solvent in the absorption column and then released from the solvent in a concentrated form in a stripper column. The process requires a significant amount of steam to break the bond between the CO<sub>2</sub> and the solvent and needs auxiliary power to run the compressor and other mechanical equipment. As such, CCS-equipped power plants have heat rate and capacity penalties relative to power plants without CCS.

In AURORA, CCS is modeled as new build options and retrofit options. CCS plants are treated as standard dispatch resources in AURORA, which are assigned to run when economic on a short-run variable cost basis, subject to any operational constraints. Section 45Q legislation provides a tax credit of \$94/short-ton of CO<sub>2</sub> sequestered. This incentive is implemented in AURORA as a negative variable cost adder, improving dispatch economics.

#### **5.5.2.1 New build options**

Two new build CCS configurations are available for selection in AURORA, including the 650 MW ultra-supercritical coal power plant with 90% carbon capture and the 380 MW H-class combined-cycle natural gas turbine with 90% carbon capture. Both configurations are available for operation beginning in 2029.

The assumptions on overnight capital costs for new build CCS are shown in Figure 25. FOM, VOM, and heat rate assumptions are shown in Table 10 below.



**Figure 25. Capital Cost Assumptions for New Build CCS**

**Table 10. Operating and Heat Rate Assumptions for New Build CCS**

|           |                | <b>Coal</b> | <b>Gas</b> |
|-----------|----------------|-------------|------------|
| VOM       | \$2021 / MWh   | 11.49       | 6.11       |
| FOM       | \$2021 / kW-yr | 62.34       | 28.89      |
| Heat Rate | Btu / kWh      | 12,507      | 7,124      |

### 5.5.2.2 Retrofit Options

It is also possible for AURORA to choose to retrofit existing NGCC units and coal-fired units with CCS. The cost and performance assumptions for retrofitted NGCCs are based on a compilation of assumptions from various sources including the Clean Air Task Force, Global CCS Institute, and National Energy Technology Laboratory.

**Table 11. Operating and Heat Rate Differentials for Retrofit CCS**

|                          |                                    | <b>Retrofitted<br/>NGCC</b> |
|--------------------------|------------------------------------|-----------------------------|
| Capacity penalty         | % of pre-retrofit capacity         | 13.2%                       |
| Heat rate penalty        | % of pre-retrofit heat rate        | 17.2%                       |
| Incremental capital cost | \$2021 / kW post-retrofit capacity | 881                         |
| Incremental FOM          | \$2021 / kW post-retrofit capacity | 19.9                        |
| Incremental VOM          | \$ / kWh                           | 1.24                        |

The cost and performance parameters for retrofit coal units are taken from the Environmental Protection Agency’s (“EPA”) modeling assumptions in its power sector modeling platform<sup>24</sup>. The applied parameters vary based on the capacity and heat rate of the coal unit as shown in Table 12 below. The table shows significant heat rate and capacity penalties on coal units with 400 MW capacity; coal units with lower than 400 MW capacity are assumed to be ineligible for retrofit due to unfavorable economics.

**Table 12. EPA Performance and Unit Cost Assumptions for CC Retrofits on Coal Plants**

| <b>Capacity (MW)</b> | <b>Heat Rate (Btu/kWh)</b> | <b>Capital Cost (\$/kW)</b> | <b>FOM (\$/kW-year)</b> | <b>Variable O&amp;M (mills/kWh)</b> | <b>Capacity Penalty (%)</b> | <b>Heat Rate Penalty (%)</b> |
|----------------------|----------------------------|-----------------------------|-------------------------|-------------------------------------|-----------------------------|------------------------------|
| 400                  | 9,000                      | 2,595                       | 36.9                    | 18.2                                | 33.6                        | 50.6                         |
|                      | 10,000                     | 2,960                       | 41.2                    | 19.7                                | 37.3                        | 59.5                         |
|                      | 11,000                     | 3,373                       | 46.1                    | 21.3                                | 41.0                        | 69.6                         |
| 700                  | 9,000                      | 1,852                       | 23.7                    | 14.9                                | 19.2                        | 23.7                         |
|                      | 10,000                     | 2,071                       | 26.1                    | 15.6                                | 21.3                        | 27.0                         |
|                      | 11,000                     | 2,302                       | 28.6                    | 16.4                                | 23.4                        | 30.6                         |
| 1000                 | 9,000                      | 1,625                       | 19.7                    | 13.9                                | 13.4                        | 15.5                         |
|                      | 10,000                     | 1,810                       | 21.6                    | 14.5                                | 14.9                        | 17.5                         |
|                      | 11,000                     | 2,001                       | 23.6                    | 15.0                                | 16.4                        | 19.6                         |

### 5.5.2.3 Carbon Storage and Transportation Costs

CCS plants also incur costs associated with storing and transporting CO<sub>2</sub>. The parameters in Table 13 were derived from EPA National Electric Energy Data System (“NEEDS”) v6, representing the cost of transporting and storing CO<sub>2</sub> across potential CO<sub>2</sub> storage sites. Low cost storage may be depleted over time as more CCS is added to the system, therefore the carbon storage and transportation costs will be higher over time as the storage capacity of the lowest cost option is depleted.

<sup>24</sup> Documentation for EPA’s Power Sector Modeling Platform v6 Using the Integrated Planning Model (2018). Retrieved from [https://www.epa.gov/sites/default/files/2018-05/documents/epa\\_platform\\_v6\\_documentation\\_-\\_all\\_chapters\\_v15\\_may\\_31\\_10-30\\_am.pdf](https://www.epa.gov/sites/default/files/2018-05/documents/epa_platform_v6_documentation_-_all_chapters_v15_may_31_10-30_am.pdf)

**Table 13. Carbon Transport and Storage Schedule (\$2021 / tCO<sub>2</sub>)**

|                   | Indiana      | Kentucky     | Michigan     | Pennsylvania | Illinois     | West Virginia |
|-------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Storage Cost      | 5.00         | 5.00         | 5.00         | 15.00        | 5.00         | 15.00         |
| Transport Cost    | 18.64        | 11.09        | 32.92        | 31.73        | 30.29        | 13.75         |
| <b>Total Cost</b> | <b>23.64</b> | <b>16.09</b> | <b>37.92</b> | <b>46.73</b> | <b>35.29</b> | <b>28.75</b>  |

### 5.5.3 Hydrogen (H<sub>2</sub>)

Two key components that make up a “green” hydrogen system<sup>25</sup> are the polymer electrolyte membrane (“PEM”) electrolyzer and the hydrogen gas combustion turbine (“H<sub>2</sub> CT”).

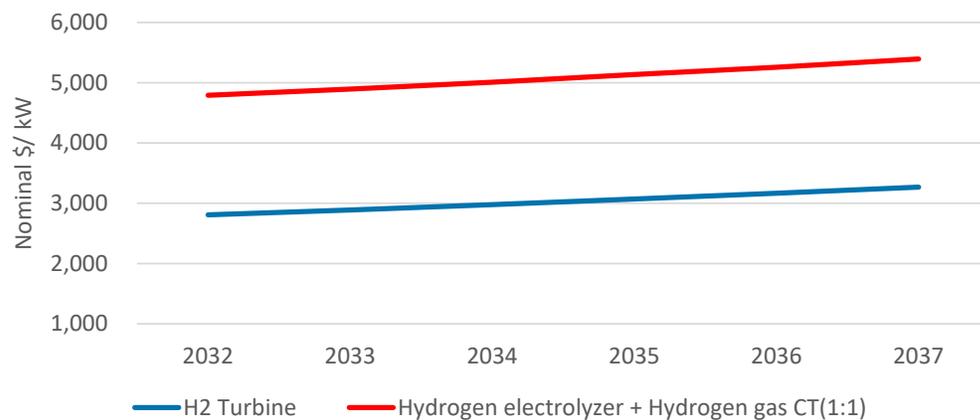
H<sub>2</sub> CTs operate on the same principle as the NGCT systems but with some differences in operating characteristics including:

- **Energy density:** H<sub>2</sub> is less energy dense than natural gas. Using hydrogen as a fuel will require a fuel accessory system configured to provide three times higher fuel flow rates into the turbine relative to using natural gas;
- **Flame speed:** H<sub>2</sub> has about 4.5 times the flame speed of natural gas. The combustion systems have to be configured specifically for hydrogen to prevent the flame from propagating upstream;
- **Flammability:** H<sub>2</sub> is more flammable than natural gas. The enclosure and ventilation systems have to be designed to limit the concentration of hydrogen; and
- **Flame temperature:** H<sub>2</sub> burns at a higher temperature than natural gas, resulting in higher NO<sub>x</sub> emissions. A selective catalytic reduction system is required to reduce NO<sub>x</sub> emissions.

H<sub>2</sub> can play multiple roles within an electricity system. It can provide storage capacity during periods of high renewable generation and, depending on H<sub>2</sub> prices, cycling capabilities for intermediate loads or generation capacity during periods of high electricity demand. As a combustion turbine technology, hydrogen can also provide system services such as inertia, frequency response, voltage support, regulating reserves, and black start.

<sup>25</sup> Green hydrogen is produced with electrolyzers powered by non-carbon emitting resources. Other types of hydrogen production, for example “blue” hydrogen, is made from reforming methane with CCS of the CO<sub>2</sub> byproduct.

The cost, cost reduction curve, and efficiency assumptions for the PEM electrolyzer are developed based on a compilation of various sources including PNNL<sup>26</sup>, IEA<sup>27</sup>, EPRI<sup>28</sup>, DOE<sup>29</sup> and the International Council on Clean Transportation<sup>30</sup>. The capital cost assumption for the PEM electrolyzer component includes stack replacement costs. The cost and performance modeling assumptions for H<sub>2</sub> CT is from conversations with power equipment vendors. The capital cost reduction curve is based on NREL for NGCT. Overnight capital cost assumptions are shown in Figure 26, FOM for electrolyzer in Figure 27, efficiency for electrolyzer in Figure 28. Other parameters shown in Table 14 are VOM and NGCT's FOM and heat rate; these are not expected to improve over time. The fixed operating cost for a H<sub>2</sub> CT is estimated to be the same as the EIA AEO 2022 estimate for NGCT, reflecting additional costs for maintaining a system with high levels of water and steam injection for emission control.



**Figure 26. Capital Cost Assumptions for PEM Electrolyzer and H<sub>2</sub> CT Components**

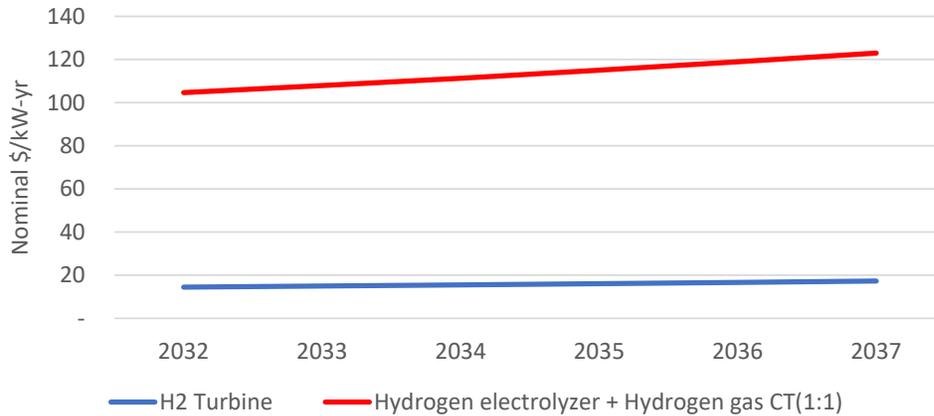
<sup>26</sup> 2020 Grid Energy Storage Technology Cost and Performance Assessment 2020 (December 2020). Retrieved from [https://www.pnnl.gov/sites/default/files/media/file/Hydrogen\\_Methodology.pdf](https://www.pnnl.gov/sites/default/files/media/file/Hydrogen_Methodology.pdf)

<sup>27</sup> The Future of Hydrogen – Assumption Annex (December 2020), Retrieved from [https://iea.blob.core.windows.net/assets/29b027e5-fefc-47df-aed0-456b1bb38844/IEA-The-Future-of-Hydrogen-Assumptions-Annex\\_CORR.pdf](https://iea.blob.core.windows.net/assets/29b027e5-fefc-47df-aed0-456b1bb38844/IEA-The-Future-of-Hydrogen-Assumptions-Annex_CORR.pdf)

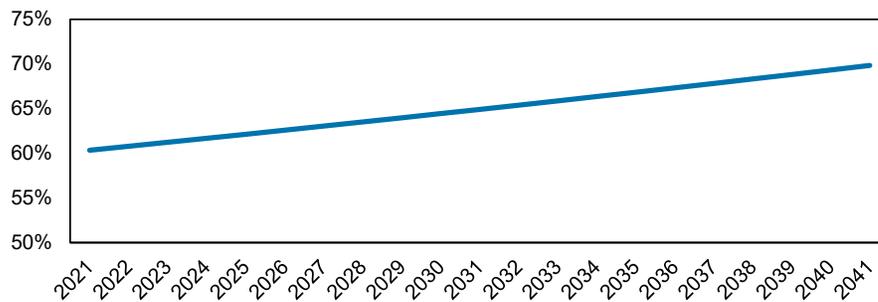
<sup>28</sup> Program on Technology Innovation: Prospects for Large-Scale Production of Hydrogen by Water Electrolysis. Retrieved from <https://www.epri.com/research/products/000000003002014766>

<sup>29</sup> Hydrogen Production Cost from PEM Electrolysis – 2019 (February 2020). Retrieved from [https://www.hydrogen.energy.gov/pdfs/19009\\_h2\\_production\\_cost\\_pem\\_electrolysis\\_2019.pdf](https://www.hydrogen.energy.gov/pdfs/19009_h2_production_cost_pem_electrolysis_2019.pdf)

<sup>30</sup> Assessment of Hydrogen Production Costs from Electrolysis: United States and Europe (June 2020). Retrieved from [https://theicct.org/sites/default/files/icct2020\\_assessment\\_of\\_hydrogen\\_production\\_costs\\_v1.pdf](https://theicct.org/sites/default/files/icct2020_assessment_of_hydrogen_production_costs_v1.pdf)



**Figure 27. FOM Assumptions for PEM Electrolyzer**



**Figure 28. Efficiency Assumptions for PEM Electrolyzer**

**Table 14. Operating and Heat Rate Assumptions for PEM Electrolyzer and H2 CT**

|           |                | PEM<br>Electrolyzer | H <sub>2</sub> CT |
|-----------|----------------|---------------------|-------------------|
| VOM       | \$2021 / MWh   | 0.5                 | 0.62              |
| FOM       | \$2021 / kW-yr | Figure 27           | 7.33              |
| Heat Rate | Btu / kWh      | Figure 28           | 9,655             |

Projects whose construction begins by the end of 2032 are eligible for a Production Tax Credit (“PTC”) established by a new Section 45V incentive through the Inflation Reduction Act. This is applied as a discount to the price of hydrogen fuel in AURORA at a rate of \$3/kg<sup>31</sup>. The

<sup>31</sup> While the amount of the credit varies based on the CO<sub>2</sub>e per kg of emissions of the hydrogen production process, the ten-year hydrogen PTC is for up to \$3 per kg (in 2022 dollars and inflated over time).

hydrogen fuel is assumed to have been created using a process that is less than 0.45 kg of CO<sub>2</sub>-eq emissions, qualifying for the full PTC.

Hydrogen is made available in AURORA starting in 2032. This is based on statements by various major power equipment providers committing to provide 100% H<sub>2</sub> CTs by 2030, and a best estimate of when market supply of hydrogen could be reliably available. Hydrogen CT is made available in a block of 240 MW. The maximum annual capacity addition is 480 MW and the cumulative maximum is 720 MW.

Hydrogen resources are offered in AURORA assuming third-party H<sub>2</sub> supply, whereby only the H<sub>2</sub> CT is assumed to be utility owned, thus the modeled costs comprise the capital cost, FOM, VOM of H<sub>2</sub> CT only, and fuel prices represented by the levelized cost of hydrogen. The levelized cost of hydrogen is estimated at \$37.5/MMBtu (real \$2021; before PTC) based on the levelized cost of the PEM electrolyzer plus the electricity costs for the PJM region. The supply of H<sub>2</sub> is assumed to be available on demand. The H<sub>2</sub> CT is then modeled as a standard dispatchable resource, assigned to run when economic on a short-run variable cost basis, subject to any operational constraints.

## **5.6 Long Duration Storage Alternatives**

For the purposes of this IRP, long-duration storage refers to storage that can provide 20 hours of energy. A storage of this duration can be used to balance diurnal variations in renewable energy resources as well as variations in demand from weekends (low demand) to weekdays (high demand). The technology can also provide needed capacity during longer duration weather events, such as cold periods or wind droughts that could last for several days.

The value of long-duration storage is likely to increase as intermittent renewable generation increases in Kentucky Power's service territory and extreme weather events become more frequent. In addition to energy arbitrage, some long-duration technologies can also increase system reliability through the provision of frequency, inertia, voltage, short circuit levels and restoration. Increased deployment of long-duration storage can also dampen price volatility and displace more expensive forms of generation during periods of high electricity demand, contributing to rate stability and customer affordability.

Pumped hydro energy storage is currently the dominant form of long duration storage, however its potential has largely been depleted and is not considered as part of this IRP. Three

alternative long-duration technologies are considered, including pumped thermal energy storage, vanadium flow battery storage, and compressed air energy storage.

Cost and performance assumptions for the IRP are developed based on a compilation of projections from various sources.

### **5.6.1 Pumped Thermal Energy Storage (PTES)**

PTES refers to a group of technologies that use a heat pump and heat engine to convert electricity into stored heat which is in turn converted back to electricity. The heat is stored in a thermal medium, such as molten salt in an insulated tank to reduce heat leakage. When needed, a heat engine takes the heat from the tank to generate steam to drive a turbine to generate electricity.

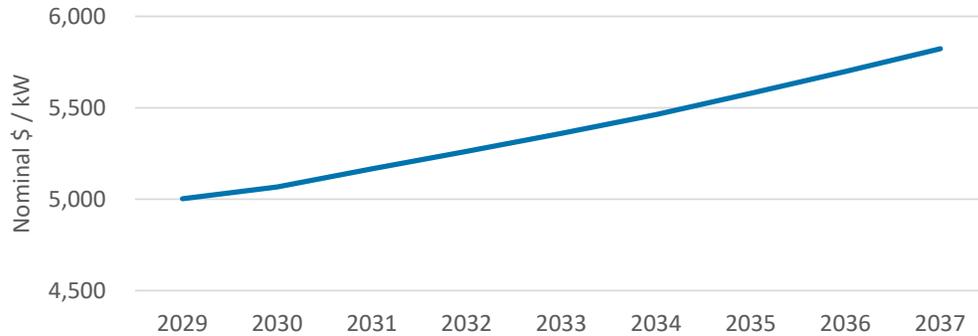
Large insulated thermal tanks have already been widely deployed as part of the development of concentrated solar power plants. Whereas concentrated solar power plants use reflected sunlight to heat the thermal medium, PTES uses the heat pump instead.

Key benefits of PTES include relatively low capital costs, siting flexibility, high energy density, ability to provide inertia, and avoided use of toxic or hazardous chemicals to store energy. However, it has relatively low round-trip efficiency, slower response time, and high self-discharge.

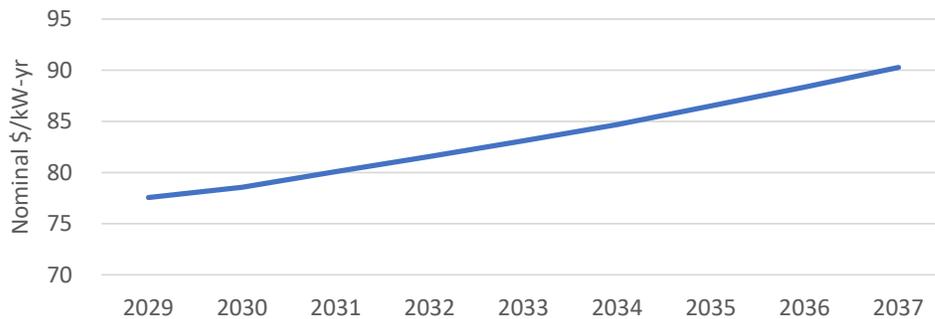
As a turbine-based technology, PTES can provide various ancillary services including inertia, frequency response, regulating reserve and voltage support. However, the response time of PTES is around 10 seconds, which is slower than other storage technologies such as Lithium-Ion battery or vanadium flow battery.

PTES is modeled in AURORA as an energy storage option. AURORA optimizes charging and discharging of the resource against projected PJM hourly electricity prices, taking into account a round-trip efficiency of 65% and a self-discharge rate of 1% per day. PTES is made available in a configuration of 50 MW. The maximum annual capacity addition is 200 MW and the cumulative maximum of 500 MW.

The forecasted PTES overnight capital cost and FOM assumptions are developed based on averages of values reported in a wide range of sources including reports published by NREL, the UK Department for Business, Energy & Industrial Strategy (“BEIS”), and academic studies. The assumptions are shown in Figure 29 and Figure 30 below.



**Figure 29. Capital Cost Assumptions for 20-hour duration PTES**



**Figure 30. FOM Assumptions for 20-hour duration PTES**

Investment Tax Credit (“ITC”) value is assigned to the project by applying a reduction in modeled upfront capital cost at a rate of 30% for projects entering service before the end of 2032. After 2032, ITC tax credits reduce to 22.5%, 15% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>32</sup>

### 5.6.2 Vanadium Flow Battery Storage (VFB)

VFB stores energy in vanadium-based electrolytes that can transfer electrons back and forth between four different oxidation states causing charge and discharge. The electrolytes are dissolved in water and stored in two tanks connected by an iron selective membrane. During a discharge, electrolyte is spent producing DC power which is converted to AC power using converters and controllers. Electrolytic fluid is then regenerated using DC power from the

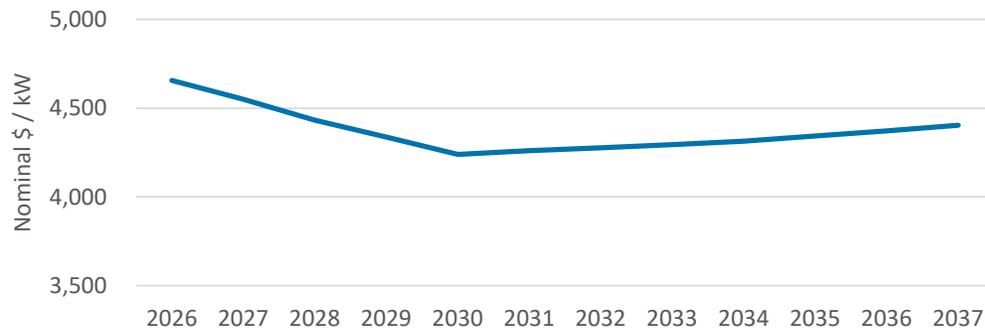
<sup>32</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.

converter during a charge. VFB is already being commercially deployed, but the supply chain is not as mature as lithium-ion battery.

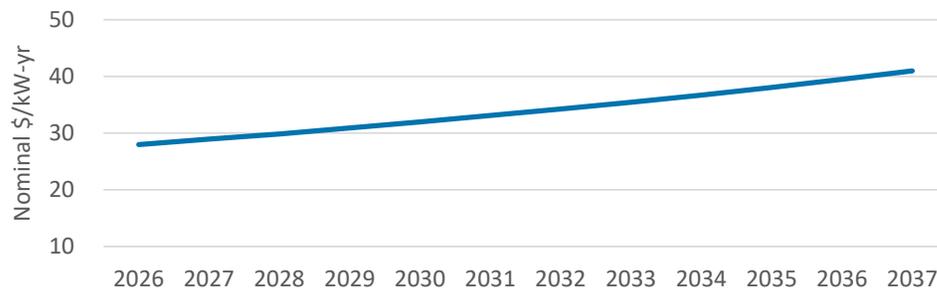
Key benefits of VFB include quick response time of less than 1 second, high round-trip efficiency, siting flexibility, and no degradation during its lifetime. Disadvantages include high operating costs and the use of corrosive electrolyte.

VFB is modeled in AURORA as an energy storage option. AURORA optimizes charging and discharging of the resource against projected PJM hourly electricity prices, considering a round-trip efficiency of 70% and a self-discharge rate of 1% per day. VFB is made available in a configuration of 50 MW. The maximum annual capacity addition is 200 MW and the cumulative maximum is 500 MW. The first available year for operation is 2026.

The forecasted VFB overnight capital cost and FOM assumptions are developed based on an average of values reported in wide range of sources including reports published by EIA, PNNL, BEIS, and academic studies. These assumptions are shown in Figure 31 and Figure 32 below.



**Figure 31. Capital Cost Assumptions for 20-hour duration VFB**



**Figure 32. FOM Assumptions for 20-hour duration VFB**

Investment Tax Credit (“ITC”) value is assigned to the project by applying a reduction in modeled upfront capital cost at a rate of 30% for projects entering service before the end of 2032. After 2032, ITC tax credits reduce to 22.5%, 15% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>33</sup>

### **5.6.3 Compressed Air Energy Storage (CAES)**

CAES is using compressed air to generate electricity. First, electricity is used to drive a compressor to pump air into a pressurized reservoir, e.g., salt cavern, abandoned natural gas storage facilities, or depleted oil and gas fields. The compressor generates heat which is captured by a heat exchanger and stored in a separate thermal energy storage device. To discharge, the compressed air in the reservoir is combined with the stored heat to create hot high-pressure air which expands in a turbine to generate electricity.

Existing CAES projects are based on a diabatic process where the heat generated by the compressor is released into the atmosphere instead of being stored. As a result, an alternative source of heat, often fossil fuel, is required during the expansion stage, leading to a lower round-trip efficiency.

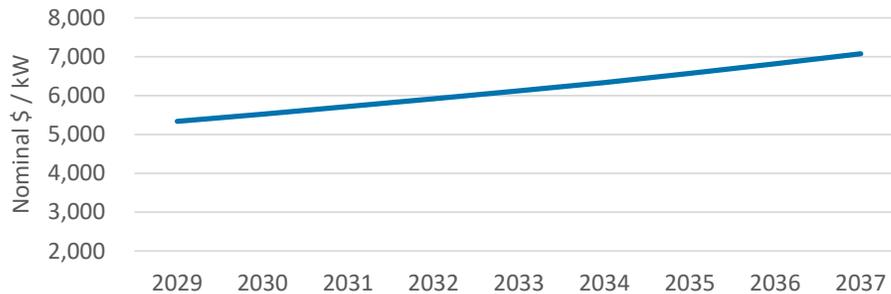
Key advantages of CAES include avoided use of toxic or hazardous chemicals, relatively mature and well understood component parts of the technology, and the opportunity to revive abandoned energy infrastructures such as abandoned natural gas storage facilities. Disadvantages include siting limitations and relatively low round-trip efficiency. CAES also has relatively longer response time of about a minute, which is slower than other technologies in this section.

CAES is modeled in AURORA as an energy storage option with a round trip efficiency of 52% and a self-discharge rate of 0.05% per day. AURORA optimizes charging and discharging of CAES based on projected PJM hourly electricity prices. CAES is made available in a configuration of 50 MW. The maximum annual capacity addition is 200 MW and the cumulative maximum is 500 MW. The first available for operation is 2029.

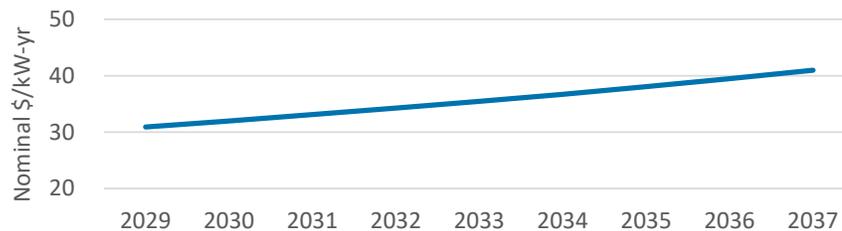
The forecasted CAES overnight capital cost is based on a survey of recent project development activity, whereas FOM is based on an average of a wide range of sources including

<sup>33</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.

reports from DOE, PNNL, BEIS, and academic studies. These assumptions are shown in Figure 33 and Figure 34 below.



**Figure 33. Capital Cost Assumptions for CAES**



**Figure 34. FOM Assumptions for CAES**

Investment Tax Credit (“ITC”) value is assigned to the project by applying a reduction in modeled upfront capital cost at a rate of 30% for projects entering service before the end of 2032. After 2032, ITC tax credits reduce to 22.5%, 15% and 0% of their value in 2033, 2034, and 2035, respectively.<sup>34</sup>

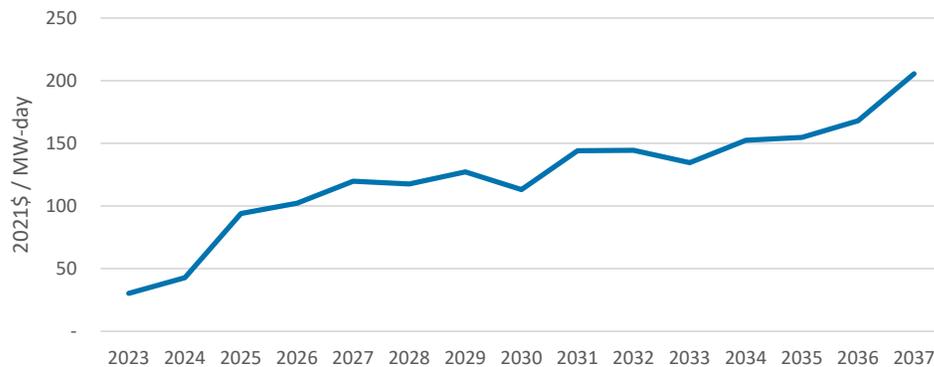
### 5.7 Short-Term Market Purchase (STMP)

Short-Term Market Purchase alternative resources were made available to the model for selection during the development of the optimal plans. This resource is assumed to have no energy associated with it and a contract term of one year. The cost of these purchases is based on an outlook for price levels in the PJM Reliability Pricing Mechanism, shown in Figure 35.<sup>35</sup> This

<sup>34</sup> For portfolio modeling, a safe harbor provision is assumed which provides a three-year delay in the effects of declining tax credits as long as adequate construction has commenced for new resources.

<sup>35</sup> Prices reflect PJM RTO zone and are assessed as the net avoidable going forward cost of the marginal unit of supply required to satisfy the PJM Variable Resource Requirement Curve in each annual auction.

price level represents the opportunity cost of capacity in the region which Kentucky Power could transact at. The purpose of adding this resource was to allow the model an option to include a short-term capacity commitment in place of a long-term capacity resource to mitigate abrupt capacity shortfalls. This resource is available in the model through 2025 and in 2028 up to 500 MW per year, and in 2026, 2027, 2030, 2031, 2033, 2034, 2036, and 2037 up to 235 MW per year. Limits were established to allow this resource to be used as a capacity bridge while the Company might work to acquire firm resources and to align with an approximate size of a NGCT resource. Through the resources acquisition process, the Company may discover this type of resource is available other than assumed in this IRP and those options will be evaluated at that time.



**Figure 35. PJM Capacity Price Outlook**

### 5.8 Optimization of Supply-Side Resources

Each supply-side resource is offered into the AURORA model on an equivalent basis. The combination of costs and operating characteristics determines the competitiveness of each resource within the context of demand and other system or portfolio parameters. The AURORA model selects resources to serve the adequacy position in the most economic combination, regardless of whether the resource is on the demand- or supply-side.

### 5.9 KPSC Staff Supply-Side Modeling Recommendations Addressed

In its report on Kentucky Power’s 2019 Integrated Resource Plan the Commission Staff recommended that the Company address certain items in its next IRP report (this report). The following items pertaining to Supply-Side Modeling are restated from the Staff report and addressed below:

**1. Kentucky Power should provide a detailed cost benefit study demonstrating why it should continue to participate in PJM as an FRR versus RPM, and discussing the advantages of remaining an FRR company.**

While an analysis to undertake a study to determine if there are customer benefits to be gained from leaving PJM or other options is anticipated following a presumed completed transaction for Kentucky Power to Liberty, the Company performed an indicative analysis on the continued participation as an FRR versus RPM entity. In this analysis, the conclusion was that with the Preferred Plan new resource additions in 2029, it would be favorable for Kentucky Power to remain as an FRR entity within PJM. The benefits of an FRR entity to Kentucky Power ratepayers include: (1) a lower PJM Capacity Obligation by approximately 13%; (2) an option to use additional capacity length to support potential unit downgrades or the sale of the additional capacity beyond the Forecast Pool Requirements (FPR) and the obligated 3% holdback; and (3) the opportunity to mitigate PJM capacity performance penalties in the event the Company might find itself in a situation unable to respond to a capacity delivery need during a PJM event. The analysis can be reviewed in Appendix Exhibit J.

**2. Kentucky Power should, if not already included in the prior study, conduct a separate FRR versus RPM cost benefit study similar to the first, except that the analyses should explicitly assume the Mitchell station will continue generating beyond 2028 and then assume the Mitchell station will retire in 2028.**

The analysis described in item 1 above excluded the Mitchell station as a resource to align with the assumptions for existing resources in this IRP.

**3. Kentucky Power should explicitly discuss how and demonstrate that its winter capacity requirements are being satisfied over the forecast horizon. The discussion should include the role the PCA plays in the satisfaction of Kentucky Power's seasonal capacity and energy requirements.**

Kentucky Power has modeled portfolio adequacy in both the summer and winter seasons for this integrated resource planning process. Kentucky Power considered the results of all the portfolios modeled to identify a "least regrets" Preferred Plan that provides the Company optionality for additional resources as needed. Please see sections 7.2.2 and 7.2.3.

**4. Kentucky Power should explicitly describe its evaluation of the inclusion of Kentucky base generation merchant plants and how those costs compare to other alternate supply-side resources.**

All resources in Kentucky and PJM were modeled in the market evaluation of this IRP. When modeling new supply-side resources, Kentucky Power is modeling generic resources in AURORA by fuel source as outlined in Section 5.0.

**5. Kentucky Power should explain the costs and benefits of acquiring renewables through purchased power contracts or through the construction of the facility itself generally and specifically in support of any renewable capacity additions.**

The costs and benefits of acquiring renewables through purchased power contracts versus through owned construction will be fully evaluated during the RFP and CPCN process. IRP modeling is a non-location specific analysis of generic resources. For the purposes of this IRP, Kentucky Power included two different pricing tiers of solar and wind resources in AURORA to account for the potential variability in resource costs. Further analysis and cost justifications will be completed as project development advances.

**6. Kentucky Power should explain the costs associated with upgrading the transmission system so to accommodate any renewable generation capacity.**

The addition of new generation capacity requires significant analysis at the specific location. For modeling purposes, Kentucky Power modeled generic interconnection costs for resource evaluation based on a recent LBL study<sup>36</sup>. Please see Sections 3.6.1, 3.6.2, and 3.6.5.

**7. Kentucky Power should model the impact to the Mitchell Plant due to the publication of the final ELG rule along with any impacts to Kentucky Power's preferred supply side plan to meet its PJM reserve margin requirements and its anticipated winter capacity and demand requirements.**

The Company did not model this as it is no longer an assumed resource in the portfolio after 2027.

**8. Kentucky Power should model scenarios of differing renewable constraints and no constraints on the size or addition.**

<sup>36</sup> [https://eta-publications.lbl.gov/sites/default/files/berkeley\\_lab\\_2023.1.12-pjm\\_interconnection\\_costs.pdf](https://eta-publications.lbl.gov/sites/default/files/berkeley_lab_2023.1.12-pjm_interconnection_costs.pdf)

Kentucky Power identified renewable build limits that were informed by resources in the PJM queue. For renewable resources such as wind and solar, annual limits were not generally demonstrated as binding in the model. The Company maintains the benefits of running a model without constraints would not provide any further insights.

**9. If Kentucky Power has not pursued any of the preferred plan options or has pursued another option by the next IRP, provide a detailed explanation of why and a detailed explanation and modeling of any alternate course taken.**

Kentucky Power has taken actions on the three-year action plan included in the 2019 IRP including the initiation of a Market Potential Study to examine opportunities to increase cost-effective levels of EE, pursuing cost-effective market capacity purchases and solar resources.

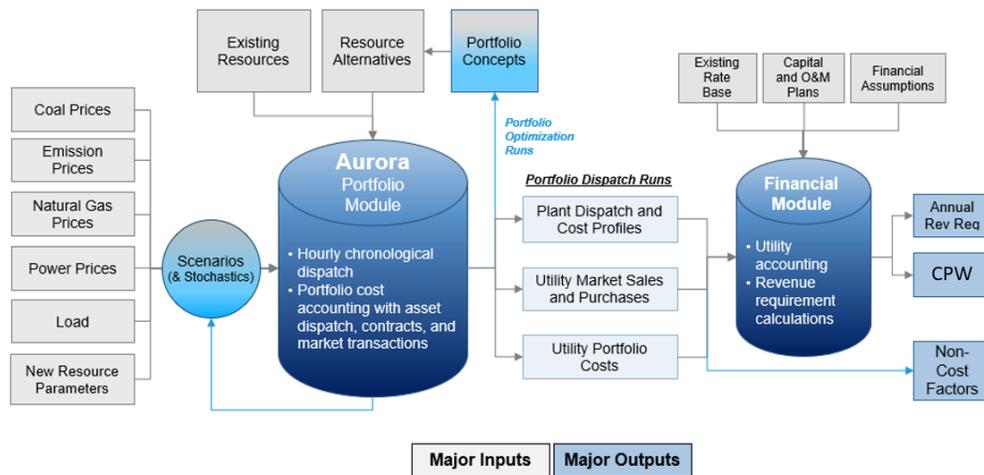
## **6.0 Planning Scenarios and Uncertainties**

### **6.1 Introduction**

Rate stability and maintaining reliability are two of Kentucky Power's objectives for the 2022 IRP. In the context of future uncertainties, this section explains how the 2022 IRP analysis captures the key uncertainties and planning risks facing the Kentucky Power portfolio and evaluates their impact on system reliability and costs to customers. The analysis informs the selection of candidate resources that balance customer affordability with rate stability, maintain reliability, and provide positive local impacts to Kentucky Power's customers. Kentucky Power evaluated uncertainty and risk using two different methods as part of the 2022 IRP.

The first method is based on developing a set of five market scenarios that test plausible, but materially different, long-term views of fundamental external market conditions such as commodity prices, customer preferences, policy requirements, and transmission availability. In addition to the Reference scenario, which is intended to reflect a "most likely" outcome, Kentucky Power developed four additional market scenarios that test the boundaries of expected long-term outcomes. Each portfolio was then stress-tested under all five market scenarios.

Each of these market scenarios is supported by a set of assumptions describing the fundamental inputs from the Company's Fundamental Forecast described in Section 6.2 that combine to reflect a specific theme or "what-if" narrative. The key categories of assumptions used to develop the 2022 IRP market scenarios include: load, fuel prices (natural gas prices and coal), CO<sub>2</sub> prices, reserve requirements by season, supply-side technology costs and performance inputs. All five scenarios in the 2022 IRP were modeled using AURORA to evaluate the evolution of generation capacity and prices across PJM under these different sets of fundamental conditions. This process is illustrated in Figure 36.



**Figure 36. 2022 IRP Modeling Framework**

The second method subjected the 2022 IRP portfolios to a large number of randomly drawn market simulations as part of the stochastic analysis. This means that each portfolio was dispatched against a wide range of market outcomes that combine volatility of power prices and natural gas prices with volatility of generator output to observe the impact on customer costs. In some simulations, these factors combine into severe operating conditions similar to those observed during extreme weather. Kentucky Power analyzes the portfolio costs under these severe outcomes to assess how much higher customers costs are likely to be under adverse or extreme market conditions, and how exposed customers are to higher costs under each portfolio.

## 6.2 The Fundamental Market Forecast

CRA produced a fundamental forecast of key market assumptions including prices for natural gas, coal, and CO<sub>2</sub> based on information from EIA and CRA's market models.

The primary tool used for the development of the North American long-term energy market pricing forecasts is the AURORA energy market simulation model. The AURORA model iteratively generates zonal, but not company-specific, long-term capacity expansion plans, annual energy dispatch, fuel burns, and emission totals from inputs including fuel, load, emissions, and capital costs.

The AURORA model is widely used by utilities for integrated resource and transmission planning, power cost analysis and detailed generator evaluation. The database includes approximately 25,000 electric generating facilities in the contiguous United States, Canada, and

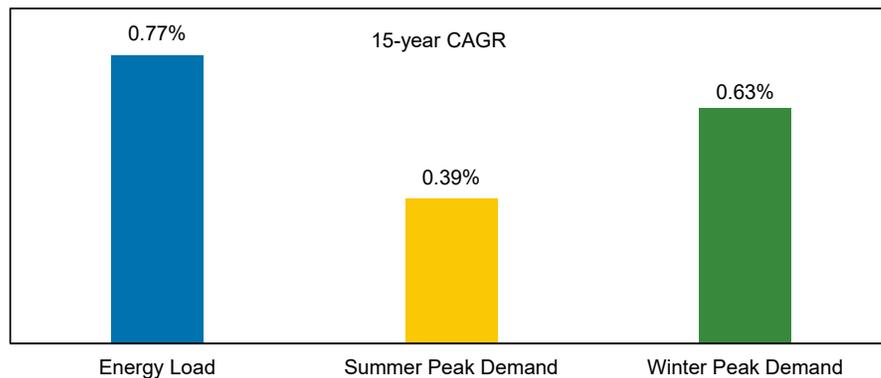
Baja Mexico. These generating facilities include wind, solar, biomass, nuclear, coal, natural gas, and oil. A licensed online data provider, ABB Velocity Suite, provides up-to-date information on markets, entities and transactions along with the operating characteristics of each generating facility, which are subsequently exported to the AURORA model.

### 6.3 Reference Scenario Market Drivers and Assumptions

The Reference scenario represents an expected view of how load growth, commodity prices, technology development, and policy will evolve over time and contribute to the market conditions under which Kentucky Power will operate.

#### 6.3.1 Reference Scenario Load

Under the Reference scenario, demand for energy in PJM is expected to grow by 0.8% per year over the 15-year forecast period (2023-2037). Peak summer demand is expected to grow at a rate of 0.4% per year, while peak winter demand grows more quickly at 0.6% per year.<sup>37</sup> These figures are illustrated in Figure 37.



**Figure 37. Reference Case PJM Energy and Seasonal Peak Demand Growth Rates (2023-2037)**

#### 6.3.2 Reference Scenario Fuel & CO<sub>2</sub> Prices

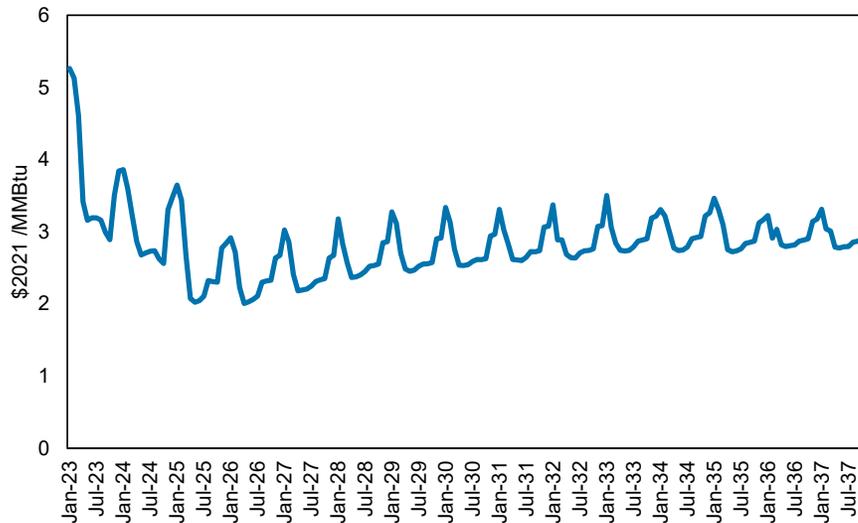
The commodity price inputs to the Reference scenario reflect the “base” view for natural gas, coal, and CO<sub>2</sub> emissions pricing. For the 2022 IRP Reference scenario, these “base”

<sup>37</sup> Based on 2022 PJM Load Forecast, <https://pjm.com/-/media/library/reports-notices/load-forecast/2022-load-report.ashx>

commodity price outlooks were used to represent the expected conditions for the broader PJM market.

### 6.3.2.1 Natural Gas Prices

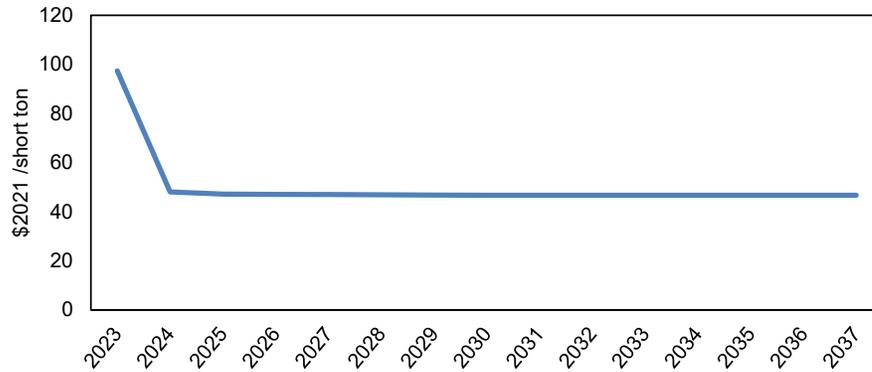
Figure 38 illustrates the monthly Columbia Gas Transmission (TCO Pool) price forecast that was used for the PJM market modeling in the Reference scenario. This pricing point was selected for the report because it reflects the point used to supply Kentucky Power’s units and is largely representative of gas prices in the region. Under the Reference scenario, prices fall from current levels through 2026 in real terms, after which annual growth in prices is modest for the remainder of the forecast period.



**Figure 38. TCO Pool Natural Gas Prices (real \$ / MMBtu)**

### 6.3.2.2 Coal Prices

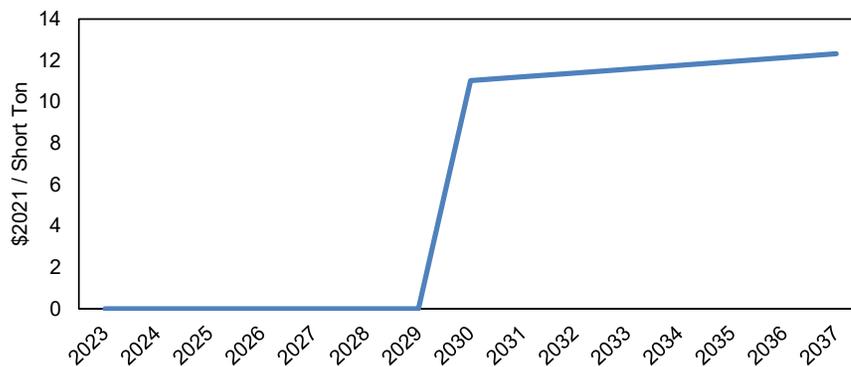
Figure 39 below illustrates the annual forecast of Central Appalachian Basin (“CAPP”) coal prices at the point of purchase (i.e., exclusive of transportation costs) that were used in the Reference scenario. While some coal-fired units in PJM burn coals other than CAPP, this price reflects the outlook for the type of coal burned at Kentucky Power’s solid fuel facilities. In the Reference scenario, similar to natural gas, the CAPP forecast exhibits a shorter-term decline in prices from current levels then remains largely consistent through the end of the forecast horizon to 2037.



**Figure 39. CAPP Coal Prices (real \$ / short ton, FOB origin)**

### 6.3.2.3 CO<sub>2</sub> Prices

Kentucky Power assumes that policymakers enact a moderate CO<sub>2</sub> price starting in 2030 as part of the 2022 IRP Reference scenario. This price is assumed to start around \$11/Ton (in real \$2021) and rises modestly throughout the forecast period, as illustrated in Figure 40. The CO<sub>2</sub> price increases the dispatch cost of all fossil-fired units in PJM based on the modeled emissions of the unit that, in turn, is a function of each unit's heat rate and the carbon content of the fuel it consumes.



**Figure 40. Moderate CO<sub>2</sub> Price Forecast (\$2021 / Short Ton)**

### 6.3.3 Reference Scenario Reserve Requirements

As discussed in Section 3.0, PJM Installed Reserve Margin (IRM) is 14.7% Adjusted for the PJM wide average EFORd, the Forecast Pool Requirement (FPR) planning reserve requirement modeled for the Reference scenario is approximately 9%.

While the planning reserve margin percentage is not assumed to change over the course of the forecast period in the Reference scenario, Kentucky Power does assume changes in the capacity contribution of different technology types, namely solar PV, wind, and 4-hour battery storage to reflect how incremental additions of these technologies are expected to shift peak load and reduce the Effective Load Carrying Capacity (“ELCC”) of these resources. Kentucky Power relied upon studies performed by PJM to estimate the change in ELCC over time as penetration of these resources increases in the PJM footprint.<sup>38</sup>

Increments of certain new resources, including some renewables and 4-hour battery storage, provide less additional capacity value as more of the resource is added to the system. That is, the amount of solar already installed on the system impacts how much ELCC the next increment provides.

Figure 41 through Figure 43 summarizes the ELCC views for select technologies used in the 2022 IRP scenarios. This figure summarizes the ELCC value awarded by year in the PJM market. The assumed ELCC values were informed by studies performed by PJM.<sup>39, 40, 41</sup>

<sup>38</sup> December 2021 Effective Load Carrying Capability (ELCC) Report. PJM. December 2021. <<https://www.pjm.com/-/media/planning/res-adeq/elcc/elcc-report-december-2021.ashx>>

<sup>39</sup> December 2021 Effective Load Carrying Capability (ELCC) Report. PJM. December 2021. <<https://www.pjm.com/-/media/planning/res-adeq/elcc/elcc-report-december-2021.ashx>>

<sup>40</sup> PJM ELCC Class Ratings and Accredited UCAP values. 2024/2025 BRA ELCC Class Ratings. December 2021. <<https://www.pjm.com/-/media/planning/res-adeq/elcc/elcc-class-ratings-for-2024-2025.ashx>>

<sup>41</sup> The ELCC value awarded by year across scenarios are discussed in Section 7.5.2

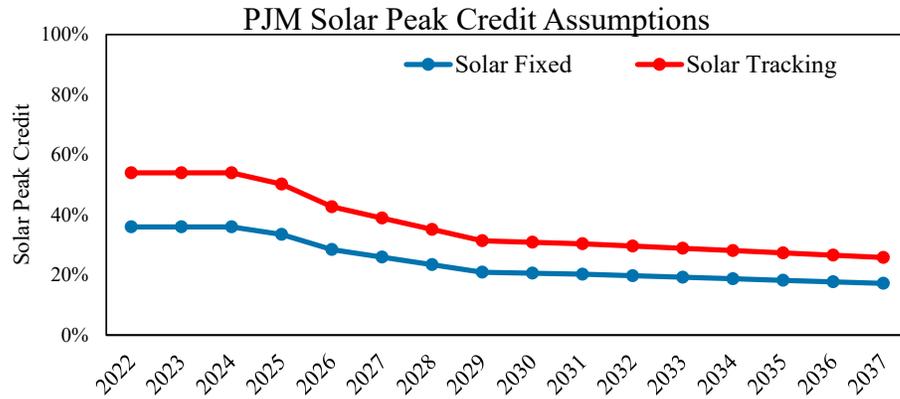


Figure 41. ELCC Assumptions for Solar Resources by Year

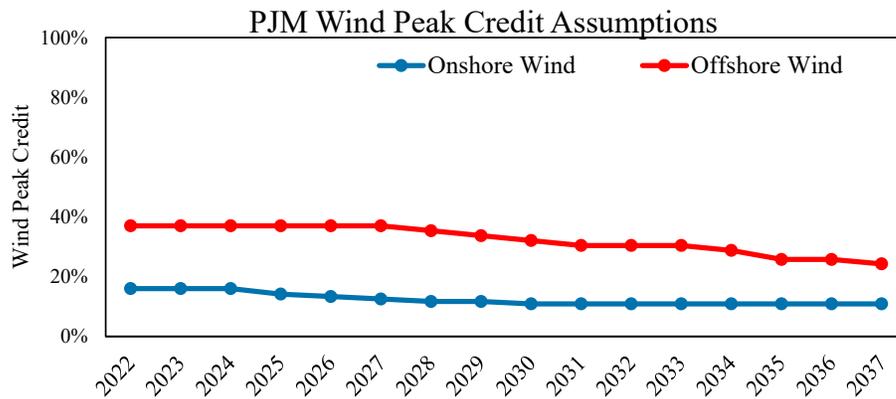


Figure 42. ELCC Assumptions for Wind Resources by Year

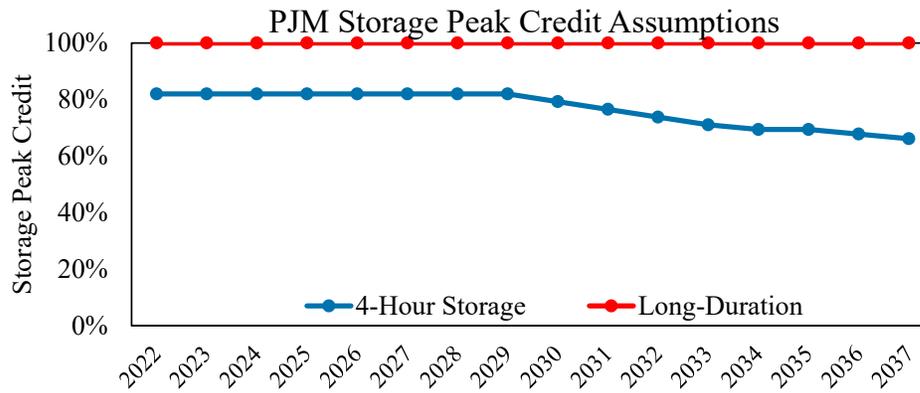


Figure 43. ELCC Assumptions for Storage Resources by Year

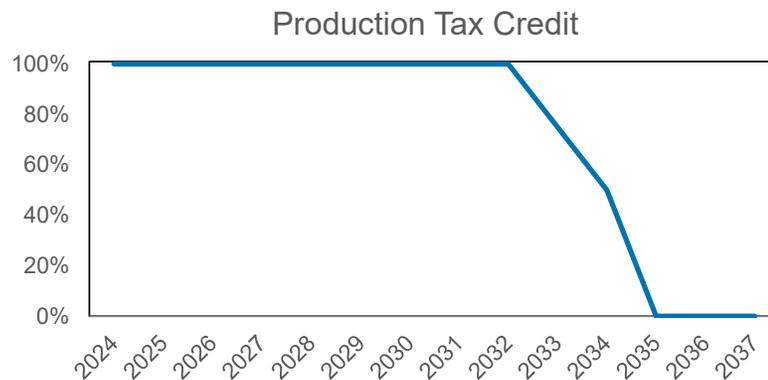
### 6.3.4 Reference Scenario Technology Assumptions

In general, Kentucky Power relied on EIA’s 2022 AEO as the starting point for the technology cost and performance assumptions for new utility scale generation in the PJM footprint. Reference case changes to technology cost and performance over time are based on the moderate case of the 2022 National Renewable Energy Laboratory’s (“NREL”) annual technology baseline (“ATB”) report.<sup>42</sup> Kentucky Power assumes that in the Reference scenarios, federal tax credits for new renewable generation and grid energy storage reflect current law and the schedules enacted in the Inflation Reduction Act (IRA) of 2022.

#### 6.3.4.1 Federal Tax Credits for Renewable Energy

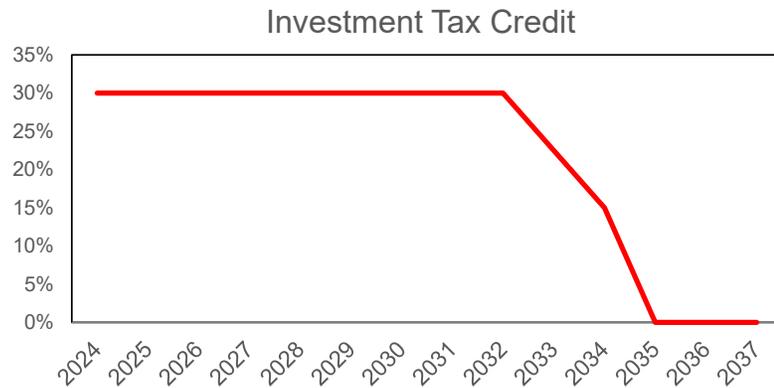
The Inflation Reduction Act of 2022 (“IRA”) provides federal tax credits for clean energy, energy storage, clean hydrogen, and CCS. Kentucky Power modeled the IRA as part of the 2022 IRP.

The primary provisions under the IRA are made available through the production tax credit (“PTC”) and investment tax credit (“ITC”). These benefits are adopted for all scenarios. Figure 44 below illustrates how these benefits are assumed to decline over time. The PTC value in Figure 44 represents the multiplier applied to the statutorily defined value of the credit<sup>43</sup> (e.g., in 2024 it is assumed that new wind and solar units will receive 100% of the defined credit value). By contrast, the ITC value represents the percent of capital cost that can be recovered through the credit (e.g., in 2024 it is assumed that new storage will receive a 30% rebate on capital costs).



<sup>42</sup> NREL Electricity Annual Technology Baseline (ATB) 2022. <<https://atb.nrel.gov/electricity/2022/data>>

<sup>43</sup> \$25/MWh, real \$2021 dollars; 10 year tax credit.



**Figure 44. Federal Tax Credit Assumptions Used in the 2022 IRP (2024-2037)**

#### 6.4 IRP Scenario Inputs

Kentucky Power evaluated four market scenarios, in addition to the Reference scenario, that describe plausible futures that may develop over time and result in a materially different set of market conditions under which Kentucky Power will need to serve customer needs. Each scenario is driven by a set of thematically oriented fundamental market assumptions. These scenarios are used to test the boundaries of future market conditions. Kentucky Power dispatched the 2022 IRP portfolios across the scenarios. The themes tested within and across scenarios reflect the priorities and key risks identified by Kentucky Power and its stakeholders and allow for a no or least regrets evaluation of options. Figure 45 summarizes the key drivers of each scenario in a matrix.

##### *Reference High-Cost (“REF-HC”)*

Under the REF-HC case, the PJM market continues to evolve based on the Reference outlook for load growth, commodity prices, and regulatory pressure. New unit costs for solar, wind, and storage remain elevated, relative to the Reference scenario, as short-term shocks to the supply chain are not fully resolved over the forecast period.

##### *Clean Energy Technology Advancement (“CETA”)*

The CETA scenario is one of two in the 2022 IRP that test how an aggressive policy shift to decarbonize the electric sector could manifest in future market conditions. Under the CETA scenario, GHG reductions are achieved primarily through increased incentives for deployment of clean supply- and demand-side technologies. For example, under the CETA scenario Kentucky Power assumes that investments in R&D drive cost improvements beyond the Reference scenario

for new wind, solar, and storage units. The CETA case also incorporates more aggressive end-use electrification than the Reference scenario resulting in greater penetration of EVs and other technologies. This results in a higher load forecast and a shift in customer demand patterns.

***Enhanced Carbon Regulation (“ECR”)***

The ECR case is the other case that tests an aggressive policy shift to decarbonize the electric sector. Unlike the CETA case, reductions under the ECR scenario are achieved through a combination of actions that result in higher costs for emitting generation and restrictions on the future development of fossil fuels. Under the ECR scenario, carbon emissions are regulated through a federal cap-and-trade program that results in a significant CO<sub>2</sub> price and higher natural gas costs, relative to the Reference scenario.

***No Carbon Regulation (“NCR”)***

Under the NCR case, natural gas prices remain low and no federal limits on carbon emissions are enacted during the forecast period. The resulting market conditions are similar to recent history and tend to be more favorable for natural gas and coal resources relative to the Reference scenario. The NCR case allows Kentucky Power to stress test portfolios that rely more heavily on new renewable generation under conditions that are generally more favorable to gas-fired units and evaluate the impact on expected customer costs.

| Scenario Concept                           | Load | Natural Gas | Carbon   | New Resource Cost |
|--|------|-------------|----------|-------------------|
| Reference                                  | Base | Base        | Moderate | Base              |
| Reference High-Cost (REF-HC)               | Base | Base        | Moderate | Slower Decline    |
| Clean Energy Technology Advancement (CETA) | High | Base        | Moderate | Faster Decline    |
| Enhanced Carbon Regulation (ECR)           | Low  | High        | High     | Faster Decline    |
| No Carbon Regulation (NCR)                 | Base | Low         | No Price | Base              |

**Figure 45. 2022 IRP Scenario Assumption Matrix**

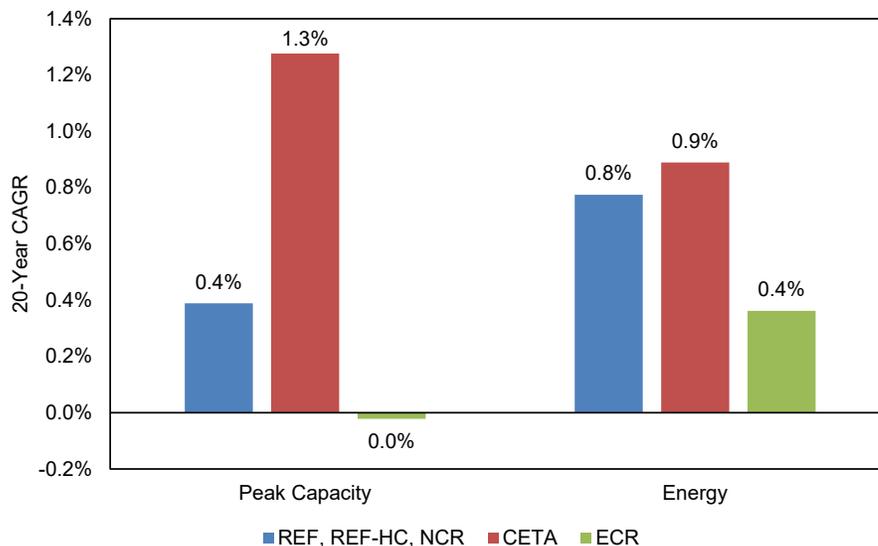
### 6.4.1 Scenario Load

Two of the 2022 IRP scenarios, the REF-HC and NCR scenarios, use the same base case load forecast as the Reference scenario above, while the CETA and ECR cases flex customer load higher and lower (respectively) to reflect changes in the broader economy.

Under the CETA scenario, load grows more quickly than under the Reference scenario driven by increased economic growth, deployment of electric vehicles, and greater building electrification. Overall annual peak growth for the PJM market in the CETA scenario is 1.3% per year, or approximately 0.9% higher than the Reference scenario, and annual energy growth is 0.9% per year. The accelerated adoption of EVs and other end-use electrification applications also impact the load shape.

Under the ECR scenario, overall system wide energy load levels in PJM fall over time driven by lower economic growth and adoption of distributed technologies by Kentucky Power's customers. Under this case, annual energy growth in PJM is forecast at 0.4% per year, or approximately 0.4% lower than the 20-year forecast of load growth from the Reference scenario, while peak capacity exhibits very little growth.

Changes to annual load across the PJM market are illustrated in Figure 46, below.



**Figure 46. PJM Load Growth 20-Year CAGR and Comparison with Reference Scenario**

## **6.4.2 Scenario Fuel & CO<sub>2</sub> Prices**

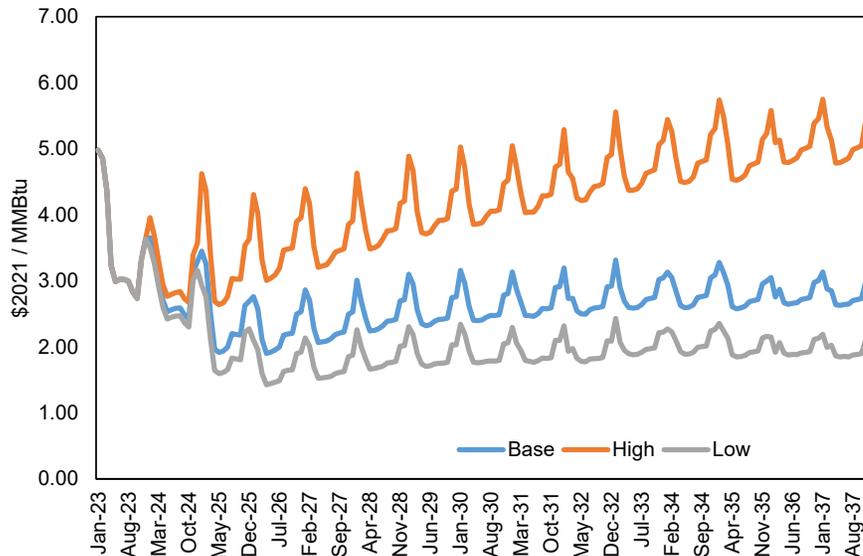
Where the Reference scenario reflects an expected outlook for commodity prices and other fundamental market drivers, there are a number of factors that may result in market conditions that produce higher or lower natural gas and CO<sub>2</sub> prices.

### **6.4.2.1 Natural Gas Prices**

The same natural gas price view relied upon for the Reference scenario is also used in the CETA and the REF-HC scenarios when deriving the power price forecast for the PJM market. Under the ECR and NCR scenarios, natural gas prices are flexed upwards and downwards (respectively) reflecting different views of supply-side conditions for producers.

Under the ECR case, natural gas prices are assumed to be higher than in the Reference scenario despite lower overall demand. In this scenario, policymakers are enacting stricter federal regulations in an effort to reduce GHG emissions economy-wide. This results in a higher CO<sub>2</sub> price sooner, limits on access to natural gas supply (e.g., drilling bans), and higher production costs due to higher CO<sub>2</sub> prices and stricter environmental requirements. The result is that the natural gas price forecast is approximately \$1.50/MMBtu higher than in the Reference scenario over the course of the forecast period. Under the NCR case, policymakers place less pressure on economy-wide GHG emissions than under the Reference scenario and natural gas prices are approximately \$0.60/MMBtu lower.

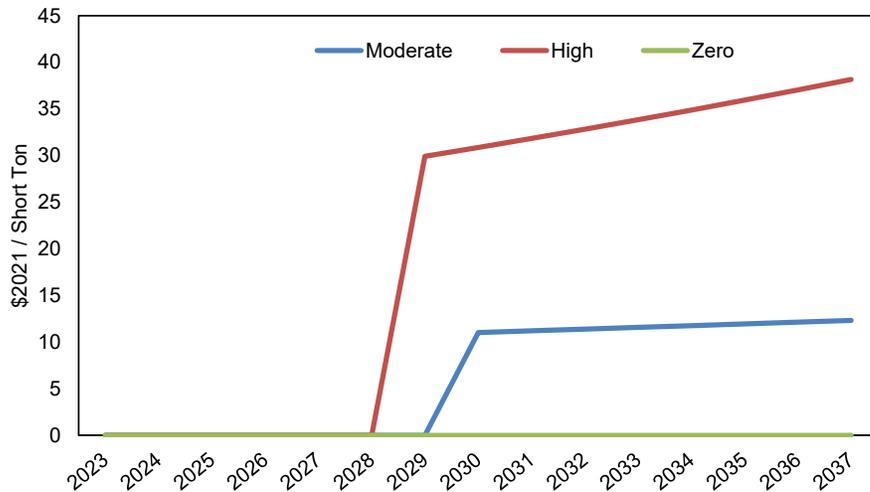
Figure 47 below compares the high and low gas price forecasts relied upon in the ECR and NCR cases to the base view used for the remaining scenarios.



**Figure 47. High and Low TCO Pool Natural Gas Price Forecasts (real \$ / MMBtu)**

#### 6.4.2.2 CO<sub>2</sub> Prices

Under the Reference scenario policymakers enact measures that put moderate pressure on the economy to reduce greenhouse gas emissions in the form of a carbon price starting in 2030. Both the CETA and REF-HC scenarios use the same trajectory for CO<sub>2</sub> prices. However, there is the potential that future emissions reduction policy could occur sooner than expected and that the level of policy pressure could be materially higher, as represented in the high CO<sub>2</sub> price forecast used in the ECR scenario. Under this scenario, a national cap on carbon is instituted starting in 2029 with prices starting at approximately \$30/Ton (real \$2021) and rising to around \$43/Ton by 2037. Under the NCR scenario, policymakers do not enact a price on CO<sub>2</sub>, and prices are assumed to be zero throughout the forecast period. Figure 48 below illustrates how the high and zero CO<sub>2</sub> prices in the ECR and NCR scenarios (respectively) compare to the moderate CO<sub>2</sub> price view used in the remaining three scenarios.



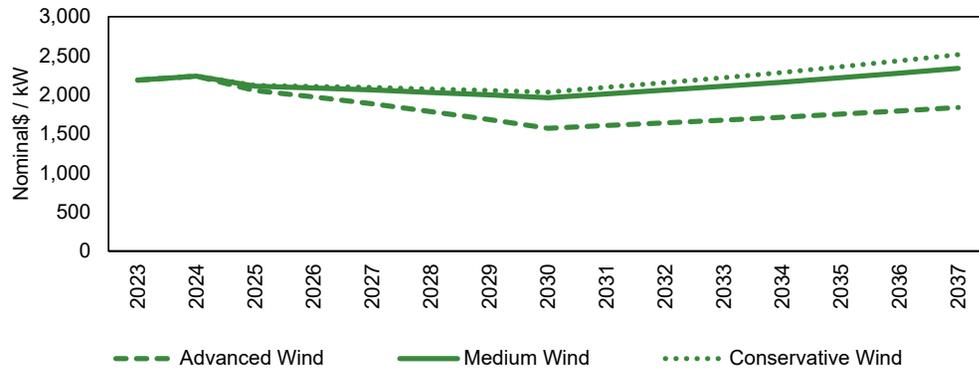
**Figure 48. High and Zero CO<sub>2</sub> Price Forecasts (\$2021 / Short Ton)**

### 6.4.3 Scenario Technology Cost Assumptions

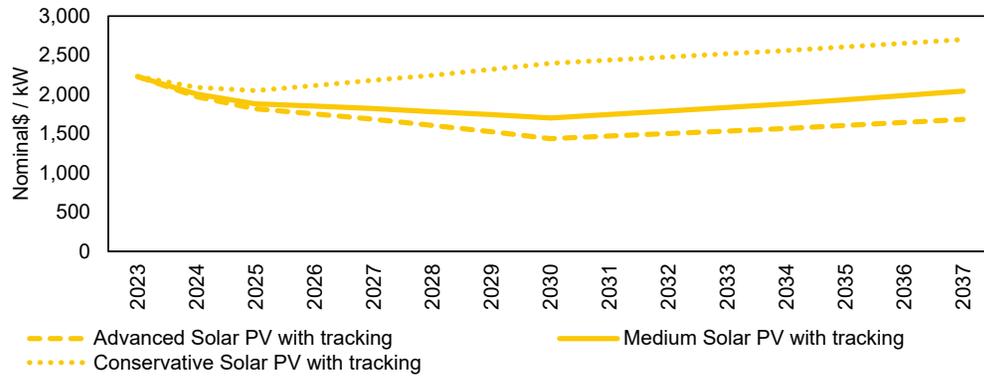
Kentucky Power’s 2022 IRP scenario flexed the expected capital cost as part of the 2022 IRP scenarios.

#### 6.4.3.1 Technology Capital Costs

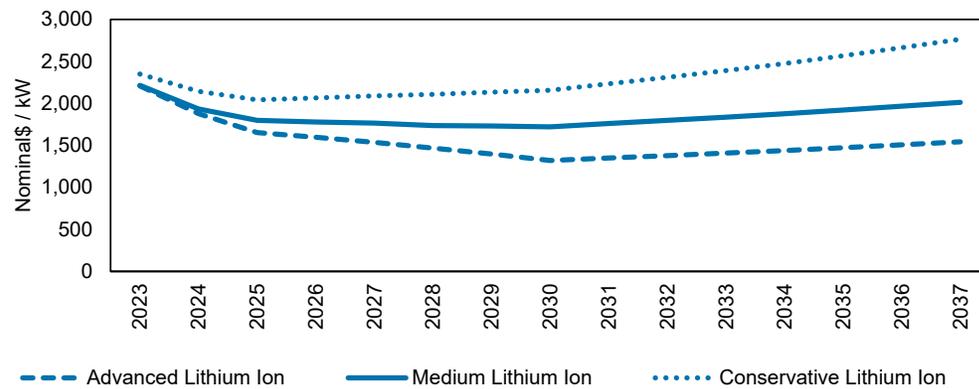
As described in Section 5.0, Kentucky Power generally relies on technology cost assumptions from EIA’s 2022 AEO report to establish the expected capital cost of new utility-scale resources. Those costs change over time based on the medium outlook from the NREL 2022 ATB. This outlook of new unit costs is used for two of the 2022 IRP scenarios: the Reference scenario and the NCR scenario. Under the ECR and CETA scenarios, rapid deployment of new renewable technologies combined with higher levels of policy support cause the cost of these technologies to decline more quickly. Capital costs follow the “advanced” NREL ATB case learning rates, resulting in costs that are materially lower throughout the forecast period. Finally, for the REF-HC scenario, new unit costs remain elevated as short-term shocks to the supply chain are not fully resolved over the forecast period. Capital costs follow the “conservative” NREL ATB case learning rates, resulting in costs that are materially higher throughout the forecast period. Figure 49, Figure 50, and Figure 51 below compare the forecast of expected capital costs from NREL’s advanced case used in the ECR and CETA scenarios and the conservative case used in the NCR scenario against the medium case costs used in the remaining two scenarios.



**Figure 49. Comparison of Capital Costs Under Advanced and Medium Outlooks for Wind Technologies (2023-2037 | Nominal \$/kW)**



**Figure 50. Comparison of Capital Costs Under Advanced and Medium Outlooks for Solar Technologies (2023-2037 | Nominal \$/kW)**



**Figure 51. Comparison of Capital Costs Under Advanced and Medium Outlooks for Lithium Ion Technologies (2023-2037 | Nominal \$/kW)**

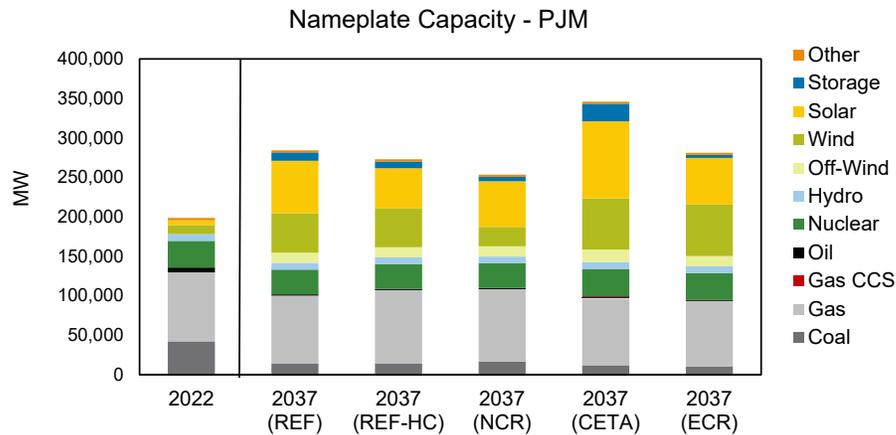
## **6.5 Market Scenario Results**

The load, technology, policy, and other assumptions for the five scenarios described above served as inputs into the AURORA model. Using the model's long-term capacity expansion ("LTCE") functionality, Kentucky Power developed scenario-specific forecasts of the PJM market. In the portfolio modeling stage, described below in Section 7.0, Kentucky Power developed an optimal resource portfolio in each one of the five scenarios.

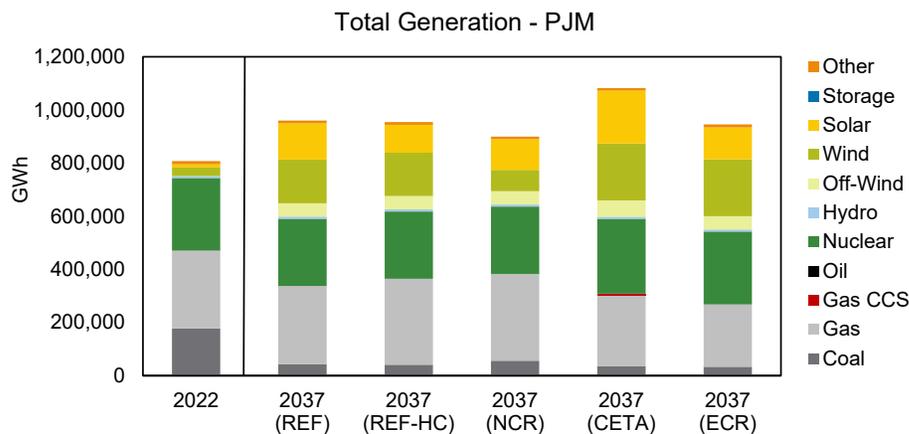
### **6.5.1 Capacity Expansion Results**

Kentucky Power used the AURORA LTCE model to forecast the least-cost combination of resource additions and retirements in PJM using the assumptions for each market scenario. While the PJM market selections do not directly impact the resources that can be selected for the Kentucky Power portfolio, they are informative for describing how different resource types are likely to perform under certain conditions. Figure 52 and Figure 53 below illustrate the 2037 PJM capacity and generation mix, respectively, across all five market scenarios compared with the PJM resource mix in 2022.

Under the Reference scenario, much of the existing coal fleet is retired over the course of the forecast. Due to the combination of announced retirements and the modest CO<sub>2</sub> price that comes into effect in 2030, only 14 GW of coal are left by the end of the study period. To replace coal plant retirements and meet growing load, a combination of renewables, 4-hour battery storage, and new gas units are added over time. In total, approximately 39 GW of new wind, 60 GW of new solar, 11 GW of new storage units, 7 GW of new gas peakers, and 2 GW of new combined cycles are added by 2037. The gas units are installed primarily to meet firm requirements. Under the Reference scenario, solar and wind generators provide more than 37% of the total PJM generation by 2037. The result is that total CO<sub>2</sub> emissions in the PJM market decline by almost 50% in the Reference scenario from 2022 to 2037.



**Figure 52. Comparison of 2022 and 2037 Nameplate Capacity by Technology in PJM**



**Figure 53. Comparison of 2022 and 2037 Generation by Technology in PJM**

In the REF-HC scenario, commodity price conditions are the same as in the Reference scenario, but the relatively higher cost of renewables and storage results in a larger proportion of thermal generation in the PJM market than under Reference scenario conditions. As a result, by 2037, there is 7 GW of additional gas-fired capacity added relative to the Reference scenario. Approximately 45 GW of new solar, 38 GW of new wind, and 9 GW of new 4-hour battery storage are added by 2037. Renewable sources comprise just under 33% of PJM market generation in this year. PJM CO<sub>2</sub> emissions decline by approximately 43% from 2022 to 2037, compared to around 50% in the Reference scenario.

Under the CETA scenario, load growth is higher than in the Reference scenario and the cost of new renewable generation is lower due to faster learning rates. The combination of higher

load and more affordable renewable technology leads to materially greater deployment of solar, wind and 4-hour battery storage than under the Reference scenario. By 2037, nearly 92 GW of new solar, 53 GW of new wind, and 22 GW of new 4-hour battery storage are added in PJM under the CETA scenario. Furthermore, approximately 1 GW of NGCC capacity is retrofitted with carbon capture and storage. Despite higher load and 3 GW more coal retirements, gas generation across PJM under CETA is lower than under the Reference scenario due to greater penetration of renewables. Solar and wind units comprise more than 44% of total PJM generation by 2037, and CO<sub>2</sub> emissions decline by around 52% PJM-wide relative to 2022 levels.

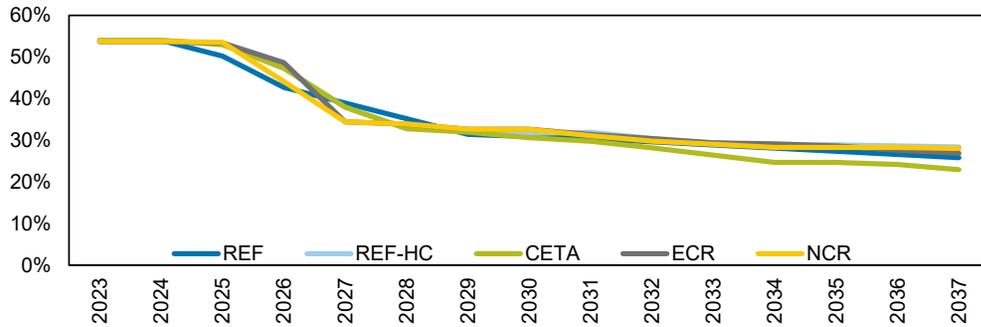
In the ECR scenario, a lower load outlook for PJM is combined with a higher outlook for CO<sub>2</sub> and natural gas commodity prices. This results in accelerated coal retirements, where relative to the Reference scenario, an additional 4 GW of coal capacity is retired in PJM by 2037. Natural gas-fired capacity also falls PJM-wide over the forecast period. Due to a more favorable outlook for nuclear, about 2.5 GW of existing nuclear capacity is relicensed in 2034 under the ECR scenario. PJM sees an additional 15 GW of wind and 7 GW less of solar deployment compared to the Reference scenario, and lower levels of 4-hour battery storage (around 7 GW lower). Renewable resources make up a significant proportion of the overall system, with wind and solar accounting for 42% of total PJM generation by 2037. PJM-wide CO<sub>2</sub> emissions are the lowest in this scenario and decline by 58% relative to 2022 levels by the end of the forecast period. The additional nuclear output is a major contributor to these reductions.

Under the NCR scenario, there is no economy-wide CO<sub>2</sub> price and natural gas prices are forecast lower than in the Reference scenario. The result is that more existing coal is able to remain competitive and approximately 17 GW of coal units are still operating by the end of the forecast period. The overall build-out of new renewables in the NCR scenario is lower than in the Reference scenario with approximately 13 GW of new wind, 52 GW of new solar, and 6 GW of new 4-hour battery storage added by 2037. Compared to the Reference scenario, there is an additional 6 GW of total gas capacity, due to the lower commodity price assumption that makes these units more competitive. The result is that renewable units comprise only about 27% of total PJM generation by 2037 in the NCR scenario, with natural gas and nuclear units providing the majority of the remaining energy. Emissions decline in this scenario, but not as far as in the Reference scenario, down around 37% from 2022 levels by 2037.

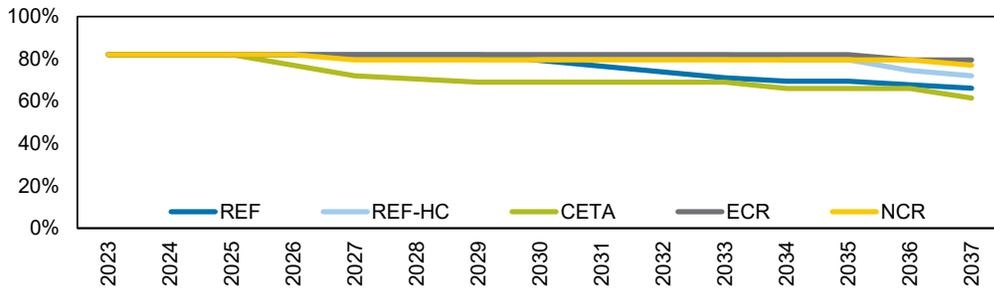
## **6.5.2 Effective Load Carrying Capability (ELCC) Results**

As described in Section 6.3.3 and Section 6.5.1, the Kentucky Power scenarios have produced a range of capacity expansion results using the AURORA LTCE model that result in different penetration levels of renewables and 4-hour battery storage. The ELCC value of the renewables and 4-hour battery storage are based on the amounts installed in each scenario. The resulting differences are illustrated by the curves in Figure 41 through Figure 43 above.

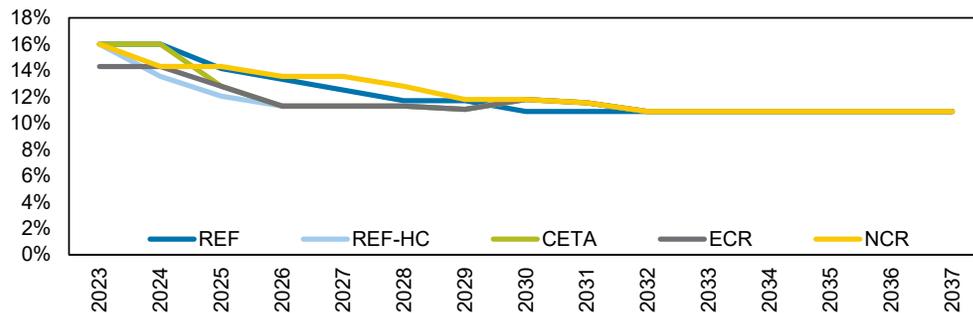
Under the Reference, REF-HC, and ECR scenarios, solar ELCC values decline from the current 54% value to levels near 26% by 2037, falling over time in-line with the increments of new solar added in each case. Less solar is added in the NCR case driven by lower commodity and energy prices, hence solar ELCC declines to around 28% peak value by 2037. While the NCR scenario represents an upper bound, the CETA case sets the lower bound at 23%. Under the CETA scenario, capital costs are lower for renewable resources, leading to more and earlier additions. Similar to solar, storage ELCC values vary across scenarios, ranging from 66% to 80% by 2037. For wind, ELCC varies the least with a uniform level of 11% across scenarios for onshore and a narrow range of 22% to 25% for offshore wind by 2037. The resulting solar, storage, and wind summer ELCC values are summarized in Figure 54 through Figure 57 below.



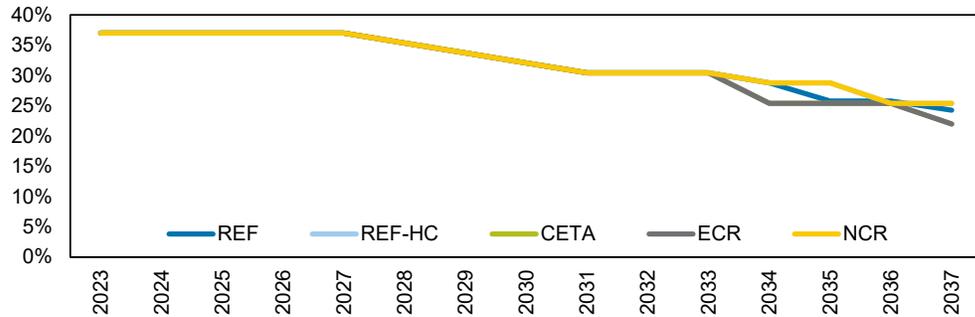
**Figure 54. Comparison of Summer Peak Solar Credits by Scenario**



**Figure 55. Comparison of Summer Peak Battery Storage Credits by Scenario**



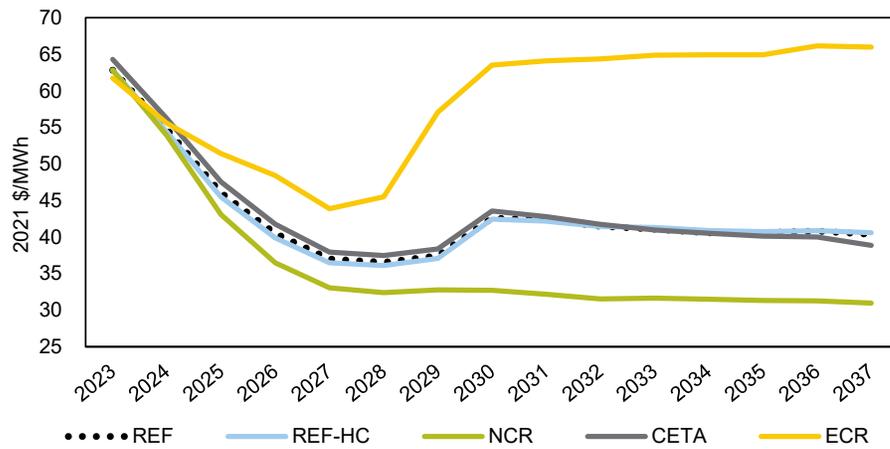
**Figure 56. Comparison of Summer Peak Onshore Wind Credits by Scenario**



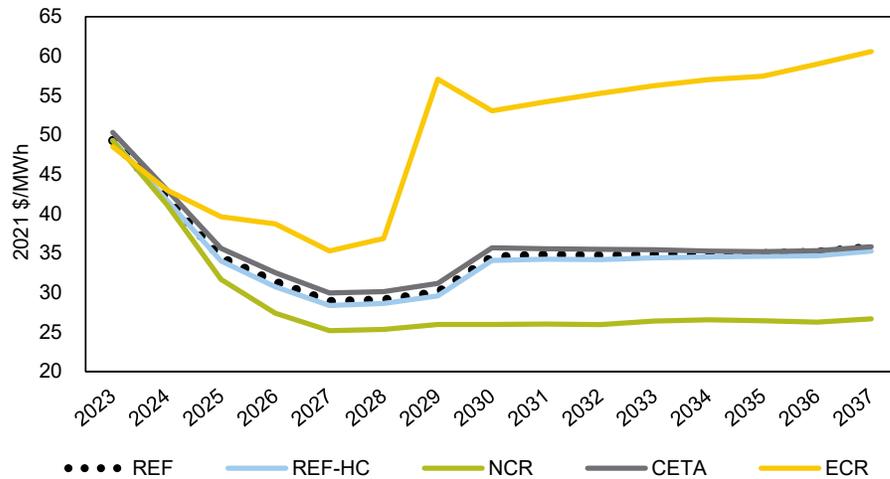
**Figure 57. Comparison of Summer Peak Offshore Wind Credits by Scenario**

### 6.5.3 Market Price Results

The key market outputs from the scenario modeling process are the power prices illustrated below in Figure 58 and Figure 59. Shown are all five market scenarios modeled in the 2022 IRP. These figures illustrate the wide but plausible range of energy prices that emerge from the scenario modeling steps that were used to develop and select the Preferred Plan.



**Figure 58. Annual On-Peak PJM AEP Hub Electricity Price (\$2021 / MWh)**



**Figure 59. Annual Off-Peak PJM AEP Hub Electricity Price (\$2021 / MWh)**

Under the Reference scenario, on-peak energy prices in PJM AEP Zone decline from around \$63/MWh (\$2021 real) in 2023 to \$37/MWh by 2029 in large part due to the decrease in natural gas prices over the period. There is approximately a \$12/MWh spread between on- and off-peak pricing over this same period, in real dollar terms. Starting in 2030 prices step up in both on- and off-peak periods by approximately \$5/MWh driven by the introduction of the CO<sub>2</sub> price in that year. There is a slight decline in on-peak pricing from 2031 onward even as CO<sub>2</sub> prices continue to rise due to the increasing penetration of renewable generation on the PJM system. Off-peak prices, however, remain fairly level due to increasing costs of thermal generation during periods of lower solar output. This contributes to a narrowing of the spread between on- and off-peak prices over the forecast period, which declines to about \$4/MWh by 2037.

Under the REF-HC and CETA scenarios, PJM market prices are largely similar to the Reference scenario. This outcome is to be expected given that the same commodity prices were used in all three of these scenarios (i.e., base natural gas and moderate CO<sub>2</sub> prices). Under the REF-HC scenario, long term prices for both on- and off-peak energy remain close to the Reference scenario. Under the CETA scenario, prices are between \$1-2/MWh higher than the Reference scenario over the long term due to faster load growth in the PJM market.

The ECR scenario sets the upper bound of PJM market prices. During the 2023-2028 period, both on- and off-peak prices are approximately \$5/MWh higher than in the Reference scenario due to the higher natural gas price assumed in this scenario. In 2029, the high CO<sub>2</sub> price is introduced, and PJM market prices rise by around \$20/MWh in on-peak and \$27/MWh in off-peak

periods. From 2029 onward, on-peak prices tend to remain stable (in real terms) due to the lower load growth assumption in this scenario and the high penetration of renewable generation. Conversely, off-peak prices grow slightly from 2029-2037 due to the high cost of running thermal generation during periods of low solar output. The result is that the spread between on- and off-peak prices falls to around \$5/MWh by 2037 in the ECR scenario when viewed on an annual average basis.

The NCR scenario sets the lower bound of PJM market prices. From 2023-2029, overall market prices are around \$1-5/MWh lower than in the Reference scenario due to the low natural gas price forecast that is assumed in this scenario. After 2030, PJM prices in this case are materially lower than in the Reference scenario due to the lack of federal CO<sub>2</sub> pricing and lower outlook for natural gas prices that are assumed as part of the scenario. On-peak prices decline modestly in real terms, from 2029 until the end of the outlook horizon as renewable generation is added to the system. Off-peak pricing is flat from 2029 through 2037. In this scenario, the spread between on- and off-peak prices therefore narrows modestly on an annual basis, to \$5/MWh by 2037.

## 6.6 IRP Stochastics Inputs Development

Kentucky Power's stochastic risk analysis attempts to evaluate volatility and "tail risk" impacts to its generation portfolio that would not be included under "expected" or "weather normal" deterministic forecasts. The selected variables modeled for stochastic realizations – gas prices, power prices, and renewable output – are specifically selected to address portfolio performance under various market dynamics and generation availability outcomes.

As described in Section 7.2, rate stability is one of the key objectives for the preferred portfolio. The scorecard metric "Cost Risk" is defined as the CPW increase between the 95<sup>th</sup> percentile and 50<sup>th</sup> percentile portfolio cost observed under the set of stochastic distributions of variables. This metric captures the robustness of portfolio cost when subjected to a range of combinations of gas prices, power prices, and renewable output.

This analysis involves developing 250 combinations of stochastic gas prices, power prices, and renewable output, then determining the portfolio costs under each of the 250 iterations through portfolio dispatch in AURORA and the PERFORM<sup>44</sup> financial module. The 95<sup>th</sup> and 50<sup>th</sup>

<sup>44</sup> PERFORM is CRA's utility financial model, see Section 7.3 below.

percentile CPW among the set of portfolio cost realizations are identified to calculate the “Cost Risk” scorecard metric.

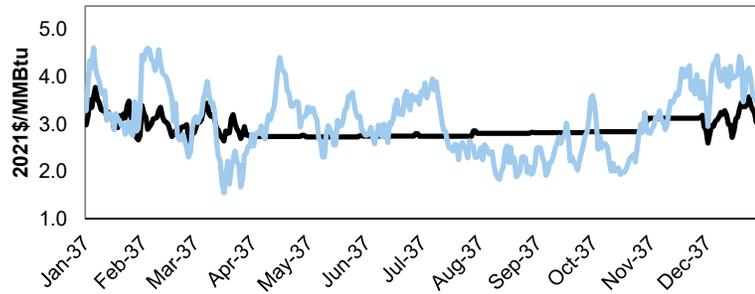
### 6.6.1 Gas and Power Prices Stochastics

Stochastic price paths for gas and power prices are developed using CRA’s Moment Simulation Energy Price (“MOSEP”) model. MOSEP is a regime-switching, mean-reverting<sup>45</sup> model that takes as input expected paths for gas and power prices, based on Kentucky Power’s Reference scenario outlined in Section 6.3. MOSEP’s Monte Carlo engine simulates random price deviations around the expected paths based on historical volatility and seasonal gas-power correlative relationships to yield “realized” price paths for both gas and power. While price paths are developed for the period 2022-2037, data from 2037 is singled out for the portfolio cost analysis as representative of the study period.

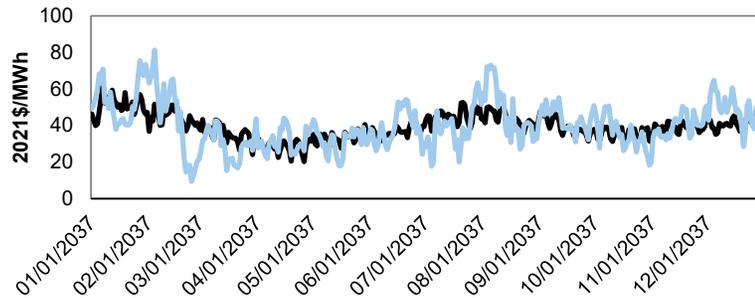
To reflect realistic market price behavior, historical daily average gas and power price data were gathered to observe key price characteristics and calibrate simulation model parameters. The key seasonal market price characteristics include, but are not limited to, the range of prices around a seasonal median price, standard deviation, magnitude and frequency of sudden price spikes, market heat rate, and correlation between gas and power. The specific pricing points used in this analysis are the daily natural gas spot index at TCO pool and the day-ahead, around-the-clock PJM AEP GEN HUB price strip. The historical prices from the period January 1, 2017, to August 31, 2022, were used to summarize the relevant market price behavior and include only the most recent market dynamics.

Figure 60 and Figure 61 illustrate one sample iteration of gas and power daily prices in 2037 produced by MOSEP (blue lines). The baseline forecasts are included in the same graphic (black lines) for comparison. As illustrated, the stochastic price paths exhibit more daily volatility as well as high-price and low-price risk than the deterministic Reference scenario forecasts.

<sup>45</sup> The model simulates price behavior under different price regimes (e.g., normal price regime, spike price regime). Commodity prices have been found to exhibit a mean-reverting behavior after a sudden price jump. The model facilitates switching between different regimes via a Markov transition matrix. Given the current regime, the transition matrix specifies the probabilities of staying in the current regime or moving to a different regime. These probabilities are approximated based on historical data. For references, see the following paper, on which MOSEP is based - Higgs, H. & Worthington, A. “Stochastic price modeling of high volatility, mean-reverting, spike-prone commodities: The Australian wholesale electricity market.” Energy Economics, 2008.



**Figure 60. Sample Iteration of Daily Natural Gas Price Simulation for 2037**

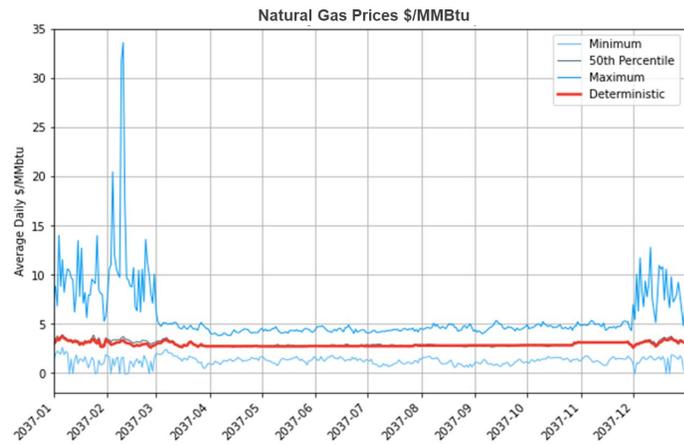


**Figure 61. Sample Iteration of Daily Power Price Simulation for 2037**

The distributions of the values associated with electricity and natural gas prices are shown in Figure 62 and Figure 63, respectively. Electricity prices show strong tendency to spike during winter and summer months with significantly lower spiking probability during shoulder months leading to differences in average monthly price ranges. Natural gas prices spike consistently during winter months with lower probability of spiking during summer and shoulder months leading to differences in average monthly price ranges.



**Figure 62. Range of Variable Inputs for Stochastic Analysis – Electric Prices**



**Figure 63. Range of Variable Inputs for Stochastic Analysis – Natural Gas Prices**

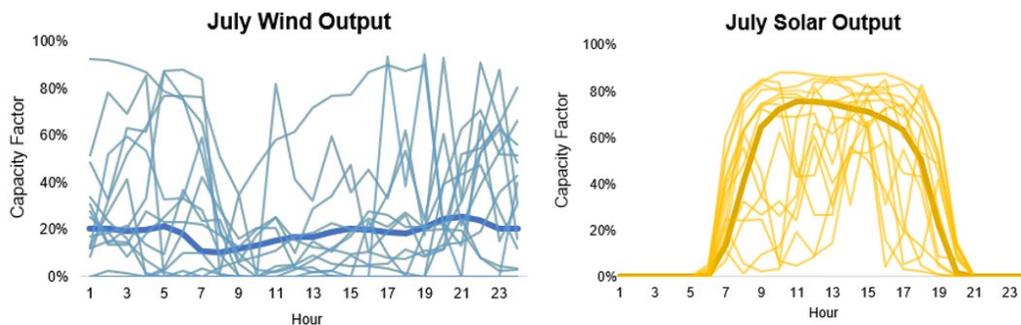
### 6.6.2 Renewable Energy Output Stochastics

Renewable energy output uncertainty is integrated in Kentucky Power’s stochastic analysis process to address the risks associated with energy market exposure. To widen the range of modeled renewable availability, historical weather data from NREL was used to proxy wind and solar availability using NREL’s System Advisor Model (“SAM”).

Historical hourly weather conditions for the years 2008 to 2012 (5 weather years) for two counties across Kentucky<sup>46</sup> were used as inputs into the SAM tool. Proxies for a farm of wind turbines and single-axis tilt solar panels were used in SAM to simulate hourly wind and solar power output, respectively. Adjustments to SAM power estimates were used to align with Kentucky Power's capacity factor assumptions for new wind and solar resources.

Figure 64 illustrates hourly capacity factor shapes for wind and solar in the month of July, with the monthly average capacity factor shape depicted in the bolded blue and yellow lines, respectively.

Each of the 250 commodity price paths are combined with renewable energy output data from one of the five historic weather years. For example, the first 50 iterations of gas and power prices are matched with wind and solar output based on historical weather year 2008 conditions.

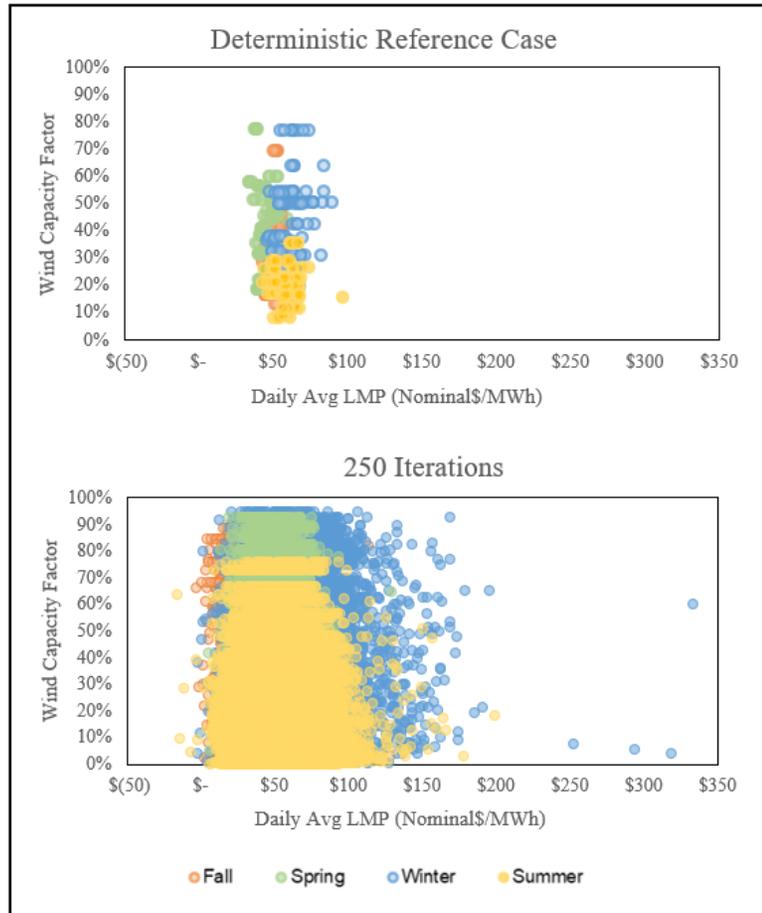


**Figure 64. Simulated Hourly Wind and Solar Capacity Factor for July**

By incorporating stochastic renewable profiles and gas and power outputs, the combinations of renewable energy output and price paths cover a greater range than the Reference scenario. This is illustrated in Figure 65 that compares combinations of daily average wind capacity factors and the daily average power price across the deterministic Reference scenario versus the 250 stochastic iterations around the Reference scenario. From the first graphic, prices vary with renewable energy output, but there is limited variability in the overall market prices that are reflected. By contrast, the stochastic modeling approach used by Kentucky Power tests many

<sup>46</sup> Historical wind data was taken from 5 different weather years for Morgan County, KY. Historical solar data was taken from 5 different weather years for Morgan County, KY. These weather profiles were used in SAM to estimate a power output shape for each resource.

more hours and captures periods of high market prices and low renewable energy output, and vice versa.



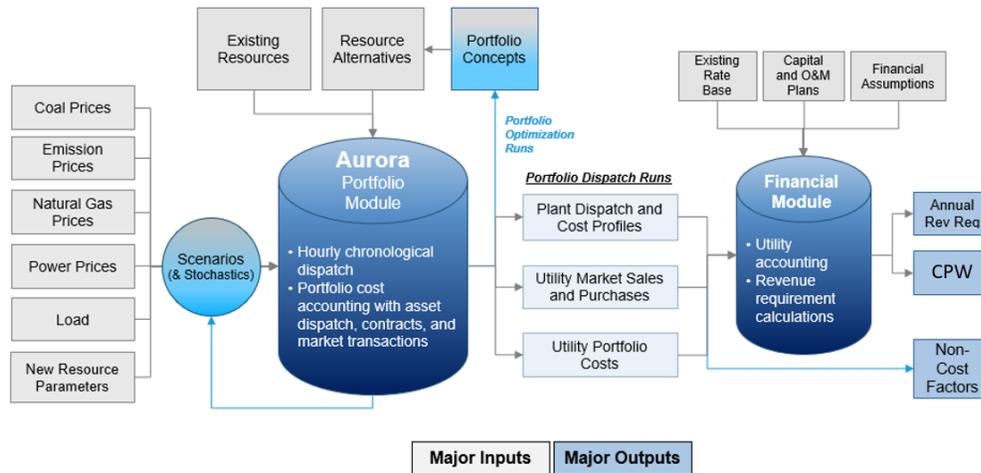
**Figure 65. Daily Average Wind Capacity Factor and Power Price, under Deterministic Reference Scenario vs. 250 Stochastic Iterations**

## **7.0 Portfolio Analysis**

### **7.1 Introduction**

The 2022 Portfolio Analysis began by reviewing the priorities and objectives of Kentucky Power and its Stakeholders, as well as key uncertainties and potential futures risks associated with the cost of serving Kentucky Power's customers described in the prior section. This process informed the analysis performed and the development of an IRP scorecard. The scorecard is a tool used to evaluate the potential trade-offs between different demand- and supply-side options that Kentucky Power may employ to meet future customer needs in the 2022 IRP. The 2022 IRP scorecard and metrics are detailed below in this chapter.

In terms of impact on the IRP analysis, the priorities and objectives informed the 2022 IRP by leading to the creation of five different market scenarios that reflect plausible, but different, combinations of outcomes across key related fundamental market drivers (e.g., load, fuel costs, seasonal requirements, level of environmental pressure, etc.) described in the prior section. These scenarios tested how the prices of energy, capacity, and other services changed across the PJM market under different combinations of these fundamental conditions. A portfolio was developed under each of the five scenarios using the capacity expansion model in AURORA to find "optimal" selections of resources under different market conditions. Two additional plans were then created in response to stakeholder engagement and feedback. The five PJM market scenarios were also used to perform stochastic analysis to evaluate each portfolio's cost risk by subjecting them to a wide range of market outcomes that reflect periods of volatility.



**Figure 66. 2022 IRP Modeling Framework**

This IRP seeks to test volatility through the stochastic analysis of power, gas, and renewable outcomes. Risk metrics incorporate high-cost outcomes to evaluate the potential impacts on total system costs under a range of PJM market conditions that may occur in both winter and summer.

## 7.2 Scorecard Metrics

In resource planning, a scorecard can be an effective tool in decision-making. “Scorecard” for resource planning purposes refers to a device that illustrates the performance of alternative resource plans across a set of company-defined objectives, performance indicators, and metrics. A scorecard enables a utility to develop and defend resource decisions based on how different plans score on the factors that matter to the utility and the customers it serves. It provides a simple and structured means of explaining how sometimes objectives align, while other times they can conflict and be traded off as part of reaching a reasonable decision that is in the best interest of customers.

The scorecard has three primary elements, illustrated in Figure 67:

- **Objectives** are overarching goals that align to Kentucky Power or stakeholder priorities. The four objectives of the 2022 Kentucky Power IRP Scorecard are:
  - Customer Affordability
  - Rate Stability
  - Maintaining Reliability
  - Local Impacts & Sustainability
- **Performance indicators** measure progress towards goals and serve as measurable categories across which portfolios can be compared. There are ten performance indicators on the Kentucky Power Scorecard, these align to the four objectives and are detailed below.
- **Metrics** are the units in which the performance indicators are measured, often they include a time element (e.g., cumulative net worth, cumulative period, future test year) in addition to numerical value or calculation.

| Objective                      | Performance Indicator   | Metric   |
|--------------------------------|-------------------------|--|
| Customer Affordability         | CPW                     | Total long-term annual costs paid by ratepayers      |
|                                | % of Income             | Percentage of wallet for residential customers       |
|                                | Near-Term Rates         | Near-term rate impact of resource decisions          |
| Rate Stability                 | Scenario Resilience     | Range of cost from highest to lowest market scenario |
|                                | Cost Risk               | 95th percentile of shock risk                        |
|                                | Market Exposure         | Amount of net purchases or sales from SPP market     |
| Maintaining Reliability        | Reserve Margin          | Excess capacity position                             |
|                                | Operational Flexibility | Dispatchable capacity included in portfolio          |
| Local Impacts & Sustainability | Local Impacts           | New investment in utility service territory          |
|                                | Carbon Emissions        | Percent carbon reduction                             |

**Figure 67. Elements of the 2022 Kentucky Power IRP Scorecard**

The details of the objectives, performance indicators, and metrics is described in the following sections. The scorecard is found below as Figure 68.

### 7.2.1 Objective 1: Customer Affordability

Customer affordability is a primary goal for Kentucky Power. Affordable power and lowest reasonable rates were identified as key considerations. For the Kentucky Power 2022 IRP, minimizing the expected cost to customers, to the extent reasonable when evaluated against other objectives, was a clear and obvious objective for the scorecard.

The Kentucky Power scorecard includes two performance indicators that track the customer affordability objective across the short- and long-term.

#### **7.2.1.1 Short Term: 5-year expected growth in customer rates**

Customers need affordable energy over the long-term. However, many customers may tend to prefer resource plans that limit expected short-term increases in customer rates. portfolios with similar cumulative present worth over the longer term can have significantly different near-term impacts, which may be important to consider, along with long-term costs, when selecting a preferred plan. This performance indicator allows Kentucky Power to assess that risk across portfolios and weigh short- and long-term cost considerations when selecting the preferred plan.

Kentucky Power measures and considers the expected percentage growth in retail rates over five years as the metric for the short-term customer affordability performance indicator. Near-term retail rate impact is measured using a 5-year Compound Annual Growth Rate (“CAGR”) of expected system costs for the years 2023-2028.

#### **7.2.1.2 Long Term: 15-year cumulative present worth**

Portfolios that perform well in the short- and medium-term may be expensive over the longer term. Further, portfolios that perform similarly in the short- to medium-term may look very different over the long-term under varying market conditions.

Current Kentucky Power plans include loss of the Mitchell plant in 2028, creating a need for new capacity in the near-term. Longer term, Kentucky Power is facing a potential retirement of the Big Sandy unit in 2031 that creates a further capacity need. This performance indicator allows Kentucky Power to evaluate the risk of higher cost when viewed further into the future and weigh short- and long-term cost considerations.

Cumulative Present Worth (“CPW”) was selected as the metric for this performance indicator. CPW is a representation of the total long-term annual costs paid by Kentucky Power’s utility customers related to power supply. This includes plant O&M costs, fuel costs, environmental costs, net purchases and sales of energy and capacity, property and income taxes, and the return on and of capital related to power supply. CPW will be measured over the long-term using a 15-year period (2023-2037) and is expressed both in terms of total and levelized rate. The levelized rate is the fixed charge per MWh needed to recover the 15-year CPW.

## **7.2.2 Objective 2: Rate Stability**

Rate stability is a key component of affordability for Kentucky Power's customers. A resource plan that performs well under expected conditions may expose ratepayers during periods of volatility, extreme weather events, or extended outages. Kentucky Power understands that market fluctuations in electric and fuel commodities and other uncertainties can adversely impact customer rates under a resource plan deemed to be the most affordable. This risk was recently highlighted during the December 2022, North American winter storm where a historic cold weather event led to forced generator outages, high wholesale gas prices, and high electricity prices, to which Kentucky Power's customers were exposed.

The performance indicators of rate stability test how certain and robust the expected costs of each portfolio are by subjecting them to different market scenarios and to random shocks in power and gas prices, and renewable outputs. This assessment evaluates how portfolios perform under a wide range of market conditions, commodity prices, and policy outcomes and allows Kentucky Power to balance affordability under expected conditions against resilience to changes in the market.

The three performance indicators for rate stability are described below. They include an assessment of the potential change in rates across a wide range of scenarios, the amount of revenue requirement at risk under adverse or extreme conditions, and track the amount of seasonal reliance on the PJM energy market under each portfolio.

### **7.2.2.1 Scenario Resilience: Range of 15-year CPWs across the 5 market scenarios**

This performance indicator describes the range of total long-term costs for a given portfolio when modeled across all five market scenarios. This allows Kentucky Power to compare the overall variability or consistency of costs for each portfolio under the full range of market conditions considered in the IRP.

The metric for this performance indicator measures the range in cost of each portfolio option between its best and worst performing planning scenario. It is calculated by subtracting the 15-year CPW for a given portfolio in (1) the market scenario under which total costs for the portfolio were the lowest from (2) the market scenario under which the total costs to the portfolio were the highest.

The 15-year CPW is selected because Kentucky Power's going in position shows a need for replacements in the 2020s and 2030s. Using a long-term metric allows for all the resource

decisions made in the IRP to be fully reflected and maintains consistency in the affordability performance indicators on the scorecard. CPW is a representation of the total long-term annual costs paid by Kentucky Power's utility customers related to power supply. This includes plant O&M costs, fuel costs, environmental costs, net purchases and sales of energy and capacity, property and income taxes, and the return on and of capital related to power supply. CPW will be measured over the long-term using a 15-year period (2023-2037) and is expressed both in terms of total and levelized rate.

#### **7.2.2.2 Cost Risk: The revenue requirement increases when moving from the 50th to the 95<sup>th</sup> percentile of portfolio costs in year 2037**

Portfolios that perform well (or similarly) under expected conditions may perform poorly when exposed to market volatility, extreme weather, or extended unit outages. This measure tests the robustness of portfolio costs when exposed to random combinations of gas prices, power prices, and renewable outputs, and allows Kentucky Power to compare the cost of the portfolios under adverse market conditions, relative to the expected cost of the option under normal conditions. In other words, this metric measures the increase in the expected cost to serve customers under volatile or extreme conditions, relative to the expected case.

The metric for this performance indicator measures the difference between the (1) total portfolio costs under 95th percentile conditions and (2) portfolio costs under median conditions across the stochastic distribution in the Reference scenario at the end of the 15-year IRP planning period in 2037. This measure serves as a useful touch point for discussing portfolio risk with stakeholders and evaluating whether renewable-heavy portfolios that engage in market purchases and sales at different times of the day or year increase or decrease its cost risk.

#### **7.2.2.3 Market Exposure: net purchases or sales as a % of summer and winter load in 2037**

As part of the Commission feedback in the previous IRP, Kentucky Power evaluated seasonal performance of how the portfolios may expose Kentucky Power customers to winter and summer market events that result in high (or low) wholesale energy prices.

This performance indicator allows Kentucky Power to evaluate the medium- and long-term exposure of different resources options to conditions in the PJM energy markets by indicating the total portion of customer needs served by the market, or conversely, the reliance on market sales in certain periods of excess generation.

The metric for this performance indicator measures the magnitude of net purchases or sales made by each portfolio at the end of the 15-year IRP planning period in 2037, distinguishing between market activity occurring during the summer (June, July, Aug) and winter (Dec, Jan, Feb) seasons. It is calculated by subtracting the volume of hourly gross energy sales from hourly gross purchases across the test months for each season, and then dividing the resulting value by total volume of energy demand served over those same months. Both winter and summer values are reported for this year.

### **7.2.3 Objective 3: Maintaining Reliability**

“Safe, reliable power” is a key theme for Kentucky Power and reliability is an important consideration for Kentucky Power’s customers that are active in the stakeholder process. Understanding the role that PJM plays in maintaining broader system reliability, Kentucky Power has identified maintaining reliability as an important, fundamental objective to be included on the IRP scorecard. Reliability is an essential aspect of a utility’s mission and has taken on even greater importance since the PJM energy event of December 2022. The potential benefits to maintaining reliability of distributing a relatively larger number of smaller units across geographies that provide local benefits and relieve system constraints are also a consideration.

Four performance indicators were selected to measure progress towards maintaining reliability. These cover the total capacity reserves, by season, maintained by Kentucky Power under each plan, the amount of dispatchable capacity included in each plan, and an indicator of the locational diversity of the resources selected in each portfolio.

#### **7.2.3.1 Planning Reserves: % of summer and winter capacity requirements served by the resource plan from 2023-2037**

Kentucky Power evaluated the energy and capacity exposure separately in this IRP. This performance indicator measures Kentucky Power’s expected reliance on the market (or excess capacity) for meeting summer and winter reserve margin requirements. This measure allows Kentucky Power to evaluate the seasonal exposure of different resource portfolios to reliability events measured as the percent of seasonal reserve requirements contributed by owned resources (i.e., excluding any short-term purchases) towards meeting planning reserve margin requirements. This exposure is viewed as the average performance across all five market scenarios to capture the full range of load forecasts included in the 2022 IRP.

The metric for this performance indicator will be Kentucky Power's reserve margin measured as the ratio of firm (i.e., UCAP) supply to expected peak demand for *both* the summer and winter periods. For reporting purposes, the average reserve margin period over the 2023-2037 time period will be included in the scorecard. The period 2023-2037 is used to evaluate Kentucky Power's average exposure across the portfolios over time.

This metric is calculated by dividing the winter UCAP of the resource plan by Kentucky Power's winter peak requirement and the summer UCAP of the resource plan by Kentucky Power's summer peak requirement for years 2023-2037 across all five market scenarios. This results in 75 winter values and 75 summer values. These values are then averaged by season and reported on the scorecard.

#### **7.2.3.2 Operational Flexibility: Dispatchable capacity in 2027 and 2037**

The increase in intermittent renewable resources across PJM may create the need for more flexible resources that can provide a reliability service and balance the system during periods of low output or extreme weather. Understanding each portfolio's ability to respond to system needs is an important factor for determining the preferred plan and can also be considered as a measure of future ancillary services value, which is highly uncertain.

This performance indicator allows management to evaluate the amount of ramping capacity on its system measured as the cumulative amount of dispatchable capacity selected by the portfolio in 2027 and 2037. Dispatchable resources include existing coal units, new and existing gas peaking units (multiple configurations), new gas combined cycle units (with or without CCS), new energy storage units, and new hydrogen-fired units.

The metrics for this performance indicator represent the total firm capacity (UCAP) provided by fast-ramping technologies in years 2027 and 2037. Multiple blocks of identical scalable technologies (such as battery storage) constructed within a single year will be considered as separate units, since no discount is being provided to represent benefits of collocating projects (i.e., the model does not see lower interconnection or land costs when building many of these units so they could be assumed to be located separately). The 15-year reporting period is selected to align with the results included in the IRP report and reflect Kentucky Power's position after filling the expected capacity gap emerging in the late 2020s and into the 2030s.

### **7.2.3.3 Resource Diversity: Generation mix by resource in 2037**

Kentucky Power is interested in maintaining a diverse set of resources as a method for maintaining reliability for its customers and in evaluating the role that new and innovative technologies can play to help customers reach their goals. This performance indicator will allow management to assess the overall diversity of its long-term resource plan as well as compare the performance of plans that rely on more traditional vs. more advanced technologies.

The metric for this performance indicator is a pie chart displaying the percentage of total generation provided by the different generating technologies selected in each resource portfolio in model year 2037 and under the Reference scenario. The metric is measured in 2037 to capture the full range of replacement decisions and because it is expected that many advanced technologies may not become economic until the 2030s and therefore a shorter term (e.g., 5-year) metric may provide little or no information to support Kentucky Power's evaluation. Wedges of qualifying "advanced" technologies are emphasized using the color palette to compare the relative level of any new or innovative technologies selected by each resource plan.

### **7.2.4 Objective 4: Local Impacts & Sustainability**

Community partnership and local investment are important considerations in this IRP. Identifying resources that will have a positive local impact within Kentucky Power's service territory was considered, as well as highlighting the opportunities for customer-sited resources was also considered.

This objective also allows Kentucky Power to evaluate the relative exposure of resource portfolios under outcomes where significant reductions in GHG emissions are required in the power sector – a plausible outcome with potentially material impacts on the cost to serve Kentucky Power's customers.

Two performance indicators were selected to measure progress towards local impacts & sustainability. Local impacts are measured as the amount of new generation located in the Kentucky Power service territory and the amount of local investment associated with those projects. Sustainability is measured through portfolio CO<sub>2</sub> emissions.

#### **7.2.4.1 Local Impacts: Installed MW and Capital Invested inside Kentucky Power's Service territory**

Kentucky Power has a continued interest in being a community partner and recognizes the importance of demonstrating the potential benefits of different resource portfolios to its stakeholders and customers, including creating opportunities for customers interested in locating new generation on-site. This performance indicator allows management to compare the amount of total new installed resources likely to be constructed in regions that Kentucky Power serves and that may be candidates for customer sited projects over the 2023-2037 period. Further, this indicator allows management to evaluate the expected amount of local investment made under each resource portfolio, which is a fair proxy for evaluating the relative local economic impacts of each plan.

There are two metrics associated with this performance indicator: (1) The cumulative nameplate MW of new capacity likely located within the Kentucky Power service territory from 2023-2037; and (2) the cumulative capital invested in the Kentucky Power service territory from 2023-2037, calculated as the sum of capital spent over the period in current year (e.g., 2021) dollars. To reflect potential development risk associated with challenges in locating renewables inside Kentucky Power territory, a conservative assumption is made that new wind will not contribute to local impacts, while only 75% of new solar capacity will contribute to this metric.

The 2023-2037 period was selected to align the scorecard to the portfolio modeling results that are presented in the 2022 IRP and to focus the evaluation on local impacts over the 15 years of the overall resource plan.

#### **7.2.4.2 CO2 Emissions: Percent reduction from 2005 in the Reference Scenario in 2027 & 2037**

This performance indicator allows Kentucky Power to evaluate progress towards emissions reduction as one element of the preferred plan and also serves as a measure of comparing the relative exposure of resource portfolios under outcomes where significant reductions in GHG emissions are required in the US power sector.

The metric for this performance indicator is the level of carbon emission reductions relative to Kentucky Power's total emissions in the year 2005. Carbon emissions are defined as the direct emissions from Kentucky Power's owned and contracted generating resources. This metric is calculated by dividing the total Kentucky Power portfolio emission in the test year (2027 and 2037)

by total Kentucky Power portfolio emission from the year 2005 and evaluating the percentage reduced.

|                                 | Customer Affordability                              |   | Rate Stability  |  |  | Maintaining Reliability  |   |   | Local Impacts & Sustainability  |   |
|---------------------------------|---|---|---|--|--|--|---|---|---|---|
| Portfolio                       | Short Term:<br>5-yr Cost<br>CAGR,<br>Reference Case | Long Term:<br>15-yr CPW,<br>Reference<br>Case | Scenario<br>Range: High<br>Minus Low<br>Scenario<br>Range, 15-yr<br>CPW | Cost Risk:<br>RR Increase in<br>Reference<br>Case (95th<br>minus 50th<br>Percentile) | Market Exposure:<br>Net Sales as % of<br>Portfolio Load,<br>Scenario Average | Planning<br>Reserves:<br>% Reserve Margin,<br>Scenario Average | Operational<br>Flexibility:<br>Dispatchable<br>Capacity | Resource<br>Diversity: Gener-<br>ation Mix (MWh)<br>by Technology<br>Type - Reference<br>Case | Local Impacts:<br>New Nameplate<br>MW & Total<br>CAPEX Installed<br>Inside Service<br>Territory | CO2 Emissions:<br>Percent Reduction<br>from 2005 Baseline -<br>Reference Case |
| Year Ref.                       | 2023-2028   | 2023-2037                                     | 2023-2037   | 2037   | 2037   | 2023-2037  | 2027   2037   | 2037  | 2023-2037   | 2027   2037   |
| Units                           | %   | \$MM<br>Levelized Rate                        | \$MM<br>Levelized Rate  | \$MM   | Summer   Winter  | Summer   Winter  | MW  | %   | MW   \$MM   | % Reduction   |
| Reference Portfolio             |   |   |   |  |  |  |   |            |   |   |
| Reference – High Cost Portfolio |   |   |   |  |  |  |   |   |   |   |
| CETA Portfolio                  |   |   |   |  |  |  |   |   |   |   |
| ECR Portfolio                   |   |   |   |  |  |  |   |   |   |   |
| NCR Portfolio                   |   |   |   |  |  |  |   |   |   |   |
| CC Portfolio                    |   |   |   |  |  |  |   |   |   |   |
| No Wind Portfolio               |   |   |   |  |  |  |   |   |   |   |

Figure 68. 2022 IRP Scorecard

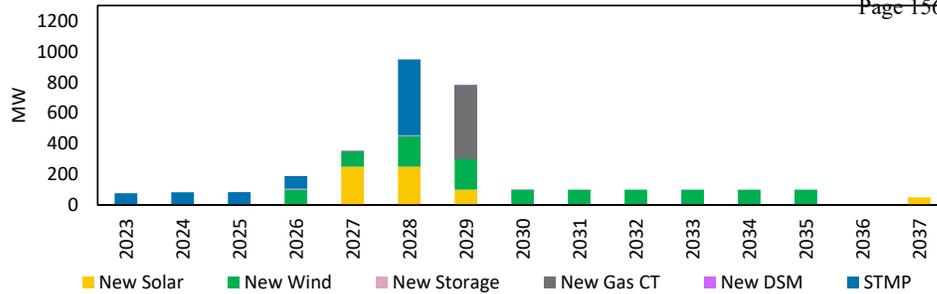
### **7.3 Portfolios Considered**

Kentucky Power used the AURORA model to select an optimal portfolio of resources to meet expected future customer needs under each of the five PJM market scenarios. The AURORA model uses an optimization technique to select the “least-cost” set of resources that minimizes the cumulative present worth (CPW) subject to certain constraints and assuming the market scenario conditions including load, fuel and CO<sub>2</sub> prices, reserve requirements, and technology assumptions including capacity accreditation as discussed for each market scenario in Section 6.0. The resources made available to the model include supply-side and demand-side resource options, the input parameters for the Reference scenario which are discussed in Section 5.0 and Section 4.0 respectively, and the scenario parameters which are discussed in Section 6.0.

In addition to the five least-cost plans discussed above, two additional portfolios were created in response to stakeholder engagement and feedback. The “CC portfolio” tests the impact of including this resource in a portfolio since no plans selected this in the AURORA optimizations. The “No Wind portfolio” was also created following stakeholder feedback related to the availability of wind resources in the Kentucky Power territory and potential challenges with siting or acquiring output from new wind projects. Each of the seven portfolios were stress-tested under all five market scenarios and were also stress tested under stochastic distributions of gas prices, power prices and renewable outputs (as discussed in Section 6.0) using a suite of resource planning tools, namely AURORA and the PERFORM utility financial model. AURORA produces projections of asset-level dispatch and the total variable costs associated with serving load. The AURORA output is then used by CRA’s PERFORM model to build a full annual revenue requirement, inclusive of capital investments, fixed operating and maintenance costs, tax credits, and financial accounting of depreciation, taxes, and utility return on investment. The PERFORM model produces annual and CPW estimates of revenue requirements over the planning horizon. The outputs from AURORA and PERFORM are then used to populate the 2022 IRP Scorecard to inform the Company for the identification of the Preferred Plan.

#### **7.3.1 Resource Additions by Portfolio**

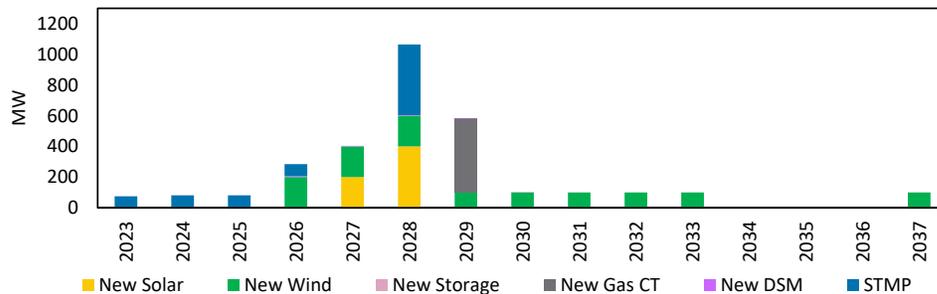
Resource additions in each of the seven portfolios considered are shown in Figure 69 to Figure 76 below.



**Figure 69. Annual Resource Additions in the Reference Portfolio**

For the Reference portfolio, 650 MW of new solar, 1,200 MW of new wind, and 480 MW of new NGCTs are added by 2037. Of the new solar and new wind added, 600 MW of each are added by the end of 2029 representing a significant portion of the new solar and additions. New NGCT units are installed in the earliest possible date of 2029, primarily to replace Mitchell units to meet firm requirements. This portfolio also includes the extension of operations for the Big Sandy gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 82 MW annually through 2026 and 495 MW in 2028 to fully satisfy near-term adequacy.

In addition, demand-side resources are pursued. The summer peak contribution from incremental demand-side resources is 3 MW in 2023, rising to a peak of 37 MW in 2030.



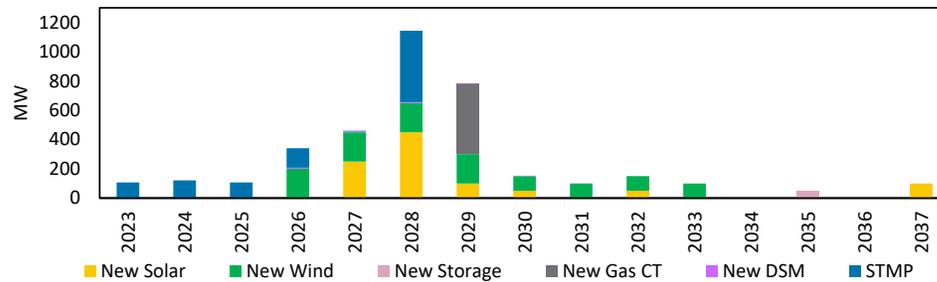
**Figure 70. Annual Resource Additions in the Reference High Cost Portfolio**

The REF-HC scenario applies slower technology learning and high capital cost for new build resources. Due to limited difference in relative costs, especially in the early part of the outlook horizon, the REF-HC portfolio contains nearly the same resource mix as the Reference portfolio. The additions include lower cumulative additions of new solar, but identical cumulative additions of wind and NGCTs relative to the Reference portfolio.

The REF-HC portfolio adds 600 MW of new solar, 1,200 MW of new wind, and 480 MW of new NGCTs by 2037. This portfolio also includes the extension of operations for the Big Sandy

gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 79 MW annually through 2026 and 461 MW in 2028 to fully satisfy near-term adequacy.

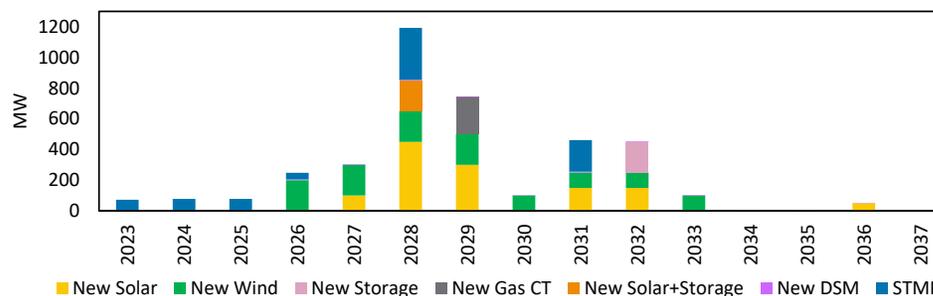
The summer peak contribution from incremental demand-side resources is 2 MW in 2023, rising to a peak of 26 MW in 2030.



**Figure 71. Annual Resource Additions in the CETA Portfolio**

The CETA scenario combines higher load and more affordable renewable technologies reflected with a faster decline in renewable technology costs. As a result of higher load, the CETA portfolio has larger capacity additions. Due to the assumed changes in technology costs, these additions are predominantly renewables. In order to meet firm capacity requirements, the CETA portfolio adds more solar PV relative to other portfolios, as well as more storage units. By 2037, approximately 1,000 MW of solar, 1,200 MW of wind, 480 MW of NGCTs, and 50 MW of storage units are added. This portfolio also includes the extension of operations for the Big Sandy gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 133 MW annually through 2026 and 488 MW in 2028 to fully satisfy near-term adequacy.

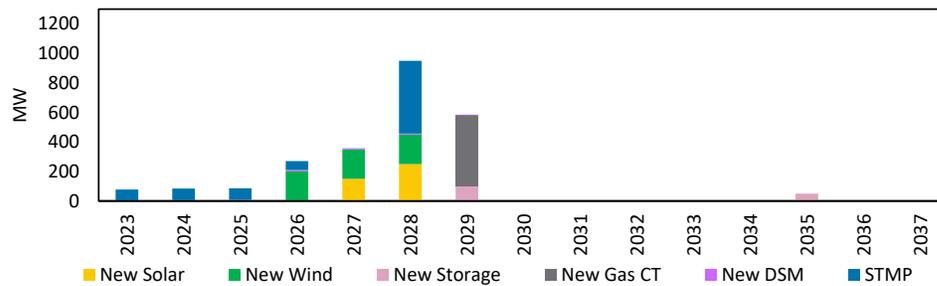
On the demand side, the summer peak contribution from incremental demand-side resources is 2 MW in 2023, rising to a peak of 36 MW in 2031.



**Figure 72. Annual Resource Additions in the ECR Portfolio**

The ECR scenario combines lower load growth with high-cost gas and carbon. Furthermore, technology costs follow the same decline rate as CETA, resulting in more affordable renewable technologies. This combination of drivers results in an ECR portfolio with less gas selection, as relatively lower cost wind, solar, and storage are made even more economic by higher power prices. The ECR portfolio adds 1,200 MW of solar, 1,200 MW of wind, 200 MW of storage, 200 MW of solar+storage, and only 240MW of NGCT. The Big Sandy gas unit is not selected to extend its operations and retires in 2031. Short-Term Market Purchases (STMP) are utilized with up to 78 MW annually through 2026 and 339 MW in 2028, and 206 MW in 2031 to fully satisfy near-term adequacy.

On the demand side, the high gas price improves the economics of demand-side bundles in the long-term as the summer peak contribution from incremental demand-side resources is less than 1 MW in 2023, rising to a peak of 41 MW in 2037.

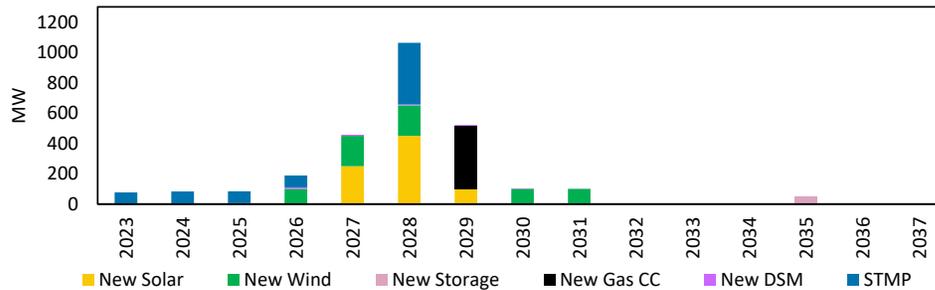


**Figure 73. Annual Resource Additions in the NCR Portfolio**

The NCR scenario has lower natural gas prices and no carbon price that generally improve the economics of gas-fired generation relative to other scenarios. In this case, improved gas-fired generation economics result in higher gas dispatch and the portfolio reaching the market sales limit early, resulting in lower renewable buildout and the addition of new storage resources by 2037. Only 400MW of solar and 600MW of wind are added by 2037, with all of it built before 2029. An additional 150MW of storage is also selected by 2037, as well as 480MW of NGCT. This portfolio also includes the extension of operations for the Big Sandy gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 78 MW annually through 2026 and 494 MW in 2028 to fully satisfy near-term adequacy.

Demand side resources with relatively low energy contribution are viewed more favorably in the near term as they keep the portfolio within the sales constraint. The summer peak

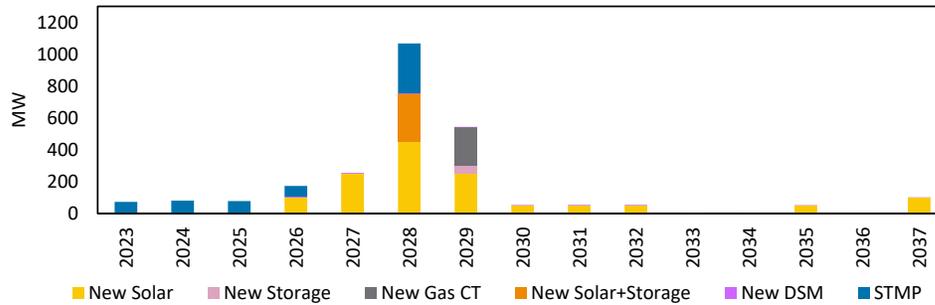
contribution from incremental demand-side resources is 5 MW in 2023, rising to a peak of 50 MW in 2030.



**Figure 74. Annual Resource Additions in the CC Portfolio**

The CC portfolio was modeled following Stakeholder feedback and included the same assumptions as the Reference portfolio. In this portfolio, a CC was assumed to be built in 2029 in place of the CT from the Reference portfolio, and optimization was performed around this assumption. The CC portfolio adds 418MW of 1x1 Combined Cycle, 700MW of wind, 800MW of solar, and 50MW of storage by 2037. This portfolio also includes the extension of operations for the Big Sandy gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 78 MW annually through 2026 and 407 MW in 2028 to fully satisfy near-term adequacy.

On the demand side, the summer peak contribution from incremental demand-side resources is 3 MW in 2023, rising to a peak of 48 MW in 2033.

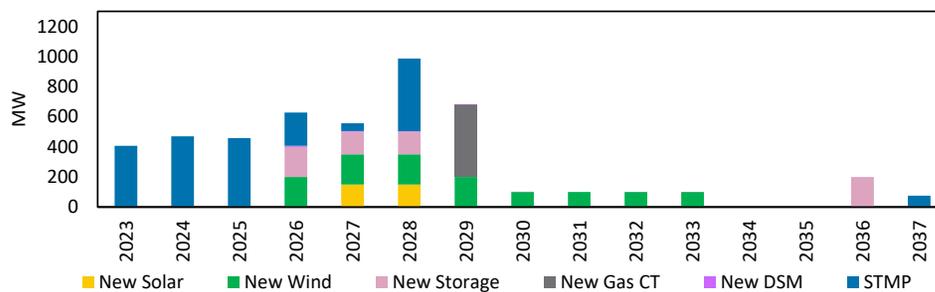


**Figure 75. Annual Resource Additions in the No Wind Portfolio**

The No Wind portfolio was modeled following stakeholder feedback and included the same assumptions as the Reference portfolio. In this portfolio, wind resources were excluded as an alternative and portfolio optimization was performed. The No Wind portfolio adds 240MW of NGCT, 800 MW of solar, and 125MW of storage by 2037. This portfolio also includes the extension of operations for the Big Sandy gas unit until 2041. Short-Term Market Purchases (STMP) are utilized with up to 81 MW annually through 2026 and 313 MW in 2028 to fully satisfy near-term adequacy.

On the demand side, the summer peak contribution from incremental demand-side resources is less than 1 MW in 2023, continuing to increase to 41 MW by 2037.

### 7.3.2 Winter Sensitivity



**Figure 76. Annual Resource Additions in the Winter Sensitivity**

Kentucky Power also evaluated an optimized build under Reference conditions to assess a hypothetical requirement for winter peak adequacy. The result is a portfolio with many commonalities to the summer-optimized portfolios with 300 MW of new solar, 1,200 MW of new wind, 480 MW of new NGCTs, and life extension of the Big Sandy unit. In addition to these

resources, 550 MW of new storage capacity is added by 2028 to support the winter adequacy capacity position that is no longer met with solar resources in the summer optimized portfolio. Larger quantities of Short-Term Market Purchases (STMP) are utilized during the early years of the outlook to bridge the capacity needs until firm resources are available in the model with up to 466 MW annually through 2026 and 483 MW in 2028.

On the demand-side, winter peak contribution from incremental demand-side resources is 2 MW in 2023, rising to a peak of 32 MW in 2033.

## 7.4 Scorecard Results

### 7.4.1 Customer Affordability

Kentucky Power measures customer affordability across two time scales:

- Short-term affordability, measured as the 5-year CAGR of growth in generation rate associated with the new demand- and supply-side resources selected under each portfolio; and
- Long-term affordability, measured as the 15-year CPW of new demand- and supply-side resources selected under each portfolio.

#### 7.4.1.1 Short-Term

Table 15 shows the portfolio performance under the Customer Affordability objective. As discussed in Section 7.2.1, the indicators for this objective include the expected annual growth in generation rate over the next five years and the revenue requirements over the next 15 years expressed on both a CPW basis and a levelized rate basis, all measured under Reference scenario market conditions.

**Table 15. Portfolio Performance under Customer Affordability Metrics**

| Portfolio | 5-Year Rate CAGR,               | 15-Year CPW,                        | 15-Year Levelized                    |
|-----------|---------------------------------|-------------------------------------|--------------------------------------|
|           | Reference Scenario<br>(%/annum) | Reference Scenario<br>(\$ Millions) | Rate, Reference<br>Scenario (\$/MWh) |
| Reference | 7.52%                           | 3,395                               | \$62.10                              |
| REF-HC    | 8.53%                           | 3,435                               | \$62.30                              |
| CETA      | 9.16%                           | 3,504                               | \$64.00                              |
| ECR       | 8.21%                           | 3,605                               | \$65.60                              |
| NCR       | 7.91%                           | 3,517                               | \$64.10                              |
| CC        | 8.78%                           | 3,516                               | \$64.60                              |
| No Wind   | 7.65%                           | 3,755                               | \$68.40                              |

Over the next five years, the variation in the expected growth of customer demand is driven by the differences in near-term resource additions across the portfolios. The Reference portfolio has the smallest amount of capacity additions in this period and this portfolio exhibits the slowest rate of growth at 7.52% per year due to a slower build of renewables compared to other portfolios. Conversely, the CETA portfolio has the highest rate of growth at 9.16% per year, owing to the greater amount of new resources added to the portfolio over this period to meet the relatively higher load requirement. The remaining portfolios fall in between these two extremes, with rates growing at 7.6-8.8%.

#### **7.4.1.2 Long-term**

In terms of revenue requirements over the next 15 years, the Reference and REF-HC portfolios perform similarly on both the CPW and levelized rate basis. The No Wind portfolio has the highest cost at \$360 million CPW above the Reference portfolio owing in large part to the inability to access low-cost wind resources requiring a shift towards higher cost solar and storage. The CETA portfolio is \$109 million more expensive in CPW against the Reference portfolio due to additional capital to meet the higher load obligation, whereas the NCR portfolio is \$120 million more expensive than the Reference portfolio due to higher market purchase reliance resulting from fewer renewables. The ECR portfolio has the highest reliance on renewable installed capacity, hence resulting in a portfolio that is \$210 million more expensive than Reference. The CC portfolio lands at \$121 million above Reference as the higher capex of the NGCC resource along with lower reliance on wind are not fully offset by the economic benefit of higher thermal efficiency.

#### **7.4.2 Rate Stability**

Kentucky Power measures rate stability by evaluating:

- Scenario resilience as measured by the range of 15-year CPW of the portfolio across the five market scenarios;
- Cost risk as measured by the CPW increase when moving from the 50<sup>th</sup> to the 95<sup>th</sup> percentile of portfolio costs in 2037; and
- Market exposure as measured by net sales in the summer and winter seasons as a percentage of load in 2037.

##### **7.4.2.1 Scenario Resilience**

Table 16 shows the 15-year CPW across the five market scenarios and the difference between the highest and lowest CPW of each of the eight portfolios considered. The difference

between the highest and lowest value is used to populate the Scenario Resilience indicator on the IRP scorecard.

**Table 16. The 15-Year CPW of the Portfolio Across Market Scenarios (\$Million)**

| Portfolio | Market Scenarios |        |       |       |       | High/Low Difference |
|-----------|------------------|--------|-------|-------|-------|---------------------|
|           | Reference        | REF-HC | CETA  | ECR   | NCR   |                     |
| Reference | 3,395            | 3,599  | 3,333 | 3,305 | 3,161 | 438                 |
| REF-HC    | 3,345            | 3,639  | 3,378 | 3,339 | 3,207 | 432                 |
| CETA      | 3,503            | 3,799  | 3,396 | 3,234 | 3,321 | 566                 |
| ECR       | 3,605            | 4,041  | 3,447 | 3,155 | 3,514 | 886                 |
| NCR       | 3,517            | 3,664  | 3,543 | 3,714 | 3,210 | 504                 |
| CC        | 3,516            | 3,763  | 3,495 | 3,457 | 3,334 | 430                 |
| No Wind   | 3,755            | 4,173  | 3,760 | 3,882 | 3,489 | 684                 |

In general, the REF-HC scenario produces the highest expected 15-year portfolio CPWs under the portfolios due to the higher technology costs assumed in that scenario. The IRP portfolios tend to report the lowest costs under the NCR scenario, due to lower fuel and emissions costs in this forecast than under the other PJM outlooks.

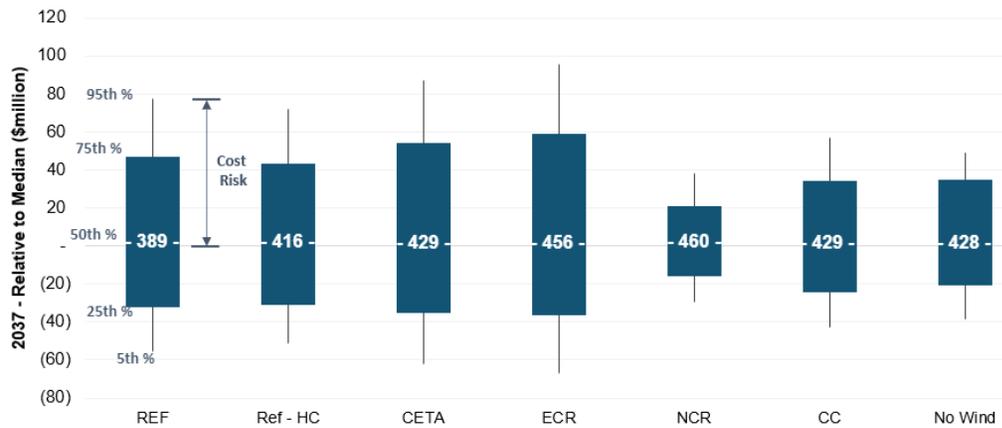
The Reference portfolio, REF-HC portfolio, and CC portfolio are most resilient to the five market scenarios with an average CPW range of approximately \$430-440 million. The CETA and No Wind portfolios produce the next highest range of CPWs at \$566 million and \$684 million, respectively.

The ECR portfolio is the least resilient by this measure with a CPW range of \$886 million when solved under different fundamental conditions. The ECR portfolio sees a more extensive buildout of renewable resources compared to other portfolios, and the range exhibited by this portfolio is primarily driven by the variation in the capital costs and fixed O&M costs associated with these resources. Indeed, the ECR portfolio has the highest CPW in the REF-HC scenario where new technology costs experience slow decline, and the lowest CPW in the ECR scenario where new technology costs experience more rapid decline combined with highest power prices which add value to the net sales position driven by renewables. As such, the ECR portfolio exposes ratepayers to renewable resource cost and market risks.

#### 7.4.2.2 Cost Risk

Figure 77 presents a summary of the stochastic results for each of the eight portfolios. This metric compares the distributions of net cumulative present worth revenue requirements in 2037 after applying 250 iterations of natural gas prices, power prices, and renewable production profiles

to the portfolios under Reference scenario market conditions. The cost risk is expressed as the difference between the median portfolio costs (50<sup>th</sup> percentile) and portfolio costs under adverse conditions (represented as the 95<sup>th</sup> percentile of revenue requirements observed). In the figure below, the median value is represented as the center of each box, with the top of each relevant line indicating costs at the 95<sup>th</sup> percentile. Table 17 shows a summary of the cost risk across each portfolio.



**Figure 77. Distribution of Revenue Requirements Based on Stochastic Analysis (2037)**

**Table 17. Cost Risk - 50<sup>th</sup> to 95<sup>th</sup> Percentile Distribution Range (\$million)**

| Portfolio | 2037 |
|-----------|------|
| Reference | 77.6 |
| REF-HC    | 72.2 |
| CETA      | 87.1 |
| ECR       | 95.8 |
| NCR       | 37.9 |
| CC        | 56.8 |
| No Wind   | 48.9 |

The ECR portfolio has the highest cost risk and thus is more exposed to short-term volatility in power prices, gas prices, and renewable output. This demonstrates the substantial risks stemming from a combination of high renewable reliance and market sales exposure. The CETA portfolio has the second highest cost risk, given its large renewable build and associated cost exposure. The NCR portfolio has the lowest cost risk with a much narrower distribution of outcomes, whereby relatively low renewable capacity mitigates exposure to renewable resource variations when compared to portfolios with higher renewable build such as ECR or CETA.

The CC and No Wind portfolios have a reduced cost risk range when compared to other portfolios. Wind generation has a wide range of dispersion across iterations hence the proportionally lower level of wind in the CC portfolio results in a lower range of generation and cost outcomes. The same effect is observed for the No Wind portfolio. Moreover, the higher efficiency and energy market margins of the NGCC plant in the CC portfolio provides resilient dispatch which maintains output of that plant across a wider range of market conditions as compared to the other portfolios where their dispatch is more sensitive to changes in market conditions.

### 7.4.2.3 Market Exposure

Table 18 shows the net energy sales as a percentage of portfolio load split by summer and winter. The percentages shown are averaged across all market scenarios.

**Table 18. Average Net Energy Sales (Purchases) as % of Portfolio Load Across All Scenarios**

| Portfolio | Summer |      |      | Winter |      |      |
|-----------|--------|------|------|--------|------|------|
|           | 2023   | 2027 | 2037 | 2023   | 2027 | 2037 |
| Reference | 33%    | -13% | 14%  | 10%    | -4%  | 27%  |
| REF-HC    | 33%    | -9%  | 10%  | 10%    | 8%   | 24%  |
| CETA      | 33%    | -7%  | 32%  | 10%    | 10%  | 33%  |
| ECR       | 33%    | -15% | 23%  | 10%    | 8%   | 11%  |
| NCR       | 33%    | -11% | -20% | 10%    | 7%   | -17% |
| CC        | 33%    | -10% | 24%  | 10%    | 4%   | 21%  |
| No Wind   | 33%    | -16% | 5%   | 10%    | -19% | -45% |

Kentucky Power's current portfolio is tilted towards a long energy position, with generation expected to exceed demand in the short-term driven by a higher market heat rate environment and robust thermal dispatch.

By 2027, all portfolios evaluated in the 2022 IRP show a tendency for greater net purchases in summer relative to 2023. This is due to a combination of declining gas prices and increased renewable buildout in PJM driving down the LMP prices, while the cost to dispatch Mitchell remains stable, resulting in lower generation from this plant. In winter, all portfolios have higher sales exposure relative to summer, due in large part to higher output from the increasing wind build across winter months.

The summer net sales position tends to increase between 2027 and 2037 primarily due to later additions of new wind, solar, and gas resources. Net sales in winter tend to grow less between

2027 and 2037 relative to the summer season. This is explained, in part, by the fact that many portfolios include significant amounts of new solar by year 2037, and solar resources tend to produce less energy during winter months. The Preferred portfolio exhibits the smallest level of net energy transactions across a combination of summer and winter.

### 7.4.3 Maintaining Reliability

Kentucky Power measures each portfolio's contribution to maintaining reliability by evaluating:

- Planning reserves measured as the ratio of firm (i.e., UCAP) supply to expected peak demand for *both* the summer and winter periods, averaged over the period between 2023 and 2037;
- Operational flexibility measured as the total firm capacity (UCAP) provided by fast-ramping technologies in years 2027 and 2037; and
- Resource diversity measured as the percentage of total generation provided by the different generating technologies selected in each resource portfolio in model year 2037 under the Reference scenario.

#### 7.4.3.1 Planning Reserves

Table 19 shows the summer and winter planning reserves, averaged over the period between 2023 and 2037 and across all market scenarios.

**Table 19. Planning Reserves Between 2023 and 2037 by Portfolio**

| Portfolio | Summer | Winter |
|-----------|--------|--------|
| Reference | 11.3%  | -22.7% |
| REF-HC    | 10.6%  | -23.1% |
| CETA      | 20.2%  | -19.9% |
| ECR       | 3.4%   | -37.4% |
| NCR       | 10.2%  | -20.8% |
| CC        | 10.7%  | -26.5% |
| No Wind   | 10.6%  | -37.1% |

Kentucky Power assumed that each portfolio would need to meet a planning reserve margin of 9% above summer peak load as described in section 3.2 when optimizing each portfolio in its native market scenario. This approach can result in capacity short-falls or extra capacity when portfolios are evaluated in non-native scenarios due to differences in load forecasts. For example, the ECR scenario had lower load growth relative to the other scenarios. As a result, AURORA selected a lower amount of accredited capacity to balance customer load in the ECR portfolio under ECR scenario conditions. When run in other portfolios with higher relative load, this

portfolio tended to be short capacity and rely on market purchases to meet firm requirements. The opposite is true in the CETA portfolio, where higher load results in more accredited capacity. As a result, the CETA portfolio tends to have a large surplus when run under load conditions of other scenarios.

When viewed as the average across all scenarios, the ECR portfolios fall short of the 9% requirement in the summer. The CETA portfolio has an average summer reserve margin of 20.2% by this measure, more than twice the 9% PJM planning reserve margin requirements. All portfolio builds exhibit capacity shortfall for winter due to the winter peaking nature of the Kentucky Power system.

#### 7.4.3.2 Operational Flexibility

Table 20 shows the capacity of dispatchable units in 2027 and 2037 in each of the portfolios considered.

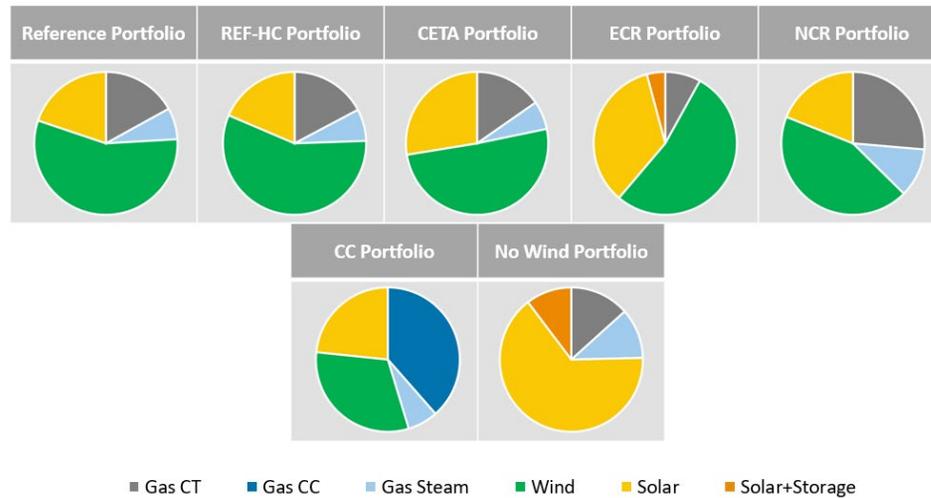
**Table 20. The Amount of Dispatchable Capacity in 2027 and 2037 by Portfolio**

| Portfolio | 2027                       | 2037                       |
|-----------|----------------------------|----------------------------|
|           | Dispatchable Capacity (MW) | Dispatchable Capacity (MW) |
| Reference | 1,111                      | 775                        |
| REF-HC    | 1,111                      | 775                        |
| CETA      | 1,111                      | 825                        |
| ECR       | 1,111                      | 490                        |
| NCR       | 1,111                      | 925                        |
| CC        | 1,111                      | 763                        |
| No Wind   | 1,111                      | 660                        |

As Kentucky Power does not develop a significant need for dispatchable capacity until after the divestiture of Mitchell in 2028, all portfolios have the same dispatchable capacity by 2027. The ECR scores lowest on this metric in 2037 because of the overall lower amount of new dispatchable gas resources constructed in the ECR portfolio. Also, the ECR portfolio features the end of operations at Big Sandy in 2031 in anticipation of higher emissions and fuel prices combined with lower customer loads. The CETA, Reference, and REF-HC portfolios all show greater amounts of operational flexibility with two NGCTs installed and operation at Big Sandy extended to 2041. Under the NCR portfolio, the same gas resource plus 150 MW of storage results in the greatest operational flexibility of all portfolios.

### 7.4.3.3 Resource Diversity

Figure 78 shows pie charts displaying the percentage of total generation provided by existing resources as well as the different generating resources selected by each resource portfolio in year 2037 under Reference scenario market conditions.



**Figure 78. 2037 Generation Mix by Technology and Portfolio (MWh)**

Most portfolios rely primarily on wind and solar, with NGCT or NGCC representing a relatively smaller proportion of output when compared to renewables. The balance of energy is supplied by the Big Sandy steam gas unit in all portfolios except for ECR where the unit is retired in 2031. Despite assumed improvements in technology costs over time, no advanced generation technologies are selected and featured across any portfolios.

The NCR portfolio is most diverse with the least concentration and material contribution from wind, solar, gas CT, and gas steam. The Reference, REF-HC, and CETA portfolios are the next most diverse, with over half of energy provided by new wind, and the balance from similar proportions of solar and gas. The CC portfolio has the largest share of energy produced by gas units, leaving solar and wind to smaller shares. Finally, the ECR and No Wind portfolios are least diverse, with renewables dominating total portfolio generation in 2037.

### 7.4.4 Local Impacts & Sustainability

Kentucky Power compares portfolio performance across the local impacts and sustainability objective by evaluating:

- Local impacts measured as (1) the total new installed nameplate capacity inside Kentucky Power service territory, and (2) the total amount of capital invested inside Kentucky Power service territory between 2023 and 2037; and
- The percentage reduction in CO<sub>2</sub> emissions in 2027 and 2037 from owned resources relative to the baseline year 2005 in the Reference scenario.

#### 7.4.4.1 Local Impacts

Table 21 compares the total new installed nameplate capacity and total expected capital invested inside Kentucky Power service territory between 2023 and 2037 for each portfolio. This includes assumptions that most assets would be located inside Kentucky Power’s territory, with the exceptions that only 75% of solar and no wind would be located within the service territory. In recognition of stakeholder feedback related to wind resources selected, the Company acknowledges the risks related to the availability of wind resources and the delivery of energy to Kentucky Power’s region. However, a recent DOE Land-Based Wind market Report<sup>47</sup> estimates the wholesale prices for wind’s values was only approximately 20% lower than average wholesale prices in the PJM market. The Company will, however, continue to explore opportunities to locate resources within and outside of Kentucky Power’s territory if they are beneficial to Kentucky Power customers.

**Table 21. Local Impacts Metrics by Portfolio**

| Portfolio | New Nameplate Capacity Between 2023 and 2037 (MW) | Total CapEx Invested Inside Kentucky Power Territory (\$ Millions) |
|-----------|---|--|
| Reference | 893   | 1,146  |
| REF-HC    | 855   | 1,134  |
| CETA      | 1,205   | 1,511  |
| ECR       | 1,465   | 1,942  |
| NCR       | 855   | 1,067  |
| CC        | 933   | 1,528  |
| No Wind   | 1,178   | 2,088  |

<sup>47</sup> [https://emp.lbl.gov/sites/default/files/2022\\_land\\_based\\_wind\\_market\\_report.pdf](https://emp.lbl.gov/sites/default/files/2022_land_based_wind_market_report.pdf)

The ECR portfolio scores best by the MW metric and second best by the dollar metric due to its reliance on renewables and the highest deployment of installed capacity. The No Wind portfolio scores best by the dollar metric and third best on the MW metric due to its focus on technologies other than wind which can more easily be located within Kentucky Power service territory. The CETA portfolio scores second highest by the MW metric, driven by the greater deployment of new resources under this case to meet faster growth in customer load. The CC portfolio scores third highest on the dollar metric and fourth highest by the MW metric, a reflection of the capital cost intensity of the NGCC unit. The Reference, REF-HC, and NCR portfolios are on the lower end of the range for local impacts.

#### 7.4.4.2 CO<sub>2</sub> Emissions

Table 22 shows the levels of carbon emissions in 2027 and 2037 in the Reference scenario by portfolio and expresses the reduction in carbon emissions relative to the level of emissions to 2005 in percentage terms. Total CO<sub>2</sub> emissions from both Kentucky Power owned plants and contracted output was 9.6 million short-tons (MMst) of CO<sub>2</sub> in year 2005. Emissions have since declined and are now forecasted to be around 5.6 MMst in 2023.

**Table 22. CO<sub>2</sub> Emission Reductions by Portfolio**

| Portfolio | Level of Emissions in 2005 (MMstCO <sub>2</sub> ) | Level of Emissions in 2027 (MMstCO <sub>2</sub> ) | % Reduction in 2027 relative to 2005 | Level of Emissions in 2037 (MMstCO <sub>2</sub> ) | % Reduction in 2037 relative to 2005 |
|-----------|---|---|--------------------------------------|---|--------------------------------------|
| Reference | 9.6   | 2.5   | 74%                                  | 1.0   | 90%                                  |
| REF-HC    | 9.6   | 2.5   | 74%                                  | 1.0   | 90%                                  |
| CETA      | 9.6   | 2.5   | 74%                                  | 1.0   | 90%                                  |
| ECR       | 9.6   | 2.5   | 74%                                  | 0.3   | 96%                                  |
| NCR       | 9.6   | 2.5   | 74%                                  | 1.0   | 90%                                  |
| CC        | 9.6   | 2.5   | 74%                                  | 1.3   | 86%                                  |
| No Wind   | 9.6   | 2.5   | 74%                                  | 0.6   | 94%                                  |

By 2027, all portfolios have the same level of CO<sub>2</sub> emissions at 2.5MMst and put Kentucky Power on a pathway to achieve significant CO<sub>2</sub> emissions reduction by the latter part of this decade. This is primarily driven by a reduction in the output of Mitchell as lower market pricing makes dispatch less economic.

By 2037, all portfolios except the ECR, CC, and No Wind portfolios have similar levels of CO<sub>2</sub> emissions at 1.0 MMst and a 90% reduction relative to 2005. The ECR portfolio has the highest emissions reduction due to buildout of only a single NGCT and closure of operations at

the Big Sandy steam gas unit, resulting in a 96% reduction in CO<sub>2</sub> emissions relative to 2005 levels. The No Wind portfolio exhibits similar reductions to ECR, relying on only a single NGCT unit while retaining the Big Sandy steam gas unit. The CC portfolio exhibits the least decline in emissions caused by high dispatch of the NGCC plant, resulting in an 86% reduction in CO<sub>2</sub> emissions relative to 2005 levels.

#### 7.4.5 Evaluating the 2022 IRP Scorecard

The summary of results and analysis is captured in the IRP scorecard and includes a range of cost based and non-cost based metrics to evaluate the different portfolios. The populated scorecard is shown in Figure 79. The key results from the scorecard are summarized below:

- The Reference portfolio offers balanced performance and score in the favorable end of the range across most criteria. The portfolio ranks best on affordability, while limiting cost risk and market exposure, providing adequate reliability, and strong sustainability.
- The REF-HC portfolio performs similarly as Reference across most metrics, except with a markedly higher short term cost increase. This is reflective of a similar overall build except with an accelerated renewable installation to mitigate higher technology costs in later years.
- The CETA portfolio has the sharpest rate of cost increase which levels off to result in mid-range affordability in the long run. The portfolio also exhibits above average cost risk due to substantial market exposure. With the largest accredited capacity build, the strengths of CETA are underscored through robust reliability and contribution to local impacts.
- The ECR portfolio has the lowest emissions profile along with some of the highest local impacts, caused by the lowest levels of gas and highest renewable supply. The tradeoff for these attributes is poor long-term affordability and highest cost risk. The portfolio demonstrates where perhaps too high a reliance on renewables can pose significant burdens in other areas.
- The NCR portfolio is robust and diverse, scoring highest in operational flexibility with the lowest cost risk, whereas overall affordability is middle of the pack. Less renewable resources and more storage than the other portfolios expose the NCR portfolio to a short energy position.
- The CC portfolio has the lowest scenario cost range reflecting a combination of low renewable cost exposure and favorable merit order dispatch across varying market conditions. However, the high energy output of the NGCC unit results in the highest levels of emissions and lowest decline relative to 2005 levels.
- The cost of the No Wind portfolio is highest of all portfolios, although this also translates to among the highest local impacts. The higher reliance on solar exposes the portfolio to the most energy purchases during winter months. Emissions levels are amongst the lowest of the group owing to reliance on only a single NGCT unit.

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 172 of 1182

| Portfolio                       | Customer Affordability                     |                                      | Rate Stability   |   |   | Maintaining Reliability                               |  |  | Local Impacts & Sustainability   |  |
|---------------------------------|--|--------------------------------------|--|---|---|---|--|--|--|--|
|                                 | Short Term: 5-yr Cost CAGR, Reference Case | Long Term: 15-yr CPW, Reference Case | Scenario Range: High Minus Low Scenario Range, 15-yr CPW | Cost Risk: RR Increase in Reference Case (95th minus 50th Percentile) | Market Exposure: Net Sales as % of Portfolio Load, Scenario Average | Planning Reserves: % Reserve Margin, Scenario Average | Operational Flexibility: Dispatchable Capacity | Resource Diversity: Generation Mix (MWh) by Technology Type - Reference Case | Local Impacts: New Nameplate MW & Total CAPEX Installed Inside Service Territory | CO2 Emissions: Percent Reduction from 2005 Baseline - Reference Case |
| Year Ref.                       | 2023-2028                                  | 2023-2037                            | 2023-2037  | 2037  | 2037  | 2023-2037   | 2027   2037                                    | 2037   | 2023-2037  | 2027   2037  |
| Units                           | %  | \$MM Levelized Rate                  | \$MM Levelized Rate                                      | \$MM  | Summer   Winter   | Summer   Winter                                       | MW   | %  | MW   \$MM  | % Reduction  |
| Reference Portfolio             | 7.52                                       | 3,395<br>\$62.1                      | 438<br>\$8.9   | 77.6  | 14%   30%   | 11.3%   -22.7%  | 1,111   775                                    |  | 893   1,146  | 74%   90%  |
| Reference – High Cost Portfolio | 8.53                                       | 3,435<br>\$62.3                      | 432<br>\$8.7   | 72.2  | 10%   26%   | 10.6%   -23.1%  | 1,111   775                                    |  | 855   1,134  | 74%   90%  |
| CETA Portfolio                  | 9.16                                       | 3,504<br>\$64.0                      | 565<br>\$11.6  | 87.1  | 31%   39%   | 20.2%   -19.9%  | 1,111   825                                    |  | 1,205   1,511  | 74%   90%  |
| ECR Portfolio                   | 8.21                                       | 3,605<br>\$65.6                      | 886<br>\$15.1  | 95.8  | 28%   26%   | 3.4%   -37.4%   | 1,111   490                                    |  | 1,465   1,942  | 74%   96%  |
| NCR Portfolio                   | 7.91                                       | 3,517<br>\$64.1                      | 497<br>\$13.3  | 37.9  | -25%   -20%   | 10.2%   -20.8%  | 1,111   925                                    |  | 855   1,067  | 74%   90%  |
| CC Portfolio                    | 8.78                                       | 3,516<br>\$64.6                      | 430<br>\$9.3   | 56.8  | 24%   21%   | 10.7%   -26.5%  | 1,111   763                                    |  | 993   1,528  | 74%   86%  |
| No Wind Portfolio               | 7.65                                       | 3,755<br>\$68.4                      | 684<br>\$12.6  | 48.9  | 5%   -45%   | 10.6%   -37.1%  | 1,111   660                                    |  | 1,178   2,088  | 74%   94%  |

Figure 79. 2022 IRP Scorecard Portfolio Results

Note - Levelized Rates and CPW metrics are for generation component only. Metrics are for comparison only and do not represent the final costs which will apply to ratepayers.

## **7.5 Preferred Plan**

The IRP Scorecard does not select a Preferred Plan (PP) on its own, rather it provides a way of systematically comparing how each of the portfolios perform across the four IRP objectives. Each resource portfolio considered in the 2022 IRP represents a trade-off between the objectives defined by Kentucky Power. The CETA portfolio, for example, provides the greatest level of seasonal reliability, but has the highest expected short-term costs to customers. Meanwhile, the ECR portfolio has the most positive local and sustainability impacts, but has low rankings in reliability, rate stability, and long-term cost. The purpose of the Scorecard is to provide Kentucky Power management with a tool that illustrates these trade-offs and enables the selection of the best path forward for Kentucky Power's customers and stakeholders.

After consideration of the portfolio needs and risks, Kentucky Power identified a PP that is informed by the scorecard results, scoring competitively across all scorecard elements and provides a "least regrets" portfolio for the near and mid-terms. The objective of the PP was to strike a balance of reliability, affordability, and sustainability for customers without overreliance on any one resource while also providing optionality to Kentucky Power for the type and timing of resources based on future RFP results. The PP includes a combination of supply- and demand-side resources to meet Kentucky Power's future customer needs. The portfolio maintains affordable and stable rates for Kentucky Power customers, is expected to maintain reliability across seasons, provides sufficient capacity to meet PJM obligations and allow for some margin of uncertainty in the future related to these obligations, and creates opportunities for local development all while significantly reducing greenhouse gas emissions. The rest of this section will review the detailed outputs of the PP and discuss its performance relative to the other portfolios considered as part of the 2022 IRP.

### **7.5.1 Details of the Preferred Plan**

The Preferred Plan pre-selects the 480 MW frame CT build identified in the optimized portfolios along with the renewable and intermittent resource selections from the CC portfolio represented by 700 MW of new wind and 800 MW of new solar, along with 50MW of storage by 2037. The Preferred Plan also includes the extension of the Big Sandy gas unit to 2041. Short-Term Market Purchases (STMP) are utilized with up to 78 MW annually through 2026 and 407 MW in 2028 to fully satisfy near-term adequacy.

On the demand side, the summer peak contribution from incremental demand-side resources is 3 MW in 2023, rising to a peak of 48 MW in 2034 before declining to 46 MW by 2037. Details of the annual capacity additions in the PP are displayed in Figure 80 and annual energy position in Figure 81 below.

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                | 2023                               | 3            |
| 2024   |            |          |               |              |                            |                 |                     | 78                | 2024                               | 8            |
| 2025   |            |          |               |              |                            |                 |                     | 78                | 2025                               | 14           |
| 2026   |            |          |               | 100          |                            |                 |                     | 78                | 2026                               | 24           |
| 2027   |            |          | 250           | 100/100      |                            |                 |                     |                   | 2027                               | 32           |
| 2028   |            |          | 150/300       | 100/100      |                            |                 |                     | 407               | 2028                               | 38           |
| 2029   | 480        |          | 100           |              |                            |                 |                     |                   | 2029                               | 43           |
| 2030   |            |          |               | 100          |                            |                 |                     |                   | 2030                               | 47           |
| 2031   |            |          |               | 100          |                            |                 | 295                 |                   | 2031                               | 47           |
| 2032   |            |          |               |              |                            |                 |                     |                   | 2032                               | 48           |
| 2033   |            |          |               |              |                            |                 |                     |                   | 2033                               | 48           |
| 2034   |            |          |               |              |                            |                 |                     |                   | 2034                               | 48           |
| 2035   |            |          |               |              | 50                         |                 |                     |                   | 2035                               | 48           |
| 2036   |            |          |               |              |                            |                 |                     |                   | 2036                               | 47           |
| 2037   |            |          |               |              |                            |                 |                     |                   | 2037                               | 46           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>800</b>    | <b>700</b>   | <b>50</b>                  | <b>0</b>        | <b>295</b>          |                   |                                    |              |

Figure 80. Annual Capacity Additions in the 2022 IRP Preferred Plan

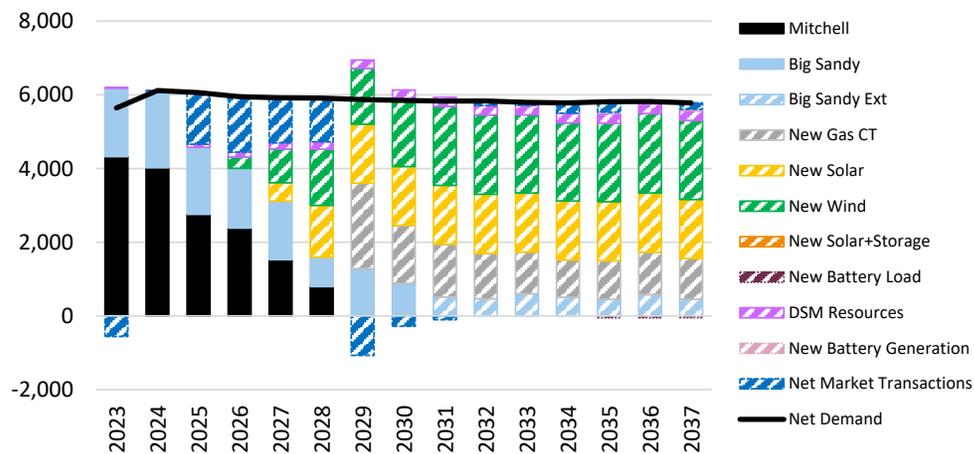


Figure 81. Kentucky Power Annual Energy Position (GWh) under Preferred Plan

Under the Preferred Plan, the Mitchell coal unit leaves the portfolio in 2028, while operations at the Big Sandy gas unit are extended to 2041. On the demand side, Kentucky Power projects approximately 48 MW of demand-side resources between 2023 and 2030. In addition to demand-side programs, Kentucky Power proposes to add 800 MW of new solar, 700 MW of new

wind, and 50MW of storage by 2037. All of the solar and wind resources are added in the 2026-2031 time frame to take advantage of the production tax credit and contribute to accredited capacity replacement. The Preferred Plan also proposes to add 480 MW of new gas CT in 2029 as the Mitchell coal unit leaves the portfolio. The Preferred Plan relies on market capacity purchases through 2026 and again in 2028 to bridge shortfalls as Kentucky Power works to acquire firm resources.<sup>48</sup>

The Preferred Plan is informed by an analysis of the optimized portfolios discussed in section 7.3 to meet PJM minimum reserve margins given assumptions about resource availability and constraints on portfolio energy sales. However, this plan is based on an uncertain future regarding events that can impact the Company's capacity position, including uncertainty around intermittent resource availability, their contribution to reserve margins, load growth, new environmental and tax policy, and existing unit performance. The Preferred Plan includes resources to meet the Company's current PJM capacity obligations while allowing for optionality if customers' capacity and energy needs requirements change. This includes a natural gas resource, currently identified as a natural gas combustion turbine in place of a combined cycle unit. The analyses of portfolios with NGCTs vs. NGCCs were similar in costs although the NGCT portfolio scored better in several non-cost scorecard metrics, including, in part, an increased capacity towards the Company's minimum PJM capacity obligation. The final decision to select a natural gas resource that is critical to the portfolio will be subject to results of an all-source RFP and analysis. Consequently, the Company will continue to evaluate its capacity position relative to these risks and may consider adding additional resources to the Plan in the future to ensure a capacity position in compliance with PJM's capacity reserve requirements. Furthermore, the Preferred Plan provides Kentucky Power flexibility and optionality with respect to uncertainty related to winter capacity needs. As described in section 7.3.2, a portfolio optimized to meet winter peak would add to the foundational gas and renewable resources already included in the Preferred Plan, providing the potential to integrate incremental storage resources to satisfy adequacy requirements.

<sup>48</sup> Depending on the results of the RFP, the Company may pursue different quantities or types of resources from those identified in the Preferred Plan.

## 7.5.2 The Preferred Plan Best Achieves Kentucky Power’s IRP Objectives

### Introduction

For this IRP, seven portfolios were analyzed which informed the Company’s identification of its Preferred Plan. The complete Scorecard with the Preferred Plan is shown below in Figure 82. A discussion of the Preferred Plan scorecard metrics follows.

| Portfolio                       | Customer Affordability                     |                                      | Rate Stability   |   |   | Maintaining Reliability                               |  |  | Local Impacts & Sustainability   |  |
|---------------------------------|--|--------------------------------------|--|---|---|---|--|--|--|--|
|                                 | Short Term: 5-yr Cost CAGR, Reference Case | Long Term: 15-yr CPW, Reference Case | Scenario Range: High Minus Low Scenario Range, 15-yr CPW | Cost Risk: RR Increase in Reference Case (95th minus 50 <sup>th</sup> Percentile) | Market Exposure: Net Sales as % of Portfolio Load, Scenario Average | Planning Reserves: % Reserve Margin, Scenario Average | Operational Flexibility: Dispatchable Capacity | Resource Diversity: Generation Mix (MWh) by Technology Type - Reference Case | Local Impacts: New Nameplate MW & Total CAPEX Installed Inside Service Territory | CO2 Emissions: Percent Reduction from 2005 Baseline - Reference Case |
| Year Ref.                       | 2023-2028                                  | 2023-2037                            | 2023-2037  | 2037  | 2037  | 2023-2037   | 2027   2037                                    | 2037   | 2023-2037  | 2027   2037  |
| Units                           | %  | \$MM Levelized Rate                  | \$MM Levelized Rate                                      | \$MM  | Summer   Winter   | Summer   Winter                                       | MW   | %  | MW   \$MM  | % Reduction  |
| Reference Portfolio             | 7.52                                       | 3,395<br>\$62.1                      | 438<br>\$8.9   | 77.6  | 14%   30%   | 11.3%   -22.7%  | 1,111   775                                    |  | 893   1,146  | 74%   90%  |
| Reference – High Cost Portfolio | 8.53                                       | 3,435<br>\$62.3                      | 432<br>\$8.7   | 72.2  | 10%   26%   | 10.6%   -23.1%  | 1,111   775                                    |  | 855   1,134  | 74%   90%  |
| CETA Portfolio                  | 9.16                                       | 3,504<br>\$64.0                      | 565<br>\$11.6  | 87.1  | 31%   39%   | 20.2%   -19.9%  | 1,111   825                                    |  | 1,205   1,511  | 74%   90%  |
| ECR Portfolio                   | 8.21                                       | 3,605<br>\$65.6                      | 886<br>\$15.1  | 95.8  | 28%   26%   | 3.4%   -37.4%   | 1,111   490                                    |  | 1,465   1,942  | 74%   96%  |
| NCR Portfolio                   | 7.91                                       | 3,517<br>\$64.1                      | 497<br>\$13.3  | 37.9  | -25%   -20%   | 10.2%   -20.8%  | 1,111   925                                    |  | 855   1,067  | 74%   90%  |
| CC Portfolio                    | 8.78                                       | 3,516<br>\$64.6                      | 430<br>\$9.3   | 56.8  | 24%   21%   | 10.7%   -26.5%  | 1,111   763                                    |  | 993   1,528  | 74%   86%  |
| No Wind Portfolio               | 7.65                                       | 3,755<br>\$68.4                      | 684<br>\$12.6  | 48.9  | 5%   -45%   | 10.6%   -37.1%  | 1,111   660                                    |  | 1,178   2,088  | 74%   94%  |
| Preferred Plan                  | 8.81                                       | 3,522<br>\$64.8                      | 501<br>\$9.4   | 58.3  | 6%   0%   | 14.6%   -23.5%  | 1,111   825                                    |  | 1,055   1,355  | 74%   90%  |

Figure 82. 2022 IRP Scorecard Preferred Plan Results

Note - Levelized Rates and CPW metrics are for generation component only. Metrics are for comparison only and do not represent the final costs which will apply to ratepayers

### **7.5.2.1 Customer Affordability**

When measured against the customer affordability objective, the Preferred Plan is among the most affordable resource plans evaluated in the 2022 IRP. In the short-term, costs rise relatively sharply compared to most other portfolios in order to support the substantial renewable development program. In the long-term, the Preferred Plan is near the mid-tier in terms of overall cost, and within a half-percent of the three next lowest cost plans evaluated in the 2022 IRP. The Preferred Plan is within \$127 million in CPW or about \$2.70/MWh in levelized rates of the lowest cost plan, representing about a 3.6% increase. Two portfolios evaluated are more than \$83 million higher under the 15-year CPW, so the Preferred Plan serves to protect customers from higher costs seen in some of the other portfolios.

### **7.5.2.2 Rate Stability**

When measured against the rate stability objective, the Scenario Range metric shows that expected costs under the Preferred Plan varied by near average levels across the fundamental market scenarios when compared to other plans. The cost risk measure shows that the Preferred Plan is able to withstand price and renewable output volatility nearly as well as those plans ranked at the top of this category. The Preferred Plan has more cost risk than the NCR, CC, and No Wind portfolios, but lower cost risk than the Reference, REF-HC, ECR, and CETA portfolios. The Preferred plan was among the lowest-risk portfolios in 2037.

The seasonal market exposure of the Preferred Plan is limited with only a 6% net sales position needed to balance customer loads during summer, and no net exposure during winter. The Preferred Plan performs best of all portfolios on this metric.

### **7.5.2.3 Maintaining Reliability**

In the Planning Reserves metric, the Preferred Plan performs adequately to maintain a greater than 9% reserve margin in both the summer and winter seasons. While PJM currently only enforces summer planning requirements, it is possible a seasonal requirement could be implemented in the future. The Preferred Plan has the highest planning reserves of all portfolios except CETA, which is optimized under higher native load conditions.

The Preferred Plan has operational flexibility rankings second only to the NCR portfolio, tied with CETA and ranking better than all others.

The resource diversity indicator shows the Preferred Plan ranks highest in terms of generation diversity. Most portfolios have a high concentration in either wind or solar although the Preferred Plan has roughly similar quantities of wind, solar, and gas generation, helping it score well based on this metric.

#### **7.5.2.4 Local Impacts & Sustainability**

The Preferred Plan scores near the middle of the pack on the Local Impact indicator when compared to the other portfolio alternatives. The MW installed are the fourth highest behind ECR, CETA, and No Wind portfolios, while the dollar investment in the Kentucky Power territory is fifth highest. Since new resources have yet to be selected or sited, an action item in the three-year plan is to refine estimates for resources that can be integrated into the Kentucky Power territory.

In the Sustainability metric, the Preferred Plan puts Kentucky Power on a pathway for significant CO<sub>2</sub> emissions relative to the 2005 baseline. By 2037, all plans are on track to achieve reductions around 90% relative to the 2005 baseline. In the Preferred Plan, Kentucky Power would seek opportunities for further reduction or offset during the 2040s.

### 7.5.3 Estimated Bill Impacts of the Preferred Plan

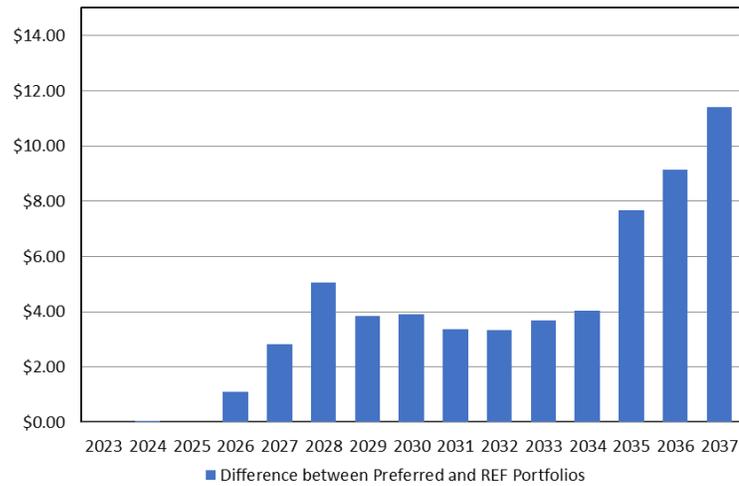
The Company compared the estimated bill impact of the Preferred Plan, which includes the continued operation of Big Sandy through 2041. All portfolios modeled included significant investments in natural gas, solar and wind resources, and energy efficiency savings. To estimate the bill impact of the Preferred Plan over the planning period, the Company compared the total annual cost and sales of electricity (kWh) of the lowest cost plan, Reference Plan and the Preferred Plan. This calculated estimate assumed an average residential usage/month of 1,229 kWh and does not take into consideration rate design or differences in customer classes. The Company also assumed that transmission and distribution related costs will be incurred at the same rate under all plans, and therefore have no impact to the calculation of bill impacts comparing plans. Keep in mind that the cost assumptions used in this comparison are indicative in nature in that any investment decision and the associated rate changes are subject to regulatory approval.

For purposes of this comparison, the annual net cost from the PERFORM model was divided by the Kentucky Power load, net of energy efficiency savings to get a cost per kilowatt-hour. The PERFORM model annual costs include the incremental fixed and all variable costs of the Company's generation resources, the incremental costs related to capital spending on new generation resources, EE Programs, a credit for the revenue received from the PJM market for the energy produced, and the cost of energy from PJM to serve the Company's load. In equation form, this looks like:

$$\begin{aligned} \text{Net Cost} &= \text{Energy Requirement (Load)} * \text{PJM Market Energy Cost} \\ &+ \text{Incremental Fixed and All Variable Costs from Kentucky Power's existing and} \\ &\quad \text{new Generation Resources} \\ &+ \text{Carrying cost on capital} \\ &+ \text{Cost of EE Programs} \\ &- \text{PJM Market Energy Revenues (including credit for energy savings from EE)} \end{aligned}$$

As stated earlier, the monthly bill for all portfolios increased. When comparing the increased bill impact between the Reference portfolio and Preferred Plan, the Preferred Plan realizes a slightly higher increase in 2027 and 2028 compared to the Reference portfolio due to the

increased investment in more solar resources. After increases through 2028, the difference in rate impacts in future years of the Preferred Plan declines to approximately \$3.30/month through 2034.



**Figure 83. Bill Impacts (\$/Month) of Preferred Plan Compared to Reference Portfolio**

#### 7.5.4 Rate Impacts of the Preferred Plan

The average “real” rate per kWh expected to be paid by Kentucky Power customers from 2023 to 2037 that results directly from the costs and energy consumption impacts associated with the Preferred Plan is shown in Table 23 below. As previously stated, Kentucky Power does not expect to add any major new baseload generation during this period; however, renewable projects, new EE programs, and peaking unit additions will require investments and/or purchase obligations. On a real (2023) dollar basis as reflected in Table 23, this Preferred Plan is anticipated to result in relatively steady customer-estimated rates. These projected rates show Kentucky Power’s projected success in mitigating the impact of carbon regulation on customer rates through its development of a well-diversified, renewable-centric portfolio.

**Table 23. Approximate Rate Impacts of Preferred Plan**

| <b>Year</b> | <b>Nominal<br/>(\$/kWh)</b> | <b>Real<br/>(\$2023/kWh)</b> |
|-------------|-----------------------------|------------------------------|
| 2023        | \$0.165                     | \$0.165                      |
| 2024        | \$0.170                     | \$0.166                      |
| 2025        | \$0.171                     | \$0.164                      |
| 2026        | \$0.172                     | \$0.161                      |
| 2027        | \$0.178                     | \$0.163                      |
| 2028        | \$0.190                     | \$0.171                      |
| 2029        | \$0.196                     | \$0.174                      |
| 2030        | \$0.198                     | \$0.173                      |
| 2031        | \$0.196                     | \$0.168                      |
| 2032        | \$0.193                     | \$0.163                      |
| 2033        | \$0.192                     | \$0.158                      |
| 2034        | \$0.190                     | \$0.154                      |
| 2035        | \$0.191                     | \$0.152                      |
| 2036        | \$0.190                     | \$0.149                      |
| 2037        | \$0.196                     | \$0.150                      |

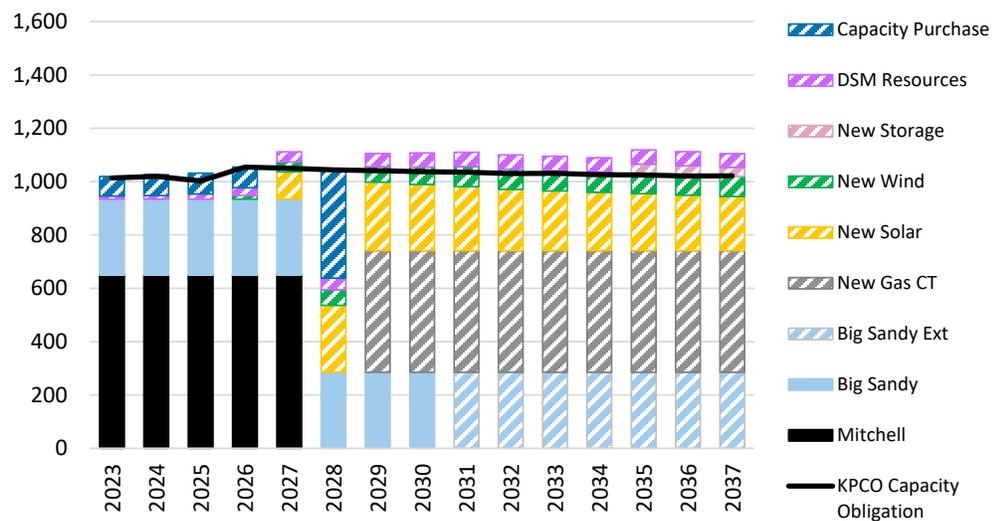
\* Note: The rate impacts presented in this table do not consider the prospect of increases in Kentucky Power's transmission and distribution-related costs over this period, as well as increases in base generation-related costs not uniquely incorporated into the planning/modeling process.

## 8.0 Conclusion

Kentucky Power selected the Preferred Plan for the 2022 IRP because it best meets the objectives of providing affordable, reliable electricity for customers while also maintaining rate stability and achieving excellent sustainability performance. The Preferred Plan scored competitively across all scorecard elements and provides a “least regrets” portfolio for the near and mid-terms without an overreliance on any one resource while also providing optionality to Kentucky Power for the type and timing of resources based on future RFP results.

## 8.1 Plan Summary

Figure 84 summarizes the additions to the Kentucky Power portfolio over the 2023-2037 time period under the Preferred Plan. It shows how a combination of new supply- and demand-side resources meets expected customer needs and maintains or exceeds the 9% planning reserve margin required by PJM. The Preferred Plan retains the 295 MW Big Sandy gas unit for an additional 10 years past the original retirement date, adds 480 MW NGCT, 800 MW of new solar PV, 700 MW of new wind, 50 MW of stand-alone storage, and adds energy efficiency resources over the next 15 years.



**Figure 84. Kentucky Power Annual PJM Capacity Position under Preferred Plan (MW-UCAP)**

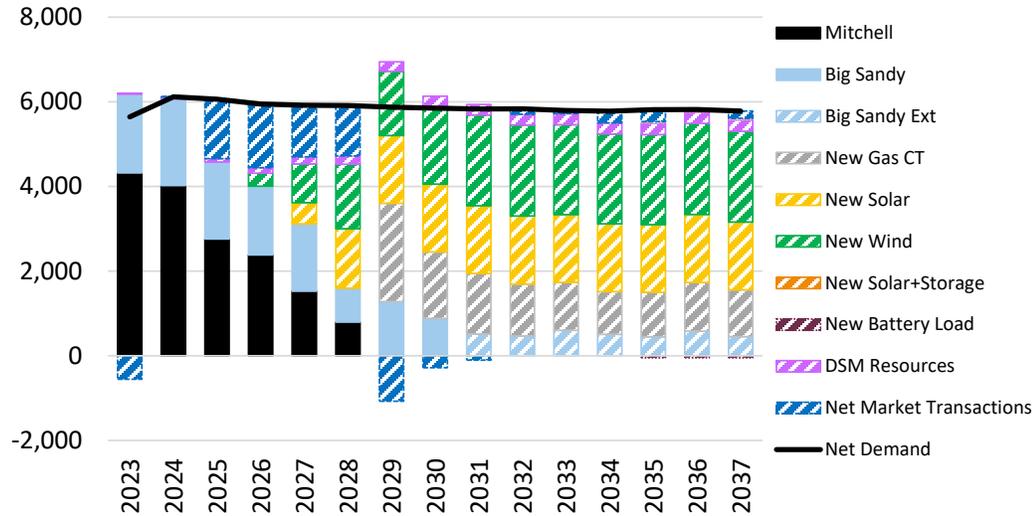


Figure 85. Kentucky Power Annual Energy Position under Preferred Plan (GWh)

## 8.2 Three-Year Action Plan

Steps to be taken by Kentucky Power in the near future as part of its Three-Year Action Plan include:

1. Pursue economic development opportunities to increase and diversify its industrial and commercial load.
2. Initiate an All-Source Request for Proposal (RFP) to add cost-effective market capacity purchases and firm resources in the near future.
3. Further examine opportunities to increase cost effective levels of EE in alignment with the Preferred Plan.
4. Monitor this action plan and future IRPs to address changing circumstances.
5. Seek to refine cost estimates and develop plans for a Big Sandy life extension.

## **Appendix**

**Exhibit A** Cross Reference Table of Responses to Staff Comments from 2019 Final IRP Report

**Exhibit B** Cross Reference Table of Rule 807 KAR 5:058

**Exhibit C** Load Forecast Tables

**Exhibit D** New Generation Technologies

**Exhibit E** Case and Scenario Results

**Exhibit F** Transmission Maps

**Exhibit G** Supplemental Data and Details

**Exhibit H** Load Forecast Model Details and Input Data

**Exhibit I** Load Forecast Model Details and Input Data

**Exhibit J** PJM Capacity Market Analysis

**Exhibit K** Organization of the 2022 Kentucky Power IRP

**Exhibit A – Cross Reference Table of Staff Comments from 2019 Final IRP Report**

| Topic         | Staff Comment  | Reference                               |
|---------------|--|---|
| Load Forecast | Provide a more detailed description and explanation of the county level historical, and forecast data obtained from Moody's Analytics (or any other source) and the process employed to tailor data to specific counties and to Kentucky Power's service territory. The explanation should also include a description of any alternative forecast scenarios provided by Moody's Analytics, such as optimistic and pessimistic growth scenarios reflecting different economic and demographic assumptions, which may influence the ultimate forecast data used by Kentucky Power. | Section 2.13                            |
|               | Provide a more detailed description of the different load forecast scenarios including how the base case assumptions were changed, how they differ from the base case, and a table depicting the all the various results.  | Section 2.13                            |
|               | Continue to provide an update on Kentucky Power's economic development efforts including the impact on its load and employment in its service territory.   | Section 2.13                            |
|               | Provide a comparison of the annual and seasonal peak forecasts of the residential, commercial, and large commercial and industrial sales classes with actual results for the period following the 2019 IRP.  | Sections 2.12.1, 2.12.2, 2.12.3, 2.12.4 |
|               | Include discussion and analysis of the potential for and any increases in distributed energy resources on the load forecasts. This should include behind the meter generation at residential, commercial and industrial customer locations. These should be evaluated separately and cumulatively including discussion of drivers encouraging and discouraging such development.   | Section 2.13                            |
| DSM/EE        | As required by the IRP regulation, 807 KAR 5:058, Kentucky Power should continue to define and improve procedures to evaluate, measure, and verify both actual costs and benefits of energy savings based on the actual dollar savings and energy savings. With the expiration of the Rockport UPA, the potential impact of new DSM programs will be much greater in the next IRP.   | Section 4.0                             |
|               | Continue to scrutinize the results of each existing DSM program measure's cost-effectiveness test and provide those results in future DSM cases, along with detailed support for future DSM program expansions and additions after the Rockport UPA capacity is no longer available.   | Section 4.0                             |
|               | Evaluate the marginal benefits and costs, including opportunity costs of VVO and DR programs.  | Section 3.4<br>Section 3.5              |
|               | Examine additional low-income programs that allow for more participants and easier access to EE alternatives.  | Section 4.0<br>Section 3.5              |
|               | Continue to monitor the DG additions.  | Section 2.6.1<br>Section 2.13           |

|                      |  |                                   |
|----------------------|--|-----------------------------------|
| Supply-Side Modeling | Provide a detailed cost benefit study demonstrating why it should continue to participate in PJM as an FRR versus RPM, and discussing the advantages of remaining an FRR company.  | Section 5.9                       |
|                      | If not already included in the prior study, conduct a separate FRR versus RPM cost benefit study similar to the first, except that the analyses should explicitly assume the Mitchell station will continue generating beyond 2028 and then assume the Mitchell station will retire in 2028. | Section 5.9                       |
|                      | Explicitly discuss how and demonstrate that its winter capacity requirements are being satisfied over the forecast horizon. The discussion should include the role the PCA plays in the satisfaction of Kentucky Power's seasonal capacity and energy requirements.                          | Sections 3.2, 5.9, 7.2.2, 7.2.3   |
|                      | Explicitly describe its evaluation of the inclusion of Kentucky base generation merchant plants and how those costs compare to other alternate supply-side resources.  | Section 5.9                       |
|                      | Explain the costs and benefits of acquiring renewables through purchased power contracts or through the construction of the facility itself generally and specifically in support of any renewable capacity additions.   | Section 5.9                       |
|                      | Explain the costs associated with upgrading the transmission system so to accommodate any renewable generation capacity.   | Sections 3.6.1, 3.6.2, 3.6.5, 5.9 |
|                      | Model the impact to the Mitchell Plant due to the publication of the final ELG rule along with any impacts to Kentucky Power's preferred supply side plan to meet its PJM reserve margin requirements and its anticipated winter capacity and demand requirements.                           | N/A                               |
|                      | Model scenarios of differing renewable constraints and no constraints on the size or addition.   | Section 5.9                       |
|                      | If Kentucky Power has not pursued any of the preferred plan options or has pursued another option by the next IRP, provide a detailed explanation of why and a detailed explanation and modeling of any alternate course taken.  | Section 5.9                       |

**Exhibit B** – Cross Reference Table of Rule 807 KAR 5:058

| Section | Requirement  | Report Section    |
|---------|--|-------------------|
| 5       | <p><u>Plan Summary.</u> The plan shall contain a summary which discusses the utility's projected load growth and the resources planned to meet that growth. The summary shall include at a minimum:</p> <ol style="list-style-type: none"> <li>(1) Description of the utility, its customers, service territory, current facilities, and planning objectives;</li> <li>(2) Description of models, methods, data, and key assumptions used to develop the results contained in the plan;</li> <li>(3) Summary of forecasts of energy and peak demand, and key economic and demographic assumptions or projections underlying these forecasts;</li> <li>(4) Summary of the utility's planned resource acquisitions including improvements in operating efficiency of existing facilities, demand-side programs, nonutility sources of generation, new power plants, transmission improvements, bulk power purchases and sales, and interconnections with other utilities;</li> <li>(5) Steps to be taken during the next three (3) years to implement the plan;</li> <li>(6) Discussion of key issues or uncertainties that could affect successful implementation of the plan.</li> </ol> | Executive Summary |
| 6       | <p><u>Significant Changes.</u> All integrated resource plans, shall have a summary of significant changes since the plan most recently filed. This summary shall describe, in narrative and tabular form, changes in load forecasts, resource plans, assumptions, or methodologies from the previous plan. Where appropriate, the utility may also use graphic displays to illustrate changes.</p>   | Section 1.5       |
| 7       | <p><u>Load Forecasts.</u> The plan shall include historical and forecasted information regarding loads.</p> <ol style="list-style-type: none"> <li>(1) The information shall be provided for the total system and, where available, disaggregated by the following customer classes: <ol style="list-style-type: none"> <li>(a) Residential heating;</li> <li>(b) Residential nonheating;</li> <li>(c) Total residential (total of paragraphs (a) and (b) of this subsection);</li> <li>(d) Commercial;</li> <li>(e) Industrial;</li> <li>(f) Sales for resale;</li> <li>(g) Utility use and other.</li> </ol> <p>The utility shall also provide data at any greater level of disaggregation available.</p> </li> <li>(2) The utility shall provide the following historical information for the base year, which shall be the most recent calendar year for which actual energy sales and system peak demand data are available, and the four (4) years preceding the base year:</li> </ol>   |                   |

|  |  |  |
|--|--|--|
|  | <ul style="list-style-type: none"> <li>(a) Average annual number of customers by class as defined in subsection (1) of this section;</li> <li>(b) Recorded and weather-normalized annual energy sales and generation for the system, and sales disaggregated by class as defined in subsection (1) of this section;</li> <li>(c) Recorded and weather-normalized coincident peak demand in summer and winter for the system;</li> <li>(d) Total energy sales and coincident peak demand to retail and wholesale customers for which the utility has firm, contractual commitments;</li> <li>(e) Total energy sales and coincident peak demand to retail and wholesale customers for which service is provided under an interruptible or curtailable contract or tariff or under some other nonfirm basis;</li> <li>(f) Annual energy losses for the system;</li> <li>(g) Identification and description of existing demand-side programs and an estimate of their impact on utility sales and coincident peak demands including utility or government sponsored conservation and load management programs;</li> <li>(h) Any other data or exhibits, such as load duration curves or average energy usage per customer, which illustrate historical changes in load or load characteristics.</li> </ul> | <p>Exhibit C-14</p> <p>Exhibit C-18</p> <p>Exhibit C-17</p> <p>Exhibit C-16</p> <p>N/A</p> <p>Exhibit C-15<br/>Section 3.4</p> <p>Exhibits C-5,<br/>C-10</p> |
|  | <p>(3) For each of the fifteen (15) years succeeding the base year, the utility shall provide a base load forecast it considers most likely to occur and, to the extent available, alternate forecasts representing lower and upper ranges of expected future growth of the load on its system. Forecasts shall not include load impacts of additional, future demand-side programs or customer generation included as part of planned resource acquisitions estimated separately and reported in Section 8 (4) of this administrative regulation. Forecasts shall include the utility's estimates of existing and continuing demand side programs as described in subsection (5) of this section.</p>   | <p>Exhibits C-1,<br/>C-2A, C-2B,<br/>C-5, C-6, C-9,<br/>C-10</p>   |
|  | <p>(4) The following information shall be filed for each forecast:</p> <ul style="list-style-type: none"> <li>(a) Annual energy sales and generation for the system and sales disaggregated by class as defined in subsection (1) of this section;</li> <li>(b) Summer and winter coincident peak demand for the system;</li> <li>(c) If available for the first two (2) years of the forecast, monthly forecasts of energy sales and generation for the system and disaggregated by class as defined in subsection (1) of this section and system peak demand;</li> <li>(d) The impact of existing and continuing demand-side programs on both energy sales and system peak demands, including utility and government sponsored conservation and load management programs;</li> </ul>   | <p>Exhibits C-2A,<br/>C-2B</p> <p>Exhibits C-2A,<br/>C-2B<br/>Exhibits C-3,<br/>C-4</p> <p>Exhibit C-6,<br/>Section 3.4.1</p>                                |

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|  | (e) Any other data or exhibits which illustrate projected changes in load or load characteristics.   | Exhibit C-1  |
|  | <p>(5) The additional following data shall be provided for the integrated system, when the utility is part of a multistate integrated utility system, and for the selling company, when the utility purchases fifty (50) percent of its energy from another company:</p> <p>(a) For the base year and the four (4) years preceding the base year:</p> <ol style="list-style-type: none"> <li>1. Recorded and weather normalized annual energy sales and generation;</li> <li>2. Recorded and weather-normalized coincident peak demand in summer and winter.</li> </ol> <p>(b) For each of the fifteen (15) years succeeding the base year:</p> <ol style="list-style-type: none"> <li>1. Forecasted annual energy sales and generation;</li> <li>2. Forecasted summer and winter coincident peak demand.</li> </ol>   |  |
|  | (6) A utility shall file all updates of load forecasts with the commission when they are adopted by the utility.   |  |
|  | <p>(7) The plan shall include a complete description and discussion of:</p> <p>(a) All data sets used in producing the forecasts;</p> <p>(b) Key assumptions and judgments used in producing forecasts and determining their reasonableness;</p> <p>(c) The general methodological approach taken to load forecasting (for example, econometric, or structural) and the model design, model specification, and estimation of key model parameters (for example, price elasticities of demand or average energy usage per type of appliance);</p> <p>(d) The utility's treatment and assessment of load forecast uncertainty;</p> <p>(e) The extent to which the utility's load forecasting methods and models explicitly address and incorporate the following factors:</p> <ol style="list-style-type: none"> <li>1. Changes in prices of electricity and prices of competing fuels;</li> <li>2. Changes in population and economic conditions in the utility's service territory and general region;</li> <li>3. Development and potential market penetration of new appliances, equipment, and technologies that use electricity or competing fuels; and</li> <li>4. Continuation of existing company and government sponsored conservation and load management or other demand-side programs.</li> </ol> <p>(f) Research and development efforts underway or planned to improve performance, efficiency, or capabilities of the utility's load forecasting methods; and</p> <p>(g) Description of and schedule for efforts underway or planned to develop end-use load and market data for</p> | <p>Section 2.2</p> <p>Sections 2.3, 2.4</p> <p>Section 2.7</p> <p>Section 2.8</p> <p>Section 2.4.4</p> <p>Section 2.6.1</p> <p>Section 2.6.2</p> <p>Section 2.9.3</p> <p>Section 2.6.1</p> |

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|   | analyzing demand-side resource options including load research and market research studies, customer appliance saturation studies, and conservation and load management program pilot or demonstration projects.  |  |
| 8 | <u>Resource Assessment and Acquisition Plan.</u> (1) The plan shall include the utility's resource assessment and acquisition plan for providing an adequate and reliable supply of electricity to meet forecasted electricity requirements at the lowest possible cost. The plan shall consider the potential impacts of selected, key uncertainties and shall include assessment of potentially cost effective resource options available to the utility.   |  |
|   | (2) The utility shall describe and discuss all options considered for inclusion in the plan including: <ul style="list-style-type: none"> <li>(a) Improvements to and more efficient utilization of existing utility generation, transmission, and distribution facilities;</li> <li>(b) Conservation and load management or other demand-side programs not already in place;</li> <li>(c) Expansion of generating facilities, including assessment of economic opportunities for coordination with other utilities in constructing and operating new units; and</li> <li>(d) Assessment of nonutility generation, including generating capacity provided by cogeneration, technologies relying on renewable resources, and other nonutility sources.</li> </ul>  | <p>Section 3.2</p> <p>Section 4.0</p> <p>Section 5.2.1</p> <p>Sections 3.4, 5.4, 5.7</p> |
|   | (3) The following information regarding the utility's existing and planned resources shall be provided. A utility which operates as part of a multistate integrated system shall submit the following information for its operations within Kentucky and for the multistate utility system of which it is a part. A utility which purchases fifty (50) percent or more of its energy needs from another company shall submit the following information for its operations within Kentucky and for the Company from which it purchases its energy needs. <ul style="list-style-type: none"> <li>(a) A map of existing and planned generating facilities, transmission facilities with a voltage rating of sixty-nine (69) kilovolts or greater, indicating their type and capacity, and locations and capacities of all interconnections with other utilities. The utility shall discuss any known, significant conditions which restrict transfer capabilities with other utilities.</li> <li>(b) A list of all existing and planned electric generating facilities which the utility plans to have in service in the base year or during any of the fifteen (15) years of the forecast period, including for each facility:             <ol style="list-style-type: none"> <li>1. Plant name;</li> <li>2. Unit number(s);</li> <li>3. Existing or proposed location;</li> <li>4. Status (existing, planned, under construction, etc.);</li> <li>5. Actual or projected commercial operation date;</li> </ol> </li> </ul> | <p>Exhibit F</p> <p>Exhibit G-1<br/>Exhibit G-1<br/>Exhibit G-1</p>                      |

|  |  |   |
|--|--|---|
|  | <p>6. Type of facility;<br/>         7. Net dependable capability, summer and winter;<br/>         8. Entitlement if jointly owned or unit purchase;<br/>         9. Primary and secondary fuel types, by unit;<br/>         10. Fuel storage capacity;<br/>         11. Scheduled upgrades, deratings, and retirement dates;<br/>         12. Actual and projected cost and operating information for the base year (for existing units) or first full year of operations (for new units) and the basis for projecting the information to each of the fifteen (15) forecast years (for example, cost escalation rates). All cost data shall be expressed in nominal and real base year dollars.</p> <p>a. Capacity and availability factors;</p> <p>b. Anticipated annual average heat rate;<br/>         c. Costs of fuel(s) per millions of British thermal units (MMBtu);<br/>         d. Estimate of capital costs for planned units (total and per kilowatt of rated capacity);<br/>         e. Variable and fixed operating and maintenance costs;<br/>         f. Capital and operating and maintenance cost escalation factors;<br/>         g. Projected average variable and total electricity production costs (in cents per kilowatt-hour).</p> <p>(c) Description of purchases, sales, or exchanges of electricity during the base year or which the utility expects to enter during any of the fifteen (15) forecast years of the plan.</p> <p>(d) Description of existing and projected amounts of electric energy and generating capacity from cogeneration, self-generation, technologies relying on renewable resources, and other nonutility sources available for purchase by the utility during the base year or during any of the fifteen (15) forecast years of the plan.</p> <p>(e) For each existing and new conservation and load management or other demand-side programs included in the plan:</p> <p>1. Targeted classes and end-uses;<br/>         2. Expected duration of the program;<br/>         3. Projected energy changes by season, and summer and winter peak demand changes;<br/>         4. Projected cost, including any incentive payments and program administrative costs; and<br/>         5. Projected cost savings, including savings in utility's generation, transmission and distribution costs.</p> | <p>Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-1<br/>         Exhibit G-2<br/>         Exhibit G-3<br/>         Exhibit G-4<br/>         Exhibit G-5<br/>         Exhibit G-6<br/>         Exhibit G-7<br/>         Exhibit G-7<br/>         Exhibit G-8<br/>         Exhibit G-9<br/>         Exhibit G-9<br/>         Exhibit G-10</p> |
|  | <p>(4) The utility shall describe and discuss its resource assessment and acquisition plan which shall consist of resource options which</p>   |   |



|   |   |  |
|---|---|--|
|   | <p>(b) Key assumption and judgments used in the assessment and how uncertainties in those assumptions and judgments were incorporated into analyses;</p> <p>(c) Criteria (for example, present value of revenue requirements, capital requirements, environmental impacts, flexibility, diversity) used to screen each resource alternative including demand-side programs, and criteria used to select the final mix of resources presented in the acquisition plan;</p> <p>(d) Criteria used in determining the appropriate level of reliability and the required reserve or capacity margin, and discussion of how these determinations have influenced selection of options;</p> <p>(e) Existing and projected research efforts and programs which are directed at developing data for future assessments and refinements of analyses;</p> <p>(f) Actions to be undertaken during the fifteen (15) years covered by the plan to meet the requirements of the Clean Air Act amendments of 1990, and how these actions affect the utility's resource assessment; and</p> <p>(g) Consideration given by the utility to market forces and competition in the development of the plan. Technical discussion, descriptions and supporting documentation shall be contained in a technical appendix.</p> | <p>Sections 2.7, 6.2, 6.3, 6.4, 6.6, 7.5.2</p> <p>Section 7.1, 7.2</p> <p>Section 3.1</p> <p>Sections 4.1, 5.1, 5.4</p> <p>Section 3.3</p> <p>Sections 5.4, 5.5, 5.6, 6.0, Exhibit D</p> |
| 9 | <p><u>Financial Information.</u> The integrated resource plan shall, at a minimum, include and discuss the following financial information:</p> <p>(1) Present (base year) value of revenue requirements stated in dollar terms;</p>  | Exhibit G-12   |
|   | <p>(2) Discount rate used in present value calculations;</p>  | Exhibit G-12   |
|   | <p>(3) Nominal and real revenue requirements by year; and</p>   | Exhibit G-12   |
|   | <p>(4) Average system rates (revenues per kilowatt hour) by year.</p>   | Section 7.5.4  |

**Exhibit C – Load Forecast Tables**

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 197 of 1182

Exhibit C-1

| Kentucky Power Company                               |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
|--|-------------------|----------|------------------|----------|------------------|----------|----------------------|----------|--------|----------|------------------------------------|----------|
| Annual Internal Energy Requirements and Growth Rates |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
| 2017-2037  |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
|  | Residential Sales |          | Commercial Sales |          | Industrial Sales |          | Other Internal Sales |          | Losses |          | Total Internal Energy Requirements |          |
|  | GWH               | % Growth | GWH              | % Growth | GWH              | % Growth | GWH                  | % Growth | GWH    | % Growth | GWH                                | % Growth |
| <b>Actual</b>  |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
| 2017   | 1,933             | --       | 1,240            | --       | 2,407            | --       | 90                   | --       | 390    | --       | 6,060                              | --       |
| 2018   | 2,159             | 11.7     | 1,276            | 2.9      | 2,402            | -0.2     | 96                   | 6.0      | 413    | 5.8      | 6,346                              | 4.7      |
| 2019   | 2,051             | -5.0     | 1,251            | -2.0     | 2,319            | -3.5     | 91                   | -4.8     | 379    | -8.2     | 6,091                              | -4.0     |
| 2020   | 1,990             | -3.0     | 1,153            | -7.8     | 1,964            | -15.3    | 86                   | -5.3     | 378    | -0.2     | 5,571                              | -8.5     |
| 2021   | 1,979             | -0.6     | 1,144            | -0.7     | 1,960            | -0.2     | 88                   | 1.9      | 437    | 15.5     | 5,609                              | 0.7      |
| <b>Forecast</b>                                      |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
| 2022 (1)   | 1,976             | -0.2     | 1,213            | 6.0      | 2,032            | 3.6      | 88                   | -0.2     | 432    | -1.1     | 5,740                              | 2.3      |
| 2023   | 1,959             | -0.9     | 1,220            | 0.6      | 1,992            | -2.0     | 87                   | -0.9     | 386    | -10.6    | 5,643                              | -1.7     |
| 2024   | 1,929             | -1.5     | 1,657            | 35.8     | 1,988            | -0.2     | 87                   | -0.6     | 437    | 13.2     | 6,098                              | 8.1      |
| 2025   | 1,909             | -1.0     | 1,654            | -0.2     | 1,978            | -0.5     | 42                   | -51.3    | 476    | 9.0      | 6,060                              | -0.6     |
| 2026   | 1,890             | -1.0     | 1,650            | -0.3     | 1,968            | -0.5     | 9                    | -77.7    | 431    | -9.6     | 5,948                              | -1.8     |
| 2027   | 1,873             | -0.9     | 1,644            | -0.3     | 1,958            | -0.5     | 9                    | 0.0      | 433    | 0.6      | 5,918                              | -0.5     |
| 2028   | 1,862             | -0.6     | 1,641            | -0.2     | 1,953            | -0.3     | 9                    | 0.0      | 426    | -1.6     | 5,892                              | -0.4     |
| 2029   | 1,848             | -0.7     | 1,637            | -0.2     | 1,951            | -0.1     | 9                    | 0.0      | 427    | 0.1      | 5,872                              | -0.3     |
| 2030   | 1,832             | -0.8     | 1,633            | -0.3     | 1,950            | 0.0      | 9                    | 0.0      | 425    | -0.4     | 5,850                              | -0.4     |
| 2031   | 1,821             | -0.6     | 1,629            | -0.2     | 1,950            | 0.0      | 9                    | 0.0      | 423    | -0.5     | 5,832                              | -0.3     |
| 2032   | 1,810             | -0.6     | 1,625            | -0.2     | 1,947            | -0.1     | 9                    | 0.0      | 422    | -0.1     | 5,814                              | -0.3     |
| 2033   | 1,800             | -0.6     | 1,622            | -0.2     | 1,944            | -0.2     | 9                    | 0.0      | 420    | -0.5     | 5,795                              | -0.3     |
| 2034   | 1,791             | -0.5     | 1,619            | -0.2     | 1,942            | -0.1     | 9                    | 0.0      | 419    | -0.3     | 5,780                              | -0.3     |
| 2035   | 1,782             | -0.5     | 1,617            | -0.2     | 1,940            | -0.1     | 9                    | 0.0      | 418    | -0.3     | 5,765                              | -0.3     |
| 2036   | 1,773             | -0.5     | 1,614            | -0.1     | 1,937            | -0.1     | 9                    | 0.0      | 417    | -0.3     | 5,750                              | -0.3     |
| 2037   | 1,765             | -0.5     | 1,612            | -0.1     | 1,933            | -0.2     | 9                    | 0.0      | 415    | -0.3     | 5,734                              | -0.3     |
| <b>Average Annual Growth Rates:</b>                  |                   |          |                  |          |                  |          |                      |          |        |          |                                    |          |
| 2017-2021  |                   | 0.6      |                  | -2.0     |                  | -5.0     |                      | -0.7     |        | 2.9      |                                    | -1.9     |
| 2022-2037  |                   | -0.7     |                  | 2.0      |                  | -0.2     |                      | -14.7    |        | 0.5      |                                    | 0.1      |

Note: (1) Data for 2022 are six months actual and six months forecast.

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 198 of 1182

Exhibit C-2A

| Kentucky Power Company           |             |             |             |             |             |             |             |             |             |             |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>Annual Internal Load</u>      |             |             |             |             |             |             |             |             |             |             |
| 2023-2032                        |             |             |             |             |             |             |             |             |             |             |
|                                  | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| <b>Internal Energy (GWH)</b>     |             |             |             |             |             |             |             |             |             |             |
| Residential                      | 1,959       | 1,929       | 1,909       | 1,890       | 1,873       | 1,862       | 1,848       | 1,832       | 1,821       | 1,810       |
| Commercial                       | 1,220       | 1,657       | 1,654       | 1,650       | 1,644       | 1,641       | 1,637       | 1,633       | 1,629       | 1,625       |
| Industrial                       | 1,992       | 1,988       | 1,978       | 1,968       | 1,958       | 1,953       | 1,951       | 1,950       | 1,950       | 1,947       |
| Total Other Ultimate             | 9           | 9           | 9           | 9           | 9           | 9           | 9           | 9           | 9           | 9           |
| Total Ultimate Sales             | 5,180       | 5,584       | 5,551       | 5,518       | 5,485       | 5,466       | 5,446       | 5,425       | 5,409       | 5,392       |
| Municipals                       | 78          | 77          | 33          | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| Total Sales-for-Resale           | 78          | 77          | 33          | 0           | 0           | 0           | 0           | 0           | 0           | 0           |
| Total Internal Sales             | 5,257       | 5,661       | 5,583       | 5,518       | 5,485       | 5,466       | 5,446       | 5,425       | 5,409       | 5,392       |
| Total Losses                     | 386         | 437         | 476         | 431         | 433         | 426         | 427         | 425         | 423         | 422         |
| Total Internal Energy            | 5,643       | 6,098       | 6,060       | 5,948       | 5,918       | 5,892       | 5,872       | 5,850       | 5,832       | 5,814       |
| <b>Internal Peak Demand (MW)</b> |             |             |             |             |             |             |             |             |             |             |
| Summer                           | 952         | 1,033       | 1,030       | 1,010       | 1,006       | 1,000       | 997         | 994         | 992         | 987         |
| Preceding Winter                 | 1,289       | 1,283       | 1,256       | 1,247       | 1,235       | 1,231       | 1,223       | 1,217       | 1,206       | 1,205       |

Exhibit C-2B

| <b>Kentucky Power Company</b>           |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>Annual Internal Load</b>             |             |             |             |             |             |
| <b>2033-2037</b>                        |             |             |             |             |             |
|   | <b>2033</b> | <b>2034</b> | <b>2035</b> | <b>2036</b> | <b>2037</b> |
| <b><u>Internal Energy (GWH)</u></b>     |             |             |             |             |             |
| <b>Residential</b>                      | 1,800       | 1,791       | 1,782       | 1,773       | 1,765       |
| <b>Commercial</b>                       | 1,622       | 1,619       | 1,617       | 1,614       | 1,612       |
| <b>Industrial</b>                       | 1,944       | 1,942       | 1,940       | 1,937       | 1,933       |
| <b>Total Other Ultimate</b>             | 9           | 9           | 9           | 9           | 9           |
| <b>Total Ultimate Sales</b>             | 5,375       | 5,361       | 5,347       | 5,333       | 5,319       |
| <b>Municipals</b>                       | 0           | 0           | 0           | 0           | 0           |
| <b>Total Sales-for-Resale</b>           | 0           | 0           | 0           | 0           | 0           |
| <b>Total Internal Sales</b>             | 5,375       | 5,361       | 5,347       | 5,333       | 5,319       |
| <b>Total Losses</b>                     | 420         | 419         | 418         | 417         | 415         |
| <b>Total Internal Energy</b>            | 5,795       | 5,780       | 5,765       | 5,750       | 5,734       |
|   |             |             |             |             |             |
| <b><u>Internal Peak Demand (MW)</u></b> |             |             |             |             |             |
| <b>Summer</b>                           | 988         | 983         | 982         | 978         | 979         |
| <b>Preceding Winter</b>                 | 1,198       | 1,193       | 1,185       | 1,183       | 1,178       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 200 of 1182

Exhibit C-3

| Kentucky Power Company       |       |       |       |       |       |       |       |       |       |       |       |       |        |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Monthly Internal Load        |       |       |       |       |       |       |       |       |       |       |       |       |        |
| 2023                         |       |       |       |       |       |       |       |       |       |       |       |       |        |
|                              | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   | Annual |
| <b>Internal Energy (GWH)</b> |       |       |       |       |       |       |       |       |       |       |       |       |        |
| Residential                  | 260.3 | 205.0 | 173.4 | 122.3 | 115.1 | 132.8 | 173.7 | 161.7 | 125.1 | 107.9 | 157.1 | 224.1 | 1,959  |
| Commercial                   | 117.9 | 98.5  | 97.9  | 84.7  | 97.3  | 104.0 | 114.8 | 108.9 | 99.8  | 96.5  | 102.6 | 97.2  | 1,220  |
| Industrial                   | 168.6 | 150.6 | 168.4 | 162.6 | 173.0 | 165.9 | 168.6 | 167.6 | 157.4 | 167.2 | 176.6 | 165.3 | 1,992  |
| Total Other Ultimate         | 1.0   | 0.8   | 0.8   | 0.7   | 0.6   | 0.6   | 0.6   | 0.7   | 0.7   | 0.9   | 1.0   | 1.0   | 9      |
| Total Ultimate Sales         | 547.8 | 454.9 | 440.6 | 370.3 | 386.0 | 403.2 | 457.6 | 438.9 | 383.0 | 372.6 | 437.3 | 487.6 | 5,180  |
| Municipals                   | 8.5   | 7.4   | 6.6   | 5.3   | 5.3   | 6.0   | 6.9   | 6.9   | 5.5   | 5.3   | 6.2   | 7.7   | 78     |
| Total Sales-for-Resale       | 8.5   | 7.4   | 6.6   | 5.3   | 5.3   | 6.0   | 6.9   | 6.9   | 5.5   | 5.3   | 6.2   | 7.7   | 78     |
| Total Internal Sales         | 556.3 | 462.2 | 447.3 | 375.6 | 391.3 | 409.2 | 464.5 | 445.9 | 388.5 | 377.9 | 443.5 | 495.3 | 5,257  |
| Total Losses                 | 46.5  | 38.6  | 37.2  | 31.3  | 22.3  | 34.1  | 18.2  | 37.1  | 32.4  | 31.5  | 7.3   | 49.6  | 386    |
| Total Internal Energy        | 602.9 | 500.8 | 484.5 | 406.9 | 413.5 | 443.3 | 482.7 | 483.0 | 420.9 | 409.4 | 450.7 | 544.9 | 5,643  |
| Internal Peak Demand (MW)    | 1,230 | 1,159 | 887   | 759   | 768   | 860   | 817   | 952   | 846   | 719   | 874   | 1,063 | 1,230  |

Exhibit C-4

| Kentucky Power Company       |       |       |       |       |       |       |       |       |       |       |       |       |        |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Monthly Internal Load        |       |       |       |       |       |       |       |       |       |       |       |       |        |
| 2024                         |       |       |       |       |       |       |       |       |       |       |       |       |        |
|                              | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   | Annual |
| <b>Internal Energy (GWH)</b> |       |       |       |       |       |       |       |       |       |       |       |       |        |
| Residential                  | 259.9 | 211.1 | 162.8 | 118.2 | 110.3 | 131.6 | 169.9 | 160.5 | 122.3 | 105.9 | 166.3 | 209.9 | 1,929  |
| Commercial                   | 155.3 | 139.0 | 131.5 | 120.8 | 132.5 | 140.9 | 150.0 | 146.1 | 136.0 | 132.9 | 146.6 | 125.6 | 1,657  |
| Industrial                   | 169.1 | 152.6 | 167.4 | 162.6 | 172.0 | 165.7 | 167.5 | 167.6 | 156.9 | 166.7 | 180.9 | 159.3 | 1,988  |
| Total Other Ultimate         | 1.0   | 0.8   | 0.8   | 0.7   | 0.6   | 0.5   | 0.6   | 0.7   | 0.7   | 0.9   | 1.0   | 1.0   | 9      |
| Total Ultimate Sales         | 585.4 | 503.5 | 462.6 | 402.3 | 415.4 | 438.9 | 488.0 | 474.9 | 415.9 | 406.4 | 494.8 | 495.7 | 5,584  |
| Municipals                   | 8.5   | 7.3   | 6.6   | 5.3   | 5.3   | 6.0   | 6.8   | 6.9   | 5.4   | 5.2   | 6.1   | 7.6   | 77     |
| Total Sales-for-Resale       | 8.5   | 7.3   | 6.6   | 5.3   | 5.3   | 6.0   | 6.8   | 6.9   | 5.4   | 5.2   | 6.1   | 7.6   | 77     |
| Total Internal Sales         | 593.9 | 510.8 | 469.2 | 407.6 | 420.6 | 444.8 | 494.8 | 481.8 | 421.3 | 411.7 | 500.9 | 503.3 | 5,661  |
| Total Losses                 | 49.5  | 42.6  | 47.3  | 34.0  | 29.3  | 33.8  | 28.7  | 40.2  | 35.1  | 34.3  | -16.6 | 78.9  | 437    |
| Total Internal Energy        | 643.4 | 553.4 | 516.5 | 441.6 | 449.9 | 478.6 | 523.5 | 521.9 | 456.5 | 446.0 | 484.3 | 582.2 | 6,098  |
| Internal Peak Demand (MW)    | 1,289 | 1,214 | 918   | 801   | 839   | 935   | 1,029 | 1,033 | 919   | 772   | 919   | 1,096 | 1,289  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 201 of 1182

Exhibit C-5

| Kentucky Power Company  |             |       |          |                 |       |          |                                     |          |       |          |               |
|---|-------------|-------|----------|-----------------|-------|----------|-------------------------------------|----------|-------|----------|---------------|
| Seasonal and Annual Peak Demands, Energy Requirements and Load Factor |             |       |          |                 |       |          |                                     |          |       |          |               |
| 2017-2037   |             |       |          |                 |       |          |                                     |          |       |          |               |
|   | Summer Peak |       |          | Winter Peak (1) |       |          | Annual Peak, Energy and Load Factor |          |       |          |               |
|   | Date        | MW    | % Growth | Date            | MW    | % Growth | MW                                  | % Growth | GWH   | % Growth | Load Factor % |
| <b>Actual</b>   |             |       |          |                 |       |          |                                     |          |       |          |               |
| 2017  | 07/19/17    | 1,006 | --       | 01/02/18        | 1,446 | --       | 1,217                               | --       | 6,060 | --       | 56.8          |
| 2018  | 06/19/18    | 999   | -0.7     | 01/31/19        | 1,297 | -10.3    | 1,446                               | 18.8     | 6,346 | 4.7      | 50.1          |
| 2019  | 08/19/19    | 993   | -0.6     | 01/22/20        | 1,166 | -10.0    | 1,297                               | -10.3    | 6,091 | -4.0     | 53.5          |
| 2020  | 07/21/20    | 961   | -3.2     | 02/08/21        | 1,065 | -8.7     | 1,166                               | -10.0    | 5,571 | -8.5     | 54.5          |
| 2021  | 08/24/21    | 958   | -0.3     | 01/27/22        | 1,187 | 11.4     | 1,065                               | -8.7     | 5,609 | 0.7      | 60.1          |
| <b>Forecast</b>   |             |       |          |                 |       |          |                                     |          |       |          |               |
| 2022 (2)  |             | 996   | 4.0      |                 | 1,230 | 3.6      | 1,187                               | 11.4     | 5,740 | 2.3      | 55.2          |
| 2023  |             | 952   | -4.4     |                 | 1,289 | 4.8      | 1,230                               | 3.6      | 5,643 | -1.7     | 52.4          |
| 2024  |             | 1,033 | 8.5      |                 | 1,283 | -0.5     | 1,289                               | 4.8      | 6,098 | 8.1      | 54.0          |
| 2025  |             | 1,030 | -0.3     |                 | 1,256 | -2.2     | 1,283                               | -0.5     | 6,060 | -0.6     | 53.9          |
| 2026  |             | 1,010 | -1.9     |                 | 1,247 | -0.7     | 1,256                               | -2.2     | 5,948 | -1.8     | 54.1          |
| 2027  |             | 1,006 | -0.4     |                 | 1,235 | -1.0     | 1,247                               | -0.7     | 5,918 | -0.5     | 54.2          |
| 2028  |             | 1,000 | -0.6     |                 | 1,231 | -0.3     | 1,235                               | -1.0     | 5,892 | -0.4     | 54.5          |
| 2029  |             | 997   | -0.3     |                 | 1,223 | -0.7     | 1,231                               | -0.3     | 5,872 | -0.3     | 54.4          |
| 2030  |             | 994   | -0.3     |                 | 1,217 | -0.5     | 1,223                               | -0.7     | 5,850 | -0.4     | 54.6          |
| 2031  |             | 992   | -0.2     |                 | 1,206 | -0.9     | 1,217                               | -0.5     | 5,832 | -0.3     | 54.7          |
| 2032  |             | 987   | -0.5     |                 | 1,205 | -0.1     | 1,206                               | -0.9     | 5,814 | -0.3     | 55.0          |
| 2033  |             | 988   | 0.0      |                 | 1,198 | -0.5     | 1,205                               | -0.1     | 5,795 | -0.3     | 54.9          |
| 2034  |             | 983   | -0.4     |                 | 1,193 | -0.4     | 1,198                               | -0.5     | 5,780 | -0.3     | 55.1          |
| 2035  |             | 982   | -0.1     |                 | 1,185 | -0.7     | 1,193                               | -0.4     | 5,765 | -0.3     | 55.1          |
| 2036  |             | 978   | -0.3     |                 | 1,183 | -0.2     | 1,185                               | -0.7     | 5,750 | -0.3     | 55.4          |
| 2037  |             | 979   | 0.1      |                 | 1,178 | -0.4     | 1,183                               | -0.2     | 5,734 | -0.3     | 55.3          |
| <b>Average Annual Growth Rates:</b>                                   |             |       |          |                 |       |          |                                     |          |       |          |               |
| 2017-2021   |             |       | -1.2     |                 |       | -4.8     |                                     | -3.3     |       | -1.9     |               |
| 2023-2037   |             |       | 0.2      |                 |       | -0.6     |                                     | -0.3     |       | 0.1      |               |

Notes: (1) Actual winter peak for year may occur in the 4th quarter of that year or in the 1st quarter of the following year.  
(2) Data for 2022 are six months actual and six months forecast.

Exhibit C-6

| Kentucky Power Jurisdiction                     |        |                   |                   |
|---|--------|-------------------|-------------------|
| DSM/Energy Efficiency Included in Load Forecast |        |                   |                   |
| Energy (GWh) and Coincident Peak Demand (MW)    |        |                   |                   |
|   |        |                   |                   |
|   |        |                   |                   |
| Kentucky Power DSM/EE                           |        |                   |                   |
| Year  | Energy | Summer*<br>Demand | Winter*<br>Demand |
| 2023  | 0.0    | 0.0               | 0.0               |
| 2024  | 0.0    | 0.0               | 0.0               |
| 2025  | 0.0    | 0.0               | 0.0               |
| 2026  | 0.0    | 0.0               | 0.0               |
| 2027  | 0.0    | 0.0               | 0.0               |
| 2028  | 0.0    | 0.0               | 0.0               |
| 2029  | 0.0    | 0.0               | 0.0               |
| 2030  | 0.0    | 0.0               | 0.0               |
| 2031  | 0.0    | 0.0               | 0.0               |
| 2032  | 0.0    | 0.0               | 0.0               |
| 2033  | 0.0    | 0.0               | 0.0               |
| 2034  | 0.0    | 0.0               | 0.0               |
| 2035  | 0.0    | 0.0               | 0.0               |
| 2036  | 0.0    | 0.0               | 0.0               |
| 2037  | 0.0    | 0.0               | 0.0               |

\*Demand coincident with Company's seasonal peak demand.  
 Note: Winter demand may occur in the fourth quarter of the year or the first quarter of the following year.

Exhibit C-7

| Kentucky Power Company                       |           |           |
|--|-----------|-----------|
| Short-Term Load Forecast                     |           |           |
| Blended Forecast vs. Long-Term Model Results |           |           |
| Class  | Sales     | Customers |
| Residential                                  | Long-Term | Long-Term |
| Commercial                                   | Long-Term | Long-Term |
| Industrial                                   | Long-Term | Long-Term |
| Other Retail                                 | Long-Term | Long-Term |

Exhibit C-8

| Blending Illustration |            |        |           |        |          |
|-----------------------|------------|--------|-----------|--------|----------|
|                       | Short-term |        | Long-term |        | Blended  |
| Month                 | Forecast   | Weight | Forecast  | Weight | Forecast |
| 1                     | 1,000      | 100%   | 1,150     | 0%     | 1,000    |
| 2                     | 1,010      | 100%   | 1,160     | 0%     | 1,010    |
| 3                     | 1,020      | 100%   | 1,170     | 0%     | 1,020    |
| 4                     | 1,030      | 100%   | 1,180     | 0%     | 1,030    |
| 5                     | 1,040      | 83%    | 1,190     | 17%    | 1,065    |
| 6                     | 1,050      | 67%    | 1,200     | 33%    | 1,100    |
| 7                     | 1,060      | 50%    | 1,210     | 50%    | 1,135    |
| 8                     | 1,070      | 33%    | 1,220     | 67%    | 1,170    |
| 9                     | 1,080      | 17%    | 1,230     | 83%    | 1,205    |
| 10                    | 1,090      | 0%     | 1,240     | 100%   | 1,240    |
| 11                    | 1,100      | 0%     | 1,250     | 100%   | 1,250    |
| 12                    | 1,110      | 0%     | 1,260     | 100%   | 1,260    |

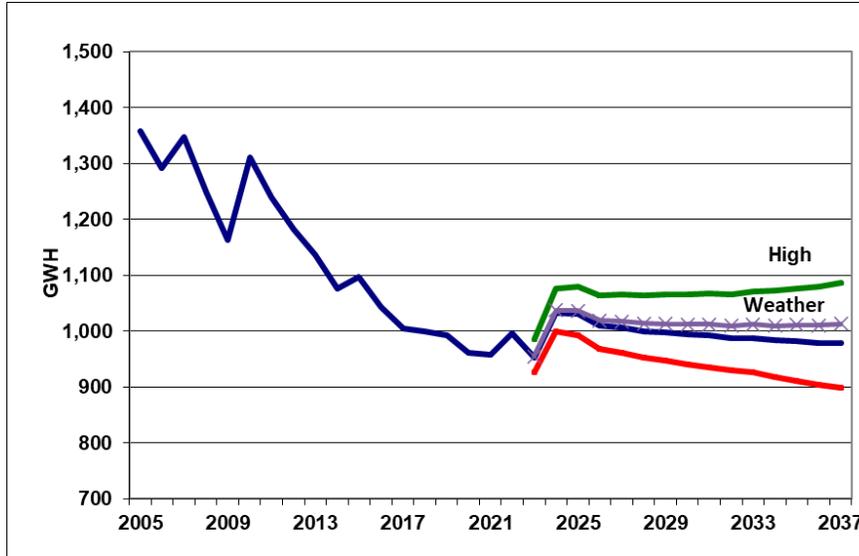
Exhibit C-9

| Kentucky Power Company<br>Low, Base and High Case for<br>Forecasted Seasonal Peak Demands and Internal Energy Requirements<br>2023-2037 |                                      |              |              |  |              |              |                                       |              |              |       |
|---|--------------------------------------|--------------|--------------|--|--------------|--------------|---------------------------------------|--------------|--------------|-------|
| Year  | Summer Peak<br>Internal Demands (MW) |              |              | Winter (Following) Peak<br>Internal Demands (MW) |              |              | Internal Energy<br>Requirements (GWH) |              |              |       |
|   | Low<br>Case                          | Base<br>Case | High<br>Case | Low<br>Case                                      | Base<br>Case | High<br>Case | Low<br>Case                           | Base<br>Case | High<br>Case |       |
|   | 2023                                 | 926          | 952          | 986  | 1,248        | 1,289        | 1,343                                 | 5,488        | 5,643        | 5,841 |
| 2024  | 1,000                                | 1,033        | 1,077        | 1,236  | 1,283        | 1,345        | 5,903                                 | 6,098        | 6,353        |       |
| 2025  | 992                                  | 1,030        | 1,080        | 1,203  | 1,256        | 1,323        | 5,835                                 | 6,060        | 6,351        |       |
| 2026  | 968                                  | 1,010        | 1,064        | 1,190  | 1,247        | 1,320        | 5,698                                 | 5,948        | 6,266        |       |
| 2027  | 961                                  | 1,006        | 1,065        | 1,176  | 1,235        | 1,313        | 5,649                                 | 5,918        | 6,263        |       |
| 2028  | 953                                  | 1,000        | 1,064        | 1,170  | 1,231        | 1,315        | 5,613                                 | 5,892        | 6,265        |       |
| 2029  | 947                                  | 997          | 1,065        | 1,158  | 1,223        | 1,311        | 5,578                                 | 5,872        | 6,271        |       |
| 2030  | 941                                  | 994          | 1,066        | 1,148  | 1,217        | 1,309        | 5,536                                 | 5,850        | 6,270        |       |
| 2031  | 935                                  | 992          | 1,067        | 1,135  | 1,206        | 1,303        | 5,500                                 | 5,832        | 6,275        |       |
| 2032  | 929                                  | 987          | 1,066        | 1,130  | 1,205        | 1,307        | 5,472                                 | 5,814        | 6,277        |       |
| 2033  | 927                                  | 988          | 1,071        | 1,118  | 1,198        | 1,306        | 5,437                                 | 5,795        | 6,286        |       |
| 2034  | 917                                  | 983          | 1,072        | 1,107  | 1,193        | 1,308        | 5,393                                 | 5,780        | 6,300        |       |
| 2035  | 911                                  | 982          | 1,076        | 1,094  | 1,185        | 1,307        | 5,349                                 | 5,765        | 6,319        |       |
| 2036  | 903                                  | 978          | 1,079        | 1,086  | 1,183        | 1,313        | 5,308                                 | 5,750        | 6,340        |       |
| 2037  | 899                                  | 979          | 1,086        | 1,077  | 1,178        | 1,317        | 5,265                                 | 5,734        | 6,363        |       |
| <b>Average Annual<br/>Growth Rate %<br/>2023-2037</b>   | -0.2                                 | 0.2          | 0.7          | -1.0   | -0.6         | -0.1         | -0.3                                  | 0.1          | 0.6          |       |

Exhibit C-10

### Kentucky Power Company Peak Demand and Weather Range of Forecasts

#### Summer Peak Demand



#### Winter Peak Demand

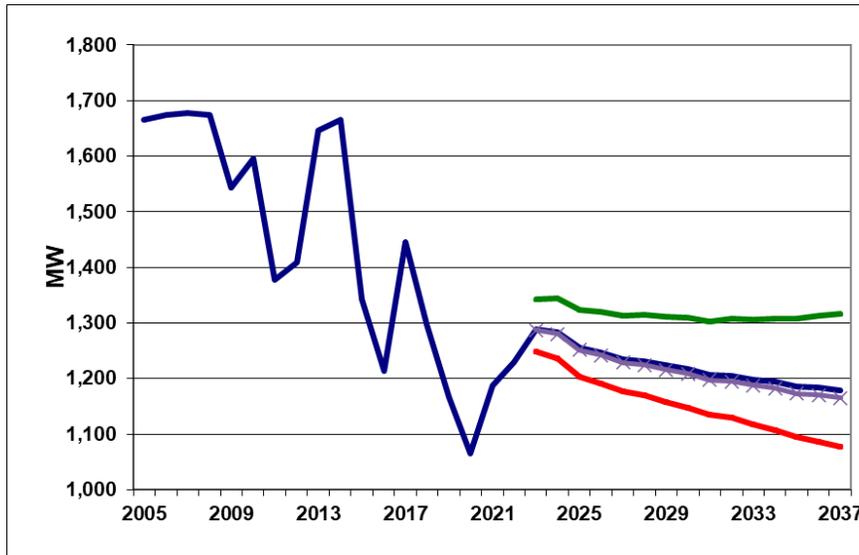


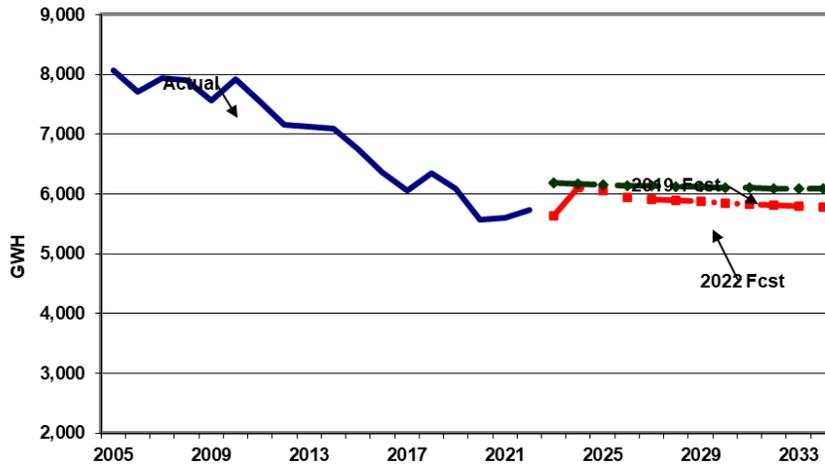
Exhibit C-11

| <b>Kentucky Power Company</b>                |                 |                 |                      |                |  |
|--|-----------------|-----------------|----------------------|----------------|--|
| <b>Total Internal Energy Requirements</b>    |                 |                 |                      |                |  |
| <b>Comparison of 2019 and 2022 Forecasts</b> |                 |                 |                      |                |  |
|  |                 |                 |                      |                |  |
|  | <b>2022</b>     | <b>2019</b>     | <b>Change From</b>   |                |  |
| <b>Forecast</b>                              | <b>Forecast</b> | <b>Forecast</b> | <b>2016 Forecast</b> |                |  |
| <b>Year</b>                                  | <b>GWH</b>      | <b>GWH</b>      | <b>GWH</b>           | <b>Percent</b> |  |
| <b>2020</b>                                  | -               | 6,060           | -                    | -              |  |
| <b>2021</b>                                  | -               | 6,037           | -                    | -              |  |
| <b>2022</b>                                  | -               | 6,155           | -                    | -              |  |
| <b>2023</b>                                  | 5,643           | 6,194           | -550                 | -8.9           |  |
| <b>2024</b>                                  | 6,098           | 6,175           | -77                  | -1.3           |  |
| <b>2025</b>                                  | 6,060           | 6,161           | -102                 | -1.6           |  |
| <b>2026</b>                                  | 5,948           | 6,145           | -197                 | -3.2           |  |
| <b>2027</b>                                  | 5,918           | 6,132           | -214                 | -3.5           |  |
| <b>2028</b>                                  | 5,892           | 6,121           | -229                 | -3.7           |  |
| <b>2029</b>                                  | 5,872           | 6,120           | -247                 | -4.0           |  |
| <b>2030</b>                                  | 5,850           | 6,108           | -259                 | -4.2           |  |
| <b>2031</b>                                  | 5,832           | 6,101           | -269                 | -4.4           |  |
| <b>2032</b>                                  | 5,814           | 6,092           | -279                 | -4.6           |  |
| <b>2033</b>                                  | 5,795           | 6,089           | -294                 | -4.8           |  |
| <b>2034</b>                                  | 5,780           | 6,084           | -304                 | -5.0           |  |
| <b>2023-2034</b>                             |                 |                 |                      |                |  |
| <b>Growth</b>                                |                 |                 |                      |                |  |
| <b>Rate (%)</b>                              | 0.2             | -0.2            |                      |                |  |

Exhibit C-12

**Kentucky Power Company  
 Comparison of Forecasts**

**Internal Energy Requirements**



**Winter Peak Demand**

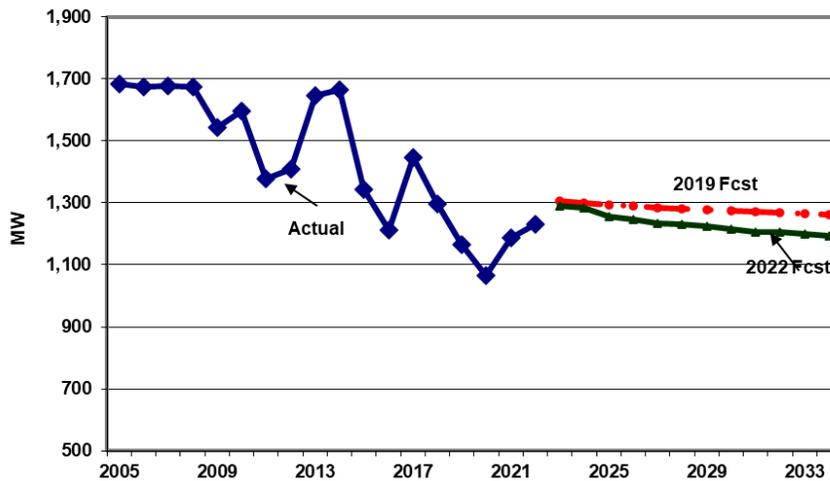


Exhibit C-13

| Kentucky Power Company                            |                       |          |               |         |             |          |               |         |  |
|---|-----------------------|----------|---------------|---------|-------------|----------|---------------|---------|--|
| Summer and Winter Following Peak Internal Demands |                       |          |               |         |             |          |               |         |  |
| Comparison of 2019 and 2022 Forecasts             |                       |          |               |         |             |          |               |         |  |
| Forecast<br>Year                                  | Winter Following Peak |          |               |         | Summer Peak |          |               |         |  |
|   | 2022                  | 2019     | Change From   |         | 2022        | 2019     | Change From   |         |  |
|   | Forecast              | Forecast | 2019 Forecast |         | Forecast    | Forecast | 2019 Forecast |         |  |
|   | MW                    | MW       | MW            | Percent | MW          | MW       | MW            | Percent |  |
| 2020  | -                     | 1,303    | -             | -       | -           | 1,012    | -             | -       |  |
| 2021  | -                     | 1,296    | -             | -       | -           | 1,010    | -             | -       |  |
| 2022  | -                     | 1,311    | -             | -       | -           | 1,031    | -             | -       |  |
| 2023  | 1,289                 | 1,305    | -15           | -1.2    | 952         | 1,027    | -75           | -7.3    |  |
| 2024  | 1,283                 | 1,299    | -16           | -1.2    | 1,033       | 1,025    | 9             | 0.8     |  |
| 2025  | 1,256                 | 1,293    | -38           | -2.9    | 1,030       | 1,022    | 8             | 0.8     |  |
| 2026  | 1,247                 | 1,289    | -42           | -3.3    | 1,010       | 1,020    | -9            | -0.9    |  |
| 2027  | 1,235                 | 1,285    | -50           | -3.9    | 1,006       | 1,018    | -12           | -1.2    |  |
| 2028  | 1,231                 | 1,282    | -50           | -3.9    | 1,000       | 1,017    | -17           | -1.7    |  |
| 2029  | 1,223                 | 1,278    | -54           | -4.3    | 997         | 1,017    | -20           | -2.0    |  |
| 2030  | 1,217                 | 1,274    | -58           | -4.5    | 994         | 1,017    | -22           | -2.2    |  |
| 2031  | 1,206                 | 1,272    | -65           | -5.1    | 992         | 1,017    | -25           | -2.4    |  |
| 2032  | 1,205                 | 1,269    | -64           | -5.0    | 987         | 1,017    | -29           | -2.9    |  |
| 2033  | 1,198                 | 1,265    | -67           | -5.3    | 988         | 1,016    | -29           | -2.8    |  |
| 2034  | 1,193                 | 1,263    | -70           | -5.5    | 983         | 1,017    | -34           | -3.3    |  |
| 2023-2034   |                       |          |               |         |             |          |               |         |  |
| Growth  |                       |          |               |         |             |          |               |         |  |
| Rate (%)  | -0.7                  | -0.3     |               |         | 0.3         | -0.1     |               |         |  |

Exhibit C-14

| <b>Kentucky Power Company</b>                      |             |             |             |             |             |  |
|--|-------------|-------------|-------------|-------------|-------------|--|
| <b>Average Annual Number of Customers by Class</b> |             |             |             |             |             |  |
| <b>2017-2021</b>                                   |             |             |             |             |             |  |
|  | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> |  |
| <b>A. Residential</b>                              |             |             |             |             |             |  |
| <b>1. Heating Customers</b>                        | 84,501      | 84,220      | 83,852      | 84,288      | 84,283      |  |
| <b>2. Nonheating Customers</b>                     | 51,389      | 50,739      | 50,135      | 49,997      | 49,522      |  |
| <b>3. Total</b>                                    | 135,890     | 134,959     | 133,987     | 134,284     | 133,805     |  |
| <b>B. Commercial</b>                               | 30,143      | 30,088      | 29,967      | 30,042      | 30,222      |  |
| <b>C. Industrial</b>                               |             |             |             |             |             |  |
| <b>1. Manufacturing</b>                            | 939         | 943         | 928         | 907         | 889         |  |
| <b>2. Mine Power</b>                               | 274         | 266         | 259         | 213         | 190         |  |
| <b>3. Total</b>                                    | 1,213       | 1,209       | 1,187       | 1,120       | 1,079       |  |
| <b>D. Other Ultimate Customers</b>                 |             |             |             |             |             |  |
| <b>1. Street Lighting</b>                          | 346         | 339         | 329         | 317         | 310         |  |
| <b>2. Other</b>                                    | 0           | 0           | 0           | 0           | 0           |  |
| <b>3. Total</b>                                    | 346         | 339         | 329         | 317         | 310         |  |
| <b>E. Total Ultimate Sales</b>                     | 167,592     | 166,594     | 165,470     | 165,762     | 165,416     |  |
| <b>F. Internal Sales for Resale</b>                |             |             |             |             |             |  |
| <b>1. Municipals</b>                               | 2           | 2           | 2           | 2           | 2           |  |
| <b>2. Other</b>                                    | 0           | 0           | 0           | 0           | 0           |  |
| <b>3. Total</b>                                    | 2           | 2           | 2           | 2           | 2           |  |
| <b>G. Total Internal Sales</b>                     | 167,594     | 166,596     | 165,472     | 165,764     | 165,418     |  |

Exhibit C-15

| <b>Kentucky Power Company</b>              |             |             |             |             |             |  |
|--|-------------|-------------|-------------|-------------|-------------|--|
| <b>Annual Internal Load by Class (GWH)</b> |             |             |             |             |             |  |
| <b>2017-2021</b>                           |             |             |             |             |             |  |
|  | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> |  |
| <b>A. Residential</b>                      |             |             |             |             |             |  |
| <b>1. Heating Customers</b>                | 1,338       | 1,506       | 1,426       | 1,379       | 1,383       |  |
| <b>2. Nonheating Customers</b>             | 595         | 653         | 626         | 611         | 596         |  |
| <b>3. Total</b>                            | 1,933       | 2,159       | 2,051       | 1,990       | 1,979       |  |
| <b>B. Commercial</b>                       | 1,240       | 1,276       | 1,251       | 1,153       | 1,144       |  |
| <b>C. Industrial</b>                       |             |             |             |             |             |  |
| <b>1. Manufacturing</b>                    | 2,036       | 2,052       | 1,994       | 1,755       | 1,752       |  |
| <b>2. Mine Power</b>                       | 371         | 351         | 325         | 209         | 209         |  |
| <b>3. Total</b>                            | 2,407       | 2,402       | 2,319       | 1,964       | 1,960       |  |
| <b>D. Other Ultimate Sales</b>             |             |             |             |             |             |  |
| <b>1. Street Lighting</b>                  | 11          | 11          | 10          | 10          | 9           |  |
| <b>2. Other</b>                            | 0           | 0           | 0           | 0           | 0           |  |
| <b>3. Total</b>                            | 11          | 11          | 10          | 10          | 9           |  |
| <b>E. Total Ultimate Sales</b>             | 5,590       | 5,848       | 5,632       | 5,116       | 5,093       |  |
| <b>F. Internal Sales for Resale</b>        |             |             |             |             |             |  |
| <b>1. Municipals</b>                       | 80          | 85          | 81          | 77          | 79          |  |
| <b>2. Other</b>                            | 0           | 0           | 0           | 0           | 0           |  |
| <b>3. Total</b>                            | 80          | 85          | 81          | 77          | 79          |  |
| <b>G. Total Internal Sales</b>             | 5,670       | 5,933       | 5,712       | 5,193       | 5,172       |  |
| <b>H. Losses</b>                           | 390         | 413         | 379         | 378         | 437         |  |
| <b>I. Total Internal Load</b>              | 6,060       | 6,346       | 6,091       | 5,571       | 5,609       |  |

Exhibit C-16

| Kentucky Power Company                                  |                   |            |                   |            |           |            |        |
|---|-------------------|------------|-------------------|------------|-----------|------------|--------|
| Wholesale Customers                                     |                   |            |                   |            |           |            |        |
| Coincident Seasonal Demand (MW) and Annual Energy (MWh) |                   |            |                   |            |           |            |        |
| 2014-2018   |                   |            |                   |            |           |            |        |
| Year  | Summer            |            | Winter            |            | Following |            | Energy |
|   | Coincident Demand |            | Coincident Demand |            |           |            |        |
|   | Vanceburg         | Olive Hill | Vanceburg         | Olive Hill | Vanceburg | Olive Hill |        |
| 2017  | 10.5              | 4.5        | 13.8              | 6.3        | 57,209.1  | 23,217.2   |        |
| 2018  | 10.2              | 3.9        | 14.0              | 6.2        | 61,131.8  | 24,887.7   |        |
| 2019  | 10.6              | 4.5        | 11.3              | 4.9        | 57,842.9  | 23,393.9   |        |
| 2020  | 10.7              | 4.6        | 10.6              | 4.4        | 55,640.3  | 22,147.1   |        |
| 2021  | 10.8              | 4.5        | 12.0              | 5.3        | 56,022.9  | 22,186.0   |        |

Exhibit C-17

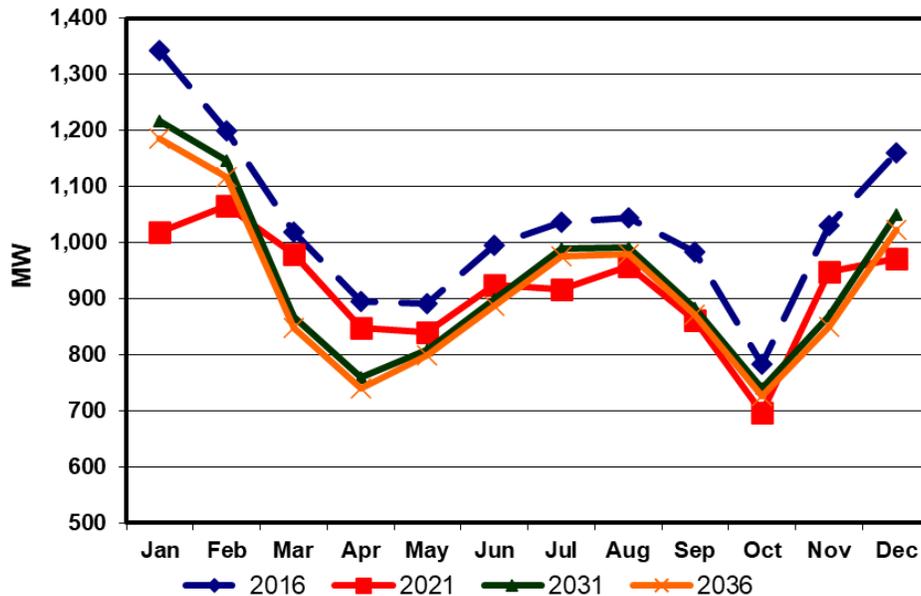
| Kentucky Power Company  |  |             |             |             |             |             |
|---|--|-------------|-------------|-------------|-------------|-------------|
| Recorded and Weather-Normalized Peak Load (MW) and Energy (GWH) |  |             |             |             |             |             |
| 2017-2021   |  |             |             |             |             |             |
|   |  |             |             |             |             |             |
|   |  | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| <b><u>Kentucky Power Company</u></b>                            |  |             |             |             |             |             |
| <b>A. Peak Load - Summer</b>                                    |  |             |             |             |             |             |
| 1. Recorded   |  | 1,006       | 999         | 993         | 961         | 958         |
| 2. Weather-Normalized   |  | 1,035       | 1,027       | 1,021       | 953         | 971         |
| <b>B. Peak Load - Winter</b>                                    |  |             |             |             |             |             |
| 1. Recorded   |  | 1,446       | 1,297       | 1,166       | 1,065       | 1,187       |
| 2. Weather-Normalized   |  | 1,355       | 1,315       | 1,279       | 1,217       | 1,244       |
| <b>C. Energy</b>  |  |             |             |             |             |             |
| 1. Recorded   |  | 6,060       | 6,346       | 6,091       | 5,571       | 5,609       |
| 2. Weather-Normalized   |  | 6,220       | 6,195       | 6,074       | 5,681       | 5,672       |

Exhibit C-18

| Kentucky Power Company                          |       |       |       |       |       |  |
|---|-------|-------|-------|-------|-------|--|
| Normalized Annual Internal Sales by Class (GWH) |       |       |       |       |       |  |
| 2017-2021                                       |       |       |       |       |       |  |
|   | 2017  | 2018  | 2019  | 2020  | 2021  |  |
| A. Residential                                  | 2,042 | 2,056 | 2,042 | 2,069 | 2,026 |  |
| B. Commercial                                   | 1,268 | 1,248 | 1,242 | 1,167 | 1,153 |  |
| C. Industrial                                   | 2,403 | 2,399 | 2,319 | 1,964 | 1,960 |  |
| D. Other Ultimate Sales                         | 10    | 10    | 10    | 10    | 9     |  |
| E. Total Ultimate Sales                         | 5,723 | 5,712 | 5,614 | 5,209 | 5,149 |  |
| F. Internal Sales for Resale                    | 82    | 84    | 80    | 78    | 79    |  |
| G. Total Internal Sales                         | 5,804 | 5,796 | 5,694 | 5,287 | 5,228 |  |

Exhibit C-19

**Kentucky Power Company**  
**Profiles of Monthly Peak Internal Demands**  
**2016 and 2021 (Actual)**  
**2031 and 2036 (Forecast)**



KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 212 of 1182

Exhibit C-20

| KENTUCKY POWER COMPANY LOAD FORECAST<br>DATA SOURCES OUTSIDE THE COMPANY                        |           |   |                |                       |            |
|---|-----------|---|----------------|-----------------------|------------|
| DATA SERIES   | FREQUENCY | GEOGRAPHIC  | INTERVAL       | SOURCE                | ADJUSTMENT |
| Average Daily Temperatures at time of Daily Peak Load   | Daily     | Selected weather stations throughout the AEP System | 1982-2021      | NOAA (1)              | None       |
| Heating and Cooling Degree-Days   | Monthly   | Selected weather stations throughout the AEP System | 1/82-01/22     | NOAA (1)              | None       |
| Implicit GDP Price Deflator   | Monthly   | U. S.   | 1984:1-2057:12 | Moody's Analytics (2) | None       |
| Kentucky Natural Gas Prices by Sector   | Monthly   | U. S., Kentucky                                     | 1973-2021      | DOE/EIA (3)           | None       |
| U.S. Natural Gas Prices Forecast by Sector  | Annually  | U. S., East North Central Region                    | 2017-2050      | DOE/EIA (4)           | None       |
| U.S. Electric Prices Forecast by Sector   | Annually  | U. S., East North Central Region                    | 2017-2050      | DOE/EIA (4)           | None       |
| U. S. Coal Production and Consumption   | Annually  | U. S., Central Appalachia                           | 1975-2050      | DOE/EIA (4)           | None       |
| Eastern Kentucky Coal Production  | Monthly   | Eastern Kentucky DOE Region                         | 1991-2021      | DOE/EIA               | None       |
| Employment (Total and Selected Sectors), Gross Regional Product, Personal Income and Population | Monthly   | Selected Kentucky Counties                          | 1980-2057      | Moody's Analytics (2) | None       |

Source Citations:

- (1) "Local Climatological Data," National Oceanographic and Atmospheric Administration.
- (2) December 2021 Forecast, Moody's Analytics.
- (3) U. S. Department of Energy/Energy Information Administration "Natural Gas Monthly", Selected Issues.
- (4) U. S. Department of Energy/Energy Information Administration "2022 Annual Energy Outlook" and "Weekly and Monthly Coal Production," Selected Issues.

Exhibit C-21

| Kentucky Power Company<br>Residential Energy Sales<br>2019-2021<br>Actual vs. 2019 IRP |                    |               |                |              |
|--|--------------------|---------------|----------------|--------------|
| Residential Energy Sales -GWH  |                    |               |                |              |
| Year   | Actual             | 2019 Forecast | GWH Difference | % Difference |
| 2019   | 2,051              | 2,034         | 17             | 0.9          |
| 2020   | 1,990              | 1,951         | 39             | 2.0          |
| 2021   | 1,979              | 1,928         | 51             | 2.7          |
| Year   | Weather Normalized | 2019 Forecast | GWH Difference | % Difference |
| 2019   | 2,042              | 2,034         | 8              | 0.4          |
| 2020   | 2,069              | 1,951         | 118            | 6.0          |
| 2021   | 2,026              | 1,928         | 99             | 5.1          |

Exhibit C-22

| <b>Kentucky Power Company</b>       |                           |                      |                       |                     |
|-------------------------------------|---------------------------|----------------------|-----------------------|---------------------|
| <b>Commercial Energy Sales</b>      |                           |                      |                       |                     |
| <b>2019-2021</b>                    |                           |                      |                       |                     |
| <b>Actual vs. 2019 IRP</b>          |                           |                      |                       |                     |
| <b>Commercial Energy Sales -GWH</b> |                           |                      |                       |                     |
| <b>Year</b>                         | <b>Actual</b>             | <b>2019 Forecast</b> | <b>GWH Difference</b> | <b>% Difference</b> |
| 2019                                | 1,251                     | 1,256                | -5                    | -0.4                |
| 2020                                | 1,153                     | 1,231                | -78                   | -6.3                |
| 2021                                | 1,144                     | 1,228                | -84                   | -6.8                |
| <b>Weather Normalized</b>           |                           |                      |                       |                     |
| <b>Year</b>                         | <b>Weather Normalized</b> | <b>2019 Forecast</b> | <b>GWH Difference</b> | <b>% Difference</b> |
| 2019                                | 1,242                     | 1,256                | -14                   | -1.1                |
| 2020                                | 1,167                     | 1,231                | -64                   | -5.2                |
| 2021                                | 1,153                     | 1,228                | -76                   | -6.2                |

Exhibit C-23

| <b>Kentucky Power Company</b>       |                           |                      |                       |                     |
|-------------------------------------|---------------------------|----------------------|-----------------------|---------------------|
| <b>Industrial Energy Sales</b>      |                           |                      |                       |                     |
| <b>2019-2021</b>                    |                           |                      |                       |                     |
| <b>Actual vs. 2019 IRP</b>          |                           |                      |                       |                     |
| <b>Industrial Energy Sales -GWH</b> |                           |                      |                       |                     |
| <b>Year</b>                         | <b>Actual</b>             | <b>2019 Forecast</b> | <b>GWH Difference</b> | <b>% Difference</b> |
| 2019                                | 2,319                     | 2,384                | -65                   | -2.7                |
| 2020                                | 1,964                     | 2,391                | -427                  | -17.9               |
| 2021                                | 1,960                     | 2,393                | -432                  | -18.1               |
| <b>Weather Normalized</b>           |                           |                      |                       |                     |
| <b>Year</b>                         | <b>Weather Normalized</b> | <b>2019 Forecast</b> | <b>GWH Difference</b> | <b>% Difference</b> |
| 2019                                | 2,319                     | 2,384                | -65                   | -2.7                |
| 2020                                | 1,964                     | 2,391                | -427                  | -17.9               |
| 2021                                | 1,960                     | 2,393                | -432                  | -18.1               |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 214 of 1182

Exhibit C-24

| Kentucky Power Company   |                    |               |               |              |                         |                    |               |               |              |
|--------------------------|--------------------|---------------|---------------|--------------|-------------------------|--------------------|---------------|---------------|--------------|
| Seasonal Peak Demands    |                    |               |               |              |                         |                    |               |               |              |
| 2019-2021                |                    |               |               |              |                         |                    |               |               |              |
| Actual vs. 2019 Forecast |                    |               |               |              |                         |                    |               |               |              |
| Summer Peak Demand - MW  |                    |               |               |              | Winter Peak Demand - MW |                    |               |               |              |
| Summer                   | Actual             | 2019 Forecast | MW Difference | % Difference | Winter                  | Actual             | 2019 Forecast | MW Difference | % Difference |
| 2019                     | 993                | 993           | 0             | 0.0          | 2019/20                 | 1,166              | 1,304         | -138          | -10.6        |
| 2020                     | 961                | 1,012         | -51           | -5.0         | 2020/21                 | 1,065              | 1,303         | -238          | -18.2        |
| 2021                     | 958                | 1,010         | -52           | -5.1         | 2021/22                 | 1,187              | 1,296         | -109          | -8.4         |
| Summer                   | Weather Normalized | 2019 Forecast | MW Difference | % Difference | Winter                  | Weather Normalized | 2019 Forecast | MW Difference | % Difference |
| 2019                     | 1,021              | 993           | 28            | 2.8          | 2019/20                 | 1,279              | 1,304         | -25           | -1.9         |
| 2020                     | 953                | 1,012         | -58           | -5.8         | 2020/21                 | 1,217              | 1,303         | -86           | -6.6         |
| 2021                     | 971                | 1,010         | -39           | -3.8         | 2021/22                 | 1,244              | 1,296         | -52           | -4.0         |

Exhibit C-25

| Kentucky Power Company            |                  |
|-----------------------------------|------------------|
| Counties Included in Service Area |                  |
| Economic and Demographic Data     |                  |
| 1                                 | Boyd County      |
| 2                                 | Breathitt County |
| 3                                 | Carter County    |
| 4                                 | Floyd County     |
| 5                                 | Greenup County   |
| 6                                 | Johnson County   |
| 7                                 | Knott County     |
| 8                                 | Lawrence County  |
| 9                                 | Leslie County    |
| 10                                | Letcher County   |
| 11                                | Lewis County     |
| 12                                | Magoffin County  |
| 13                                | Martin County    |
| 14                                | Morgan County    |
| 15                                | Perry County     |
| 16                                | Pike County      |
| 17                                | Rowan County     |

Exhibit C-26

| Kenrucky Power Company                 |       |                      |                          |           |                  |                 |         |
|--|-------|----------------------|--------------------------|-----------|------------------|-----------------|---------|
| Internal Energy Requirements (GWh)     |       |                      |                          |           |                  |                 |         |
| Base Forecast and Scenarios Considered |       |                      |                          |           |                  |                 |         |
| Scenarios                              |       |                      |                          |           |                  |                 |         |
| Year                                   | Base  | Efficiencies<br>2022 | Efficiencies<br>Extended | No<br>DSM | Economic<br>High | Economic<br>Low | Weather |
| 2008                                   | 7,910 |                      |                          |           |                  |                 |         |
| 2009                                   | 7,557 |                      |                          |           |                  |                 |         |
| 2010                                   | 7,924 |                      |                          |           |                  |                 |         |
| 2011                                   | 7,548 |                      |                          |           |                  |                 |         |
| 2012                                   | 7,155 |                      |                          |           |                  |                 |         |
| 2013                                   | 7,129 |                      |                          |           |                  |                 |         |
| 2014                                   | 7,091 |                      |                          |           |                  |                 |         |
| 2015                                   | 6,754 |                      |                          |           |                  |                 |         |
| 2016                                   | 6,367 |                      |                          |           |                  |                 |         |
| 2017                                   | 6,060 |                      |                          |           |                  |                 |         |
| 2018                                   | 6,346 |                      |                          |           |                  |                 |         |
| 2019                                   | 6,091 |                      |                          |           |                  |                 |         |
| 2020                                   | 5,571 |                      |                          |           |                  |                 |         |
| 2021                                   | 5,609 |                      |                          |           |                  |                 |         |
| 2022                                   | 5,740 |                      |                          |           |                  |                 |         |
| 2023                                   | 5,643 | 5,655                | 5,639                    | 5,643     | 5,841            | 5,488           | 5,645   |
| 2024                                   | 6,098 | 6,118                | 6,090                    | 6,098     | 6,353            | 5,903           | 6,101   |
| 2025                                   | 6,060 | 6,089                | 6,049                    | 6,060     | 6,351            | 5,835           | 6,065   |
| 2026                                   | 5,948 | 5,985                | 5,930                    | 5,948     | 6,266            | 5,698           | 5,956   |
| 2027                                   | 5,918 | 5,963                | 5,893                    | 5,918     | 6,263            | 5,649           | 5,927   |
| 2028                                   | 5,892 | 5,944                | 5,862                    | 5,892     | 6,265            | 5,613           | 5,903   |
| 2029                                   | 5,872 | 5,930                | 5,838                    | 5,872     | 6,271            | 5,578           | 5,886   |
| 2030                                   | 5,850 | 5,914                | 5,813                    | 5,850     | 6,270            | 5,536           | 5,865   |
| 2031                                   | 5,832 | 5,902                | 5,793                    | 5,832     | 6,275            | 5,500           | 5,850   |
| 2032                                   | 5,814 | 5,889                | 5,772                    | 5,814     | 6,277            | 5,472           | 5,834   |
| 2033                                   | 5,795 | 5,874                | 5,751                    | 5,795     | 6,286            | 5,437           | 5,818   |
| 2034                                   | 5,780 | 5,863                | 5,734                    | 5,780     | 6,300            | 5,393           | 5,806   |
| 2035                                   | 5,765 | 5,850                | 5,717                    | 5,765     | 6,319            | 5,349           | 5,793   |
| 2036                                   | 5,750 | 5,838                | 5,701                    | 5,750     | 6,340            | 5,308           | 5,781   |
| 2037                                   | 5,734 | 5,824                | 5,684                    | 5,734     | 6,363            | 5,265           | 5,769   |

Exhibit C-27

**Kentucky Power Company Service Area  
 Electric Vehicles**

|        | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027  | 2028  | 2029  | 2030  | CAGR<br>2017-30 |
|--------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-----------------|
| Actual | 132  | 144  | 86   | 117  | 197  |      |      |      |      |      |       |       |       |       |                 |
| High   | 132  | 144  | 86   | 113  | 156  | 279  | 379  | 511  | 685  | 903  | 1,167 | 1,470 | 1,852 | 2,312 | 26.9%           |
| Base   | 132  | 144  | 86   | 105  | 134  | 235  | 295  | 369  | 458  | 559  | 668   | 776   | 901   | 1,037 | 18.7%           |
| Low    | 132  | 144  | 86   | 99   | 119  | 207  | 245  | 290  | 341  | 397  | 455   | 513   | 582   | 660   | 14.4%           |

Exhibit C-28

| <b>Kentucky Power Company<br/>   Distributed Energy Resources (Solar DG) and<br/>   Capacity (kW)</b> |  |  |                 |
|---|--|--|-----------------|
|   |  |  |                 |
|   | <b>Distributed<br/>   Energy<br/>   Resource</b> |  | <b>Capacity</b> |
| <b>Year</b>   |  |  |                 |
| 2010  | 2  |  | 25              |
| 2011  | 3  |  | 30              |
| 2012  | 4  |  | 60              |
| 2013  | 5  |  | 66              |
| 2014  | 10   |  | 121             |
| 2015  | 11   |  | 141             |
| 2016  | 15   |  | 163             |
| 2017  | 20   |  | 209             |
| 2018  | 25   |  | 431             |
| 2019  | 46   |  | 710             |
| 2020  | 62   |  | 968             |
| 2021  | 153  |  | 1,751           |
| 2022  | 172  |  | 1,960           |
| 2023  | 190  |  | 2,174           |
| 2024  | 207  |  | 2,360           |
| 2025  | 220  |  | 2,510           |
| 2026  | 234  |  | 2,673           |
| 2027  | 248  |  | 2,826           |
| 2028  | 259  |  | 2,961           |
| 2029  | 273  |  | 3,116           |
| 2030  | 284  |  | 3,244           |
| 2031  | 298  |  | 3,403           |
| 2032  | 310  |  | 3,542           |
| 2033  | 326  |  | 3,716           |
| 2034  | 341  |  | 3,889           |
| 2035  | 353  |  | 4,028           |
| 2036  | 370  |  | 4,217           |
| 2037  | 387  |  | 4,413           |

**Exhibit D – New Generation Technologies**

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 218 of 1182

New Generation Technologies  
Key Supply-Side Resource Option Assumption (a)(b)

| Type  | Capacity (MW) | Installed Cost (c) | Full Load Heat Rate | Fuel Cost (d) | Variable O&M | Fixed O&M  | SO2        | Emission Rates NOx | CO2        | Levelized Capacity Factor | LCOE (e) |
|---|---------------|--------------------|---------------------|---------------|--------------|------------|------------|--------------------|------------|---------------------------|----------|
|   | Summer        | (\$/kW)            | (HHV,Btu/kWh)       | (\$/MBtu)     | (\$/MWh)     | (\$/kW-yr) | (Lb/mmBtu) | (Lb/mmBtu)         | (Lb/mmBtu) | (%)                       | (\$/MWh) |
| <b>Base Load</b>                                  |               |                    |                     |               |              |            |            |                    |            |                           |          |
| Small Modular Reactor                             | 600           | 6,875              | 10,443              | 0.69          | 3.14         | 99.46      | 0.00       | 0.00               | 0.00       | 87%                       | 159      |
| Coal USC with 90% Carbon Capture                  | 650           | 6,601              | 12,507              | 2.47          | 11.49        | 62.34      | 0.42700    | 0.00730            | 20.57      | 52%                       | 265      |
| NGCC H-Class Single Shaft with 90% Carbon Capture | 377           | 3,000              | 7,124               | 2.88          | 6.11         | 28.89      | 0.00515    | 0.01400            | 11.70      | 34%                       | 193      |
| NGCC H-Class Single-Shaft                         | 418           | 1,194              | 6,431               | 2.88          | 2.67         | 14.76      | 0.00752    | 0.00056            | 122.00     | 72%                       | 70       |
| NGCC H-Class Multi-Shaft                          | 1083          | 1,037              | 6,370               | 2.88          | 1.96         | 12.77      | 0.00752    | 0.00056            | 122.00     | 75%                       | 64       |
| <b>Peaking</b>                                    |               |                    |                     |               |              |            |            |                    |            |                           |          |
| NGCT F-Class 240 MW (f)                           | 240           | 753                | 9,905               | 2.88          | 0.62         | 7.33       | 0.00752    | 0.00056            | 122.00     | 31%                       | 100      |
| Aero-Derivative                                   | 105           | 1,242              | 9,124               | 2.88          | 4.92         | 17.06      | 0.00752    | 0.00056            | 122.00     | 27%                       | 141      |
| Recip Engine Farm                                 | 21            | 1,980              | 8,295               | 2.88          | 5.96         | 36.81      | 0.00752    | 0.00056            | 122.00     | 43%                       | 154      |
| Hydrogen Electrolyzer + Hydrogen Gas CT (f)       | 240           | 3,295              | 30% (g)             | n/a (h)       | 1.12         | 54.16      | 0.00       | 0.00               | 0.00       | n/a (i)                   | n/a      |
| Hydrogen Gas Combustion Turbine (f)               | 240           | 1,576              | 9,655               | 10.77         | 0.62         | 7.33       | 0.00       | 0.00               | 0.00       | n/a (i)                   | n/a      |
| 4-Hour Duration Lithium-Ion Battery               | 50            | 1,432              | 85% (g)             | n/a           | n/a          | 25.57      | 0.00       | 0.00               | 0.00       | n/a                       | n/a      |
| 20-Hour Duration Pumped Thermal Energy Storage    | 50            | 3,336              | 65% (g)             | n/a           | n/a          | 51.72      | 0.00       | 0.00               | 0.00       | n/a                       | n/a      |
| 20-Hour Duration Vanadium Flow Battery Storage    | 50            | 3,844              | 70% (g)             | n/a           | n/a          | 11.45      | 0.00       | 0.00               | 0.00       | n/a                       | n/a      |
| 20-Hour Duration Compressed Air Energy Storage    | 50            | 1,788              | 52% (g)             | n/a           | n/a          | 17.37      | 0.00       | 0.00               | 0.00       | n/a                       | n/a      |
| <b>Renewable</b>                                  |               |                    |                     |               |              |            |            |                    |            |                           |          |
| Utility-scale Onshore Wind Tier 1                 | 100           | 1,411              | n/a                 | n/a           | n/a          | 27.57      | 0.00       | 0.00               | 0.00       | 35%                       | 46       |
| Utility-scale Onshore Wind Tier 2                 | 100           | 1,552              | n/a                 | n/a           | n/a          | 27.57      | 0.00       | 0.00               | 0.00       | 35%                       | 52       |
| Utility-scale Solar Photovoltaic Tier 1           | 50            | 1,320              | n/a                 | n/a           | n/a          | 14.81      | 0.00       | 0.00               | 0.00       | 23%                       | 69       |
| Utility-scale Solar Photovoltaic Tier 2           | 50            | 1,452              | n/a                 | n/a           | n/a          | 14.81      | 0.00       | 0.00               | 0.00       | 23%                       | 77       |
| Utility-scale Solar + Storage (3:1)               | 50            | 1,721              | n/a                 | n/a           | n/a          | 33.67      | 0.00       | 0.00               | 0.00       | 16%                       | 114      |

Notes:

- (a) Installed cost, capability and heat rate numbers have been rounded
- (b) All costs in 2021 dollars
- (c) Total Plant Investment Cost
- (d) Average fuel price across study horizon
- (e) First year levelized cost of energy based on capacity factors shown in table. Not shown for storage as LCOE is dependent on charging. Not shown for low dispatch.
- (f) Start cost of \$79/MW additional to VOM
- (g) Denotes efficiency, (w/ power electronics)
- (h) Fuel input is dependent on electricity price for electrolyzer
- (i) Capacity factor not show due to low dispatch

**Exhibit E1 – Case and Scenario Results – Resource Capacity Additions**

### Reference Portfolio

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                | 2023                               | 3            |
| 2024   |            |          |               |              |                            |                 |                     | 78                | 2024                               | 8            |
| 2025   |            |          |               |              |                            |                 |                     | 78                | 2025                               | 14           |
| 2026   |            |          |               | 100          |                            |                 |                     | 82                | 2026                               | 21           |
| 2027   |            |          | 200           | 100          |                            |                 |                     |                   | 2027                               | 26           |
| 2028   |            |          | 150/100       | 100/100      |                            |                 |                     | 495               | 2028                               | 31           |
| 2029   | 480        |          | 100           | 100/100      |                            |                 |                     |                   | 2029                               | 34           |
| 2030   |            |          |               | 100          |                            |                 |                     |                   | 2030                               | 37           |
| 2031   |            |          |               | 100          |                            |                 | 295                 |                   | 2031                               | 36           |
| 2032   |            |          |               | 100          |                            |                 |                     |                   | 2032                               | 36           |
| 2033   |            |          |               | 100          |                            |                 |                     |                   | 2033                               | 35           |
| 2034   |            |          |               | 100          |                            |                 |                     |                   | 2034                               | 34           |
| 2035   |            |          |               | 100          |                            |                 |                     |                   | 2035                               | 33           |
| 2036   |            |          |               |              |                            |                 |                     |                   | 2036                               | 32           |
| 2037   |            |          | 50            |              |                            |                 |                     |                   | 2037                               | 31           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>650</b>    | <b>700</b>   | <b>0</b>                   | <b>0</b>        | <b>295</b>          |                   |                                    |              |

### RE- HC Portfolio

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                | 2023                               | 2            |
| 2024   |            |          |               |              |                            |                 |                     | 78                | 2024                               | 5            |
| 2025   |            |          |               |              |                            |                 |                     | 78                | 2025                               | 9            |
| 2026   |            |          |               | 100/100      |                            |                 |                     | 79                | 2026                               | 14           |
| 2027   |            |          | 200           | 100/100      |                            |                 |                     |                   | 2027                               | 18           |
| 2028   |            |          | 150/250       | 100/100      |                            |                 |                     | 461               | 2028                               | 21           |
| 2029   | 480        |          |               | 100          |                            |                 |                     |                   | 2029                               | 24           |
| 2030   |            |          |               | 100          |                            |                 |                     |                   | 2030                               | 26           |
| 2031   |            |          |               | 100          |                            |                 | 295                 |                   | 2031                               | 24           |
| 2032   |            |          |               | 100          |                            |                 |                     |                   | 2032                               | 24           |
| 2033   |            |          |               | 100          |                            |                 |                     |                   | 2033                               | 23           |
| 2034   |            |          |               |              |                            |                 |                     |                   | 2034                               | 22           |
| 2035   |            |          |               |              |                            |                 |                     |                   | 2035                               | 21           |
| 2036   |            |          |               |              |                            |                 |                     |                   | 2036                               | 20           |
| 2037   |            |          |               | 100          |                            |                 |                     |                   | 2037                               | 19           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>600</b>    | <b>1200</b>  | <b>0</b>                   | <b>0</b>        | <b>295</b>          |                   |                                    |              |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 221 of 1182

**CETA Portfolio**

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 105               | 2023                               | 2            |
| 2024   |            |          |               |              |                            |                 |                     | 118               | 2024                               | 5            |
| 2025   |            |          |               |              |                            |                 |                     | 103               | 2025                               | 9            |
| 2026   |            |          |               | 100/100      |                            |                 |                     | 133               | 2026                               | 16           |
| 2027   |            |          | 250           | 100/100      |                            |                 |                     | 4                 | 2027                               | 22           |
| 2028   |            |          | 150/300       | 100/100      |                            |                 |                     | 488               | 2028                               | 28           |
| 2029   | 480        |          | 100           | 100/100      |                            |                 |                     |                   | 2029                               | 32           |
| 2030   |            |          | 50            | 100          |                            |                 |                     |                   | 2030                               | 35           |
| 2031   |            |          |               | 100          |                            |                 | 295                 |                   | 2031                               | 36           |
| 2032   |            |          | 50            | 100          |                            |                 |                     |                   | 2032                               | 35           |
| 2033   |            |          |               | 100          |                            |                 |                     |                   | 2033                               | 35           |
| 2034   |            |          |               |              |                            |                 |                     |                   | 2034                               | 34           |
| 2035   |            |          |               |              | 50                         |                 |                     |                   | 2035                               | 33           |
| 2036   |            |          |               |              |                            |                 |                     |                   | 2036                               | 32           |
| 2037   |            |          | 100           |              |                            |                 |                     |                   | 2037                               | 31           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>1000</b>   | <b>700</b>   | <b>50</b>                  | <b>0</b>        | <b>295</b>          |                   |                                    |              |

**ECR Portfolio**

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                | 2023                               |              |
| 2024   |            |          |               |              |                            |                 |                     | 78                | 2024                               |              |
| 2025   |            |          |               |              |                            |                 |                     | 78                | 2025                               |              |
| 2026   |            |          |               | 100/100      |                            |                 |                     | 43                | 2026                               | 5            |
| 2027   |            |          | 100           | 100/100      |                            |                 |                     |                   | 2027                               | 10           |
| 2028   |            |          | 150/300       | 100/100      |                            | 200             |                     | 339               | 2028                               | 14           |
| 2029   | 240        |          | 150/150       | 100/100      |                            |                 |                     |                   | 2029                               | 17           |
| 2030   |            |          |               | 100          |                            |                 |                     |                   | 2030                               | 20           |
| 2031   |            |          | 150           | 100          |                            |                 | 295                 | 206               | 2031                               | 25           |
| 2032   |            |          | 150           | 100          | 200                        |                 |                     |                   | 2032                               | 29           |
| 2033   |            |          |               | 100          |                            |                 |                     |                   | 2033                               | 33           |
| 2034   |            |          |               |              |                            |                 |                     |                   | 2034                               | 36           |
| 2035   |            |          |               |              |                            |                 |                     |                   | 2035                               | 38           |
| 2036   |            |          | 50            |              |                            |                 |                     |                   | 2036                               | 40           |
| 2037   |            |          |               |              |                            |                 |                     |                   | 2037                               | 41           |
| <b>Total</b>                                       | <b>240</b> | <b>0</b> | <b>1200</b>   | <b>1200</b>  | <b>200</b>                 | <b>200</b>      | <b>295</b>          |                   |                                    |              |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 222 of 1182

**NCR Portfolio**

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                | 2023                               | 3            |
| 2024   |            |          |               |              |                            |                 |                     | 78                | 2024                               | 8            |
| 2025   |            |          |               |              |                            |                 |                     | 78                | 2025                               | 14           |
| 2026   |            |          |               | 100/100      |                            |                 |                     | 60                | 2026                               | 24           |
| 2027   |            |          | 150           | 100/100      |                            |                 |                     |                   | 2027                               | 32           |
| 2028   |            |          | 150/100       | 100/100      |                            |                 |                     | 494               | 2028                               | 38           |
| 2029   | 480        |          |               |              | 100                        |                 |                     |                   | 2029                               | 43           |
| 2030   |            |          |               |              |                            |                 |                     |                   | 2030                               | 47           |
| 2031   |            |          |               |              |                            |                 | 295                 |                   | 2031                               | 47           |
| 2032   |            |          |               |              |                            |                 |                     |                   | 2032                               | 48           |
| 2033   |            |          |               |              |                            |                 |                     |                   | 2033                               | 48           |
| 2034   |            |          |               |              |                            |                 |                     |                   | 2034                               | 48           |
| 2035   |            |          |               |              | 50                         |                 |                     |                   | 2035                               | 48           |
| 2036   |            |          |               |              |                            |                 |                     |                   | 2036                               | 47           |
| 2037   |            |          |               |              |                            |                 |                     |                   | 2037                               | 46           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>400</b>    | <b>600</b>   | <b>150</b>                 | <b>0</b>        | <b>295</b>          |                   |                                    |              |

**CC Portfolio**

| Utility Scale Incremental New Build (Nameplate MW) |          |            |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|----------|------------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT   | Gas CC     | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |          |            |               |              |                            |                 |                     | 73                | 2023                               | 3            |
| 2024   |          |            |               |              |                            |                 |                     | 78                | 2024                               | 8            |
| 2025   |          |            |               |              |                            |                 |                     | 78                | 2025                               | 14           |
| 2026   |          |            |               | 100          |                            |                 |                     | 78                | 2026                               | 24           |
| 2027   |          |            | 250           | 100/100      |                            |                 |                     |                   | 2027                               | 32           |
| 2028   |          |            | 150/300       | 100/100      |                            |                 |                     | 407               | 2028                               | 38           |
| 2029   |          | 418        | 100           |              |                            |                 |                     |                   | 2029                               | 43           |
| 2030   |          |            |               | 100          |                            |                 |                     |                   | 2030                               | 47           |
| 2031   |          |            |               | 100          |                            |                 | 295                 |                   | 2031                               | 47           |
| 2032   |          |            |               |              |                            |                 |                     |                   | 2032                               | 48           |
| 2033   |          |            |               |              |                            |                 |                     |                   | 2033                               | 48           |
| 2034   |          |            |               |              |                            |                 |                     |                   | 2034                               | 48           |
| 2035   |          |            |               |              | 50                         |                 |                     |                   | 2035                               | 48           |
| 2036   |          |            |               |              |                            |                 |                     |                   | 2036                               | 47           |
| 2037   |          |            |               |              |                            |                 |                     |                   | 2037                               | 46           |
| <b>Total</b>                                       | <b>0</b> | <b>418</b> | <b>800</b>    | <b>700</b>   | <b>50</b>                  | <b>0</b>        | <b>295</b>          |                   |                                    |              |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 223 of 1182

**No Wind Portfolio**

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                |                                    |              |
| 2024   |            |          |               |              |                            |                 |                     | 78                |                                    |              |
| 2025   |            |          |               |              |                            |                 |                     | 78                |                                    |              |
| 2026   |            |          | 100           |              |                            |                 |                     | 78                |                                    | 6            |
| 2027   |            |          | 250           |              |                            |                 |                     |                   |                                    | 11           |
| 2028   |            |          | 150/300       |              |                            | 300             |                     | 407               |                                    | 15           |
| 2029   | 240        |          | 150/100       |              | 50                         |                 |                     |                   |                                    | 18           |
| 2030   |            |          | 50            |              |                            |                 |                     |                   |                                    | 21           |
| 2031   |            |          | 50            |              |                            |                 | 295                 |                   |                                    | 25           |
| 2032   |            |          | 50            |              |                            |                 |                     |                   |                                    | 29           |
| 2033   |            |          |               |              |                            |                 |                     |                   |                                    | 33           |
| 2034   |            |          |               |              |                            |                 |                     |                   |                                    | 36           |
| 2035   |            |          | 50            |              |                            |                 |                     |                   |                                    | 38           |
| 2036   |            |          |               |              |                            |                 |                     |                   |                                    | 40           |
| 2037   |            |          | 100           |              |                            |                 |                     |                   |                                    | 41           |
| <b>Total</b>                                       | <b>240</b> | <b>0</b> | <b>1350</b>   | <b>0</b>     | <b>50</b>                  | <b>300</b>      | <b>295</b>          |                   |                                    |              |

**Preferred Plan**

| Utility Scale Incremental New Build (Nameplate MW) |            |          |               |              |                            |                 |                     |                   | Demand Side Additions by Year (MW) |              |
|--|------------|----------|---------------|--------------|----------------------------|-----------------|---------------------|-------------------|------------------------------------|--------------|
| Year   | Gas CT     | Gas CC   | Solar (T1.T2) | Wind (T1.T2) | Li-Ion 4hr Battery Storage | Solar + Storage | Big Sandy Extension | Capacity Purchase | Year                               | DSM Programs |
| 2023   |            |          |               |              |                            |                 |                     | 73                |                                    | 3            |
| 2024   |            |          |               |              |                            |                 |                     | 78                |                                    | 8            |
| 2025   |            |          |               |              |                            |                 |                     | 78                |                                    | 14           |
| 2026   |            |          |               | 100          |                            |                 |                     | 78                |                                    | 24           |
| 2027   |            |          | 250           | 100/100      |                            |                 |                     |                   |                                    | 32           |
| 2028   |            |          | 150/300       | 100/100      |                            |                 |                     | 407               |                                    | 38           |
| 2029   | 480        |          | 100           |              |                            |                 |                     |                   |                                    | 43           |
| 2030   |            |          |               | 100          |                            |                 |                     |                   |                                    | 47           |
| 2031   |            |          |               | 100          |                            |                 | 295                 |                   |                                    | 47           |
| 2032   |            |          |               |              |                            |                 |                     |                   |                                    | 48           |
| 2033   |            |          |               |              |                            |                 |                     |                   |                                    | 48           |
| 2034   |            |          |               |              |                            |                 |                     |                   |                                    | 48           |
| 2035   |            |          |               |              | 50                         |                 |                     |                   |                                    | 48           |
| 2036   |            |          |               |              |                            |                 |                     |                   |                                    | 47           |
| 2037   |            |          |               |              |                            |                 |                     |                   |                                    | 46           |
| <b>Total</b>                                       | <b>480</b> | <b>0</b> | <b>800</b>    | <b>700</b>   | <b>50</b>                  | <b>0</b>        | <b>295</b>          |                   |                                    |              |

**Exhibit E2 – Case and Scenario Results – Costs & Energy Positions**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 225 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
 Reference Portfolio Under Reference Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,415           | 494                      | 15,187                    | 33,411                           | 77,510                                  | 12,112        | 261,440  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 177,860           | 486                      | 15,629                    | 38,345                           | 49,808                                  | 11,299        | 292,946  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 132,576           | 357                      | 13,010                    | 71,863                           | 28,426                                  | 10,679        | 299,336  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 29,437           | 114,062           | 316                      | 12,501                    | 72,413                           | 27,105                                  | 3,491         | 299,222  |
| 2027                               | 39,856                          | 35,081                     | 80,785                   | 37,287           | 91,791            | 228                      | 8,759                     | 68,032                           | 25,579                                  | -13,045       | 323,195  |
| 2028                               | 39,988                          | 70,883                     | 124,024                  | 46,117           | 50,214            | 81                       | 4,212                     | 110,739                          | 25,583                                  | -37,817       | 382,857  |
| 2029                               | 40,015                          | 114,661                    | 181,265                  | 57,811           | 119,684           | 63                       | 4,554                     | 22,566                           | 70,696                                  | -45,306       | 424,616  |
| 2030                               | 40,042                          | 122,562                    | 176,929                  | 61,551           | 85,951            | 20,125                   | 5,686                     | 41,622                           | 63,894                                  | -57,102       | 433,472  |
| 2031                               | 40,070                          | 130,911                    | 174,341                  | 63,644           | 70,342            | 16,506                   | 4,009                     | 45,604                           | 56,419                                  | -68,400       | 420,607  |
| 2032                               | 40,099                          | 139,212                    | 172,829                  | 67,627           | 62,279            | 14,885                   | 4,714                     | 47,741                           | 61,450                                  | -80,001       | 407,935  |
| 2033                               | 40,128                          | 147,715                    | 172,457                  | 71,647           | 68,128            | 15,755                   | 4,854                     | 43,424                           | 76,935                                  | -89,473       | 397,700  |
| 2034                               | 40,158                          | 156,425                    | 172,685                  | 75,800           | 61,372            | 14,272                   | 4,496                     | 40,118                           | 77,495                                  | -100,134      | 387,697  |
| 2035                               | 40,188                          | 165,370                    | 172,820                  | 80,076           | 61,457            | 14,566                   | 5,389                     | 33,412                           | 85,420                                  | -111,627      | 376,231  |
| 2036                               | 40,219                          | 165,370                    | 159,755                  | 81,130           | 71,248            | 17,397                   | 5,289                     | 31,962                           | 101,412                                 | -105,280      | 365,677  |
| 2037                               | 40,250                          | 169,488                    | 153,631                  | 82,862           | 65,115            | 16,254                   | 3,988                     | 33,458                           | 98,824                                  | -77,309       | 388,911  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 754,055                    | 1,091,259                | 469,468          | 990,199           | 67,794                   | 80,774                    | 487,981                          | 551,963                                 | (374,603)     | 3,395,396  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 226 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
Reference Portfolio Under Reference Scenario

| Resource (Capacity) Additions   |        |        |  |        |                                  |        |                 |        |              |        |               |        | Energy & Capacity Positions |                            |  |                |  |  |                            |                |          |                    |                     | Carbon Output     |                                 |
|---|--------|--------|--|--------|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|----------|--------------------|---------------------|-------------------|---------------------------------|
| (12)  | (13)   | (14)   | (15)   | (16)   | (17)                             | (18)   | (19)            | (20)   | (21)         | (22)   | (23)          | (24)   | (25)                        | (26)                       | (27) = (24)+(25)+(26)                          | (28)           | (29)   | (30) = (29)-(28)                             | (31) = (30)-(27)           | (32)           | (33)     | (34)=(33)-(32)     | (35)                | (36)              |                                 |
| (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | Ann.MW | Cum.MW | (Current and Planned)<br>Interruptible Load and<br>Demand Response |        | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation       | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |
|   |        |        | Ann.MW   | Cum.MW | Ann.MW                           | Cum.MW | Ann.MW          | Cum.MW | Ann.MW       | Cum.MW | Ann.MW        | Cum.MW | GWh                         | GWh                        | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | MW       | MW                 | MW                  | %                 | tons                            |
| 2023  | 73     | 934    | 2  | 9      | 3                                | 3      | 0               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                          | 0  | 6,180          | 5,643  | 19   | 5,624                      | 556            | 1,019    | 1,014              | 5                   | 9.5               | 5,566,682                       |
| 2024  | 78     | 934    | (3)  | 5      | 5                                | 8      | 0               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                          | 0  | 6,070          | 6,118  | 46   | 6,072                      | (1)            | 1,026    | 1,019              | 6                   | 9.6               | 5,363,049                       |
| 2025  | 78     | 934    | 0  | 5      | 6                                | 14     | 0               | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                          | 0  | 4,578          | 6,060  | 79   | 5,980                      | (1,402)        | 1,032    | 1,002              | 29                  | 12.1              | 3,918,387                       |
| 2026  | 82     | 934    | 0  | 5      | 7                                | 21     | 0               | 0      | 13           | 13     | 0             | 0      | 4,007                       | 0                          | 307  | 4,314          | 5,948  | 118  | 5,830                      | (1,516)        | 1,056    | 1,054              | 1                   | 9.1               | 3,421,880                       |
| 2027  | 0      | 934    | 0  | 5      | 6                                | 26     | 0               | 0      | 12           | 25     | 102           | 102    | 3,116                       | 0                          | 1,112  | 4,227          | 5,918  | 151  | 5,767                      | (1,540)        | 1,093    | 1,050              | 43                  | 13.4              | 2,510,535                       |
| 2028  | 495    | 285    | 0  | 5      | 4                                | 31     | 0               | 0      | 22           | 47     | 78            | 181    | 1,596                       | 0                          | 2,224  | 3,820          | 5,911  | 179  | 5,733                      | (1,913)        | 1,044    | 1,044              | 0                   | 8.9               | 1,292,745                       |
| 2029  | 0      | 285    | 0  | 5      | 4                                | 34     | 0               | 0      | 23           | 70     | 13            | 194    | 3,603                       | 0                          | 3,023  | 6,626          | 5,872  | 200  | 5,673                      | 953            | 1,045    | 1,040              | 4                   | 9.4               | 2,164,524                       |
| 2030  | 0      | 285    | 0  | 5      | 3                                | 37     | 0               | 0      | 6            | 76     | -8            | 186    | 2,456                       | 0                          | 3,341  | 5,797          | 5,850  | 217  | 5,633                      | 164            | 1,046    | 1,037              | 9                   | 9.8               | 1,476,018                       |
| 2031  | 0      | 285    | 0  | 5      | (0)                              | 36     | 0               | 0      | 11           | 87     | -8            | 179    | 1,944                       | 0                          | 3,653  | 5,597          | 5,832  | 220  | 5,612                      | (15)           | 1,049    | 1,035              | 14                  | 10.4              | 1,171,067                       |
| 2032  | 0      | 285    | 0  | 5      | (1)                              | 36     | 0               | 0      | 11           | 98     | -9            | 170    | 1,696                       | 0                          | 3,972  | 5,669          | 5,832  | 221  | 5,612                      | 57             | 1,050    | 1,030              | 20                  | 11.1              | 1,020,594                       |
| 2033  | 0      | 285    | 0  | 5      | (1)                              | 35     | 0               | 0      | 11           | 109    | -4            | 166    | 1,734                       | 0                          | 4,239  | 5,972          | 5,795  | 219  | 5,576                      | 396            | 1,056    | 1,031              | 25                  | 11.6              | 1,042,420                       |
| 2034  | 0      | 285    | 0  | 5      | (1)                              | 34     | 0               | 0      | 11           | 120    | -4            | 163    | 1,518                       | 0                          | 4,535  | 6,053          | 5,780  | 216  | 5,564                      | 488            | 1,063    | 1,026              | 37                  | 12.8              | 912,447                         |
| 2035  | 0      | 285    | 0  | 5      | (1)                              | 33     | 0               | 0      | 11           | 131    | -4            | 159    | 1,499                       | 0                          | 4,846  | 6,345          | 5,765  | 213  | 5,552                      | 793            | 1,069    | 1,025              | 44                  | 13.6              | 900,594                         |
| 2036  | 0      | 285    | 0  | 5      | (1)                              | 32     | 0               | 0      | 0            | 131    | -4            | 155    | 1,730                       | 0                          | 4,895  | 6,625          | 5,768  | 209  | 5,559                      | 1,066          | 1,064    | 1,021              | 43                  | 13.6              | 1,039,084                       |
| 2037  | 0      | 285    | 0  | 5      | (1)                              | 31     | 0               | 0      | 0            | 131    | 9             | 164    | 1,558                       | 0                          | 4,979  | 6,538          | 5,734  | 203  | 5,531                      | 1,007          | 1,072    | 1,022              | 50                  | 14.3              | 937,435                         |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 227 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
REF-HC Portfolio Under Reference Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 182,415           | 494                      | 15,187                    | 33,517                           | 77,246                                  | 12,112        | 260,439  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 177,860           | 486                      | 15,629                    | 38,642                           | 49,396                                  | 11,299        | 291,786  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 132,576           | 357                      | 13,010                    | 72,367                           | 27,965                                  | 10,679        | 297,882  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 30,019           | 114,062           | 316                      | 12,501                    | 66,153                           | 32,446                                  | -2,707        | 304,460  |
| 2027                               | 39,856                          | 49,813                     | 100,219                  | 40,244           | 91,791            | 228                      | 8,759                     | 57,157                           | 32,917                                  | -24,264       | 330,887  |
| 2028                               | 39,988                          | 97,450                     | 158,287                  | 51,396           | 50,214            | 81                       | 4,212                     | 90,368                           | 36,195                                  | -54,421       | 401,380  |
| 2029                               | 40,015                          | 125,352                    | 189,386                  | 58,558           | 119,684           | 63                       | 4,554                     | 19,806                           | 78,642                                  | -51,657       | 427,120  |
| 2030                               | 40,042                          | 133,253                    | 184,979                  | 62,310           | 85,951            | 20,125                   | 5,686                     | 36,540                           | 71,188                                  | -63,541       | 434,158  |
| 2031                               | 40,070                          | 141,602                    | 182,298                  | 63,316           | 70,342            | 16,506                   | 4,009                     | 40,570                           | 63,109                                  | -74,882       | 420,722  |
| 2032                               | 40,099                          | 149,903                    | 180,468                  | 67,453           | 62,279            | 14,885                   | 4,714                     | 43,041                           | 68,243                                  | -86,584       | 408,014  |
| 2033                               | 40,128                          | 158,406                    | 180,300                  | 71,683           | 68,128            | 15,755                   | 4,854                     | 39,513                           | 84,163                                  | -95,884       | 398,720  |
| 2034                               | 40,158                          | 158,406                    | 167,612                  | 72,781           | 61,372            | 14,272                   | 4,496                     | 41,904                           | 75,172                                  | -98,502       | 387,326  |
| 2035                               | 40,188                          | 158,406                    | 155,972                  | 73,879           | 61,457            | 14,566                   | 5,389                     | 40,518                           | 72,613                                  | -101,510      | 376,252  |
| 2036                               | 40,219                          | 158,406                    | 144,976                  | 74,994           | 71,248            | 17,397                   | 5,289                     | 38,734                           | 87,334                                  | -83,254       | 380,674  |
| 2037                               | 40,250                          | 167,833                    | 147,792                  | 79,535           | 65,115            | 16,254                   | 3,988                     | 36,504                           | 92,270                                  | -49,088       | 415,913  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 816,118                    | 1,144,185                | 463,218          | 990,199           | 67,794                   | 80,774                    | 457,377                          | 573,355                                 | (391,825)     | 3,434,916  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 228 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
REF-HC Portfolio Under Reference Scenario

| Resource (Capacity) Additions   |        |  |        |                                     |        |                 |        |              |        |               |        | Energy & Capacity Positions |                            |                                       |                       |  |  |                            |                  |          |                    |                     | Carbon Output     |                                 |
|---|--------|--|--------|-------------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------------|---------------------------------------|-----------------------|--|--|----------------------------|------------------|----------|--------------------|---------------------|-------------------|---------------------------------|
| (12)  | (13)   | (14)   | (15)   | (16)                                | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                       | (26)                                  | (27) = (24)+(25)+(26) | (28)   | (29)   | (30) = (29)+(28)           | (31) = (30)+(27) | (32)     | (33)               | (34)=(33)-(32)      | (35)              | (36)                            |
| (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) |        | (Current and Planned)<br>Interruptible Load and<br>Demand Response |        | (Increment)<br>Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation       | (New)<br>Battery<br>Energy | Generic<br>Wind +<br>Utility<br>Solar | = Market Sales        | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus   | Capacity | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |
| Ann.MW  | Cum.MW | Ann.MW   | Cum.MW | Ann.MW                              | Cum.MW | Ann.MW          | Cum.MW | Ann.MW       | Cum.MW | Ann.MW        | Cum.MW | GWh                         | GWh                        | GWh                                   | GWh                   | GWh  | GWh  | GWh                        | GWh              | MW       | MW                 | MW                  | %                 | tons                            |
| 2023  | 73     | 934  | 2      | 9                                   | 2      | 2               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                          | 0                                     | 6,180                 | 5,643  | 13   | 5,630                      | 550              | 1,017    | 1,014              | 4                   | 9.3               | 5,566,682                       |
| 2024  | 78     | 934  | (3)    | 5                                   | 3      | 5               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                          | 0                                     | 6,070                 | 6,118  | 33   | 6,085                      | (14)             | 1,022    | 1,019              | 3                   | 9.2               | 5,363,049                       |
| 2025  | 78     | 934  | 0      | 5                                   | 4      | 9               | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                          | 0                                     | 4,578                 | 6,060  | 58   | 6,001                      | (1,423)          | 1,026    | 1,002              | 24                  | 11.5              | 3,918,387                       |
| 2026  | 79     | 934  | 0      | 5                                   | 5      | 14              | 0      | 0            | 27     | 27            | 0      | 4,007                       | 0                          | 613                                   | 4,620                 | 5,948  | 97   | 5,851                      | (1,230)          | 1,059    | 1,054              | 5                   | 9.5               | 3,421,880                       |
| 2027  | 0      | 934  | 0      | 5                                   | 4      | 18              | 0      | 0            | 23     | 50            | 83     | 3,116                       | 0                          | 1,623                                 | 4,739                 | 5,918  | 124  | 5,794                      | (1,055)          | 1,090    | 1,050              | 40                  | 13.1              | 2,510,535                       |
| 2028  | 461    | 285  | 0      | 5                                   | 3      | 21              | 0      | 0            | 20     | 70            | 133    | 1,596                       | 0                          | 3,035                                 | 4,631                 | 5,911  | 146  | 5,765                      | (1,134)          | 1,059    | 1,044              | 15                  | 10.5              | 1,292,745                       |
| 2029  | 0      | 285  | 0      | 5                                   | 3      | 24              | 0      | 0            | 12     | 82            | -22    | 3,603                       | 0                          | 3,327                                 | 6,930                 | 5,872  | 164  | 5,709                      | 1,221            | 1,046    | 1,040              | 6                   | 9.5               | 2,164,524                       |
| 2030  | 0      | 285  | 0      | 5                                   | 2      | 26              | 0      | 0            | 5      | 87            | -8     | 2,456                       | 0                          | 3,647                                 | 6,103                 | 5,850  | 178  | 5,672                      | 431              | 1,046    | 1,037              | 8                   | 9.8               | 1,476,018                       |
| 2031  | 0      | 285  | 0      | 5                                   | (1)    | 24              | 0      | 0            | 11     | 98            | -8     | 1,944                       | 0                          | 3,959                                 | 5,903                 | 5,832  | 160  | 5,672                      | 232              | 1,048    | 1,035              | 13                  | 10.3              | 1,171,067                       |
| 2032  | 0      | 285  | 0      | 5                                   | (1)    | 24              | 0      | 0            | 11     | 109           | -9     | 1,696                       | 0                          | 4,280                                 | 5,976                 | 5,832  | 151  | 5,681                      | 295              | 1,049    | 1,030              | 19                  | 11.0              | 1,020,594                       |
| 2033  | 0      | 285  | 0      | 5                                   | (1)    | 23              | 0      | 0            | 11     | 120           | -4     | 1,734                       | 0                          | 4,543                                 | 6,276                 | 5,795  | 141  | 5,654                      | 622              | 1,056    | 1,031              | 25                  | 11.5              | 1,042,420                       |
| 2034  | 0      | 285  | 0      | 5                                   | (1)    | 22              | 0      | 0            | 0      | 120           | -4     | 1,518                       | 0                          | 4,535                                 | 6,053                 | 5,780  | 130  | 5,650                      | 403              | 1,051    | 1,026              | 25                  | 11.6              | 912,447                         |
| 2035  | 0      | 285  | 0      | 5                                   | (1)    | 21              | 0      | 0            | 0      | 120           | -4     | 1,499                       | 0                          | 4,542                                 | 6,041                 | 5,765  | 120  | 5,645                      | 396              | 1,046    | 1,025              | 21                  | 11.2              | 900,594                         |
| 2036  | 0      | 285  | 0      | 5                                   | (1)    | 20              | 0      | 0            | 0      | 120           | -4     | 1,730                       | 0                          | 4,587                                 | 6,317                 | 5,768  | 110  | 5,658                      | 659              | 1,041    | 1,021              | 21                  | 11.2              | 1,039,084                       |
| 2037  | 0      | 285  | 0      | 5                                   | (1)    | 19              | 0      | 0            | 11     | 131           | -4     | 1,558                       | 0                          | 4,879                                 | 6,438                 | 5,734  | 100  | 5,634                      | 803              | 1,047    | 1,022              | 26                  | 11.7              | 937,435                         |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 229 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CETA Portfolio Under Reference Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 182,415           | 494                      | 15,187                    | 33,888                           | 77,246                                  | 12,112        | 260,809  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 177,860           | 486                      | 15,629                    | 39,358                           | 49,396                                  | 11,299        | 292,502  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 132,576           | 357                      | 13,010                    | 73,225                           | 27,965                                  | 10,679        | 298,740  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 32,478           | 114,062           | 316                      | 12,501                    | 68,113                           | 32,487                                  | -2,707        | 308,837  |
| 2027                               | 39,856                          | 53,484                     | 105,452                  | 43,421           | 91,791            | 228                      | 8,759                     | 54,626                           | 34,616                                  | -26,003       | 336,998  |
| 2028                               | 39,988                          | 105,065                    | 168,522                  | 55,227           | 50,214            | 81                       | 4,212                     | 87,339                           | 40,383                                  | -57,983       | 412,281  |
| 2029                               | 40,015                          | 148,842                    | 221,144                  | 66,913           | 119,684           | 63                       | 4,554                     | 15,236                           | 102,706                                 | -66,317       | 447,427  |
| 2030                               | 40,042                          | 160,166                    | 218,116                  | 71,344           | 85,951            | 20,125                   | 5,686                     | 27,722                           | 100,037                                 | -81,114       | 448,002  |
| 2031                               | 40,070                          | 168,515                    | 212,251                  | 73,546           | 70,342            | 16,506                   | 4,009                     | 29,947                           | 91,726                                  | -93,163       | 430,296  |
| 2032                               | 40,099                          | 180,421                    | 213,175                  | 78,361           | 62,279            | 14,885                   | 4,714                     | 31,532                           | 100,584                                 | -107,631      | 417,250  |
| 2033                               | 40,128                          | 188,923                    | 210,288                  | 82,503           | 68,128            | 15,755                   | 4,854                     | 29,094                           | 117,905                                 | -117,282      | 404,486  |
| 2034                               | 40,158                          | 188,923                    | 195,760                  | 83,504           | 61,372            | 14,272                   | 4,496                     | 30,619                           | 108,721                                 | -120,265      | 390,117  |
| 2035                               | 40,188                          | 193,762                    | 188,013                  | 85,596           | 61,457            | 14,566                   | 5,389                     | 28,553                           | 107,299                                 | -121,548      | 388,677  |
| 2036                               | 40,219                          | 193,762                    | 174,733                  | 86,710           | 71,248            | 17,397                   | 5,289                     | 27,373                           | 124,003                                 | -104,014      | 388,715  |
| 2037                               | 40,250                          | 201,998                    | 173,917                  | 89,269           | 65,115            | 16,254                   | 3,988                     | 28,677                           | 125,498                                 | -64,650       | 429,319  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 964,565                    | 1,299,239                | 518,370          | 990,199           | 67,794                   | 80,774                    | 411,247                          | 724,568                                 | (484,377)     | 3,503,672  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 230 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CETA Portfolio Under Reference Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 |                  | Carbon Output  |                              |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned Interruptible Load and Demand Response) |        | (Increment Energy Efficiency) |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023   | 105    | 934  | 2      | 9                             | 2      | 2               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                    | 0                                  | 6,180                 | 5,643                                    | 13                                  | 5,630                   | 550              | 1,049    | 1,014           | 36               | 12.8           | 5,566,682                    |
| 2024   | 118    | 934  | (3)    | 5                             | 3      | 5               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                    | 0                                  | 6,070                 | 6,118                                    | 33                                  | 6,085                   | (14)             | 1,062    | 1,019           | 43               | 13.5           | 5,363,049                    |
| 2025   | 103    | 934  | 0      | 5                             | 4      | 9               | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                    | 0                                  | 4,578                 | 6,060                                    | 58                                  | 6,001                   | (1,423)          | 1,051    | 1,002           | 49               | 14.2           | 3,918,387                    |
| 2026   | 133    | 934  | 0      | 5                             | 7      | 16              | 0      | 0            | 27     | 27            | 0      | 4,007                       | 0                    | 613                                | 4,620                 | 5,948                                    | 100                                 | 5,848                   | (1,228)          | 1,115    | 1,054           | 61               | 15.2           | 3,421,880                    |
| 2027   | 4      | 934  | 0      | 5                             | 6      | 22              | 0      | 0            | 23     | 50            | 102    | 3,116                       | 0                    | 1,723                              | 4,839                 | 5,918                                    | 136                                 | 5,782                   | (943)            | 1,118    | 1,050           | 68               | 16.0           | 2,510,535                    |
| 2028   | 488    | 285  | 0      | 5                             | 5      | 28              | 0      | 0            | 20     | 70            | 149    | 1,596                       | 0                    | 3,235                              | 4,831                 | 5,911                                    | 167                                 | 5,745                   | (913)            | 1,127    | 1,044           | 84               | 17.7           | 1,292,745                    |
| 2029   | 0      | 285  | 0      | 5                             | 4      | 32              | 0      | 0            | 23     | 94            | 6      | 3,603                       | 0                    | 4,031                              | 7,634                 | 5,872                                    | 191                                 | 5,681                   | 1,952            | 1,129    | 1,040           | 88               | 18.2           | 2,164,524                    |
| 2030   | 0      | 285  | 0      | 5                             | 3      | 35              | 0      | 0            | 4      | 98            | 7      | 2,456                       | 0                    | 4,453                              | 6,909                 | 5,850                                    | 211                                 | 5,639                   | 1,270            | 1,143    | 1,037           | 106              | 20.1           | 1,476,018                    |
| 2031   | 0      | 285  | 0      | 5                             | 0      | 36              | 0      | 0            | 11     | 109           | -9     | 1,944                       | 0                    | 4,766                              | 6,710                 | 5,832                                    | 216                                 | 5,615                   | 1,094            | 1,146    | 1,035           | 110              | 20.6           | 1,171,067                    |
| 2032   | 0      | 285  | 0      | 5                             | (0)    | 35              | 0      | 0            | 11     | 120           | 4      | 1,696                       | 0                    | 5,190                              | 6,886                 | 5,832                                    | 219                                 | 5,613                   | 1,273            | 1,160    | 1,030           | 130              | 22.7           | 1,020,594                    |
| 2033   | 0      | 285  | 0      | 5                             | (1)    | 35              | 0      | 0            | 11     | 131           | -6     | 1,734                       | 0                    | 5,447                              | 7,180                 | 5,795                                    | 218                                 | 5,577                   | 1,603            | 1,165    | 1,031           | 134              | 23.1           | 1,042,420                    |
| 2034   | 0      | 285  | 0      | 5                             | (1)    | 34              | 0      | 0            | 0      | 131           | -6     | 1,518                       | 0                    | 5,438                              | 6,956                 | 5,780                                    | 216                                 | 5,564                   | 1,392            | 1,158    | 1,026           | 132              | 22.9           | 912,447                      |
| 2035   | 0      | 285  | 0      | 5                             | (1)    | 33              | 50     | 50           | 0      | 131           | -6     | 1,499                       | 41                   | 5,446                              | 6,986                 | 5,814                                    | 213                                 | 5,601                   | 1,385            | 1,186    | 1,025           | 161              | 26.0           | 900,594                      |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 32              | 0      | 50           | 0      | 131           | -6     | 1,730                       | 41                   | 5,497                              | 7,268                 | 5,817                                    | 209                                 | 5,608                   | 1,660            | 1,178    | 1,021           | 157              | 25.7           | 1,039,084                    |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 31              | 0      | 50           | 0      | 131           | 20     | 1,558                       | 39                   | 5,679                              | 7,277                 | 5,781                                    | 203                                 | 5,578                   | 1,699            | 1,195    | 1,022           | 174              | 27.5           | 937,435                      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 231 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**ECR Portfolio Under Reference Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 182,415           | 494                      | 15,187                    | 33,702                           | 76,742                                  | 12,112        | 258,914  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 177,860           | 486                      | 15,629                    | 39,369                           | 48,429                                  | 11,299        | 289,498  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 132,576           | 357                      | 13,010                    | 73,763                           | 26,798                                  | 10,679        | 294,979  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 29,403           | 114,062           | 316                      | 12,501                    | 66,132                           | 31,250                                  | -2,707        | 305,019  |
| 2027                               | 39,856                          | 42,473                     | 89,753                   | 38,087           | 91,791            | 228                      | 8,759                     | 63,339                           | 29,404                                  | -20,786       | 324,096  |
| 2028                               | 39,988                          | 112,490                    | 180,976                  | 56,407           | 50,214            | 81                       | 4,212                     | 81,104                           | 37,921                                  | -91,689       | 395,860  |
| 2029                               | 40,015                          | 161,437                    | 235,501                  | 68,742           | 82,473            | 63                       | 3,409                     | 21,585                           | 70,430                                  | -74,700       | 468,096  |
| 2030                               | 40,042                          | 169,339                    | 224,606                  | 72,246           | 59,460            | 13,579                   | 3,672                     | 34,301                           | 73,057                                  | -88,040       | 456,148  |
| 2031                               | 40,054                          | 187,991                    | 232,469                  | 82,587           | 37,035            | 8,558                    | 2,026                     | 51,055                           | 73,293                                  | -106,627      | 461,855  |
| 2032                               | 40,054                          | 225,216                    | 260,958                  | 93,043           | 21,852            | 5,476                    | 1,850                     | 38,740                           | 79,104                                  | -249,336      | 358,750  |
| 2033                               | 40,054                          | 233,719                    | 252,236                  | 97,345           | 21,500            | 5,225                    | 1,727                     | 34,814                           | 87,512                                  | -119,510      | 479,596  |
| 2034                               | 40,054                          | 233,719                    | 233,902                  | 98,564           | 19,753            | 4,824                    | 1,629                     | 36,551                           | 87,667                                  | -123,309      | 458,020  |
| 2035                               | 40,054                          | 233,719                    | 217,347                  | 99,811           | 20,848            | 5,184                    | 2,127                     | 35,356                           | 88,739                                  | -127,398      | 438,310  |
| 2036                               | 40,054                          | 237,724                    | 207,597                  | 101,862          | 23,009            | 5,886                    | 1,920                     | 33,220                           | 97,155                                  | -111,547      | 442,570  |
| 2037                               | 40,054                          | 237,724                    | 192,948                  | 103,102          | 22,488            | 5,854                    | 1,410                     | 32,943                           | 96,987                                  | -83,759       | 455,777  |
| Cumulative Present Worth 2023-2037 | 380,095                         | 1,108,151                  | 1,423,288                | 551,378          | 806,750           | 30,435                   | 69,046                    | 449,776                          | 597,706                                 | (615,698)     | 3,605,514  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 232 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
ECR Portfolio Under Reference Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                     |  |                                     |                         |                |          |                 |                  |                | Carbon Output                |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|---------------------|--|-------------------------------------|-------------------------|----------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27)=(24)+(25)+(26) | (28)                                     | (29)                                | (30)=(29)+(28)          | (31)=(30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
| (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales      | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                 | GWh                                      | GWh                                 | GWh                     | GWh            | MW       | MW              | MW               | %              | tons                         |
| 2023   | 70     | 934  | 2      | 9                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                    | 0                                  | 6,180               | 5,643                                    | 1                                   | 5,642                   | 538            | 1,013    | 1,014           | -1               | 8.8            | 5,566,682                    |
| 2024   | 78     | 934  | (3)    | 5                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                    | 0                                  | 6,070               | 6,118                                    | 1                                   | 6,117                   | (46)           | 1,017    | 1,019           | -2               | 8.7            | 5,363,049                    |
| 2025   | 78     | 934  | 0      | 5                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                    | 0                                  | 4,578               | 6,060                                    | 1                                   | 6,058                   | (1,480)        | 1,018    | 1,002           | 15               | 10.6           | 3,918,387                    |
| 2026   | 43     | 934  | 0      | 5                             | 5      | 5               | 0      | 0            | 27     | 27            | 0      | 4,007                       | 0                    | 613                                | 4,620               | 5,948                                    | 36                                  | 5,912                   | (1,292)        | 1,014    | 1,054           | -40              | 4.8            | 3,421,880                    |
| 2027   | 0      | 934  | 0      | 5                             | 5      | 10              | 0      | 0            | 23     | 50            | 44     | 3,116                       | 0                    | 1,423                              | 4,539               | 5,918                                    | 67                                  | 5,851                   | (1,312)        | 1,043    | 1,050           | -7               | 8.3            | 2,510,535                    |
| 2028   | 339    | 285  | 0      | 5                             | 4      | 14              | 0      | 0            | 20     | 70            | 207    | 1,596                       | 0                    | 2,934                              | 4,530               | 5,911                                    | 94                                  | 5,817                   | (1,287)        | 1,005    | 1,044           | -38              | 5.0            | 1,292,745                    |
| 2029   | 0      | 285  | 0      | 5                             | 3      | 17              | 0      | 0            | 23     | 94            | 69     | 2,442                       | 0                    | 4,131                              | 6,573               | 5,872                                    | 117                                 | 5,755                   | 818            | 990      | 1,040           | -51              | 3.6            | 1,454,253                    |
| 2030   | 0      | 285  | 0      | 5                             | 3      | 20              | 0      | 0            | 4      | 98            | -10    | 1,670                       | 0                    | 4,453                              | 6,123               | 5,850                                    | 137                                 | 5,713                   | 410            | 986      | 1,037           | -51              | 3.6            | 994,779                      |
| 2031   | 206    | 0  | 0      | 5                             | 5      | 25              | 0      | 0            | 11     | 109           | 36     | 1,009                       | 0                    | 5,066                              | 6,075               | 5,832                                    | 164                                 | 5,667                   | 408            | 958      | 1,035           | -78              | 0.8            | 607,417                      |
| 2032   | 0      | 0  | 0      | 5                             | 4      | 29              | 200    | 200          | 11     | 120           | 31     | 614                         | 164                  | 5,692                              | 6,471               | 6,030                                    | 188                                 | 5,842                   | 629            | 945      | 1,030           | -85              | -0.1           | 375,725                      |
| 2033   | 0      | 0  | 0      | 5                             | 4      | 33              | 0      | 200          | 11     | 131           | -9     | 566                         | 165                  | 5,947                              | 6,678               | 5,993                                    | 207                                 | 5,786                   | 891            | 943      | 1,031           | -88              | -0.4           | 346,234                      |
| 2034   | 0      | 0  | 0      | 5                             | 3      | 36              | 0      | 200          | 0      | 131           | -9     | 505                         | 164                  | 5,938                              | 6,607               | 5,977                                    | 222                                 | 5,754                   | 853            | 933      | 1,026           | -93              | -0.9           | 308,834                      |
| 2035   | 0      | 0  | 0      | 5                             | 2      | 38              | 0      | 200          | 0      | 131           | -9     | 525                         | 165                  | 5,946                              | 6,636               | 5,963                                    | 235                                 | 5,728                   | 908            | 926      | 1,025           | -99              | -1.6           | 320,893                      |
| 2036   | 0      | 0  | 0      | 5                             | 2      | 40              | 0      | 200          | 0      | 131           | 4      | 575                         | 163                  | 6,100                              | 6,838               | 5,964                                    | 245                                 | 5,719                   | 1,119          | 928      | 1,021           | -93              | -0.9           | 352,005                      |
| 2037   | 0      | 0  | 0      | 5                             | 1      | 41              | 0      | 200          | 0      | 131           | -10    | 553                         | 158                  | 6,079                              | 6,790               | 5,923                                    | 250                                 | 5,673                   | 1,117          | 915      | 1,022           | -106             | -2.4           | 337,995                      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 233 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
NCR Portfolio Under Reference Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 20,030           | 182,415           | 494                      | 15,187                    | 33,376                           | 77,607                                  | 12,112        | 263,779  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 25,977           | 177,860           | 486                      | 15,629                    | 38,240                           | 49,960                                  | 11,299        | 295,911  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 28,492           | 132,576           | 357                      | 13,010                    | 71,693                           | 28,610                                  | 10,679        | 303,025  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 38,577           | 114,062           | 316                      | 12,501                    | 64,557                           | 33,375                                  | -2,707        | 310,492  |
| 2027                               | 39,856                          | 46,143                     | 94,986                   | 48,192           | 91,791            | 228                      | 8,759                     | 58,289                           | 32,397                                  | -22,525       | 333,321  |
| 2028                               | 39,988                          | 81,945                     | 136,805                  | 57,246           | 50,214            | 81                       | 4,212                     | 99,857                           | 31,576                                  | -47,510       | 391,262  |
| 2029                               | 40,015                          | 110,510                    | 168,732                  | 63,626           | 119,684           | 63                       | 4,554                     | 25,902                           | 60,876                                  | -100,764      | 371,447  |
| 2030                               | 40,042                          | 110,510                    | 154,921                  | 64,456           | 85,951            | 20,125                   | 5,686                     | 54,236                           | 47,520                                  | -36,749       | 451,660  |
| 2031                               | 40,070                          | 110,753                    | 143,481                  | 49,752           | 70,342            | 16,506                   | 4,009                     | 68,968                           | 33,585                                  | -39,539       | 430,757  |
| 2032                               | 40,099                          | 110,753                    | 133,404                  | 50,485           | 62,279            | 14,885                   | 4,714                     | 81,343                           | 32,624                                  | -42,242       | 423,096  |
| 2033                               | 40,128                          | 110,753                    | 124,956                  | 51,236           | 68,128            | 15,755                   | 4,854                     | 83,810                           | 38,762                                  | -43,328       | 417,530  |
| 2034                               | 40,158                          | 110,753                    | 116,855                  | 51,999           | 61,372            | 14,272                   | 4,496                     | 89,628                           | 31,728                                  | -45,110       | 412,695  |
| 2035                               | 40,188                          | 115,592                    | 114,265                  | 53,821           | 61,457            | 14,566                   | 5,389                     | 91,416                           | 30,156                                  | -45,118       | 421,420  |
| 2036                               | 40,219                          | 115,592                    | 105,531                  | 54,633           | 71,248            | 17,397                   | 5,289                     | 86,938                           | 38,732                                  | -25,580       | 432,534  |
| 2037                               | 40,250                          | 115,592                    | 96,991                   | 55,458           | 65,115            | 16,254                   | 3,988                     | 93,973                           | 34,138                                  | 6,794         | 460,278  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 632,242                    | 934,721                  | 432,471          | 990,199           | 67,794                   | 80,774                    | 628,566                          | 400,210                                 | (229,969)     | 3,517,018  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 234 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 NCR Portfolio Under Reference Scenario

| Resource (Capacity) Additions   |      |  |        |                                  |        |                 |        |              |        |               |        |                       | Energy & Capacity Positions |  |                       |  |  |                            |                  |          |                    |                     |                   | Carbon Output                   |       |   |     |           |
|---|------|--|--------|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|-----------------------------|--|-----------------------|--|--|----------------------------|------------------|----------|--------------------|---------------------|-------------------|---------------------------------|-------|---|-----|-----------|
| (12)  | (13) | (14)   | (15)   | (16)                             | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                  | (25)                        | (26)   | (27) = (24)+(25)+(26) | (28)   | (29)   | (30) = (29)-(28)           | (31) = (30)-(27) | (32)     | (33)               | (34)=(33)-(32)      | (35)              | (36)                            |       |   |     |           |
| (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) |      | (Current and Planned)<br>Interruptible Load and<br>Demand Response |        | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy  | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales        | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus   | Capacity | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |       |   |     |           |
|   |      | Ann MW   | Cum MW | Ann MW                           | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | Ann MW                | Cum MW                      | Ann MW   | Cum MW                | Ann MW   | Cum MW                                       | Ann MW                     | Cum MW           | Ann MW   | MW                 | MW                  | MW                | %                               | tons  |   |     |           |
| 2023  | 73   | 934  | 2      | 9                                | 5      | 5               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 0                     | 6,180  | 0  | 0                          | 6,180            | 5,643    | 21                 | 5,622               | 558               | 1,020                           | 1,014 | 6 | 9.6 | 5,566,682 |
| 2024  | 78   | 934  | (3)    | 5                                | 6      | 11              | 0      | 0            | 0      | 0             | 0      | 6,070                 | 0                           | 0  | 6,070                 | 6,118  | 51   | 6,067                      | 3                | 1,028    | 1,019              | 9                   | 9.9               | 5,363,049                       |       |   |     |           |
| 2025  | 78   | 934  | 0      | 5                                | 7      | 18              | 0      | 0            | 0      | 0             | 0      | 4,578                 | 0                           | 0  | 4,578                 | 6,060  | 87   | 5,973                      | (1,395)          | 1,036    | 1,002              | 33                  | 12.6              | 3,918,387                       |       |   |     |           |
| 2026  | 60   | 934  | 0      | 5                                | 10     | 28              | 0      | 0            | 27     | 27            | 0      | 4,007                 | 0                           | 613  | 4,620                 | 5,948  | 141  | 5,807                      | (1,187)          | 1,054    | 1,054              | 0                   | 9.0               | 3,421,880                       |       |   |     |           |
| 2027  | 0    | 934  | 0      | 5                                | 7      | 36              | 0      | 0            | 23     | 50            | 63     | 3,116                 | 0                           | 1,523  | 4,639                 | 5,918  | 178  | 5,740                      | (1,101)          | 1,088    | 1,050              | 39                  | 12.9              | 2,510,535                       |       |   |     |           |
| 2028  | 494  | 285  | 0      | 5                                | 6      | 42              | 0      | 0            | 20     | 70            | 82     | 1,596                 | 0                           | 2,633  | 4,229                 | 5,911  | 209  | 5,702                      | (1,473)          | 1,042    | 1,044              | -2                  | 8.7               | 1,292,745                       |       |   |     |           |
| 2029  | 0    | 285  | 0      | 5                                | 5      | 46              | 100    | 100          | 0      | 70            | -14    | 3,603                 | 80                          | 2,623  | 6,306                 | 5,968  | 233  | 5,735                      | 570              | 1,076    | 1,040              | 36                  | 12.7              | 2,164,524                       |       |   |     |           |
| 2030  | 0    | 285  | 0      | 5                                | 4      | 50              | 0      | 100          | (5)    | 65            | -7     | 2,456                 | 81                          | 2,636  | 5,172                 | 5,947  | 252  | 5,694                      | (522)            | 1,066    | 1,037              | 28                  | 11.9              | 1,476,018                       |       |   |     |           |
| 2031  | 0    | 285  | 0      | 5                                | (8)    | 42              | 0      | 100          | 0      | 65            | -7     | 1,944                 | 81                          | 2,639  | 4,665                 | 5,929  | 207  | 5,722                      | (1,058)          | 1,049    | 1,035              | 13                  | 10.3              | 1,171,067                       |       |   |     |           |
| 2032  | 0    | 285  | 0      | 5                                | (6)    | 36              | 0      | 100          | 0      | 65            | -7     | 1,696                 | 82                          | 2,648  | 4,427                 | 5,931  | 178  | 5,753                      | (1,326)          | 1,032    | 1,030              | 2                   | 9.2               | 1,020,594                       |       |   |     |           |
| 2033  | 1    | 285  | 0      | 5                                | (6)    | 30              | 0      | 100          | 0      | 65            | -2     | 1,734                 | 83                          | 2,623  | 4,440                 | 5,894  | 150  | 5,745                      | (1,305)          | 1,023    | 1,031              | -8                  | 8.0               | 1,042,420                       |       |   |     |           |
| 2034  | 4    | 285  | 0      | 5                                | (6)    | 25              | 0      | 100          | 0      | 65            | -2     | 1,518                 | 82                          | 2,619  | 4,219                 | 5,878  | 123  | 5,756                      | (1,537)          | 1,016    | 1,026              | -10                 | 7.9               | 912,447                         |       |   |     |           |
| 2035  | 0    | 285  | 0      | 5                                | (5)    | 20              | 50     | 150          | 0      | 65            | -2     | 1,499                 | 124                         | 2,623  | 4,246                 | 5,913  | 98   | 5,815                      | (1,569)          | 1,040    | 1,025              | 15                  | 10.5              | 900,594                         |       |   |     |           |
| 2036  | 0    | 285  | 0      | 5                                | (5)    | 15              | 0      | 150          | 0      | 65            | -2     | 1,730                 | 122                         | 2,648  | 4,501                 | 5,915  | 76   | 5,839                      | (1,338)          | 1,030    | 1,021              | 10                  | 10.0              | 1,039,084                       |       |   |     |           |
| 2037  | 0    | 285  | 0      | 5                                | (4)    | 11              | 0      | 150          | 0      | 65            | -2     | 1,558                 | 118                         | 2,640  | 4,316                 | 5,876  | 56   | 5,820                      | (1,504)          | 1,021    | 1,022              | 0                   | 8.9               | 937,435                         |       |   |     |           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 235 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CC Portfolio Under Reference Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,415           | 494                      | 15,187                    | 33,411                           | 77,510                                  | 12,112        | 261,440  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 177,860           | 486                      | 15,629                    | 38,398                           | 49,808                                  | 11,299        | 292,999  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 132,576           | 357                      | 13,010                    | 71,863                           | 28,426                                  | 10,679        | 299,336  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 35,043           | 114,062           | 316                      | 12,501                    | 71,575                           | 27,379                                  | 3,491         | 303,715  |
| 2027                               | 39,856                          | 44,227                     | 93,824                   | 45,934           | 91,791            | 228                      | 8,759                     | 60,570                           | 30,294                                  | -19,496       | 335,398  |
| 2028                               | 39,988                          | 95,807                     | 158,008                  | 57,720           | 50,214            | 81                       | 4,212                     | 85,957                           | 36,181                                  | -51,268       | 404,539  |
| 2029                               | 40,015                          | 131,624                    | 203,425                  | 66,312           | 106,430           | 63                       | 11,653                    | 8,429                            | 78,407                                  | -39,074       | 450,471  |
| 2030                               | 40,042                          | 139,525                    | 198,511                  | 70,031           | 94,515            | 22,309                   | 10,871                    | 11,538                           | 87,145                                  | -50,911       | 449,285  |
| 2031                               | 40,070                          | 147,874                    | 195,001                  | 69,820           | 83,802            | 19,823                   | 10,303                    | 14,175                           | 84,808                                  | -62,380       | 433,680  |
| 2032                               | 40,099                          | 147,874                    | 180,658                  | 70,729           | 82,028            | 19,737                   | 10,278                    | 16,954                           | 83,943                                  | -66,156       | 418,258  |
| 2033                               | 40,128                          | 147,874                    | 169,294                  | 71,611           | 89,524            | 21,029                   | 10,502                    | 16,334                           | 89,481                                  | -67,591       | 409,225  |
| 2034                               | 40,158                          | 147,874                    | 158,537                  | 72,614           | 86,967            | 20,625                   | 10,433                    | 17,218                           | 85,001                                  | -69,911       | 399,515  |
| 2035                               | 40,188                          | 152,713                    | 153,656                  | 74,678           | 86,756            | 20,951                   | 10,594                    | 16,531                           | 83,657                                  | -70,440       | 401,970  |
| 2036                               | 40,219                          | 152,713                    | 143,006                  | 75,754           | 93,136            | 23,035                   | 11,221                    | 14,091                           | 93,196                                  | -62,870       | 397,107  |
| 2037                               | 40,250                          | 152,713                    | 132,553                  | 76,767           | 89,775            | 22,614                   | 11,162                    | 14,897                           | 88,981                                  | -23,233       | 428,517  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 792,329                    | 1,135,766                | 495,665          | 1,060,009         | 87,493                   | 109,022                   | 353,366                          | 613,160                                 | (284,611)     | 3,516,310  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 236 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CC Portfolio Under Reference Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 |                  | Carbon Output  |                              |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34) = (33)-(32) | (35)           | (36)                         |
| (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023   | 73     | 934  | 2      | 9                             | 3      | 3               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                    | 0                                  | 6,180                 | 5,643                                    | 19                                  | 5,624                   | 556              | 1,019    | 1,014           | 5                | 9.5            | 5,566,682                    |
| 2024   | 81     | 934  | (3)    | 5                             | 5      | 8               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                    | 0                                  | 6,070                 | 6,118                                    | 46                                  | 6,072                   | (1)              | 1,029    | 1,019           | 9                | 9.9            | 5,363,049                    |
| 2025   | 78     | 934  | 0      | 5                             | 6      | 14              | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                    | 0                                  | 4,578                 | 6,060                                    | 79                                  | 5,980                   | (1,402)          | 1,032    | 1,002           | 29               | 12.1           | 3,918,387                    |
| 2026   | 67     | 934  | 0      | 5                             | 10     | 24              | 0      | 0            | 13     | 13            | 0      | 4,007                       | 0                    | 307                                | 4,314                 | 5,948                                    | 131                                 | 5,817                   | (1,503)          | 1,044    | 1,054           | -10              | 7.9            | 3,421,880                    |
| 2027   | 0      | 934  | 0      | 5                             | 8      | 32              | 0      | 0            | 24     | 38            | 102    | 3,116                       | 0                    | 1,418                              | 4,533                 | 5,918                                    | 167                                 | 5,750                   | (1,217)          | 1,111    | 1,050           | 61               | 15.3           | 2,510,535                    |
| 2028   | 313    | 285  | 0      | 5                             | 6      | 38              | 0      | 0            | 21     | 59            | 149    | 1,596                       | 0                    | 2,930                              | 4,526                 | 5,911                                    | 198                                 | 5,713                   | (1,186)          | 951      | 1,044           | -93              | -0.7           | 1,292,745                    |
| 2029   | 0      | 285  | 0      | 5                             | 5      | 43              | 0      | 0            | 0      | 59            | 6      | 4,227                       | 0                    | 3,119                              | 7,346                 | 5,872                                    | 222                                 | 5,650                   | 1,696            | 1,046    | 1,040           | 5                | 9.5            | 1,904,945                    |
| 2030   | 0      | 285  | 0      | 5                             | 4      | 47              | 0      | 0            | 7      | 65            | -9     | 3,728                       | 0                    | 3,436                              | 7,164                 | 5,850                                    | 241                                 | 5,608                   | 1,556            | 1,048    | 1,037           | 11               | 10.1           | 1,636,545                    |
| 2031   | 0      | 285  | 0      | 5                             | 0      | 47              | 0      | 0            | 11     | 76            | -9     | 3,327                       | 0                    | 3,746                              | 7,073                 | 5,832                                    | 244                                 | 5,588                   | 1,486            | 1,051    | 1,035           | 15               | 10.6           | 1,406,610                    |
| 2032   | 0      | 285  | 0      | 5                             | 1      | 48              | 0      | 0            | 0      | 76            | -10    | 3,211                       | 0                    | 3,759                              | 6,970                 | 5,832                                    | 254                                 | 5,579                   | 1,391            | 1,041    | 1,030           | 11               | 10.1           | 1,353,546                    |
| 2033   | 0      | 285  | 0      | 5                             | 0      | 48              | 0      | 0            | 0      | 76            | -5     | 3,235                       | 0                    | 3,727                              | 6,962                 | 5,795                                    | 259                                 | 5,536                   | 1,426            | 1,036    | 1,031           | 5                | 9.4            | 1,391,901                    |
| 2034   | 0      | 285  | 0      | 5                             | (0)    | 48              | 0      | 0            | 0      | 76            | -5     | 3,096                       | 0                    | 3,722                              | 6,818                 | 5,780                                    | 263                                 | 5,517                   | 1,301            | 1,030    | 1,026           | 5                | 9.4            | 1,319,188                    |
| 2035   | 0      | 285  | 0      | 5                             | (0)    | 48              | 50     | 50           | 0      | 76            | -5     | 3,069                       | 41                   | 3,727                              | 6,837                 | 5,814                                    | 266                                 | 5,548                   | 1,289            | 1,060    | 1,025           | 35               | 12.6           | 1,295,843                    |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 47              | 0      | 50           | 0      | 76            | -5     | 3,211                       | 41                   | 3,759                              | 7,010                 | 5,817                                    | 267                                 | 5,550                   | 1,461            | 1,053    | 1,021           | 32               | 12.4           | 1,376,217                    |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 46              | 0      | 50           | 0      | 76            | -5     | 3,090                       | 39                   | 3,746                              | 6,876                 | 5,781                                    | 265                                 | 5,516                   | 1,360            | 1,046    | 1,022           | 24               | 11.5           | 1,304,653                    |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 237 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
No Wind Portfolio Under Reference Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 182,415           | 494                      | 15,187                    | 33,737                           | 76,742                                  | 12,112        | 258,949  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 177,860           | 486                      | 15,629                    | 39,422                           | 48,429                                  | 11,299        | 289,552  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 132,576           | 357                      | 13,010                    | 73,763                           | 26,798                                  | 10,679        | 294,979  |
| 2026                               | 39,553                          | 7,469                      | 44,788                   | 25,451           | 114,062           | 316                      | 12,501                    | 76,007                           | 24,021                                  | 6,884         | 303,009  |
| 2027                               | 39,856                          | 25,820                     | 67,742                   | 30,210           | 91,791            | 228                      | 8,759                     | 80,360                           | 19,565                                  | -2,741        | 322,460  |
| 2028                               | 39,988                          | 87,901                     | 149,971                  | 45,464           | 50,214            | 81                       | 4,212                     | 113,657                          | 27,099                                  | -79,140       | 385,248  |
| 2029                               | 40,015                          | 120,441                    | 182,870                  | 51,651           | 82,473            | 63                       | 3,409                     | 71,993                           | 45,422                                  | -57,620       | 449,873  |
| 2030                               | 40,042                          | 123,864                    | 170,950                  | 52,432           | 59,460            | 13,579                   | 3,672                     | 108,526                          | 48,800                                  | -29,669       | 494,057  |
| 2031                               | 40,070                          | 127,622                    | 161,979                  | 57,534           | 45,327            | 10,331                   | 2,518                     | 124,181                          | 44,100                                  | -34,845       | 490,616  |
| 2032                               | 40,099                          | 131,227                    | 154,035                  | 58,985           | 40,427            | 9,409                    | 2,864                     | 128,188                          | 43,545                                  | -25,948       | 495,740  |
| 2033                               | 40,128                          | 131,227                    | 143,385                  | 59,693           | 46,629            | 10,530                   | 3,127                     | 123,157                          | 44,919                                  | -28,085       | 484,871  |
| 2034                               | 40,158                          | 131,227                    | 134,000                  | 60,519           | 41,619            | 9,447                    | 2,868                     | 131,610                          | 45,280                                  | -30,309       | 475,859  |
| 2035                               | 40,188                          | 135,124                    | 130,446                  | 62,110           | 40,609            | 9,381                    | 3,263                     | 135,884                          | 48,680                                  | -34,675       | 473,649  |
| 2036                               | 40,219                          | 135,124                    | 120,846                  | 63,003           | 48,240            | 11,511                   | 3,370                     | 127,703                          | 49,620                                  | -29,951       | 470,443  |
| 2037                               | 40,250                          | 143,360                    | 123,341                  | 65,361           | 42,627            | 10,400                   | 2,578                     | 134,453                          | 53,380                                  | -13,098       | 495,893  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 698,340                    | 996,152                  | 390,739          | 873,498           | 44,808                   | 72,834                    | 883,499                          | 410,070                                 | (175,557)     | 3,754,675  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 238 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 No Wind Portfolio Under Reference Scenario

| Resource (Capacity) Additions  |        |  |        |                          |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                |                         |                  |          |                 |                  | Carbon Output  |                              |
|--|--------|--|--------|--------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|--------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                     | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                           | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
| (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Incr) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Incr) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                   | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                            | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023   | 73     | 934  | 2      | 9                        | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,180                       | 0                    | 0                                  | 6,180                 | 5,643                                    | 1                              | 5,642                   | 538              | 1,016    | 1,014           | 2                | 9.1            | 5,566,682                    |
| 2024   | 78     | 934  | (3)    | 5                        | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,070                       | 0                    | 0                                  | 6,070                 | 6,118                                    | 1                              | 6,117                   | (46)             | 1,017    | 1,019           | -2               | 8.7            | 5,363,049                    |
| 2025   | 78     | 934  | 0      | 5                        | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 4,578                       | 0                    | 0                                  | 4,578                 | 6,060                                    | 1                              | 6,058                   | (1,480)          | 1,018    | 1,002           | 15               | 10.6           | 3,918,387                    |
| 2026   | 78     | 934  | 0      | 5                        | 6      | 6               | 0      | 0            | 0      | 0             | 43     | 4,007                       | 0                    | 200                                | 4,207                 | 5,948                                    | 45                             | 5,903                   | (1,696)          | 1,066    | 1,054           | 12               | 10.2           | 3,421,880                    |
| 2027   | 0      | 934  | 0      | 5                        | 5      | 11              | 0      | 0            | 0      | 0             | 99     | 3,116                       | 0                    | 700                                | 3,816                 | 5,918                                    | 76                             | 5,842                   | (2,026)          | 1,092    | 1,050           | 42               | 13.3           | 2,510,535                    |
| 2028   | 407    | 285  | 0      | 5                        | 4      | 15              | 0      | 0            | 0      | 0             | 224    | 1,596                       | 0                    | 1,606                              | 3,202                 | 5,911                                    | 104                            | 5,807                   | (2,605)          | 1,139    | 1,044           | 95               | 18.9           | 1,292,745                    |
| 2029   | 0      | 285  | 0      | 5                        | 3      | 18              | 50     | 50           | 0      | 0             | 41     | 2,442                       | 40                   | 2,100                              | 4,582                 | 5,920                                    | 127                            | 5,793                   | (1,211)          | 1,045    | 1,040           | 5                | 9.4            | 1,454,253                    |
| 2030   | 0      | 285  | 0      | 5                        | 3      | 21              | 0      | 50           | 0      | 0             | 5      | 1,670                       | 40                   | 2,200                              | 3,910                 | 5,898                                    | 147                            | 5,752                   | (1,841)          | 1,049    | 1,037           | 12               | 10.2           | 994,779                      |
| 2031   | 0      | 285  | 0      | 5                        | 4      | 25              | 0      | 50           | 0      | 0             | 4      | 1,228                       | 41                   | 2,300                              | 3,569                 | 5,880                                    | 164                            | 5,716                   | (2,147)          | 1,054    | 1,035           | 18               | 10.9           | 732,720                      |
| 2032   | 0      | 285  | 0      | 5                        | 4      | 29              | 0      | 50           | 0      | 0             | 0      | 1,082                       | 41                   | 2,410                              | 3,533                 | 5,882                                    | 188                            | 5,694                   | (2,161)          | 1,055    | 1,030           | 25               | 11.5           | 644,869                      |
| 2033   | 0      | 285  | 0      | 5                        | 4      | 33              | 0      | 50           | 0      | 0             | -10    | 1,168                       | 41                   | 2,400                              | 3,609                 | 5,845                                    | 207                            | 5,638                   | (2,028)          | 1,045    | 1,031           | 14               | 10.4           | 696,186                      |
| 2034   | 0      | 285  | 0      | 5                        | 3      | 36              | 0      | 50           | 0      | 0             | -10    | 1,013                       | 41                   | 2,400                              | 3,454                 | 5,829                                    | 222                            | 5,607                   | (2,153)          | 1,036    | 1,026           | 10               | 10.0           | 603,613                      |
| 2035   | 0      | 285  | 0      | 5                        | 2      | 38              | 0      | 50           | 0      | 0             | 4      | 974                         | 41                   | 2,500                              | 3,516                 | 5,814                                    | 235                            | 5,579                   | (2,064)          | 1,042    | 1,025           | 17               | 10.7           | 579,701                      |
| 2036   | 0      | 285  | 0      | 5                        | 2      | 40              | 0      | 50           | 0      | 0             | -10    | 1,155                       | 41                   | 2,510                              | 3,706                 | 5,817                                    | 245                            | 5,572                   | (1,866)          | 1,031    | 1,021           | 10               | 10.0           | 687,078                      |
| 2037   | 0      | 285  | 0      | 5                        | 1      | 41              | 0      | 50           | 0      | 0             | 15     | 1,006                       | 39                   | 2,700                              | 3,746                 | 5,781                                    | 250                            | 5,531                   | (1,786)          | 1,045    | 1,022           | 23               | 11.4           | 599,440                      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 239 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Preferred Plan Under Reference Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,415           | 494                      | 15,187                    | 33,411                           | 77,510                                  | 12,112        | 261,440  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 177,860           | 486                      | 15,629                    | 38,398                           | 49,808                                  | 11,299        | 292,999  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 132,576           | 357                      | 13,010                    | 71,863                           | 28,426                                  | 10,679        | 299,336  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 35,043           | 114,062           | 316                      | 12,501                    | 71,575                           | 27,379                                  | 3,491         | 303,715  |
| 2027                               | 39,856                          | 44,227                     | 93,824                   | 45,934           | 91,791            | 228                      | 8,759                     | 60,570                           | 30,294                                  | -19,496       | 335,398  |
| 2028                               | 40,133                          | 95,807                     | 158,269                  | 57,720           | 50,214            | 81                       | 4,212                     | 85,957                           | 36,181                                  | -51,188       | 405,025  |
| 2029                               | 40,160                          | 122,683                    | 187,624                  | 63,164           | 119,684           | 63                       | 4,554                     | 23,919                           | 76,144                                  | -45,052       | 440,655  |
| 2030                               | 40,187                          | 130,585                    | 183,412                  | 66,826           | 85,951            | 20,125                   | 5,686                     | 44,145                           | 70,849                                  | -56,738       | 449,331  |
| 2031                               | 40,215                          | 138,933                    | 180,583                  | 66,556           | 70,342            | 16,506                   | 4,009                     | 47,921                           | 62,925                                  | -68,061       | 434,080  |
| 2032                               | 40,244                          | 138,933                    | 166,901                  | 67,405           | 62,279            | 14,885                   | 4,714                     | 56,802                           | 59,746                                  | -71,696       | 420,721  |
| 2033                               | 40,273                          | 138,933                    | 156,179                  | 68,225           | 68,128            | 15,755                   | 4,854                     | 58,441                           | 66,433                                  | -72,994       | 411,362  |
| 2034                               | 40,303                          | 138,933                    | 146,047                  | 69,164           | 61,372            | 14,272                   | 4,496                     | 61,795                           | 58,726                                  | -75,180       | 402,476  |
| 2035                               | 40,333                          | 143,772                    | 141,774                  | 71,162           | 61,457            | 14,566                   | 5,389                     | 60,584                           | 56,464                                  | -75,579       | 406,995  |
| 2036                               | 40,364                          | 143,772                    | 131,717                  | 72,171           | 71,248            | 17,397                   | 5,289                     | 56,800                           | 68,082                                  | -67,882       | 402,796  |
| 2037                               | 40,395                          | 143,772                    | 121,855                  | 73,115           | 65,115            | 16,254                   | 3,988                     | 61,114                           | 62,203                                  | -28,118       | 435,288  |
| Cumulative Present Worth 2023-2037 | 381,214                         | 750,264                    | 1,072,782                | 479,824          | 990,199           | 67,794                   | 80,774                    | 526,023                          | 516,726                                 | (310,287)     | 3,521,863  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 240 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Preferred Plan Under Reference Scenario

|        | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |      |      |           |
|--------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|------|-----------|
|        | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36) |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |      |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |      |           |
| 2023   | 73  | 934  | 2                                | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,180          | 0  | 0  | 6,180                      | 5,643          | 19               | 5,624              | 556                 | 1,019             | 1,014                           | 5    | 9.5  | 5,566,682 |
| 2024   | 81  | 934  | (3)                              | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,070          | 0  | 0  | 6,070                      | 6,118          | 46               | 6,072              | (1)                 | 1,029             | 1,019                           | 9    | 9.9  | 5,363,049 |
| 2025   | 78  | 934  | 0                                | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,578          | 0  | 0  | 4,578                      | 6,060          | 79               | 5,980              | (1,402)             | 1,032             | 1,002                           | 29   | 12.1 | 3,918,387 |
| 2026   | 76  | 934  | 0                                | 5      | 10              | 24     | 0            | 0      | 13            | 13     | 0                     | 0                          | 0  | 4,007          | 0  | 307  | 4,314                      | 5,948          | 131              | 5,817              | (1,503)             | 1,053             | 1,054                           | -1   | 8.8  | 3,421,880 |
| 2027   | 0   | 934  | 0                                | 5      | 8               | 32     | 0            | 0      | 24            | 38     | 102                   | 102                        | 0  | 3,116          | 0  | 1,418  | 4,533                      | 5,918          | 167              | 5,750              | (1,217)             | 1,111             | 1,050                           | 61   | 15.3 | 2,510,535 |
| 2028   | 448   | 285  | 0                                | 5      | 6               | 38     | 0            | 0      | 21            | 59     | 149                   | 251                        | 0  | 1,596          | 0  | 2,930  | 4,526                      | 5,911          | 198              | 5,713              | (1,186)             | 1,086             | 1,044                           | 42   | 13.4 | 1,292,745 |
| 2029   | 0   | 285  | 0                                | 5      | 5               | 43     | 0            | 0      | 0             | 59     | 6                     | 257                        | 0  | 3,603          | 0  | 3,119  | 6,722                      | 5,872          | 222              | 5,650              | 1,072               | 1,105             | 1,040                           | 64   | 15.7 | 2,164,524 |
| 2030   | 0   | 285  | 0                                | 5      | 4               | 47     | 0            | 0      | 7             | 65     | -9                    | 248                        | 0  | 2,456          | 0  | 3,436  | 5,891                      | 5,850          | 241              | 5,608              | 283                 | 1,107             | 1,037                           | 70   | 16.3 | 1,476,018 |
| 2031   | 0   | 285  | 0                                | 5      | 0               | 47     | 0            | 0      | 11            | 76     | -9                    | 240                        | 0  | 1,944          | 0  | 3,746  | 5,690                      | 5,832          | 244              | 5,588              | 102                 | 1,110             | 1,035                           | 74   | 16.8 | 1,171,067 |
| 2032   | 0   | 285  | 0                                | 5      | 1               | 48     | 0            | 0      | 0             | 76     | -10                   | 229                        | 0  | 1,696          | 0  | 3,759  | 5,455                      | 5,832          | 254              | 5,579              | (124)               | 1,100             | 1,030                           | 70   | 16.3 | 1,020,594 |
| 2033   | 0   | 285  | 0                                | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -5                    | 224                        | 0  | 1,734          | 0  | 3,727  | 5,461                      | 5,795          | 259              | 5,536              | (75)                | 1,095             | 1,031                           | 64   | 15.7 | 1,042,420 |
| 2034   | 0   | 285  | 0                                | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -5                    | 219                        | 0  | 1,518          | 0  | 3,722  | 5,240                      | 5,780          | 263              | 5,517              | (277)               | 1,089             | 1,026                           | 63   | 15.7 | 912,447   |
| 2035   | 0   | 285  | 0                                | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | -5                    | 214                        | 0  | 1,499          | 41   | 3,727  | 5,267                      | 5,814          | 266              | 5,548              | (281)               | 1,119             | 1,025                           | 94   | 18.9 | 900,594   |
| 2036   | 0   | 285  | 0                                | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | -5                    | 208                        | 0  | 1,730          | 41   | 3,759  | 5,530                      | 5,817          | 267              | 5,550              | (20)                | 1,112             | 1,021                           | 91   | 18.7 | 1,039,084 |
| 2037   | 0   | 285  | 0                                | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -5                    | 203                        | 0  | 1,558          | 39   | 3,746  | 5,344                      | 5,781          | 265              | 5,516              | (172)               | 1,105             | 1,022                           | 83   | 17.8 | 937,435   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 241 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Reference Portfolio Under REF-HC Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,424           | 495                      | 15,188                    | 33,410                           | 77,526                                  | 12,112        | 261,433  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 176,268           | 482                      | 15,522                    | 39,340                           | 48,452                                  | 11,299        | 293,594  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 130,001           | 349                      | 12,710                    | 73,819                           | 27,202                                  | 10,679        | 299,632  |
| 2026                               | 39,553                          | 8,499                      | 46,257                   | 29,498           | 107,482           | 295                      | 11,818                    | 77,317                           | 23,592                                  | 3,537         | 300,664  |
| 2027                               | 39,856                          | 38,918                     | 86,241                   | 37,937           | 79,931            | 190                      | 7,634                     | 80,412                           | 22,862                                  | -10,955       | 337,301  |
| 2028                               | 39,988                          | 79,947                     | 136,285                  | 47,802           | 58,287            | 113                      | 4,510                     | 96,700                           | 23,576                                  | -33,015       | 407,040  |
| 2029                               | 40,015                          | 126,527                    | 196,176                  | 60,502           | 116,167           | 62                       | 4,686                     | 23,790                           | 67,379                                  | -39,264       | 461,282  |
| 2030                               | 40,042                          | 134,714                    | 190,795                  | 64,973           | 77,094            | 18,061                   | 4,355                     | 46,984                           | 54,722                                  | -51,215       | 471,081  |
| 2031                               | 40,070                          | 143,398                    | 187,479                  | 67,388           | 73,629            | 17,352                   | 5,220                     | 46,594                           | 64,687                                  | -62,589       | 453,854  |
| 2032                               | 40,099                          | 152,088                    | 185,520                  | 71,738           | 68,391            | 16,285                   | 5,400                     | 43,787                           | 67,529                                  | -74,192       | 441,587  |
| 2033                               | 40,128                          | 161,033                    | 184,971                  | 76,171           | 55,618            | 12,972                   | 5,547                     | 47,800                           | 63,194                                  | -83,596       | 437,451  |
| 2034                               | 40,158                          | 170,247                    | 185,185                  | 80,786           | 57,065            | 13,351                   | 4,611                     | 42,514                           | 74,808                                  | -94,139       | 424,969  |
| 2035                               | 40,188                          | 179,759                    | 185,358                  | 85,576           | 59,565            | 14,092                   | 5,048                     | 34,432                           | 83,564                                  | -105,487      | 414,965  |
| 2036                               | 40,219                          | 179,759                    | 171,479                  | 86,872           | 63,771            | 15,614                   | 3,273                     | 34,090                           | 91,973                                  | -99,315       | 403,788  |
| 2037                               | 40,250                          | 185,202                    | 166,491                  | 89,002           | 62,982            | 15,720                   | 4,238                     | 33,748                           | 96,388                                  | -70,783       | 430,463  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 825,711                    | 1,165,494                | 491,744          | 962,282           | 64,655                   | 79,102                    | 501,188                          | 529,561                                 | (341,502)     | 3,599,542  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 242 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
Reference Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions  |        |  |        |                            |        |                 |        |              |        |               |       | Energy & Capacity Positions |                      |                                    |                       |  |                                  |                         |                  |          |                 | Carbon Output    |                |                              |
|--------|--|--------|--|--------|----------------------------|--------|-----------------|--------|--------------|--------|---------------|-------|-----------------------------|----------------------|------------------------------------|-----------------------|--|----------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|        | (12)   | (13)   | (14)   | (15)   | (16)                       | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)  | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                             | (30) = (29)+(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|        | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increm) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |       | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increm) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW | Cum MW   | Ann MW | Cum MW   | Ann MW | Cum MW                     | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh   | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                              | GWh                     | MW               | MW       | MW              | %                | Tons           |                              |
| 2023   | 73   | 934    | 2  | 9      | 3                          | 3      | 0               | 0      | 0            | 0      | 0             | 6,181 | 0                           | 0                    | 6,181                              | 5,643                 | 19                                       | 5,624                            | 556                     | 1,019            | 1,014    | 5               | 9.5              | 5,567,084      |                              |
| 2024   | 78   | 934    | (3)  | 5      | 5                          | 8      | 0               | 0      | 0            | 0      | 0             | 6,014 | 0                           | 0                    | 6,014                              | 6,118                 | 46                                       | 6,072                            | (57)                    | 1,026            | 1,019    | 6               | 9.6              | 5,309,903      |                              |
| 2025   | 78   | 934    | 0  | 5      | 6                          | 14     | 0               | 0      | 0            | 0      | 0             | 4,484 | 0                           | 0                    | 4,484                              | 6,060                 | 79                                       | 5,980                            | (1,496)                 | 1,032            | 1,002    | 29              | 12.1             | 3,827,239      |                              |
| 2026   | 82   | 934    | 0  | 5      | 7                          | 21     | 0               | 0      | 11           | 11     | 0             | 3,778 | 0                           | 307                  | 4,085                              | 5,948                 | 118                                      | 5,830                            | (1,746)                 | 1,054            | 1,054    | -1              | 8.9              | 3,199,395      |                              |
| 2027   | 0  | 934    | 0  | 5      | 6                          | 26     | 0               | 0      | 11           | 23     | 101           | 2,701 | 0                           | 1,112                | 3,813                              | 5,918                 | 151                                      | 5,767                            | (1,954)                 | 1,089            | 1,050    | 39              | 13.0             | 2,235,789      |                              |
| 2028   | 495  | 285    | 0  | 5      | 4                          | 31     | 0               | 0      | 23           | 45     | 71            | 1,841 | 0                           | 2,224                | 4,065                              | 5,911                 | 179                                      | 5,733                            | (1,668)                 | 1,033            | 1,044    | -11             | 7.8              | 1,410,393      |                              |
| 2029   | 0  | 285    | 0  | 5      | 4                          | 34     | 0               | 0      | 21           | 66     | 27            | 3,491 | 0                           | 3,023                | 6,514                              | 5,872                 | 200                                      | 5,673                            | 842                     | 1,046            | 1,040    | 6               | 9.5              | 2,099,562      |                              |
| 2030   | 0  | 285    | 0  | 5      | 3                          | 37     | 0               | 0      | 16           | 83     | -9            | 2,206 | 0                           | 3,341                | 5,547                              | 5,850                 | 217                                      | 5,633                            | (86)                    | 1,056            | 1,037    | 19              | 10.9             | 1,326,218      |                              |
| 2031   | 0  | 285    | 0  | 5      | (0)                        | 36     | 0               | 0      | 10           | 92     | -4            | 2,042 | 0                           | 3,653                | 5,695                              | 5,832                 | 220                                      | 5,612                            | 83                      | 1,062            | 1,035    | 27              | 11.7             | 1,229,266      |                              |
| 2032   | 0  | 285    | 0  | 5      | (1)                        | 36     | 0               | 0      | 6            | 98     | -13           | 1,857 | 0                           | 3,972                | 5,829                              | 5,832                 | 221                                      | 5,612                            | 218                     | 1,054            | 1,030    | 24              | 11.5             | 1,115,577      |                              |
| 2033   | 0  | 285    | 0  | 5      | (1)                        | 35     | 0               | 0      | 11           | 109    | -5            | 1,429 | 0                           | 4,239                | 5,667                              | 5,795                 | 219                                      | 5,576                            | 91                      | 1,059            | 1,031    | 28              | 11.9             | 859,173        |                              |
| 2034   | 0  | 285    | 0  | 5      | (1)                        | 34     | 0               | 0      | 11           | 120    | -3            | 1,420 | 0                           | 4,535                | 5,954                              | 5,780                 | 216                                      | 5,564                            | 390                     | 1,066            | 1,026    | 41              | 13.3             | 853,531        |                              |
| 2035   | 0  | 285    | 0  | 5      | (1)                        | 33     | 0               | 0      | 11           | 131    | 0             | 1,449 | 0                           | 4,846                | 6,295                              | 5,765                 | 213                                      | 5,552                            | 743                     | 1,076            | 1,025    | 52              | 14.4             | 871,321        |                              |
| 2036   | 0  | 285    | 0  | 5      | (1)                        | 32     | 0               | 0      | 0            | 131    | -1            | 1,550 | 0                           | 4,895                | 6,445                              | 5,768                 | 209                                      | 5,559                            | 886                     | 1,074            | 1,021    | 54              | 14.7             | 932,709        |                              |
| 2037   | 0  | 285    | 0  | 5      | (1)                        | 31     | 0               | 0      | 0            | 131    | 13            | 1,509 | 0                           | 4,979                | 6,488                              | 5,734                 | 203                                      | 5,531                            | 957                     | 1,086            | 1,022    | 64              | 15.8             | 906,576        |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 243 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
REF-HC Portfolio Under REF-HC Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 182,424           | 495                      | 15,188                    | 33,517                           | 77,263                                  | 12,112        | 260,432  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 176,268           | 482                      | 15,522                    | 39,638                           | 48,045                                  | 11,299        | 292,430  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 130,001           | 349                      | 12,710                    | 74,330                           | 26,761                                  | 10,679        | 298,165  |
| 2026                               | 39,553                          | 17,848                     | 59,586                   | 30,141           | 107,482           | 295                      | 11,818                    | 70,752                           | 28,427                                  | -2,612        | 306,436  |
| 2027                               | 39,856                          | 53,159                     | 104,960                  | 40,987           | 79,931            | 190                      | 7,634                     | 69,076                           | 29,438                                  | -22,446       | 343,909  |
| 2028                               | 39,988                          | 109,103                    | 174,313                  | 53,569           | 58,287            | 113                      | 4,510                     | 77,505                           | 34,936                                  | -48,191       | 434,260  |
| 2029                               | 40,015                          | 137,235                    | 203,933                  | 61,410           | 116,167           | 62                       | 4,686                     | 20,854                           | 74,992                                  | -45,688       | 463,680  |
| 2030                               | 40,042                          | 145,421                    | 198,590                  | 65,927           | 77,094            | 18,061                   | 4,355                     | 41,391                           | 61,376                                  | -57,704       | 471,802  |
| 2031                               | 40,070                          | 154,106                    | 195,260                  | 67,276           | 73,629            | 17,352                   | 5,220                     | 41,707                           | 71,362                                  | -69,104       | 454,152  |
| 2032                               | 40,099                          | 162,795                    | 192,959                  | 71,800           | 68,391            | 16,285                   | 5,400                     | 39,456                           | 74,547                                  | -80,814       | 441,824  |
| 2033                               | 40,128                          | 171,741                    | 192,728                  | 76,465           | 55,618            | 12,972                   | 5,547                     | 43,607                           | 70,012                                  | -90,021       | 438,773  |
| 2034                               | 40,158                          | 171,741                    | 179,308                  | 77,767           | 57,065            | 13,351                   | 4,611                     | 44,385                           | 72,546                                  | -92,796       | 423,044  |
| 2035                               | 40,188                          | 171,741                    | 166,982                  | 79,077           | 59,565            | 14,092                   | 5,048                     | 41,596                           | 70,895                                  | -95,951       | 411,442  |
| 2036                               | 40,219                          | 171,741                    | 155,327                  | 80,410           | 63,771            | 15,614                   | 3,273                     | 41,338                           | 78,510                                  | -77,836       | 415,349  |
| 2037                               | 40,250                          | 181,877                    | 158,513                  | 85,526           | 62,982            | 15,720                   | 4,238                     | 36,888                           | 89,761                                  | -43,421       | 452,813  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 887,484                    | 1,217,412                | 486,225          | 962,282           | 64,655                   | 79,102                    | 470,853                          | 550,151                                 | (359,009)     | 3,639,283  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 244 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 REF-HC Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions   |  |                               |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |   |                            |                |                  |                    |                     |                   | Carbon Output                   |      |      |           |
|--------|---|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|---|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|------|-----------|
|        | (12)  | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                     | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36) |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Forced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Incram) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Incram)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |      |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh                                       | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |      |           |
| 2023   | 73  | 934  | 2                             | 9      | 2               | 2      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,181          | 0  | 0   | 6,181                      | 5,643          | 13               | 5,630              | 550                 | 1,017             | 1,014                           | 4    | 9.3  | 5,567,084 |
| 2024   | 78  | 934  | (3)                           | 5      | 3               | 5      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,014          | 0  | 0   | 6,014                      | 6,118          | 33               | 6,085              | (71)                | 1,022             | 1,019                           | 3    | 9.2  | 5,309,903 |
| 2025   | 78  | 934  | 0                             | 5      | 4               | 9      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,484          | 0  | 0   | 4,484                      | 6,060          | 58               | 6,001              | (1,517)             | 1,026             | 1,002                           | 24   | 11.5 | 3,827,239 |
| 2026   | 79  | 934  | 0                             | 5      | 5               | 14     | 0            | 0      | 23            | 23     | 0                     | 0                          | 0  | 3,778          | 0  | 613                                       | 4,391                      | 5,948          | 97               | 5,851              | (1,460)             | 1,055             | 1,054                           | 1    | 9.0  | 3,199,395 |
| 2027   | 0   | 934  | 0                             | 5      | 4               | 18     | 0            | 0      | 23            | 45     | 82                    | 82                         | 0  | 2,701          | 0  | 1,623                                     | 4,324                      | 5,918          | 124              | 5,794              | (1,470)             | 1,084             | 1,050                           | 34   | 12.5 | 2,235,789 |
| 2028   | 461   | 285  | 0                             | 5      | 3               | 21     | 0            | 0      | 23            | 68     | 123                   | 205                        | 0  | 1,841          | 0  | 3,035                                     | 4,875                      | 5,911          | 146              | 5,765              | (890)               | 1,045             | 1,044                           | 1    | 9.1  | 1,410,393 |
| 2029   | 0   | 285  | 0                             | 5      | 3               | 24     | 0            | 0      | 10            | 77     | -6                    | 199                        | 0  | 3,491          | 0  | 3,327                                     | 6,818                      | 5,872          | 164              | 5,709              | 1,109               | 1,047             | 1,040                           | 6    | 9.6  | 2,099,562 |
| 2030   | 0   | 285  | 0                             | 5      | 2               | 26     | 0            | 0      | 17            | 94     | -9                    | 190                        | 0  | 2,206          | 0  | 3,647                                     | 5,853                      | 5,850          | 178              | 5,672              | 181                 | 1,057             | 1,037                           | 20   | 11.0 | 1,326,218 |
| 2031   | 0   | 285  | 0                             | 5      | (1)             | 24     | 0            | 0      | 10            | 104    | -4                    | 187                        | 0  | 2,042          | 0  | 3,959                                     | 6,001                      | 5,832          | 160              | 5,672              | 330                 | 1,061             | 1,035                           | 26   | 11.7 | 1,229,266 |
| 2032   | 0   | 285  | 0                             | 5      | (1)             | 24     | 0            | 0      | 5             | 109    | -13                   | 174                        | 0  | 1,857          | 0  | 4,280                                     | 6,137                      | 5,832          | 151              | 5,681              | 456                 | 1,053             | 1,030                           | 23   | 11.4 | 1,115,577 |
| 2033   | 0   | 285  | 0                             | 5      | (1)             | 23     | 0            | 0      | 11            | 120    | -5                    | 169                        | 0  | 1,429          | 0  | 4,543                                     | 5,971                      | 5,795          | 141              | 5,654              | 317                 | 1,058             | 1,031                           | 27   | 11.8 | 859,173   |
| 2034   | 0   | 285  | 0                             | 5      | (1)             | 22     | 0            | 0      | 0             | 120    | -3                    | 167                        | 0  | 1,420          | 0  | 4,535                                     | 5,954                      | 5,780          | 130              | 5,650              | 305                 | 1,055             | 1,026                           | 29   | 12.0 | 853,531   |
| 2035   | 0   | 285  | 0                             | 5      | (1)             | 21     | 0            | 0      | 0             | 120    | 0                     | 167                        | 0  | 1,449          | 0  | 4,542                                     | 5,991                      | 5,765          | 120              | 5,645              | 346                 | 1,054             | 1,025                           | 29   | 12.0 | 871,321   |
| 2036   | 0   | 285  | 0                             | 5      | (1)             | 20     | 0            | 0      | 0             | 120    | -1                    | 165                        | 0  | 1,550          | 0  | 4,587                                     | 6,138                      | 5,768          | 110              | 5,658              | 480                 | 1,052             | 1,021                           | 31   | 12.2 | 932,709   |
| 2037   | 0   | 285  | 0                             | 5      | (1)             | 19     | 0            | 0      | 11            | 131    | -1                    | 164                        | 0  | 1,509          | 0  | 4,879                                     | 6,388                      | 5,734          | 100              | 5,634              | 754                 | 1,060             | 1,022                           | 38   | 13.0 | 906,576   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 245 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CETA Portfolio Under REF-HC Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 182,424           | 495                      | 15,188                    | 33,887                           | 77,263                                  | 12,112        | 260,803  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 176,268           | 482                      | 15,522                    | 40,354                           | 48,045                                  | 11,299        | 293,146  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 130,001           | 349                      | 12,710                    | 75,188                           | 26,761                                  | 10,679        | 299,023  |
| 2026                               | 39,553                          | 17,848                     | 59,586                   | 32,599           | 107,482           | 295                      | 11,818                    | 72,709                           | 28,464                                  | -2,612        | 310,816  |
| 2027                               | 39,856                          | 57,554                     | 111,226                  | 44,257           | 79,931            | 190                      | 7,634                     | 66,481                           | 31,002                                  | -23,789       | 352,337  |
| 2028                               | 39,988                          | 118,469                    | 186,922                  | 57,636           | 58,287            | 113                      | 4,510                     | 75,636                           | 40,178                                  | -50,824       | 450,558  |
| 2029                               | 40,015                          | 165,049                    | 241,472                  | 70,501           | 116,167           | 62                       | 4,686                     | 16,078                           | 98,579                                  | -58,073       | 497,377  |
| 2030                               | 40,042                          | 178,059                    | 238,878                  | 76,012           | 77,094            | 18,061                   | 4,355                     | 31,535                           | 89,156                                  | -72,372       | 502,510  |
| 2031                               | 40,070                          | 186,743                    | 231,658                  | 78,562           | 73,629            | 17,352                   | 5,220                     | 31,488                           | 100,236                                 | -84,631       | 479,856  |
| 2032                               | 40,099                          | 200,426                    | 233,562                  | 83,937           | 68,391            | 16,285                   | 5,400                     | 29,024                           | 108,087                                 | -98,462       | 470,574  |
| 2033                               | 40,128                          | 209,372                    | 229,933                  | 88,517           | 55,618            | 12,972                   | 5,547                     | 32,120                           | 103,233                                 | -108,165      | 462,810  |
| 2034                               | 40,158                          | 209,372                    | 214,177                  | 89,725           | 57,065            | 13,351                   | 4,611                     | 32,506                           | 106,420                                 | -111,411      | 443,133  |
| 2035                               | 40,188                          | 215,839                    | 207,193                  | 92,381           | 59,565            | 14,092                   | 5,048                     | 29,551                           | 106,135                                 | -112,222      | 445,499  |
| 2036                               | 40,219                          | 215,839                    | 192,625                  | 93,737           | 63,771            | 15,614                   | 3,273                     | 29,609                           | 115,344                                 | -94,963       | 444,381  |
| 2037                               | 40,250                          | 226,726                    | 194,446                  | 96,842           | 62,982            | 15,720                   | 4,238                     | 28,855                           | 123,846                                 | -54,399       | 491,815  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 1,070,554                  | 1,409,169                | 547,336          | 962,282           | 64,655                   | 79,102                    | 424,409                          | 702,391                                 | (435,494)     | 3,800,051  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 246 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CETA Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions   |        |  |        |                                  |        |                 |        |              |        |               |       | Energy & Capacity Positions |                            |  |                       |  |  |                            |                  |          |                    | Carbon Output       |                   |                                 |
|--------|---|--------|--|--------|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|-------|-----------------------------|----------------------------|--|-----------------------|--|--|----------------------------|------------------|----------|--------------------|---------------------|-------------------|---------------------------------|
|        | (12)  | (13)   | (14)   | (15)   | (16)                             | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)  | (24)                        | (25)                       | (26)   | (27) = (24)+(25)+(26) | (28)   | (29)   | (30) = (29)-(28)           | (31) = (30)-(27) | (32)     | (33)               | (34)=(33)-(32)      | (35)              | (36)                            |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) |        | (Current and Planned)<br>Interruptible Load and<br>Demand Response |        | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |       | Thermal<br>Generation       | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales        | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus   | Capacity | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |
| Ann MW | Cum MW  | Ann MW | Cum MW   | Ann MW | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh   | GWh                         | GWh                        | GWh  | GWh                   | GWh  | GWh  | GWh                        | MW               | MW       | MW                 | %                   | tons              |                                 |
| 2023   | 105   | 934    | 2  | 9      | 2                                | 2      | 0               | 0      | 0            | 0      | 0             | 6,181 | 0                           | 0                          | 6,181  | 5,643                 | 13   | 5,630  | 550                        | 1,049            | 1,014    | 36                 | 12.8                | 5,567,084         |                                 |
| 2024   | 118   | 934    | (3)  | 5      | 3                                | 5      | 0               | 0      | 0            | 0      | 0             | 6,014 | 0                           | 0                          | 6,014  | 6,118                 | 33   | 6,085  | (71)                       | 1,062            | 1,019    | 43                 | 13.5                | 5,309,903         |                                 |
| 2025   | 103   | 934    | 0  | 5      | 4                                | 9      | 0               | 0      | 0            | 0      | 0             | 4,484 | 0                           | 0                          | 4,484  | 6,060                 | 58   | 6,001  | (1,517)                    | 1,051            | 1,002    | 49                 | 14.2                | 3,827,239         |                                 |
| 2026   | 133   | 934    | 0  | 5      | 7                                | 16     | 0               | 0      | 23           | 23     | 0             | 3,778 | 0                           | 613                        | 4,391  | 5,948                 | 100  | 5,848  | (1,457)                    | 1,111            | 1,054    | 57                 | 14.8                | 3,199,395         |                                 |
| 2027   | 4   | 934    | 0  | 5      | 6                                | 22     | 0               | 0      | 23           | 45     | 101           | 2,701 | 0                           | 1,723                      | 4,424  | 5,918                 | 136  | 5,782  | (1,358)                    | 1,112            | 1,050    | 62                 | 15.4                | 2,235,789         |                                 |
| 2028   | 488   | 285    | 0  | 5      | 5                                | 28     | 0               | 0      | 23           | 68     | 137           | 1,841 | 0                           | 3,235                      | 5,076  | 5,911                 | 167  | 5,745  | (668)                      | 1,111            | 1,044    | 68                 | 16.0                | 1,410,393         |                                 |
| 2029   | 0   | 285    | 0  | 5      | 4                                | 32     | 0               | 0      | 21           | 88     | 264           | 3,491 | 0                           | 4,031                      | 7,522  | 5,872                 | 191  | 5,681  | 1,841                      | 1,131            | 1,040    | 90                 | 18.4                | 2,099,562         |                                 |
| 2030   | 0   | 285    | 0  | 5      | 3                                | 35     | 0               | 0      | 18           | 106    | 6             | 2,206 | 0                           | 4,453                      | 6,659  | 5,850                 | 211  | 5,639  | 1,020                      | 1,158            | 1,037    | 120                | 21.6                | 1,326,218         |                                 |
| 2031   | 0   | 285    | 0  | 5      | 0                                | 36     | 0               | 0      | 9            | 116    | -3            | 2,042 | 0                           | 4,766                      | 6,808  | 5,832                 | 216  | 5,615  | 1,193                      | 1,164            | 1,035    | 129                | 22.5                | 1,229,266         |                                 |
| 2032   | 0   | 285    | 0  | 5      | (0)                              | 35     | 0               | 0      | 4            | 120    | -1            | 1,857 | 0                           | 5,190                      | 7,047  | 5,832                 | 219  | 5,613  | 1,434                      | 1,167            | 1,030    | 137                | 23.4                | 1,115,577         |                                 |
| 2033   | 0   | 285    | 0  | 5      | (1)                              | 35     | 0               | 0      | 11           | 131    | -8            | 1,429 | 0                           | 5,447                      | 6,875  | 5,795                 | 218  | 5,577  | 1,298                      | 1,169            | 1,031    | 138                | 23.5                | 859,173           |                                 |
| 2034   | 0   | 285    | 0  | 5      | (1)                              | 34     | 0               | 0      | 0            | 131    | -4            | 1,420 | 0                           | 5,438                      | 6,858  | 5,780                 | 216  | 5,564  | 1,294                      | 1,164            | 1,026    | 138                | 23.6                | 853,531           |                                 |
| 2035   | 0   | 285    | 0  | 5      | (1)                              | 33     | 50              | 0      | 0            | 131    | 0             | 253   | 1,449                       | 40                         | 5,446  | 6,935                 | 5,813  | 213  | 5,600                      | 1,335            | 1,203    | 1,025              | 178                 | 27.9              | 871,321                         |
| 2036   | 0   | 285    | 0  | 5      | (1)                              | 32     | 0               | 50     | 0            | 131    | -2            | 251   | 1,550                       | 39                         | 5,497  | 7,087                 | 5,815  | 209  | 5,606                      | 1,481            | 1,197    | 1,021              | 177                 | 27.8              | 932,709                         |
| 2037   | 0   | 285    | 0  | 5      | (1)                              | 31     | 0               | 50     | 0            | 131    | 26            | 278   | 1,509                       | 40                         | 5,679  | 7,228                 | 5,782  | 203  | 5,578                      | 1,650            | 1,221    | 1,022              | 200                 | 30.2              | 906,576                         |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 247 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**ECR Portfolio Under REF-HC Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 182,424           | 495                      | 15,188                    | 33,701                           | 76,758                                  | 12,112        | 258,908  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 176,268           | 482                      | 15,522                    | 40,368                           | 47,092                                  | 11,299        | 290,131  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 130,001           | 349                      | 12,710                    | 75,744                           | 25,645                                  | 10,679        | 295,229  |
| 2026                               | 39,553                          | 17,848                     | 59,586                   | 29,525           | 107,482           | 295                      | 11,818                    | 70,814                           | 27,357                                  | -2,612        | 306,952  |
| 2027                               | 39,856                          | 44,369                     | 92,427                   | 38,644           | 79,931            | 190                      | 7,634                     | 75,464                           | 26,293                                  | -19,758       | 332,464  |
| 2028                               | 39,988                          | 128,199                    | 203,030                  | 59,535           | 58,287            | 113                      | 4,510                     | 68,987                           | 37,342                                  | -90,429       | 434,876  |
| 2029                               | 40,015                          | 184,937                    | 266,097                  | 73,762           | 80,366            | 61                       | 3,467                     | 22,279                           | 68,309                                  | -62,506       | 540,169  |
| 2030                               | 40,042                          | 193,124                    | 252,453                  | 78,407           | 52,265            | 11,886                   | 2,876                     | 40,374                           | 67,216                                  | -76,366       | 527,845  |
| 2031                               | 40,054                          | 216,302                    | 264,361                  | 89,602           | 33,241            | 7,757                    | 2,438                     | 53,542                           | 71,102                                  | -92,999       | 543,195  |
| 2032                               | 40,054                          | 263,243                    | 302,329                  | 102,106          | 21,950            | 5,495                    | 2,057                     | 38,437                           | 79,846                                  | -271,686      | 424,138  |
| 2033                               | 40,054                          | 272,189                    | 290,707                  | 106,908          | 19,878            | 4,851                    | 2,303                     | 36,146                           | 88,072                                  | -102,293      | 582,672  |
| 2034                               | 40,054                          | 272,189                    | 269,672                  | 108,398          | 18,948            | 4,636                    | 1,772                     | 37,186                           | 89,566                                  | -106,671      | 556,619  |
| 2035                               | 40,054                          | 272,189                    | 250,707                  | 109,926          | 20,004            | 4,985                    | 1,943                     | 36,732                           | 90,775                                  | -111,276      | 534,486  |
| 2036                               | 40,054                          | 277,537                    | 240,675                  | 112,417          | 21,122            | 5,422                    | 1,039                     | 34,706                           | 97,752                                  | -95,164       | 540,057  |
| 2037                               | 40,054                          | 277,537                    | 223,986                  | 113,949          | 21,728            | 5,655                    | 1,514                     | 33,128                           | 98,242                                  | -67,813       | 551,495  |
| Cumulative Present Worth 2023-2037 | 380,095                         | 1,277,689                  | 1,598,856                | 593,547          | 784,141           | 28,239                   | 67,384                    | 464,364                          | 586,842                                 | (565,160)     | 4,042,311  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 248 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
ECR Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions  |  |                               |        |                 |        |              |        |               |        |                    |                      | Energy & Capacity Positions        |                |  |                                     |                         |                |                  |                  |                  |                | Carbon Output                |           |      |
|--------|--|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-------------------------|----------------|------------------|------------------|------------------|----------------|------------------------------|-----------|------|
|        | (12)   | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)               | (23)                 | (24)                               | (25)           | (26)                                     | (27) = (24)+(25)+(26)               | (28)                    | (29)           | (30) = (29)-(28) | (31) = (30)-(27) | (32)             | (33)           | (34)=(33)-(32)               | (35)      | (36) |
|        | (Current and Planned) Supply-Side + Purchased Forced Capacity (UCAP) | (Current and Planned) Interruptible Load and Demand Response | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity         | Peak + Reserves  | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |           |      |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW             | GWh                  | GWh                                | GWh            | GWh                                      | GWh                                 | GWh                     | GWh            | GWh              | MW               | MW               | MW             | %                            | tons      |      |
| 2023   | 70   | 934  | 2                             | 9      | 0               | 0      | 0            | 0      | 0             | 0      | 0                  | 6,181                | 0                                  | 0              | 6,181                                    | 5,643                               | 1                       | 5,642          | 538              | 1,013            | 1,014            | -1             | 8.8                          | 5,567,084 |      |
| 2024   | 78   | 934  | (3)                           | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                  | 6,014                | 0                                  | 0              | 6,014                                    | 6,118                               | 1                       | 6,117          | (103)            | 1,017            | 1,019            | -2             | 8.7                          | 5,309,903 |      |
| 2025   | 78   | 934  | 0                             | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                  | 4,484                | 0                                  | 0              | 4,484                                    | 6,060                               | 1                       | 6,058          | (1,574)          | 1,018            | 1,002            | 15             | 10.6                         | 3,827,239 |      |
| 2026   | 43   | 934  | 0                             | 5      | 5               | 5      | 0            | 0      | 23            | 23     | 0                  | 3,778                | 0                                  | 613            | 4,391                                    | 5,948                               | 36                      | 5,912          | (1,521)          | 1,010            | 1,054            | -44            | 4.4                          | 3,199,395 |      |
| 2027   | 0  | 934  | 0                             | 5      | 5               | 10     | 0            | 0      | 23            | 45     | 44                 | 2,701                | 0                                  | 1,423          | 4,124                                    | 5,918                               | 67                      | 5,851          | (1,727)          | 1,038            | 1,050            | -12            | 7.7                          | 2,235,789 |      |
| 2028   | 339  | 285  | 0                             | 5      | 4               | 14     | 0            | 0      | 23            | 68     | 194                | 1,841                | 0                                  | 2,934          | 4,775                                    | 5,911                               | 94                      | 5,817          | (1,042)          | 990              | 1,044            | -54            | 3.3                          | 1,410,393 |      |
| 2029   | 0  | 285  | 0                             | 5      | 3               | 17     | 0            | 0      | 21            | 88     | 91                 | 2,375                | 0                                  | 4,131          | 6,505                                    | 5,872                               | 117                     | 5,755          | 751              | 994              | 1,040            | -47            | 4.1                          | 1,416,193 |      |
| 2030   | 0  | 285  | 0                             | 5      | 3               | 20     | 0            | 0      | 18            | 106    | -12                | 1,465                | 0                                  | 4,453          | 5,918                                    | 5,850                               | 137                     | 5,713          | 206              | 1,003            | 1,037            | -35            | 5.3                          | 872,262   |      |
| 2031   | 206  | 0  | 0                             | 5      | 5               | 25     | 0            | 0      | 9             | 116    | 45                 | 913                  | 0                                  | 5,066          | 5,979                                    | 5,832                               | 164                     | 5,667          | 311              | 983              | 1,035            | -52            | 3.5                          | 550,570   |      |
| 2032   | 0  | 0  | 0                             | 5      | 4               | 29     | 200          | 200    | 4             | 120    | 25                 | 616                  | 164                                | 5,692          | 6,472                                    | 6,029                               | 188                     | 5,841          | 631              | 974              | 1,030            | -56            | 3.1                          | 376,999   |      |
| 2033   | 0  | 0  | 0                             | 5      | 4               | 33     | 0            | 200    | 11            | 131    | -12                | 526                  | 165                                | 5,947          | 6,637                                    | 5,993                               | 207                     | 5,786          | 851              | 977              | 1,031            | -54            | 3.2                          | 321,488   |      |
| 2034   | 0  | 0  | 0                             | 5      | 3               | 36     | 0            | 200    | 0             | 131    | -6                 | 486                  | 161                                | 5,938          | 6,585                                    | 5,974                               | 222                     | 5,751          | 834              | 967              | 1,026            | -58            | 2.7                          | 296,804   |      |
| 2035   | 0  | 0  | 0                             | 5      | 2               | 38     | 0            | 200    | 0             | 131    | 0                  | 504                  | 161                                | 5,946          | 6,612                                    | 5,958                               | 235                     | 5,723          | 889              | 970              | 1,025            | -55            | 3.1                          | 308,521   |      |
| 2036   | 0  | 0  | 0                             | 5      | 2               | 40     | 0            | 200    | 0             | 131    | 11                 | 529                  | 158                                | 6,100          | 6,786                                    | 5,957                               | 245                     | 5,713          | 1,074            | 970              | 1,021            | -50            | 3.6                          | 324,255   |      |
| 2037   | 0  | 0  | 0                             | 5      | 1               | 41     | 0            | 200    | 0             | 131    | -3                 | 535                  | 158                                | 6,079          | 6,772                                    | 5,924                               | 250                     | 5,674          | 1,098            | 962              | 1,022            | -59            | 2.6                          | 326,522   |      |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 249 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**NCR Portfolio Under REF-HC Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 20,030           | 182,424           | 495                      | 15,188                    | 33,375                           | 77,624                                  | 12,112        | 263,772  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 25,977           | 176,268           | 482                      | 15,522                    | 39,235                           | 48,602                                  | 11,299        | 296,560  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 28,492           | 130,001           | 349                      | 12,710                    | 73,646                           | 27,379                                  | 10,679        | 303,325  |
| 2026                               | 39,553                          | 17,848                     | 59,586                   | 38,698           | 107,482           | 295                      | 11,818                    | 69,094                           | 29,264                                  | -2,612        | 312,499  |
| 2027                               | 39,856                          | 48,764                     | 98,693                   | 48,842           | 79,931            | 190                      | 7,634                     | 70,234                           | 28,976                                  | -21,102       | 344,066  |
| 2028                               | 39,988                          | 89,793                     | 147,528                  | 58,947           | 58,287            | 113                      | 4,510                     | 85,533                           | 29,013                                  | -43,329       | 412,357  |
| 2029                               | 40,015                          | 120,384                    | 180,551                  | 66,221           | 116,167           | 62                       | 4,686                     | 27,261                           | 57,752                                  | -111,700      | 385,893  |
| 2030                               | 40,042                          | 120,384                    | 165,579                  | 67,509           | 77,094            | 18,061                   | 4,355                     | 60,150                           | 38,892                                  | -32,197       | 482,085  |
| 2031                               | 40,070                          | 120,627                    | 153,219                  | 52,937           | 73,629            | 17,352                   | 5,220                     | 69,231                           | 41,397                                  | -35,184       | 455,704  |
| 2032                               | 40,099                          | 120,627                    | 142,379                  | 53,808           | 68,391            | 16,285                   | 5,400                     | 75,524                           | 37,045                                  | -38,051       | 447,416  |
| 2033                               | 40,128                          | 120,627                    | 133,399                  | 54,699           | 55,618            | 12,972                   | 5,547                     | 91,699                           | 28,441                                  | -39,250       | 446,998  |
| 2034                               | 40,158                          | 120,627                    | 124,838                  | 55,608           | 57,065            | 13,351                   | 4,611                     | 94,100                           | 30,537                                  | -41,132       | 438,689  |
| 2035                               | 40,188                          | 127,094                    | 123,629                  | 57,930           | 59,565            | 14,092                   | 5,048                     | 92,714                           | 28,142                                  | -40,534       | 451,583  |
| 2036                               | 40,219                          | 127,094                    | 114,198                  | 58,918           | 63,771            | 15,614                   | 3,273                     | 92,546                           | 32,639                                  | -21,145       | 461,849  |
| 2037                               | 40,250                          | 127,094                    | 105,027                  | 59,925           | 62,982            | 15,720                   | 4,238                     | 95,314                           | 32,379                                  | 11,093        | 489,265  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 688,359                    | 989,625                  | 450,593          | 962,282           | 64,655                   | 79,102                    | 644,824                          | 379,853                                 | (215,656)     | 3,664,361  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 250 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 NCR Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions  |        |  |        |                            |        |                 |        |              |        |               |       | Energy & Capacity Positions |                      |                                    |                       |  |                                  |                         |                  |          |                 | Carbon Output    |                |                              |
|--------|--|--------|--|--------|----------------------------|--------|-----------------|--------|--------------|--------|---------------|-------|-----------------------------|----------------------|------------------------------------|-----------------------|--|----------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|        | (12)   | (13)   | (14)   | (15)   | (16)                       | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)  | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                             | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|        | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned Interruptible Load and Demand Response) |        | (Incram) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |       | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Incram) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW | Cum MW   | Ann MW | Cum MW   | Ann MW | Cum MW                     | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh   | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                              | GWh                     | MW               | MW       | MW              | %                | tons           |                              |
| 2023   | 73   | 934    | 2  | 9      | 5                          | 5      | 0               | 0      | 0            | 0      | 0             | 6,181 | 0                           | 0                    | 6,181                              | 5,643                 | 21                                       | 5,622                            | 558                     | 1,020            | 1,014    | 6               | 9.6              | 5,567,084      |                              |
| 2024   | 78   | 934    | (3)  | 5      | 6                          | 11     | 0               | 0      | 0            | 0      | 0             | 6,014 | 0                           | 0                    | 6,014                              | 6,118                 | 51                                       | 6,067                            | (53)                    | 1,028            | 1,019    | 9               | 9.9              | 5,309,903      |                              |
| 2025   | 78   | 934    | 0  | 5      | 7                          | 18     | 0               | 0      | 0            | 0      | 0             | 4,484 | 0                           | 0                    | 4,484                              | 6,060                 | 87                                       | 5,973                            | (1,489)                 | 1,036            | 1,002    | 33              | 12.6             | 3,827,239      |                              |
| 2026   | 60   | 934    | 0  | 5      | 10                         | 28     | 0               | 0      | 23           | 23     | 0             | 3,778 | 0                           | 613                  | 4,391                              | 5,948                 | 141                                      | 5,807                            | (1,416)                 | 1,050            | 1,054    | -4              | 8.5              | 3,199,395      |                              |
| 2027   | 0  | 934    | 0  | 5      | 7                          | 36     | 0               | 0      | 23           | 45     | 63            | 2,701 | 0                           | 1,523                | 4,224                              | 5,918                 | 178                                      | 5,740                            | (1,516)                 | 1,083            | 1,050    | 33              | 12.4             | 2,235,789      |                              |
| 2028   | 494  | 285    | 0  | 5      | 6                          | 42     | 0               | 0      | 23           | 68     | 76            | 1,841 | 0                           | 2,633                | 4,474                              | 5,911                 | 209                                      | 5,702                            | (1,229)                 | 1,033            | 1,044    | -11             | 7.8              | 1,410,393      |                              |
| 2029   | 0  | 285    | 0  | 5      | 5                          | 46     | 100             | 100    | (2)          | 66     | -5            | 3,491 | 80                          | 2,623                | 6,194                              | 5,969                 | 233                                      | 5,736                            | 459                     | 1,075            | 1,040    | 35              | 12.6             | 2,099,562      |                              |
| 2030   | 0  | 285    | 0  | 5      | 4                          | 50     | 0               | 100    | 5            | 71     | -7            | 2,206 | 81                          | 2,636                | 4,922                              | 5,947                 | 252                                      | 5,694                            | (772)                   | 1,076            | 1,037    | 39              | 13.0             | 1,326,218      |                              |
| 2031   | 0  | 285    | 0  | 5      | (8)                        | 42     | 0               | 100    | (2)          | 69     | -4            | 2,042 | 81                          | 2,639                | 4,762                              | 5,929                 | 207                                      | 5,722                            | (960)                   | 1,063            | 1,035    | 27              | 11.8             | 1,229,266      |                              |
| 2032   | 0  | 285    | 0  | 5      | (6)                        | 36     | 0               | 100    | (4)          | 65     | -10           | 1,857 | 82                          | 2,648                | 4,587                              | 5,931                 | 178                                      | 5,753                            | (1,165)                 | 1,043            | 1,030    | 13              | 10.3             | 1,115,577      |                              |
| 2033   | 1  | 285    | 0  | 5      | (6)                        | 30     | 0               | 100    | 0            | 65     | -3            | 1,429 | 82                          | 2,623                | 4,134                              | 5,894                 | 150                                      | 5,744                            | (1,610)                 | 1,035            | 1,031    | 4               | 9.4              | 859,173        |                              |
| 2034   | 4  | 285    | 0  | 5      | (6)                        | 25     | 0               | 100    | 0            | 65     | -2            | 1,420 | 81                          | 2,619                | 4,119                              | 5,877                 | 123                                      | 5,754                            | (1,635)                 | 1,029            | 1,026    | 3               | 9.2              | 853,531        |                              |
| 2035   | 0  | 285    | 0  | 5      | (5)                        | 20     | 50              | 150    | 0            | 65     | 0             | 1,449 | 121                         | 2,623                | 4,193                              | 5,910                 | 98                                       | 5,811                            | (1,619)                 | 1,059            | 1,025    | 34              | 12.6             | 871,321        |                              |
| 2036   | 0  | 285    | 0  | 5      | (5)                        | 15     | 0               | 150    | 0            | 65     | -1            | 1,550 | 118                         | 2,648                | 4,317                              | 5,910                 | 76                                       | 5,834                            | (1,517)                 | 1,046            | 1,021    | 26              | 11.7             | 932,709        |                              |
| 2037   | 0  | 285    | 0  | 5      | (4)                        | 11     | 0               | 150    | 0            | 65     | -1            | 1,509 | 119                         | 2,640                | 4,267                              | 5,877                 | 56                                       | 5,821                            | (1,553)                 | 1,038            | 1,022    | 16              | 10.7             | 906,576        |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 251 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CC Portfolio Under REF-HC Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,424           | 495                      | 15,188                    | 33,410                           | 77,526                                  | 12,112        | 261,433  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 176,268           | 482                      | 15,522                    | 39,394                           | 48,452                                  | 11,299        | 293,647  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 130,001           | 349                      | 12,710                    | 73,819                           | 27,202                                  | 10,679        | 299,632  |
| 2026                               | 39,553                          | 8,499                      | 46,257                   | 35,104           | 107,482           | 295                      | 11,818                    | 76,462                           | 23,840                                  | 3,537         | 305,167  |
| 2027                               | 39,856                          | 48,205                     | 99,483                   | 46,677           | 79,931            | 190                      | 7,634                     | 72,717                           | 27,144                                  | -17,329       | 350,220  |
| 2028                               | 39,988                          | 109,120                    | 176,304                  | 60,004           | 58,287            | 113                      | 4,510                     | 74,184                           | 36,063                                  | -44,153       | 442,293  |
| 2029                               | 40,015                          | 147,257                    | 222,969                  | 69,420           | 105,676           | 61                       | 11,596                    | 8,429                            | 76,683                                  | -31,135       | 497,605  |
| 2030                               | 40,042                          | 155,444                    | 216,583                  | 73,941           | 88,949            | 20,986                   | 10,607                    | 15,378                           | 81,047                                  | -43,219       | 497,662  |
| 2031                               | 40,070                          | 164,128                    | 212,017                  | 74,021           | 88,076            | 20,923                   | 10,680                    | 12,807                           | 91,254                                  | -54,834       | 476,634  |
| 2032                               | 40,099                          | 164,128                    | 196,338                  | 75,030           | 87,466            | 21,005                   | 10,473                    | 14,737                           | 90,584                                  | -58,896       | 459,795  |
| 2033                               | 40,128                          | 164,128                    | 184,077                  | 76,013           | 80,797            | 19,135                   | 10,098                    | 19,873                           | 80,679                                  | -60,523       | 453,046  |
| 2034                               | 40,158                          | 164,128                    | 172,535                  | 77,120           | 85,313            | 20,364                   | 10,317                    | 17,389                           | 84,616                                  | -63,012       | 439,696  |
| 2035                               | 40,188                          | 170,595                    | 168,723                  | 79,639           | 87,250            | 21,047                   | 10,703                    | 15,742                           | 84,402                                  | -63,002       | 446,484  |
| 2036                               | 40,219                          | 170,595                    | 157,079                  | 80,846           | 89,841            | 22,310                   | 10,965                    | 15,240                           | 89,937                                  | -55,645       | 441,511  |
| 2037                               | 40,250                          | 170,595                    | 145,697                  | 81,993           | 89,582            | 22,614                   | 11,191                    | 14,910                           | 89,466                                  | -16,207       | 471,159  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 882,587                    | 1,228,089                | 518,178          | 1,043,078         | 86,601                   | 107,328                   | 362,922                          | 602,643                                 | (243,276)     | 3,763,295  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 252 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CC Portfolio Under REF-HC Scenario

|      | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |      |           |           |
|------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|-----------|-----------|
|      | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36)      |           |
|      | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |           |           |
|      | Ann MW  | Cum MW   | Ann MW                           | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | Ann MW                | Cum MW                     | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh              | GWh                | MW                  | MW                | MW                              | %    | tons      |           |
| 2023 | 73  | 934  | 2                                | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,181          | 0  | 0  | 6,181                      | 5,643          | 19               | 5,624              | 556                 | 1,019             | 1,014                           | 5    | 9.5       | 5,567,084 |
| 2024 | 81  | 934  | (3)                              | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,014          | 0  | 0  | 6,014                      | 6,118          | 46               | 6,072              | (57)                | 1,029             | 1,019                           | 9    | 9.9       | 5,309,903 |
| 2025 | 78  | 934  | 0                                | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,484          | 0  | 0  | 4,484                      | 6,060          | 79               | 5,980              | (1,496)             | 1,032             | 1,002                           | 29   | 12.1      | 3,827,239 |
| 2026 | 67  | 934  | 0                                | 5      | 10              | 24     | 0            | 0      | 11            | 11     | 0                     | 0                          | 0  | 3,778          | 0  | 307  | 4,085                      | 5,948          | 131              | 5,817              | (1,733)             | 1,042             | 1,054                           | -12  | 7.7       | 3,199,395 |
| 2027 | 0   | 934  | 0                                | 5      | 8               | 32     | 0            | 0      | 23            | 34     | 101                   | 101                        | 0  | 2,701          | 0  | 1,418  | 4,119                      | 5,918          | 167              | 5,750              | (1,632)             | 1,106             | 1,050                           | 56   | 14.8      | 2,235,789 |
| 2028 | 313   | 285  | 0                                | 5      | 6               | 38     | 0            | 0      | 23            | 57     | 137                   | 238                        | 0  | 1,841          | 0  | 2,930  | 4,771                      | 5,911          | 198              | 5,713              | (942)               | 936               | 1,044                           | -108 | -2.3      | 1,410,393 |
| 2029 | 0   | 285  | 0                                | 5      | 5               | 43     | 0            | 0      | (1)           | 55     | 26                    | 264                        | 0  | 4,198          | 0  | 3,119  | 7,318                      | 5,872          | 222              | 5,650              | 1,668               | 1,050             | 1,040                           | 9    | 9.9       | 1,892,290 |
| 2030 | 0   | 285  | 0                                | 5      | 4               | 47     | 0            | 0      | 16            | 71     | -10                   | 254                        | 0  | 3,568          | 0  | 3,436  | 7,004                      | 5,850          | 241              | 5,608              | 1,396               | 1,059             | 1,037                           | 22   | 11.2      | 1,541,284 |
| 2031 | 0   | 285  | 0                                | 5      | 0               | 47     | 0            | 0      | 10            | 81     | -3                    | 250                        | 0  | 3,434          | 0  | 3,746  | 7,180                      | 5,832          | 244              | 5,588              | 1,592               | 1,066             | 1,035                           | 31   | 12.2      | 1,482,748 |
| 2032 | 0   | 285  | 0                                | 5      | 1               | 48     | 0            | 0      | (5)           | 76     | -16                   | 235                        | 0  | 3,352          | 0  | 3,759  | 7,112                      | 5,832          | 254              | 5,579              | 1,533               | 1,046             | 1,030                           | 16   | 10.7      | 1,439,409 |
| 2033 | 0   | 285  | 0                                | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -7                    | 228                        | 0  | 3,035          | 0  | 3,727  | 6,763                      | 5,795          | 259              | 5,536              | 1,227               | 1,040             | 1,031                           | 8    | 9.8       | 1,267,557 |
| 2034 | 0   | 285  | 0                                | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -4                    | 224                        | 0  | 3,084          | 0  | 3,722  | 6,806                      | 5,780          | 263              | 5,517              | 1,289               | 1,036             | 1,026                           | 10   | 10.0      | 1,302,516 |
| 2035 | 0   | 285  | 0                                | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | 0                     | 224                        | 3,089  | 40             | 3,727  | 6,856  | 5,813                      | 266            | 5,547            | 1,309              | 1,076               | 1,025             | 51                              | 14.3 | 1,301,857 |           |
| 2036 | 0   | 285  | 0                                | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | -2                    | 223                        | 3,145  | 39             | 3,759  | 6,944  | 5,815                      | 267            | 5,548            | 1,395              | 1,071               | 1,021             | 50                              | 14.3 | 1,333,084 |           |
| 2037 | 0   | 285  | 0                                | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -2                    | 221                        | 3,098  | 40             | 3,746  | 6,884  | 5,782                      | 265            | 5,517            | 1,367              | 1,067               | 1,022             | 45                              | 13.7 | 1,304,644 |           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 253 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**No Wind Portfolio Under REF-HC Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 182,424           | 495                      | 15,188                    | 33,736                           | 76,758                                  | 12,112        | 258,943  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 176,268           | 482                      | 15,522                    | 40,422                           | 47,092                                  | 11,299        | 290,184  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 130,001           | 349                      | 12,710                    | 75,744                           | 25,645                                  | 10,679        | 295,229  |
| 2026                               | 39,553                          | 8,520                      | 46,287                   | 25,588           | 107,482           | 295                      | 11,818                    | 81,003                           | 20,715                                  | 7,458         | 307,290  |
| 2027                               | 39,856                          | 30,496                     | 74,229                   | 30,861           | 79,931            | 190                      | 7,634                     | 93,062                           | 17,468                                  | -229          | 338,561  |
| 2028                               | 39,988                          | 108,255                    | 178,071                  | 48,964           | 58,287            | 113                      | 4,510                     | 103,666                          | 29,382                                  | -79,086       | 433,387  |
| 2029                               | 40,015                          | 147,840                    | 217,526                  | 56,849           | 80,366            | 61                       | 3,467                     | 72,758                           | 44,635                                  | -51,539       | 522,707  |
| 2030                               | 40,042                          | 152,663                    | 204,119                  | 58,689           | 52,265            | 11,886                   | 2,876                     | 114,471                          | 44,200                                  | -15,701       | 577,109  |
| 2031                               | 40,070                          | 157,818                    | 194,265                  | 63,919           | 49,856            | 11,477                   | 3,316                     | 118,897                          | 49,768                                  | -20,732       | 569,119  |
| 2032                               | 40,099                          | 162,812                    | 185,621                  | 65,492           | 46,441            | 10,790                   | 3,342                     | 119,908                          | 47,432                                  | -11,652       | 575,422  |
| 2033                               | 40,128                          | 162,812                    | 172,862                  | 66,150           | 35,739            | 8,121                    | 3,244                     | 134,468                          | 43,310                                  | -14,241       | 565,973  |
| 2034                               | 40,158                          | 162,812                    | 161,778                  | 66,923           | 38,117            | 8,715                    | 2,839                     | 134,820                          | 47,499                                  | -16,828       | 551,833  |
| 2035                               | 40,188                          | 168,065                    | 158,563                  | 68,612           | 39,561            | 9,107                    | 3,105                     | 136,043                          | 50,699                                  | -20,796       | 551,750  |
| 2036                               | 40,219                          | 168,065                    | 147,200                  | 69,441           | 42,649            | 10,192                   | 2,235                     | 134,038                          | 51,289                                  | -16,450       | 546,299  |
| 2037                               | 40,250                          | 178,953                    | 151,841                  | 72,028           | 41,254            | 10,065                   | 2,725                     | 134,656                          | 55,961                                  | 1,500         | 577,311  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 862,976                    | 1,165,698                | 423,255          | 850,943           | 42,720                   | 71,145                    | 899,260                          | 410,388                                 | (112,696)     | 4,173,343  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 254 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
No Wind Portfolio Under REF-HC Scenario

|        | Resource (Capacity) Additions  |  |                               |                 |              |               |                    |                      |                                    |                |  |                                     | Energy & Capacity Positions |                |          |                       |                  |                |                              |                  |       |      |                | Carbon Output |      |
|--------|--|--|-------------------------------|-----------------|--------------|---------------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-----------------------------|----------------|----------|-----------------------|------------------|----------------|------------------------------|------------------|-------|------|----------------|---------------|------|
|        | (12)   | (13)   | (14)                          | (15)            | (16)         | (17)          | (18)               | (19)                 | (20)                               | (21)           | (22)                                     | (23)                                | (24)                        | (25)           | (26)     | (27) = (24)+(25)+(26) | (28)             | (29)           | (30) = (29)-(28)             | (31) = (30)-(27) | (32)  | (33) | (34)=(33)-(32) | (35)          | (36) |
|        | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) | (Current and Planned Interruptible Load and Demand Response) | (Increment) Energy Efficiency | Utility Storage | Generic Wind | Utility Solar | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements     | Energy Surplus | Capacity | Peak + Reserves       | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |                  |       |      |                |               |      |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW          | Cum MW       | Ann MW        | Cum MW             | Ann MW               | Cum MW                             | Ann MW         | Cum MW                                   | GWh                                 | GWh                         | GWh            | GWh      | GWh                   | GWh              | GWh            | GWh                          | MW               | MW    | MW   | %              | tons          |      |
| 2023   | 73   | 934  | 2                             | 9               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 6,181                               | 0                           | 0              | 6,181    | 5,643                 | 1                | 5,642          | 538                          | 1,016            | 1,014 | 2    | 9.1            | 5,567,084     |      |
| 2024   | 78   | 934  | (3)                           | 5               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 6,014                               | 0                           | 0              | 6,014    | 6,118                 | 1                | 6,117          | (103)                        | 1,017            | 1,019 | -2   | 8.7            | 5,309,903     |      |
| 2025   | 78   | 934  | 0                             | 5               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 4,484                               | 0                           | 0              | 4,484    | 6,060                 | 1                | 6,058          | (1,574)                      | 1,018            | 1,002 | 15   | 10.6           | 3,827,239     |      |
| 2026   | 78   | 934  | 0                             | 5               | 6            | 6             | 0                  | 0                    | 0                                  | 0              | 47                                       | 3,778                               | 0                           | 200            | 3,978    | 5,948                 | 45               | 5,903          | (1,925)                      | 1,071            | 1,054 | 17   | 10.7           | 3,199,395     |      |
| 2027   | 0  | 934  | 0                             | 5               | 5            | 11            | 0                  | 0                    | 0                                  | 0              | 91                                       | 2,701                               | 0                           | 700            | 3,401    | 5,918                 | 76               | 5,842          | (2,441)                      | 1,089            | 1,050 | 39   | 13.0           | 2,235,789     |      |
| 2028   | 407  | 285  | 0                             | 5               | 4            | 15            | 0                  | 0                    | 0                                  | 0              | 206                                      | 1,841                               | 0                           | 1,606          | 3,447    | 5,911                 | 104              | 5,807          | (2,360)                      | 1,118            | 1,044 | 75   | 16.8           | 1,410,393     |      |
| 2029   | 0  | 285  | 0                             | 5               | 3            | 18            | 50                 | 50                   | 0                                  | 0              | 73                                       | 2,375                               | 40                          | 2,100          | 4,515    | 5,920                 | 127              | 5,793          | (1,279)                      | 1,057            | 1,040 | 17   | 10.7           | 1,416,193     |      |
| 2030   | 0  | 285  | 0                             | 5               | 3            | 21            | 0                  | 50                   | 0                                  | 0              | 2  | 1,465                               | 40                          | 2,200          | 3,706    | 5,898                 | 147              | 5,751          | (2,046)                      | 1,062            | 1,037 | 25   | 11.5           | 872,262       |      |
| 2031   | 0  | 285  | 0                             | 5               | 4            | 25            | 0                  | 50                   | 0                                  | 0              | 14                                       | 1,361                               | 40                          | 2,300          | 3,701    | 5,880                 | 164              | 5,716          | (2,014)                      | 1,080            | 1,035 | 45   | 13.6           | 812,236       |      |
| 2032   | 0  | 285  | 0                             | 5               | 4            | 29            | 0                  | 50                   | 0                                  | 0              | -9                                       | 1,241                               | 41                          | 2,410          | 3,691    | 5,882                 | 188              | 5,694          | (2,002)                      | 1,075            | 1,030 | 45   | 13.7           | 738,578       |      |
| 2033   | 0  | 285  | 0                             | 5               | 4            | 33            | 0                  | 50                   | 0                                  | 0              | -13                                      | 903                                 | 41                          | 2,400          | 3,344    | 5,844                 | 207              | 5,638          | (2,293)                      | 1,065            | 1,031 | 34   | 12.6           | 537,685       |      |
| 2034   | 0  | 285  | 0                             | 5               | 3            | 36            | 0                  | 50                   | 0                                  | 0              | -7                                       | 934                                 | 40                          | 2,400          | 3,375    | 5,828                 | 222              | 5,606          | (2,232)                      | 1,059            | 1,026 | 33   | 12.4           | 556,727       |      |
| 2035   | 0  | 285  | 0                             | 5               | 2            | 38            | 0                  | 50                   | 0                                  | 0              | 14                                       | 944                                 | 40                          | 2,500          | 3,485    | 5,813                 | 235              | 5,578          | (2,093)                      | 1,075            | 1,025 | 51   | 14.3           | 562,800       |      |
| 2036   | 0  | 285  | 0                             | 5               | 2            | 40            | 0                  | 50                   | 0                                  | 0              | -3                                       | 1,022                               | 39                          | 2,510          | 3,571    | 5,815                 | 245              | 5,571          | (1,999)                      | 1,067            | 1,021 | 47   | 13.9           | 608,454       |      |
| 2037   | 0  | 285  | 0                             | 5               | 1            | 41            | 0                  | 50                   | 0                                  | 0              | 25                                       | 974                                 | 40                          | 2,700          | 3,714    | 5,782                 | 250              | 5,532          | (1,817)                      | 1,091            | 1,022 | 69   | 16.3           | 580,054       |      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 255 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Preferred Plan Under REF-HC Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 182,424           | 495                      | 15,188                    | 33,410                           | 77,526                                  | 12,112        | 261,433  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 176,268           | 482                      | 15,522                    | 39,394                           | 48,452                                  | 11,299        | 293,647  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 130,001           | 349                      | 12,710                    | 73,819                           | 27,202                                  | 10,679        | 299,632  |
| 2026                               | 39,553                          | 8,499                      | 46,257                   | 35,104           | 107,482           | 295                      | 11,818                    | 76,462                           | 23,840                                  | 3,537         | 305,167  |
| 2027                               | 39,856                          | 48,205                     | 99,483                   | 46,677           | 79,931            | 190                      | 7,634                     | 72,717                           | 27,144                                  | -17,329       | 350,220  |
| 2028                               | 40,133                          | 109,120                    | 176,564                  | 60,004           | 58,287            | 113                      | 4,510                     | 74,184                           | 36,063                                  | -44,074       | 442,779  |
| 2029                               | 40,160                          | 138,316                    | 207,167                  | 66,271           | 116,167           | 62                       | 4,686                     | 25,298                           | 73,062                                  | -37,113       | 487,951  |
| 2030                               | 40,187                          | 146,503                    | 201,484                  | 70,736           | 77,094            | 18,061                   | 4,355                     | 49,656                           | 62,055                                  | -49,046       | 496,975  |
| 2031                               | 40,215                          | 155,187                    | 197,599                  | 70,758           | 73,629            | 17,352                   | 5,220                     | 48,938                           | 71,443                                  | -60,515       | 476,940  |
| 2032                               | 40,244                          | 155,187                    | 182,581                  | 71,705           | 68,391            | 16,285                   | 5,400                     | 52,331                           | 65,816                                  | -64,436       | 461,872  |
| 2033                               | 40,273                          | 155,187                    | 170,962                  | 72,626           | 55,618            | 12,972                   | 5,547                     | 64,024                           | 54,714                                  | -65,926       | 456,569  |
| 2034                               | 40,303                          | 155,187                    | 160,045                  | 73,670           | 57,065            | 13,351                   | 4,611                     | 65,088                           | 57,850                                  | -68,280       | 443,188  |
| 2035                               | 40,333                          | 161,654                    | 156,841                  | 76,124           | 59,565            | 14,092                   | 5,048                     | 61,673                           | 55,594                                  | -68,140       | 451,595  |
| 2036                               | 40,364                          | 161,654                    | 145,791                  | 77,263           | 63,771            | 15,614                   | 3,273                     | 61,553                           | 62,380                                  | -60,656       | 446,248  |
| 2037                               | 40,395                          | 161,654                    | 135,000                  | 78,341           | 62,982            | 15,720                   | 4,238                     | 61,841                           | 61,142                                  | -21,091       | 477,937  |
| Cumulative Present Worth 2023-2037 | 381,214                         | 840,523                    | 1,165,106                | 502,337          | 962,282           | 64,655                   | 79,102                    | 542,950                          | 500,377                                 | (268,951)     | 3,768,841  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 256 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
Preferred Plan Under REF-HC Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                |               |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|----------------|---------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)           |               |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned Interruptible Load and Demand Response) |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units | CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons           |               |
| 2023   | 73     | 934  | 2      | 9                             | 3      | 3               | 0      | 0            | 0      | 0             | 0      | 6,181                       | 0                    | 0                                  | 6,181                 | 5,643                                    | 19                                  | 5,624                   | 556              | 1,019    | 1,014           | 5                | 9.5            | 5,567,084      |               |
| 2024   | 81     | 934  | (3)    | 5                             | 5      | 8               | 0      | 0            | 0      | 0             | 0      | 6,014                       | 0                    | 0                                  | 6,014                 | 6,118                                    | 46                                  | 6,072                   | (57)             | 1,029    | 1,019           | 9                | 9.9            | 5,309,903      |               |
| 2025   | 78     | 934  | 0      | 5                             | 6      | 14              | 0      | 0            | 0      | 0             | 0      | 4,484                       | 0                    | 0                                  | 4,484                 | 6,060                                    | 79                                  | 5,980                   | (1,496)          | 1,032    | 1,002           | 29               | 12.1           | 3,827,239      |               |
| 2026   | 76     | 934  | 0      | 5                             | 10     | 24              | 0      | 0            | 11     | 11            | 0      | 3,778                       | 0                    | 307                                | 4,085                 | 5,948                                    | 131                                 | 5,817                   | (1,733)          | 1,051    | 1,054           | -3               | 8.6            | 3,199,395      |               |
| 2027   | 0      | 934  | 0      | 5                             | 8      | 32              | 0      | 0            | 23     | 34            | 101    | 2,701                       | 0                    | 1,418                              | 4,119                 | 5,918                                    | 167                                 | 5,750                   | (1,632)          | 1,106    | 1,050           | 56               | 14.8           | 2,235,789      |               |
| 2028   | 448    | 285  | 0      | 5                             | 6      | 38              | 0      | 0            | 23     | 57            | 137    | 1,841                       | 0                    | 2,930                              | 4,771                 | 5,911                                    | 198                                 | 5,713                   | (942)            | 1,071    | 1,044           | 27               | 11.8           | 1,410,393      |               |
| 2029   | 0      | 285  | 0      | 5                             | 5      | 43              | 0      | 0            | (1)    | 55            | 26     | 3,491                       | 0                    | 3,119                              | 6,610                 | 5,872                                    | 222                                 | 5,650                   | 960              | 1,109    | 1,040           | 68               | 16.1           | 2,099,562      |               |
| 2030   | 0      | 285  | 0      | 5                             | 4      | 47              | 0      | 0            | 16     | 71            | -10    | 2,206                       | 0                    | 3,436                              | 5,641                 | 5,850                                    | 241                                 | 5,608                   | 33               | 1,118    | 1,037           | 81               | 17.4           | 1,326,218      |               |
| 2031   | 0      | 285  | 0      | 5                             | 0      | 47              | 0      | 0            | 10     | 81            | -3     | 2,042                       | 0                    | 3,746                              | 5,788                 | 5,832                                    | 244                                 | 5,588                   | 201              | 1,125    | 1,035           | 90               | 18.4           | 1,229,266      |               |
| 2032   | 0      | 285  | 0      | 5                             | 1      | 48              | 0      | 0            | (5)    | 76            | -16    | 1,857                       | 0                    | 3,759                              | 5,616                 | 5,832                                    | 254                                 | 5,579                   | 37               | 1,105    | 1,030           | 75               | 16.9           | 1,115,577      |               |
| 2033   | 0      | 285  | 0      | 5                             | 0      | 48              | 0      | 0            | 0      | 76            | -7     | 1,429                       | 0                    | 3,727                              | 5,156                 | 5,795                                    | 259                                 | 5,536                   | (380)            | 1,098    | 1,031           | 67               | 16.1           | 859,173        |               |
| 2034   | 0      | 285  | 0      | 5                             | (0)    | 48              | 0      | 0            | 0      | 76            | -4     | 1,420                       | 0                    | 3,722                              | 5,142                 | 5,780                                    | 263                                 | 5,517                   | (375)            | 1,095    | 1,026           | 69               | 16.3           | 853,531        |               |
| 2035   | 0      | 285  | 0      | 5                             | (0)    | 48              | 50     | 0            | 0      | 76            | 0      | 1,449                       | 40                   | 3,727                              | 5,216                 | 5,813                                    | 266                                 | 5,547                   | (331)            | 1,134    | 1,025           | 110              | 20.6           | 871,321        |               |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 47              | 0      | 50           | 0      | 76            | -2     | 1,550                       | 39                   | 3,759                              | 5,349                 | 5,815                                    | 267                                 | 5,548                   | (199)            | 1,130    | 1,021           | 109              | 20.6           | 932,709        |               |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 46              | 0      | 50           | 0      | 76            | -2     | 1,509                       | 40                   | 3,746                              | 5,295                 | 5,782                                    | 265                                 | 5,517                   | (222)            | 1,126    | 1,022           | 104              | 20.0           | 906,576        |               |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 257 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Reference Portfolio Under CETA Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 185,781           | 499                      | 15,389                    | 35,006                           | 72,439                                  | 12,112        | 271,680  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,375           | 509                      | 16,206                    | 36,747                           | 47,336                                  | 11,299        | 301,935  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 141,255           | 386                      | 13,920                    | 72,733                           | 27,312                                  | 10,679        | 310,936  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 29,363           | 123,988           | 346                      | 13,296                    | 71,730                           | 25,662                                  | 3,240         | 309,291  |
| 2027                               | 39,856                          | 32,536                     | 77,234                   | 36,849           | 102,325           | 265                      | 9,226                     | 69,890                           | 27,181                                  | -14,417       | 326,583  |
| 2028                               | 39,988                          | 64,442                     | 115,327                  | 44,967           | 54,736            | 85                       | 4,408                     | 121,667                          | 25,540                                  | -41,227       | 378,854  |
| 2029                               | 40,015                          | 104,675                    | 168,469                  | 55,858           | 119,418           | 67                       | 4,654                     | 27,145                           | 58,851                                  | -50,444       | 411,007  |
| 2030                               | 40,042                          | 111,000                    | 163,188                  | 58,959           | 95,378            | 22,223                   | 5,227                     | 46,996                           | 61,054                                  | -62,821       | 419,138  |
| 2031                               | 40,070                          | 117,716                    | 159,530                  | 60,582           | 86,299            | 20,225                   | 5,666                     | 48,890                           | 63,284                                  | -74,740       | 400,954  |
| 2032                               | 40,099                          | 124,327                    | 156,871                  | 64,036           | 80,779            | 19,089                   | 4,914                     | 44,485                           | 63,551                                  | -86,992       | 384,056  |
| 2033                               | 40,128                          | 131,081                    | 155,254                  | 67,467           | 71,018            | 16,585                   | 4,872                     | 54,891                           | 68,176                                  | -97,151       | 375,968  |
| 2034                               | 40,158                          | 137,981                    | 154,158                  | 70,967           | 65,264            | 15,205                   | 4,796                     | 49,901                           | 67,718                                  | -108,530      | 362,182  |
| 2035                               | 40,188                          | 145,047                    | 152,972                  | 74,522           | 67,384            | 15,888                   | 5,311                     | 42,175                           | 74,072                                  | -120,756      | 348,660  |
| 2036                               | 40,219                          | 145,047                    | 141,371                  | 75,186           | 74,085            | 18,202                   | 4,839                     | 40,250                           | 83,958                                  | -114,096      | 341,146  |
| 2037                               | 40,250                          | 148,440                    | 135,456                  | 76,420           | 69,547            | 17,438                   | 4,816                     | 44,820                           | 82,795                                  | -86,254       | 368,137  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 673,571                    | 1,005,465                | 449,412          | 1,060,261         | 75,984                   | 84,463                    | 526,597                          | 511,183                                 | (412,300)     | 3,332,702  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 258 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Reference Portfolio Under CETA Scenario

|      | Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                              |
|------|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|      | (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|      | (Current and Planned) Supply-Side + Purchased Forced Capacity (UCAP) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
|      | Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023 | 73   | 934    | 2  | 9      | 3                             | 3      | 0               | 0      | 0            | 0      | 0             | 6,276  | 0                           | 0                    | 6,276                              | 5,841                 | 19                                       | 5,822                               | 454                     | 1,019            | 1,049    | -30             | 5.8              | 5,641,945      |                              |
| 2024 | 78   | 934    | (3)  | 5      | 5                             | 8      | 0               | 0      | 0            | 0      | 0             | 6,335  | 0                           | 0                    | 6,335                              | 6,354                 | 46                                       | 6,307                               | 28                      | 1,026            | 1,062    | -36             | 5.2              | 5,611,650      |                              |
| 2025 | 78   | 934    | 0  | 5      | 6                             | 14     | 0               | 0      | 0            | 0      | 0             | 4,882  | 0                           | 0                    | 4,882                              | 6,351                 | 79                                       | 6,272                               | (1,390)                 | 1,032            | 1,050    | -19             | 7.0              | 4,202,431      |                              |
| 2026 | 82   | 934    | 0  | 5      | 7                             | 21     | 0               | 0      | 11           | 11     | 0             | 4,363  | 0                           | 307                  | 4,670                              | 6,265                 | 118                                      | 6,147                               | (1,477)                 | 1,054            | 1,110    | -57             | 3.4              | 3,746,467      |                              |
| 2027 | 0  | 934    | 0  | 5      | 6                             | 26     | 0               | 0      | 11           | 23     | 101           | 3,486  | 0                           | 1,112                | 4,598                              | 6,261                 | 151                                      | 6,110                               | (1,512)                 | 1,089            | 1,111    | -22             | 6.8              | 2,852,818      |                              |
| 2028 | 495  | 285    | 0  | 5      | 4                             | 31     | 0               | 0      | 23           | 45     | 70            | 1,745  | 0                           | 2,224                | 3,969                              | 6,266                 | 179                                      | 6,087                               | (2,118)                 | 1,032            | 1,110    | -77             | 1.4              | 1,398,718      |                              |
| 2029 | 0  | 285    | 0  | 5      | 4                             | 34     | 0               | 0      | 21           | 66     | 26            | 3,610  | 0                           | 3,023                | 6,634                              | 6,270                 | 200                                      | 6,070                               | 563                     | 1,044            | 1,111    | -67             | 2.3              | 2,170,889      |                              |
| 2030 | 0  | 285    | 0  | 5      | 3                             | 37     | 0               | 0      | 16           | 83     | -12           | 2,719  | 0                           | 3,341                | 6,060                              | 6,270                 | 217                                      | 6,053                               | 8                       | 1,051            | 1,112    | -61             | 3.0              | 1,630,661      |                              |
| 2031 | 0  | 285    | 0  | 5      | (0)                           | 36     | 0               | 0      | 10           | 92     | -9            | 2,386  | 0                           | 3,653                | 6,038                              | 6,275                 | 220                                      | 6,056                               | (17)                    | 1,051            | 1,114    | -63             | 2.8              | 1,433,118      |                              |
| 2032 | 0  | 285    | 0  | 5      | (1)                           | 36     | 0               | 0      | 6            | 98     | -13           | 2,172  | 0                           | 3,972                | 6,145                              | 6,277                 | 221                                      | 6,056                               | 89                      | 1,043            | 1,112    | -69             | 2.2              | 1,307,254      |                              |
| 2033 | 0  | 285    | 0  | 5      | (1)                           | 35     | 0               | 0      | 11           | 109    | -9            | 1,822  | 0                           | 4,239                | 6,061                              | 6,286                 | 219                                      | 6,068                               | (7)                     | 1,044            | 1,119    | -74             | 1.7              | 1,096,953      |                              |
| 2034 | 0  | 285    | 0  | 5      | (1)                           | 34     | 0               | 0      | 11           | 120    | -9            | 1,616  | 0                           | 4,535                | 6,151                              | 6,299                 | 216                                      | 6,083                               | 68                      | 1,045            | 1,118    | -73             | 1.8              | 971,917        |                              |
| 2035 | 0  | 285    | 0  | 5      | (1)                           | 33     | 0               | 0      | 11           | 131    | 0             | 1,631  | 0                           | 4,846                | 6,478                              | 6,319                 | 213                                      | 6,106                               | 371                     | 1,055            | 1,123    | -68             | 2.4              | 982,179        |                              |
| 2036 | 0  | 285    | 0  | 5      | (1)                           | 32     | 0               | 0      | 0            | 131    | -3            | 1,806  | 0                           | 4,895                | 6,701                              | 6,340                 | 209                                      | 6,131                               | 570                     | 1,052            | 1,126    | -74             | 1.8              | 1,087,151      |                              |
| 2037 | 0  | 285    | 0  | 5      | (1)                           | 31     | 0               | 0      | 0            | 131    | 5             | 1,665  | 0                           | 4,979                | 6,645                              | 6,363                 | 203                                      | 6,160                               | 485                     | 1,056            | 1,134    | -78             | 1.5              | 1,005,219      |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 259 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
REF-HC Portfolio Under CETA Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 185,781           | 499                      | 15,389                    | 35,125                           | 72,179                                  | 12,112        | 270,687  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 185,375           | 509                      | 16,206                    | 37,078                           | 46,938                                  | 11,299        | 300,795  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 141,255           | 386                      | 13,920                    | 73,275                           | 26,858                                  | 10,679        | 309,513  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 29,870           | 123,988           | 346                      | 13,296                    | 65,354                           | 31,271                                  | -3,235        | 312,565  |
| 2027                               | 39,856                          | 46,251                     | 95,304                   | 39,621           | 102,325           | 265                      | 9,226                     | 59,361                           | 35,450                                  | -26,172       | 330,584  |
| 2028                               | 39,988                          | 88,825                     | 146,712                  | 49,831           | 54,736            | 85                       | 4,408                     | 100,423                          | 36,086                                  | -58,971       | 389,951  |
| 2029                               | 40,015                          | 115,458                    | 177,260                  | 56,409           | 119,418           | 67                       | 4,654                     | 23,829                           | 66,572                                  | -56,629       | 413,910  |
| 2030                               | 40,042                          | 121,783                    | 171,754                  | 59,478           | 95,378            | 22,223                   | 5,227                     | 41,912                           | 68,701                                  | -69,127       | 419,969  |
| 2031                               | 40,070                          | 128,498                    | 167,906                  | 59,989           | 86,299            | 20,225                   | 5,666                     | 44,095                           | 70,410                                  | -81,110       | 401,228  |
| 2032                               | 40,099                          | 135,110                    | 164,874                  | 63,572           | 80,779            | 19,089                   | 4,914                     | 40,176                           | 70,944                                  | -93,475       | 384,192  |
| 2033                               | 40,128                          | 141,863                    | 163,357                  | 67,186           | 71,018            | 16,585                   | 4,872                     | 50,429                           | 74,989                                  | -103,484      | 376,965  |
| 2034                               | 40,158                          | 141,863                    | 151,921                  | 67,948           | 65,264            | 15,205                   | 4,796                     | 51,906                           | 65,612                                  | -105,833      | 367,616  |
| 2035                               | 40,188                          | 141,863                    | 141,329                  | 68,698           | 67,384            | 15,888                   | 5,311                     | 50,533                           | 62,549                                  | -108,618      | 360,027  |
| 2036                               | 40,219                          | 141,863                    | 131,255                  | 69,453           | 74,085            | 18,202                   | 4,839                     | 48,292                           | 71,333                                  | -90,163       | 366,711  |
| 2037                               | 40,250                          | 149,268                    | 132,036                  | 73,190           | 69,547            | 17,438                   | 4,816                     | 48,610                           | 77,574                                  | -56,920       | 400,661  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 738,522                    | 1,062,897                | 442,304          | 1,060,261         | 75,984                   | 84,463                    | 496,857                          | 535,753                                 | (427,862)     | 3,378,104  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 260 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
REF-HC Portfolio Under CETA Scenario

|        | Resource (Capacity) Additions  |  |                            |        |                 |        |              |        |               |        |                    |                      | Energy & Capacity Positions        |                |  |                                  |                         |                |                  |                  |                  |                | Carbon Output                |      |      |           |
|--------|--|--|----------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|--------------------|----------------------|------------------------------------|----------------|--|----------------------------------|-------------------------|----------------|------------------|------------------|------------------|----------------|------------------------------|------|------|-----------|
|        | (12)   | (13)   | (14)                       | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)               | (23)                 | (24)                               | (25)           | (26)                                     | (27) = (24)+(25)+(26)            | (28)                    | (29)           | (30) = (29)-(28) | (31) = (30)-(27) | (32)             | (33)           | (34)=(33)-(32)               | (35) | (36) |           |
|        | (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) | (Current and Planned) Interruptible Load and Demand Response | (Incram) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Incram) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity         | Peak + Reserves  | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |      |      |           |
| Ann MW | Cum MW   | Ann MW   | Cum MW                     | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW             | GWh                  | GWh                                | GWh            | GWh                                      | GWh                              | GWh                     | GWh            | GWh              | MW               | MW               | MW             | %                            | tons |      |           |
| 2023   | 73   | 934  | 2                          | 9      | 2               | 2      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 6,276          | 0  | 0                                | 6,276                   | 5,841          | 13               | 5,828            | 448              | 1,017          | 1,049                        | -32  | 5.6  | 5,641,945 |
| 2024   | 78   | 934  | (3)                        | 5      | 3               | 5      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 6,335          | 0  | 0                                | 6,335                   | 6,354          | 33               | 6,321            | 15               | 1,022          | 1,062                        | -40  | 4.8  | 5,611,650 |
| 2025   | 78   | 934  | 0                          | 5      | 4               | 9      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 4,882          | 0  | 0                                | 4,882                   | 6,351          | 58               | 6,293            | (1,411)          | 1,026          | 1,050                        | -24  | 6.4  | 4,202,431 |
| 2026   | 79   | 934  | 0                          | 5      | 5               | 14     | 0            | 0      | 23            | 23     | 0                  | 0                    | 0                                  | 4,363          | 0  | 613                              | 4,976                   | 6,265          | 97               | 6,168            | (1,191)          | 1,055          | 1,110                        | -55  | 3.5  | 3,746,467 |
| 2027   | 0  | 934  | 0                          | 5      | 4               | 18     | 0            | 0      | 23            | 45     | 82                 | 82                   | 0                                  | 3,486          | 0  | 1,623                            | 5,110                   | 6,261          | 124              | 6,137            | (1,027)          | 1,084          | 1,111                        | -27  | 6.3  | 2,852,818 |
| 2028   | 461  | 285  | 0                          | 5      | 3               | 21     | 0            | 0      | 23            | 68     | 122                | 204                  | 0                                  | 1,745          | 0  | 3,035                            | 4,780                   | 6,266          | 146              | 6,119            | (1,340)          | 1,044          | 1,110                        | -66  | 2.5  | 1,398,718 |
| 2029   | 0  | 285  | 0                          | 5      | 3               | 24     | 0            | 0      | 10            | 77     | -7                 | 197                  | 0                                  | 3,610          | 0  | 3,327                            | 6,937                   | 6,270          | 164              | 6,106            | 831              | 1,044          | 1,111                        | -67  | 2.4  | 2,170,889 |
| 2030   | 0  | 285  | 0                          | 5      | 2               | 26     | 0            | 0      | 17            | 94     | -12                | 185                  | 0                                  | 2,719          | 0  | 3,647                            | 6,366                   | 6,270          | 178              | 6,092            | 274              | 1,052          | 1,112                        | -60  | 3.0  | 1,630,661 |
| 2031   | 0  | 285  | 0                          | 5      | (1)             | 24     | 0            | 0      | 10            | 104    | -9                 | 176                  | 0                                  | 2,386          | 0  | 3,959                            | 6,345                   | 6,275          | 160              | 6,115            | 230              | 1,051          | 1,114                        | -63  | 2.8  | 1,433,118 |
| 2032   | 0  | 285  | 0                          | 5      | (1)             | 24     | 0            | 0      | 5             | 109    | -13                | 163                  | 0                                  | 2,172          | 0  | 4,280                            | 6,452                   | 6,277          | 151              | 6,126            | 327              | 1,042          | 1,112                        | -70  | 2.1  | 1,307,254 |
| 2033   | 0  | 285  | 0                          | 5      | (1)             | 23     | 0            | 0      | 11            | 120    | -9                 | 154                  | 0                                  | 1,822          | 0  | 4,543                            | 6,364                   | 6,286          | 141              | 6,146            | 219              | 1,044          | 1,119                        | -75  | 1.6  | 1,096,953 |
| 2034   | 0  | 285  | 0                          | 5      | (1)             | 22     | 0            | 0      | 0             | 120    | -9                 | 145                  | 0                                  | 1,616          | 0  | 4,535                            | 6,151                   | 6,299          | 130              | 6,169            | (18)             | 1,034          | 1,118                        | -84  | 0.7  | 971,917   |
| 2035   | 0  | 285  | 0                          | 5      | (1)             | 21     | 0            | 0      | 0             | 120    | 0                  | 145                  | 0                                  | 1,631          | 0  | 4,542                            | 6,174                   | 6,319          | 120              | 6,199            | (26)             | 1,033          | 1,123                        | -90  | 0.2  | 982,179   |
| 2036   | 0  | 285  | 0                          | 5      | (1)             | 20     | 0            | 0      | 0             | 120    | -3                 | 143                  | 0                                  | 1,806          | 0  | 4,587                            | 6,393                   | 6,340          | 110              | 6,230            | 164              | 1,029          | 1,126                        | -96  | -0.4 | 1,087,151 |
| 2037   | 0  | 285  | 0                          | 5      | (1)             | 19     | 0            | 0      | 11            | 131    | -6                 | 137                  | 0                                  | 1,665          | 0  | 4,879                            | 6,545                   | 6,363          | 100              | 6,263            | 282              | 1,033          | 1,134                        | -101 | -0.7 | 1,005,219 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 261 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CETA Portfolio Under CETA Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 185,781           | 499                      | 15,389                    | 35,495                           | 72,179                                  | 12,112        | 271,057  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 185,375           | 509                      | 16,206                    | 37,794                           | 46,938                                  | 11,299        | 301,511  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 141,255           | 386                      | 13,920                    | 74,133                           | 26,858                                  | 10,679        | 310,371  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 32,329           | 123,988           | 346                      | 13,296                    | 67,311                           | 31,312                                  | -3,235        | 316,940  |
| 2027                               | 39,856                          | 49,647                     | 100,146                  | 42,756           | 102,325           | 265                      | 9,226                     | 56,996                           | 37,419                                  | -28,061       | 335,735  |
| 2028                               | 39,988                          | 95,777                     | 156,048                  | 53,556           | 54,736            | 85                       | 4,408                     | 96,842                           | 39,895                                  | -62,884       | 398,661  |
| 2029                               | 40,015                          | 136,011                    | 204,975                  | 64,309           | 119,418           | 67                       | 4,654                     | 18,149                           | 90,188                                  | -72,861       | 424,550  |
| 2030                               | 40,042                          | 145,229                    | 200,551                  | 67,893           | 95,378            | 22,223                   | 5,227                     | 31,985                           | 97,105                                  | -88,462       | 422,960  |
| 2031                               | 40,070                          | 151,944                    | 193,942                  | 69,561           | 86,299            | 20,225                   | 5,666                     | 33,378                           | 99,094                                  | -101,063      | 400,929  |
| 2032                               | 40,099                          | 161,582                    | 193,158                  | 73,701           | 80,779            | 19,089                   | 4,914                     | 29,020                           | 103,621                                 | -116,441      | 382,278  |
| 2033                               | 40,128                          | 168,335                    | 189,305                  | 77,184           | 71,018            | 16,585                   | 4,872                     | 38,028                           | 106,300                                 | -126,718      | 372,436  |
| 2034                               | 40,158                          | 168,335                    | 176,284                  | 77,803           | 65,264            | 15,205                   | 4,796                     | 38,345                           | 96,574                                  | -129,378      | 360,239  |
| 2035                               | 40,188                          | 172,046                    | 168,523                  | 79,259           | 67,384            | 15,888                   | 5,311                     | 35,833                           | 93,567                                  | -130,879      | 359,987  |
| 2036                               | 40,219                          | 172,046                    | 156,543                  | 79,964           | 74,085            | 18,202                   | 4,839                     | 34,309                           | 103,487                                 | -113,066      | 363,654  |
| 2037                               | 40,250                          | 178,831                    | 154,815                  | 81,908           | 69,547            | 17,438                   | 4,816                     | 38,319                           | 105,097                                 | -74,246       | 406,579  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 867,463                    | 1,197,556                | 493,550          | 1,060,261         | 75,984                   | 84,463                    | 443,669                          | 678,096                                 | (529,393)     | 3,395,888  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 262 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CETA Portfolio Under CETA Scenario

|        | Resource (Capacity) Additions   |  |                              |        |                 |        |              |        |               |        |                       | Energy & Capacity Positions |  |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |      |      |           |
|--------|---|--|------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|-----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|------|-----------|
|        | (12)  | (13)   | (14)                         | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                        | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                    | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36) |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Incem) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy  | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Incem)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |      |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                       | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                         | GWh  | GWh            | GWh  | GWh                                      | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |      |           |
| 2023   | 105   | 934  | 2                            | 9      | 2               | 2      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 6,276          | 0  | 0  | 6,276                      | 5,841          | 13               | 5,828              | 448                 | 1,049             | 1,049                           | 0    | 9.0  | 5,641,945 |
| 2024   | 118   | 934  | (3)                          | 5      | 3               | 5      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 6,335          | 0  | 0  | 6,335                      | 6,354          | 33               | 6,321              | 15                  | 1,062             | 1,062                           | 0    | 9.0  | 5,611,650 |
| 2025   | 103   | 934  | 0                            | 5      | 4               | 9      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 4,882          | 0  | 0  | 4,882                      | 6,351          | 58               | 6,293              | (1,411)             | 1,051             | 1,050                           | 1    | 9.0  | 4,202,431 |
| 2026   | 133   | 934  | 0                            | 5      | 7               | 16     | 0            | 0      | 23            | 23     | 0                     | 0                           | 0  | 4,363          | 0  | 613                                      | 4,976                      | 6,265          | 100              | 6,165              | (1,189)             | 1,111             | 1,110                           | 1    | 9.0  | 3,746,467 |
| 2027   | 4   | 934  | 0                            | 5      | 6               | 22     | 0            | 0      | 23            | 45     | 101                   | 101                         | 0  | 3,486          | 0  | 1,723                                    | 5,210                      | 6,261          | 136              | 6,125              | (915)               | 1,112             | 1,111                           | 1    | 9.0  | 2,852,818 |
| 2028   | 488   | 285  | 0                            | 5      | 5               | 28     | 0            | 0      | 23            | 68     | 136                   | 237                         | 0  | 1,745          | 0  | 3,235                                    | 4,980                      | 6,266          | 167              | 6,099              | (1,119)             | 1,110             | 1,110                           | 1    | 9.0  | 1,398,718 |
| 2029   | 0   | 285  | 0                            | 5      | 4               | 32     | 0            | 0      | 21            | 88     | 24                    | 261                         | 0  | 3,610          | 0  | 4,031                                    | 7,641                      | 6,270          | 191              | 6,079              | 1,562               | 1,127             | 1,111                           | 16   | 10.5 | 2,170,889 |
| 2030   | 0   | 285  | 0                            | 5      | 3               | 35     | 0            | 0      | 18            | 106    | 1                     | 262                         | 0  | 2,719          | 0  | 4,453                                    | 7,172                      | 6,270          | 211              | 6,059              | 1,114               | 1,150             | 1,112                           | 38   | 12.6 | 1,630,661 |
| 2031   | 0   | 285  | 0                            | 5      | 0               | 36     | 0            | 0      | 9             | 116    | -11                   | 250                         | 0  | 2,386          | 0  | 4,766                                    | 7,152                      | 6,275          | 216              | 6,059              | 1,092               | 1,148             | 1,114                           | 34   | 12.2 | 1,433,118 |
| 2032   | 0   | 285  | 0                            | 5      | (0)             | 35     | 0            | 0      | 4             | 120    | -3                    | 248                         | 0  | 2,172          | 0  | 5,190                                    | 7,362                      | 6,277          | 219              | 6,058              | 1,305               | 1,149             | 1,112                           | 37   | 12.5 | 1,307,254 |
| 2033   | 0   | 285  | 0                            | 5      | (1)             | 35     | 0            | 0      | 11            | 131    | -14                   | 234                         | 0  | 1,822          | 0  | 5,447                                    | 7,268                      | 6,286          | 218              | 6,068              | 1,200               | 1,145             | 1,119                           | 27   | 11.5 | 1,096,953 |
| 2034   | 0   | 285  | 0                            | 5      | (1)             | 34     | 0            | 0      | 0             | 131    | -14                   | 220                         | 0  | 1,616          | 0  | 5,438                                    | 7,054                      | 6,299          | 216              | 6,083              | 971                 | 1,130             | 1,118                           | 12   | 10.1 | 971,917   |
| 2035   | 0   | 285  | 0                            | 5      | (1)             | 33     | 50           | 0      | 0             | 131    | 0                     | 220                         | 0  | 1,631          | 41   | 5,446                                    | 7,118                      | 6,368          | 213              | 6,155              | 963                 | 1,162             | 1,123                           | 39   | 12.7 | 982,179   |
| 2036   | 0   | 285  | 0                            | 5      | (1)             | 32     | 0            | 50     | 0             | 131    | -4                    | 216                         | 0  | 1,806          | 41   | 5,497                                    | 7,344                      | 6,389          | 209              | 6,180              | 1,165               | 1,157             | 1,126                           | 32   | 12.0 | 1,087,151 |
| 2037   | 0   | 285  | 0                            | 5      | (1)             | 31     | 0            | 50     | 0             | 131    | 13                    | 228                         | 0  | 1,665          | 40   | 5,679                                    | 7,385                      | 6,411          | 203              | 6,208              | 1,177               | 1,167             | 1,134                           | 33   | 12.2 | 1,005,219 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 263 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**ECR Portfolio Under CETA Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 185,781           | 499                      | 15,389                    | 35,332                           | 71,680                                  | 12,112        | 269,179  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 185,375           | 509                      | 16,206                    | 37,871                           | 45,992                                  | 11,299        | 298,550  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 141,255           | 386                      | 13,920                    | 74,764                           | 25,702                                  | 10,679        | 306,693  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 29,254           | 123,988           | 346                      | 13,296                    | 65,385                           | 30,045                                  | -3,235        | 313,207  |
| 2027                               | 39,856                          | 39,458                     | 85,620                   | 37,548           | 102,325           | 265                      | 9,226                     | 65,081                           | 31,233                                  | -22,395       | 325,749  |
| 2028                               | 39,988                          | 102,068                    | 166,745                  | 54,345           | 54,736            | 85                       | 4,408                     | 90,858                           | 37,673                                  | -91,958       | 383,602  |
| 2029                               | 40,015                          | 145,585                    | 215,117                  | 65,417           | 79,961            | 67                       | 3,332                     | 30,720                           | 59,931                                  | -82,872       | 437,411  |
| 2030                               | 40,042                          | 151,910                    | 204,063                  | 68,012           | 65,837            | 14,956                   | 3,536                     | 41,377                           | 67,525                                  | -96,624       | 425,584  |
| 2031                               | 40,054                          | 167,266                    | 209,051                  | 77,518           | 40,248            | 9,337                    | 2,680                     | 61,582                           | 65,839                                  | -116,618      | 425,279  |
| 2032                               | 40,054                          | 196,842                    | 229,935                  | 86,154           | 25,497            | 6,335                    | 1,726                     | 46,628                           | 69,230                                  | -229,792      | 334,149  |
| 2033                               | 40,054                          | 203,596                    | 221,431                  | 89,756           | 22,220            | 5,444                    | 1,709                     | 46,044                           | 73,740                                  | -133,128      | 423,385  |
| 2034                               | 40,054                          | 203,596                    | 205,434                  | 90,552           | 21,070            | 5,137                    | 1,781                     | 47,803                           | 73,790                                  | -136,426      | 405,211  |
| 2035                               | 40,054                          | 203,596                    | 190,859                  | 91,362           | 22,092            | 5,485                    | 2,032                     | 47,373                           | 71,801                                  | -140,091      | 390,961  |
| 2036                               | 40,054                          | 206,909                    | 181,904                  | 92,868           | 24,516            | 6,307                    | 1,700                     | 45,148                           | 76,621                                  | -124,236      | 398,549  |
| 2037                               | 40,054                          | 206,909                    | 168,853                  | 93,640           | 23,009            | 6,004                    | 1,702                     | 46,997                           | 72,673                                  | -96,106       | 418,389  |
| Cumulative Present Worth 2023-2037 | 380,095                         | 979,247                    | 1,289,709                | 518,481          | 851,202           | 32,960                   | 71,839                    | 506,787                          | 529,668                                 | (652,984)     | 3,447,668  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 264 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 ECR Portfolio Under CETA Scenario

|        | Resource (Capacity) Additions   |  |                                  |                 |              |               |                       |                            |  |                |  | Energy & Capacity Positions                  |                            |                |          |                       |                     |                   |                                 |                  |       |      | Carbon Output  |           |      |
|--------|---|--|----------------------------------|-----------------|--------------|---------------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|----------|-----------------------|---------------------|-------------------|---------------------------------|------------------|-------|------|----------------|-----------|------|
|        | (12)  | (13)   | (14)                             | (15)            | (16)         | (17)          | (18)                  | (19)                       | (20)   | (21)           | (22)   | (23)   | (24)                       | (25)           | (26)     | (27) = (24)+(25)+(26) | (28)                | (29)              | (30) = (29)-(28)                | (31) = (30)-(27) | (32)  | (33) | (34)=(33)-(32) | (35)      | (36) |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Forced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency | Utility Storage | Generic Wind | Utility Solar | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity | Peak +<br>Reserves    | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |                  |       |      |                |           |      |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW          | Cum MW       | Ann MW        | Cum MW                | Ann MW                     | Cum MW   | Ann MW         | Cum MW   | GWh  | GWh                        | GWh            | GWh      | GWh                   | GWh                 | GWh               | GWh                             | MW               | MW    | MW   | %              | tons      |      |
| 2023   | 70  | 934  | 2                                | 9               | 0            | 0             | 0                     | 0                          | 0  | 0              | 0  | 6,276  | 0                          | 0              | 6,276    | 5,841                 | 1                   | 5,840             | 436                             | 1,013            | 1,049 | -37  | 5.1            | 5,641,945 |      |
| 2024   | 78  | 934  | (3)                              | 5               | 0            | 0             | 0                     | 0                          | 0  | 0              | 0  | 6,335  | 0                          | 0              | 6,335    | 6,354                 | 1                   | 6,353             | (17)                            | 1,017            | 1,062 | -45  | 4.4            | 5,611,650 |      |
| 2025   | 78  | 934  | 0                                | 5               | 0            | 0             | 0                     | 0                          | 0  | 0              | 0  | 4,882  | 0                          | 0              | 4,882    | 6,351                 | 1                   | 6,350             | (1,468)                         | 1,018            | 1,050 | -33  | 5.5            | 4,202,431 |      |
| 2026   | 43  | 934  | 0                                | 5               | 5            | 5             | 0                     | 0                          | 23   | 23             | 0  | 4,363  | 0                          | 613            | 4,976    | 6,265                 | 36                  | 6,229             | (1,253)                         | 1,010            | 1,110 | -100 | -0.9           | 3,746,467 |      |
| 2027   | 0   | 934  | 0                                | 5               | 5            | 10            | 0                     | 0                          | 23   | 45             | 44   | 3,486  | 0                          | 1,423          | 4,910    | 6,261                 | 67                  | 6,194             | (1,284)                         | 1,038            | 1,111 | -73  | 1.8            | 2,852,818 |      |
| 2028   | 339   | 285  | 0                                | 5               | 4            | 14            | 0                     | 0                          | 23   | 68             | 193  | 1,745  | 0                          | 2,934          | 4,679    | 6,266                 | 94                  | 6,171             | (1,492)                         | 983              | 1,110 | -127 | -3.5           | 1,398,718 |      |
| 2029   | 0   | 285  | 0                                | 5               | 3            | 17            | 0                     | 0                          | 21   | 88             | 88   | 2,379  | 0                          | 4,131          | 6,510    | 6,270                 | 117                 | 6,153             | 357                             | 983              | 1,111 | -128 | -3.6           | 1,418,705 |      |
| 2030   | 0   | 285  | 0                                | 5               | 3            | 20            | 0                     | 0                          | 18   | 106            | -17  | 1,846  | 0                          | 4,453          | 6,299    | 6,270                 | 137                 | 6,133             | 166                             | 987              | 1,112 | -125 | -3.3           | 1,096,436 |      |
| 2031   | 206   | 0  | 0                                | 5               | 5            | 25            | 0                     | 0                          | 9  | 116            | 32   | 1,102  | 0                          | 5,066          | 6,168    | 6,275                 | 164                 | 6,111             | 57                              | 954              | 1,114 | -160 | -6.7           | 662,704   |      |
| 2032   | 0   | 0  | 0                                | 5               | 4            | 29            | 200                   | 200                        | 4  | 120            | 21   | 710  | 162                        | 5,692          | 6,564    | 6,471                 | 188                 | 6,283             | 281                             | 915              | 1,112 | -197 | -10.3          | 434,666   |      |
| 2033   | 0   | 0  | 0                                | 5               | 4            | 33            | 0                     | 200                        | 11   | 131            | -21  | 589  | 162                        | 5,947          | 6,697    | 6,480                 | 207                 | 6,273             | 424                             | 909              | 1,119 | -210 | -11.5          | 360,736   |      |
| 2034   | 0   | 0  | 0                                | 5               | 3            | 36            | 0                     | 200                        | 0  | 131            | -21  | 537  | 163                        | 5,938          | 6,638    | 6,494                 | 222                 | 6,272             | 366                             | 883              | 1,118 | -235 | -14.0          | 328,825   |      |
| 2035   | 0   | 0  | 0                                | 5               | 2            | 38            | 0                     | 200                        | 0  | 131            | 0  | 554  | 163                        | 5,946          | 6,663    | 6,514                 | 235                 | 6,279             | 384                             | 886              | 1,123 | -238 | -14.1          | 339,510   |      |
| 2036   | 0   | 0  | 0                                | 5               | 2            | 40            | 0                     | 200                        | 0  | 131            | 6  | 615  | 164                        | 6,100          | 6,879    | 6,536                 | 245                 | 6,291             | 588                             | 893              | 1,126 | -232 | -13.5          | 377,161   |      |
| 2037   | 0   | 0  | 0                                | 5               | 1            | 41            | 0                     | 200                        | 0  | 131            | -16  | 566  | 161                        | 6,079          | 6,807    | 6,556                 | 250                 | 6,306             | 501                             | 868              | 1,134 | -266 | -16.6          | 346,687   |      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 265 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**NCR Portfolio Under CETA Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 20,030           | 185,781           | 499                      | 15,389                    | 34,966                           | 72,534                                  | 12,112        | 274,015  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 25,977           | 185,375           | 509                      | 16,206                    | 36,627                           | 47,478                                  | 11,299        | 304,893  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 28,492           | 141,255           | 386                      | 13,920                    | 72,543                           | 27,489                                  | 10,679        | 314,613  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 38,428           | 123,988           | 346                      | 13,296                    | 63,712                           | 32,215                                  | -3,235        | 318,537  |
| 2027                               | 39,856                          | 42,855                     | 90,462                   | 47,611           | 102,325           | 265                      | 9,226                     | 60,375                           | 34,786                                  | -24,284       | 333,903  |
| 2028                               | 39,988                          | 74,761                     | 127,235                  | 55,894           | 54,736            | 85                       | 4,408                     | 110,584                          | 31,912                                  | -51,284       | 384,494  |
| 2029                               | 40,015                          | 101,649                    | 158,295                  | 61,534           | 119,418           | 67                       | 4,654                     | 31,080                           | 49,431                                  | -92,026       | 375,256  |
| 2030                               | 40,042                          | 101,649                    | 145,495                  | 61,939           | 95,378            | 22,223                   | 5,227                     | 60,558                           | 45,170                                  | -40,811       | 446,530  |
| 2031                               | 40,070                          | 101,892                    | 134,842                  | 47,061           | 86,299            | 20,225                   | 5,666                     | 71,949                           | 39,833                                  | -43,433       | 424,739  |
| 2032                               | 40,099                          | 101,892                    | 125,410                  | 47,616           | 80,779            | 19,089                   | 4,914                     | 76,805                           | 32,988                                  | -45,997       | 417,618  |
| 2033                               | 40,128                          | 101,892                    | 117,434                  | 48,182           | 71,018            | 16,585                   | 4,872                     | 98,386                           | 33,083                                  | -46,982       | 418,431  |
| 2034                               | 40,158                          | 101,892                    | 109,746                  | 48,755           | 65,264            | 15,205                   | 4,796                     | 104,002                          | 26,352                                  | -48,676       | 414,790  |
| 2035                               | 40,188                          | 105,603                    | 106,292                  | 50,138           | 67,384            | 15,888                   | 5,311                     | 106,065                          | 25,653                                  | -49,083       | 422,133  |
| 2036                               | 40,219                          | 105,603                    | 98,134                   | 50,744           | 74,085            | 18,202                   | 4,839                     | 101,568                          | 30,236                                  | -29,422       | 433,738  |
| 2037                               | 40,250                          | 105,603                    | 90,127                   | 51,359           | 69,547            | 17,438                   | 4,816                     | 111,321                          | 28,570                                  | 3,066         | 464,958  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 580,887                    | 884,537                  | 416,723          | 1,060,261         | 75,984                   | 84,463                    | 678,851                          | 374,720                                 | (244,029)     | 3,543,388  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 266 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 NCR Portfolio Under CETA Scenario

|      | Resource (Capacity) Additions   |  |                               |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |   |                            |                |                  |                    |                     |                   | Carbon Output                   |      |           |           |
|------|---|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|---|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|-----------|-----------|
|      | (12)  | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                     | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36)      |           |
|      | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Incrém) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Incrém)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |           |           |
|      | Ann MW  | Cum MW   | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | Ann MW                | Cum MW                     | GWh  | GWh            | GWh  | GWh                                       | GWh                        | GWh            | GWh              | GWh                | MW                  | MW                | MW                              | %    | tons      |           |
| 2023 | 73  | 934  | 2                             | 9      | 5               | 5      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,276          | 0  | 0   | 6,276                      | 5,841          | 21               | 5,820              | 456                 | 1,020             | 1,049                           | -29  | 5.9       | 5,641,945 |
| 2024 | 78  | 934  | (3)                           | 5      | 6               | 11     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,335          | 0  | 0   | 6,335                      | 6,354          | 51               | 6,303              | 32                  | 1,028             | 1,062                           | -34  | 5.5       | 5,611,650 |
| 2025 | 78  | 934  | 0                             | 5      | 7               | 18     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,882          | 0  | 0   | 4,882                      | 6,351          | 87               | 6,264              | (1,383)             | 1,036             | 1,050                           | -15  | 7.4       | 4,202,431 |
| 2026 | 60  | 934  | 0                             | 5      | 10              | 28     | 0            | 0      | 23            | 23     | 0                     | 0                          | 0  | 4,363          | 0  | 613                                       | 4,976                      | 6,265          | 141              | 6,124              | (1,148)             | 1,050             | 1,110                           | -60  | 3.0       | 3,746,467 |
| 2027 | 0   | 934  | 0                             | 5      | 7               | 36     | 0            | 0      | 23            | 45     | 63                    | 63                         | 3,486  | 0              | 1,523  | 5,010                                     | 6,261                      | 178            | 6,083            | (1,073)            | 1,083               | 1,111             | -28                             | 6.2  | 2,852,818 |           |
| 2028 | 494   | 285  | 0                             | 5      | 6               | 42     | 0            | 0      | 23            | 68     | 75                    | 138                        | 1,745  | 0              | 2,633  | 4,378                                     | 6,266                      | 209            | 6,057            | (1,679)            | 1,032               | 1,110             | -78                             | 1.3  | 1,398,718 |           |
| 2029 | 0   | 285  | 0                             | 5      | 5               | 46     | 100          | 100    | (2)           | 66     | -5                    | 133                        | 3,610  | 78             | 2,623  | 6,312                                     | 6,364                      | 233            | 6,131            | 180                | 1,061               | 1,111             | -50                             | 4.0  | 2,170,889 |           |
| 2030 | 0   | 285  | 0                             | 5      | 4               | 50     | 0            | 100    | 5             | 71     | -9                    | 124                        | 2,719  | 79             | 2,636  | 5,433                                     | 6,364                      | 252            | 6,112            | (679)              | 1,060               | 1,112             | -52                             | 3.9  | 1,630,661 |           |
| 2031 | 0   | 285  | 0                             | 5      | (8)             | 42     | 0            | 100    | (2)           | 69     | -8                    | 116                        | 2,386  | 80             | 2,639  | 5,105                                     | 6,371                      | 207            | 6,164            | (1,059)            | 1,043               | 1,114             | -71                             | 2.0  | 1,433,118 |           |
| 2032 | 0   | 285  | 0                             | 5      | (6)             | 36     | 0            | 100    | (4)           | 65     | -10                   | 107                        | 2,172  | 81             | 2,648  | 4,902                                     | 6,374                      | 178            | 6,196            | (1,294)            | 1,023               | 1,112             | -89                             | 0.2  | 1,307,254 |           |
| 2033 | 1   | 285  | 0                             | 5      | (6)             | 30     | 0            | 100    | 0             | 65     | -5                    | 101                        | 1,822  | 81             | 2,623  | 4,526                                     | 6,383                      | 150            | 6,234            | (1,708)            | 1,013               | 1,119             | -105                            | -1.3 | 1,096,953 |           |
| 2034 | 4   | 285  | 0                             | 5      | (6)             | 25     | 0            | 100    | 0             | 65     | -5                    | 96                         | 1,616  | 82             | 2,619  | 4,317                                     | 6,397                      | 123            | 6,274            | (1,957)            | 1,002               | 1,118             | -116                            | -2.3 | 971,917   |           |
| 2035 | 0   | 285  | 0                             | 5      | (5)             | 20     | 50           | 150    | 0             | 65     | 0                     | 96                         | 1,631  | 122            | 2,623  | 4,377                                     | 6,466                      | 98             | 6,367            | (1,991)            | 1,026               | 1,123             | -97                             | -0.5 | 982,179   |           |
| 2036 | 0   | 285  | 0                             | 5      | (5)             | 15     | 0            | 150    | 0             | 65     | -2                    | 95                         | 1,806  | 123            | 2,648  | 4,577                                     | 6,487                      | 76             | 6,411            | (1,834)            | 1,020               | 1,126             | -105                            | -1.2 | 1,087,151 |           |
| 2037 | 0   | 285  | 0                             | 5      | (4)             | 11     | 0            | 150    | 0             | 65     | -4                    | 91                         | 1,665  | 121            | 2,640  | 4,426                                     | 6,508                      | 56             | 6,452            | (2,026)            | 1,006               | 1,134             | -128                            | -3.4 | 1,005,219 |           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 267 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CC Portfolio Under CETA Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 185,781           | 499                      | 15,389                    | 35,006                           | 72,439                                  | 12,112        | 271,680  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,375           | 509                      | 16,206                    | 36,801                           | 47,336                                  | 11,299        | 301,989  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 141,255           | 386                      | 13,920                    | 72,733                           | 27,312                                  | 10,679        | 310,936  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 34,968           | 123,988           | 346                      | 13,296                    | 70,873                           | 25,936                                  | 3,240         | 313,766  |
| 2027                               | 39,856                          | 40,896                     | 89,154                   | 45,382           | 102,325           | 265                      | 9,226                     | 62,739                           | 32,581                                  | -21,296       | 335,966  |
| 2028                               | 39,988                          | 87,027                     | 146,109                  | 56,204           | 54,736            | 85                       | 4,408                     | 95,745                           | 35,668                                  | -55,925       | 392,709  |
| 2029                               | 40,015                          | 121,966                    | 191,586                  | 64,299           | 102,433           | 67                       | 11,486                    | 15,705                           | 65,254                                  | -43,928       | 438,374  |
| 2030                               | 40,042                          | 128,291                    | 185,533                  | 67,375           | 98,872            | 23,215                   | 11,202                    | 16,279                           | 78,007                                  | -56,388       | 436,414  |
| 2031                               | 40,070                          | 135,006                    | 180,845                  | 66,708           | 94,153            | 22,161                   | 11,036                    | 16,334                           | 82,239                                  | -68,501       | 415,573  |
| 2032                               | 40,099                          | 135,006                    | 167,699                  | 67,394           | 92,854            | 22,115                   | 10,671                    | 16,770                           | 78,128                                  | -72,021       | 402,459  |
| 2033                               | 40,128                          | 135,006                    | 157,164                  | 68,045           | 91,204            | 21,450                   | 10,634                    | 22,946                           | 74,080                                  | -73,278       | 399,218  |
| 2034                               | 40,158                          | 135,006                    | 147,148                  | 68,810           | 88,238            | 20,932                   | 10,470                    | 25,047                           | 69,114                                  | -75,440       | 391,255  |
| 2035                               | 40,188                          | 138,717                    | 141,663                  | 70,385           | 88,538            | 21,230                   | 10,635                    | 25,575                           | 65,865                                  | -76,312       | 394,753  |
| 2036                               | 40,219                          | 138,717                    | 131,776                  | 71,205           | 89,752            | 22,169                   | 11,177                    | 25,254                           | 68,043                                  | -68,579       | 393,647  |
| 2037                               | 40,250                          | 138,717                    | 122,042                  | 71,954           | 89,965            | 22,622                   | 11,158                    | 24,892                           | 63,848                                  | -28,787       | 428,964  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 724,491                    | 1,065,925                | 477,958          | 1,108,808         | 90,947                   | 112,415                   | 391,167                          | 541,594                                 | (315,782)     | 3,494,766  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 268 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 CC Portfolio Under CETA Scenario

|        | Resource (Capacity) Additions  |  |                               |        |                 |        |              |        |               |        |                    |                      | Energy & Capacity Positions        |                |  |                                     |                         |                |                  |                  |                  |                | Carbon Output                |       |       |      |      |           |
|--------|--|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-------------------------|----------------|------------------|------------------|------------------|----------------|------------------------------|-------|-------|------|------|-----------|
|        | (12)   | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)               | (23)                 | (24)                               | (25)           | (26)                                     | (27) = (24)+(25)+(26)               | (28)                    | (29)           | (30) = (29)-(28) | (31) = (30)-(27) | (32)             | (33)           | (34)=(33)-(32)               | (35)  | (36)  |      |      |           |
|        | (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) | (Current and Planned) Interruptible Load and Demand Response | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity         | Peak + Reserves  | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |       |       |      |      |           |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW             | GWh                  | GWh                                | GWh            | GWh                                      | GWh                                 | GWh                     | GWh            | GWh              | MW               | MW               | MW             | %                            | tons  |       |      |      |           |
| 2023   | 73   | 934  | 2                             | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 0              | 0  | 6,276                               | 0                       | 0              | 6,276            | 5,841            | 19               | 5,822          | 454                          | 1,019 | 1,049 | -30  | 5.8  | 5,641,945 |
| 2024   | 81   | 934  | (3)                           | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 0              | 0  | 6,335                               | 0                       | 0              | 6,335            | 6,354            | 46               | 6,307          | 28                           | 1,029 | 1,062 | -33  | 5.5  | 5,611,650 |
| 2025   | 78   | 934  | 0                             | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 0              | 0  | 4,882                               | 0                       | 0              | 4,882            | 6,351            | 79               | 6,272          | (1,390)                      | 1,032 | 1,050 | -19  | 7.0  | 4,202,431 |
| 2026   | 67   | 934  | 0                             | 5      | 10              | 24     | 0            | 0      | 11            | 11     | 0                  | 0                    | 0                                  | 0              | 0  | 4,363                               | 0                       | 307            | 4,670            | 6,265            | 131              | 6,134          | (1,464)                      | 1,042 | 1,110 | -69  | 2.2  | 3,746,467 |
| 2027   | 0  | 934  | 0                             | 5      | 8               | 32     | 0            | 0      | 23            | 34     | 101                | 101                  | 0                                  | 0              | 0  | 3,486                               | 0                       | 1,418          | 4,904            | 6,261            | 167              | 6,093          | (1,189)                      | 1,106 | 1,111 | -5   | 8.4  | 2,852,818 |
| 2028   | 313  | 285  | 0                             | 5      | 6               | 38     | 0            | 0      | 23            | 57     | 136                | 237                  | 0                                  | 0              | 0  | 1,745                               | 0                       | 2,930          | 4,675            | 6,266            | 198              | 6,067          | (1,392)                      | 934   | 1,110 | -175 | -8.3 | 1,398,718 |
| 2029   | 0  | 285  | 0                             | 5      | 5               | 43     | 0            | 0      | (1)           | 55     | 24                 | 261                  | 0                                  | 0              | 0  | 4,128                               | 0                       | 3,119          | 7,247            | 6,270            | 222              | 6,048          | 1,199                        | 1,047 | 1,111 | -64  | 2.6  | 1,840,809 |
| 2030   | 0  | 285  | 0                             | 5      | 4               | 47     | 0            | 0      | 16            | 71     | -14                | 246                  | 0                                  | 0              | 0  | 3,865                               | 0                       | 3,436          | 7,300            | 6,270            | 241              | 6,028          | 1,272                        | 1,052 | 1,112 | -60  | 3.1  | 1,703,601 |
| 2031   | 0  | 285  | 0                             | 5      | 0               | 47     | 0            | 0      | 10            | 81     | -11                | 235                  | 0                                  | 0              | 0  | 3,593                               | 0                       | 3,746          | 7,339            | 6,275            | 244              | 6,031          | 1,308                        | 1,051 | 1,114 | -63  | 2.8  | 1,570,545 |
| 2032   | 0  | 285  | 0                             | 5      | 1               | 48     | 0            | 0      | (5)           | 76     | -16                | 219                  | 0                                  | 0              | 0  | 3,476                               | 0                       | 3,759          | 7,235            | 6,277            | 254              | 6,023          | 1,212                        | 1,031 | 1,112 | -81  | 1.0  | 1,514,889 |
| 2033   | 0  | 285  | 0                             | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -12                | 207                  | 0                                  | 0              | 0  | 3,281                               | 0                       | 3,727          | 7,009            | 6,286            | 259              | 6,027          | 981                          | 1,019 | 1,119 | -100 | -0.8 | 1,419,370 |
| 2034   | 0  | 285  | 0                             | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -12                | 195                  | 0                                  | 0              | 0  | 3,129                               | 0                       | 3,722          | 6,851            | 6,299            | 263              | 6,036          | 815                          | 1,006 | 1,118 | -112 | -1.9 | 1,338,563 |
| 2035   | 0  | 285  | 0                             | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | 0                  | 195                  | 0                                  | 0              | 0  | 3,072                               | 41                      | 3,727          | 6,840            | 6,368            | 266              | 6,102          | 738                          | 1,039 | 1,123 | -84  | 0.8  | 1,312,835 |
| 2036   | 0  | 285  | 0                             | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | -4                 | 191                  | 0                                  | 0              | 0  | 3,080                               | 41                      | 3,759          | 6,880            | 6,389            | 267              | 6,122          | 758                          | 1,035 | 1,126 | -90  | 0.2  | 1,324,351 |
| 2037   | 0  | 285  | 0                             | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -9                 | 183                  | 0                                  | 0              | 0  | 3,037                               | 40                      | 3,746          | 6,823            | 6,411            | 265              | 6,146          | 677                          | 1,023 | 1,134 | -111 | -1.7 | 1,304,559 |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 269 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
 No Wind Portfolio Under CETA Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 185,781           | 499                      | 15,389                    | 35,366                           | 71,680                                  | 12,112        | 269,214  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 185,375           | 509                      | 16,206                    | 37,925                           | 45,992                                  | 11,299        | 298,604  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 141,255           | 386                      | 13,920                    | 74,764                           | 25,702                                  | 10,679        | 306,693  |
| 2026                               | 39,553                          | 7,071                      | 44,220                   | 25,388           | 123,988           | 346                      | 13,296                    | 75,368                           | 22,359                                  | 6,667         | 313,539  |
| 2027                               | 39,856                          | 24,051                     | 65,287                   | 29,916           | 102,325           | 265                      | 9,226                     | 82,200                           | 20,540                                  | -3,691        | 328,894  |
| 2028                               | 39,988                          | 79,805                     | 138,777                  | 43,789           | 54,736            | 85                       | 4,408                     | 123,416                          | 25,304                                  | -75,559       | 384,140  |
| 2029                               | 40,015                          | 109,225                    | 168,748                  | 49,114           | 79,961            | 67                       | 3,332                     | 89,330                           | 40,561                                  | -56,787       | 442,443  |
| 2030                               | 40,042                          | 112,118                    | 157,504                  | 49,354           | 65,837            | 14,956                   | 3,536                     | 118,882                          | 43,340                                  | -35,326       | 483,562  |
| 2031                               | 40,070                          | 115,322                    | 148,914                  | 54,217           | 59,014            | 13,489                   | 3,670                     | 127,049                          | 44,227                                  | -40,555       | 476,963  |
| 2032                               | 40,099                          | 118,348                    | 141,235                  | 55,488           | 55,282            | 12,754                   | 3,188                     | 129,555                          | 41,579                                  | -31,740       | 482,630  |
| 2033                               | 40,128                          | 118,348                    | 131,452                  | 56,094           | 48,798            | 11,141                   | 3,163                     | 140,912                          | 38,414                                  | -33,691       | 477,931  |
| 2034                               | 40,158                          | 118,348                    | 122,757                  | 56,817           | 44,194            | 10,069                   | 3,015                     | 149,465                          | 39,047                                  | -35,766       | 470,009  |
| 2035                               | 40,188                          | 121,583                    | 118,911                  | 58,210           | 45,292            | 10,403                   | 3,280                     | 152,371                          | 40,278                                  | -40,354       | 469,605  |
| 2036                               | 40,219                          | 121,583                    | 110,049                  | 58,992           | 49,569            | 11,895                   | 3,140                     | 148,936                          | 38,452                                  | -35,473       | 470,458  |
| 2037                               | 40,250                          | 128,368                    | 111,155                  | 61,043           | 46,538            | 11,433                   | 3,114                     | 154,682                          | 40,633                                  | -19,264       | 496,686  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 631,162                    | 927,337                  | 372,953          | 934,434           | 51,109                   | 76,334                    | 955,203                          | 372,579                                 | (196,426)     | 3,759,958  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 270 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 No Wind Portfolio Under CETA Scenario

|        | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |       |      |           |         |
|--------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|-------|------|-----------|---------|
|        | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35)  | (36) |           |         |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |       |      |           |         |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | Ann MW                     | Cum MW   | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh              | GWh                | MW                  | MW                | MW                              | %     | tons |           |         |
| 2023   | 73  | 934  | 2                                | 9      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,276          | 0  | 0  | 6,276                      | 5,841          | 1                | 5,840              | 436                 | 1,016             | 1,049                           | -34   | 5.5  | 5,641,945 |         |
| 2024   | 78  | 934  | (3)                              | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,335          | 0  | 0  | 6,335                      | 6,354          | 1                | 6,353              | (17)                | 1,017             | 1,062                           | -45   | 4.4  | 5,611,650 |         |
| 2025   | 78  | 934  | 0                                | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,882          | 0  | 0  | 4,882                      | 6,351          | 1                | 6,350              | (1,468)             | 1,018             | 1,050                           | -33   | 5.5  | 4,202,431 |         |
| 2026   | 78  | 934  | 0                                | 5      | 6               | 6      | 0            | 0      | 0             | 0      | 0                     | 0                          | 47   | 4,363          | 0  | 200  | 4,563                      | 6,265          | 45               | 6,220              | (1,657)             | 1,071             | 1,110                           | -39   | 5.1  | 3,746,467 |         |
| 2027   | 0   | 934  | 0                                | 5      | 5               | 11     | 0            | 0      | 0             | 0      | 0                     | 0                          | 92   | 3,486          | 0  | 700  | 4,186                      | 6,261          | 76               | 6,185              | (1,998)             | 1,089             | 1,111                           | -22   | 6.8  | 2,852,818 |         |
| 2028   | 407   | 285  | 0                                | 5      | 4               | 15     | 0            | 0      | 0             | 0      | 0                     | 0                          | 204  | 1,745          | 0  | 1,606  | 3,351                      | 6,266          | 104              | 6,162              | (2,810)             | 1,108             | 1,110                           | -1    | 8.8  | 1,398,718 |         |
| 2029   | 0   | 285  | 0                                | 5      | 3               | 18     | 50           | 50     | 0             | 0      | 0                     | 0                          | 69   | 2,379          | 39   | 2,100  | 4,518                      | 6,317          | 127              | 6,190              | (1,672)             | 1,036             | 1,111                           | -76   | 1.5  | 1,418,705 |         |
| 2030   | 0   | 285  | 0                                | 5      | 3               | 21     | 0            | 50     | 0             | 0      | 0                     | 0                          | -5   | 1,846          | 39   | 2,200  | 4,086                      | 6,317          | 147              | 6,170              | (2,085)             | 1,033             | 1,112                           | -79   | 1.2  | 1,096,436 |         |
| 2031   | 0   | 285  | 0                                | 5      | 4               | 25     | 0            | 50     | 0             | 0      | 0                     | 0                          | -1   | 1,604          | 40   | 2,300  | 3,944                      | 6,323          | 164              | 6,159              | (2,215)             | 1,036             | 1,114                           | -78   | 1.4  | 954,927   |         |
| 2032   | 0   | 285  | 0                                | 5      | 4               | 29     | 0            | 50     | 0             | 0      | 0                     | 0                          | -11  | 1,462          | 41   | 2,410  | 3,912                      | 6,325          | 188              | 6,137              | (2,225)             | 1,030             | 1,112                           | -83   | 0.8  | 872,588   |         |
| 2033   | 0   | 285  | 0                                | 5      | 4               | 33     | 0            | 50     | 0             | 0      | 0                     | 0                          | -23  | 1,233          | 40   | 2,400  | 3,674                      | 6,335          | 207              | 6,128              | (2,454)             | 1,010             | 1,119                           | -109  | -1.6 | 736,217   |         |
| 2034   | 0   | 285  | 0                                | 5      | 3               | 36     | 0            | 50     | 0             | 0      | 0                     | 0                          | -23  | 1,079          | 41   | 2,400  | 3,520                      | 6,348          | 222              | 6,125              | (2,605)             | 986               | 1,118                           | -132  | -4.0 | 643,092   |         |
| 2035   | 0   | 285  | 0                                | 5      | 2               | 38     | 0            | 50     | 0             | 0      | 0                     | 0                          | 12   | 361            | 1,077  | 41   | 2,500                      | 3,618          | 6,368            | 235                | 6,133               | (2,515)           | 1,001                           | 1,123 | -123 | -3.0      | 642,669 |
| 2036   | 0   | 285  | 0                                | 5      | 2               | 40     | 0            | 50     | 0             | 0      | 0                     | 0                          | -7   | 355            | 1,191  | 41   | 2,510                      | 3,742          | 6,389            | 245                | 6,144               | (2,402)           | 996                             | 1,126 | -130 | -3.6      | 709,990 |
| 2037   | 0   | 285  | 0                                | 5      | 1               | 41     | 0            | 50     | 0             | 0      | 0                     | 0                          | 6  | 1,099          | 40   | 2,700  | 3,840                      | 6,411          | 250              | 6,161              | (2,321)             | 997               | 1,134                           | -137  | -4.2 | 658,532   |         |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 271 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**Preferred Plan Under CETA Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 185,781           | 499                      | 15,389                    | 35,006                           | 72,439                                  | 12,112        | 271,680  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,375           | 509                      | 16,206                    | 36,801                           | 47,336                                  | 11,299        | 301,989  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 141,255           | 386                      | 13,920                    | 72,733                           | 27,312                                  | 10,679        | 310,936  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 34,968           | 123,988           | 346                      | 13,296                    | 70,873                           | 25,936                                  | 3,240         | 313,766  |
| 2027                               | 39,856                          | 40,896                     | 89,154                   | 45,382           | 102,325           | 265                      | 9,226                     | 62,739                           | 32,581                                  | -21,296       | 335,966  |
| 2028                               | 40,133                          | 87,027                     | 146,370                  | 56,204           | 54,736            | 85                       | 4,408                     | 95,745                           | 35,668                                  | -55,845       | 393,195  |
| 2029                               | 40,160                          | 113,025                    | 175,785                  | 61,150           | 119,418           | 67                       | 4,654                     | 28,699                           | 64,416                                  | -49,906       | 428,636  |
| 2030                               | 40,187                          | 119,350                    | 170,434                  | 64,171           | 95,378            | 22,223                   | 5,227                     | 48,646                           | 66,945                                  | -62,215       | 436,455  |
| 2031                               | 40,215                          | 126,065                    | 166,427                  | 63,445           | 86,299            | 20,225                   | 5,666                     | 50,590                           | 68,876                                  | -74,183       | 415,874  |
| 2032                               | 40,244                          | 126,065                    | 153,942                  | 64,069           | 80,779            | 19,089                   | 4,914                     | 52,005                           | 59,655                                  | -77,561       | 403,891  |
| 2033                               | 40,273                          | 126,065                    | 144,049                  | 64,658           | 71,018            | 16,585                   | 4,872                     | 70,237                           | 57,198                                  | -78,681       | 401,877  |
| 2034                               | 40,303                          | 126,065                    | 134,658                  | 65,360           | 65,264            | 15,205                   | 4,796                     | 72,899                           | 49,544                                  | -80,708       | 394,297  |
| 2035                               | 40,333                          | 129,776                    | 129,781                  | 66,869           | 67,384            | 15,888                   | 5,311                     | 71,726                           | 46,866                                  | -81,451       | 398,752  |
| 2036                               | 40,364                          | 129,776                    | 120,487                  | 67,622           | 74,085            | 18,202                   | 4,839                     | 67,773                           | 52,659                                  | -73,590       | 396,898  |
| 2037                               | 40,395                          | 129,776                    | 111,344                  | 68,302           | 69,547            | 17,438                   | 4,816                     | 75,158                           | 48,866                                  | -33,672       | 434,237  |
| Cumulative Present Worth 2023-2037 | 381,214                         | 682,427                    | 1,002,942                | 462,116          | 1,060,261         | 75,984                   | 84,463                    | 566,597                          | 476,624                                 | (341,457)     | 3,497,924  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 272 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Preferred Plan Under CETA Scenario

|        | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |      |      |           |
|--------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|------|-----------|
|        | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36) |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |      |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | MW               | MW                 | MW                  | %                 | tons                            |      |      |           |
| 2023   | 73  | 934  | 2                                | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,276          | 0  | 0  | 6,276                      | 5,841          | 19               | 5,822              | 454                 | 1,019             | 1,049                           | -30  | 5.8  | 5,641,945 |
| 2024   | 81  | 934  | (3)                              | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,335          | 0  | 0  | 6,335                      | 6,354          | 46               | 6,307              | 28                  | 1,029             | 1,062                           | -33  | 5.5  | 5,611,650 |
| 2025   | 78  | 934  | 0                                | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,882          | 0  | 0  | 4,882                      | 6,351          | 79               | 6,272              | (1,390)             | 1,032             | 1,050                           | -19  | 7.0  | 4,202,431 |
| 2026   | 76  | 934  | 0                                | 5      | 10              | 24     | 0            | 0      | 11            | 11     | 0                     | 0                          | 0  | 4,363          | 0  | 307  | 4,670                      | 6,265          | 131              | 6,134              | (1,464)             | 1,051             | 1,110                           | -60  | 3.1  | 3,746,467 |
| 2027   | 0   | 934  | 0                                | 5      | 8               | 32     | 0            | 0      | 23            | 34     | 101                   | 101                        | 0  | 3,486          | 0  | 1,418  | 4,904                      | 6,261          | 167              | 6,093              | (1,189)             | 1,106             | 1,111                           | -5   | 8.4  | 2,852,818 |
| 2028   | 448   | 285  | 0                                | 5      | 6               | 38     | 0            | 0      | 23            | 57     | 136                   | 237                        | 0  | 1,745          | 0  | 2,930  | 4,675                      | 6,266          | 198              | 6,067              | (1,392)             | 1,069             | 1,110                           | -40  | 5.0  | 1,398,718 |
| 2029   | 0   | 285  | 0                                | 5      | 5               | 43     | 0            | 0      | (1)           | 55     | 24                    | 261                        | 0  | 3,610          | 0  | 3,119  | 6,730                      | 6,270          | 222              | 6,048              | 682                 | 1,106             | 1,111                           | -6   | 8.4  | 2,170,889 |
| 2030   | 0   | 285  | 0                                | 5      | 4               | 47     | 0            | 0      | 16            | 71     | -14                   | 246                        | 0  | 2,719          | 0  | 3,436  | 6,155                      | 6,270          | 241              | 6,028              | 126                 | 1,111             | 1,112                           | -1   | 8.8  | 1,630,661 |
| 2031   | 0   | 285  | 0                                | 5      | 0               | 47     | 0            | 0      | 10            | 81     | -11                   | 235                        | 0  | 2,386          | 0  | 3,746  | 6,132                      | 6,275          | 244              | 6,031              | 100                 | 1,110             | 1,114                           | -4   | 8.5  | 1,433,118 |
| 2032   | 0   | 285  | 0                                | 5      | 1               | 48     | 0            | 0      | (5)           | 76     | -16                   | 219                        | 0  | 2,172          | 0  | 3,759  | 5,931                      | 6,277          | 254              | 6,023              | (92)                | 1,090             | 1,112                           | -22  | 6.8  | 1,307,254 |
| 2033   | 0   | 285  | 0                                | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -12                   | 207                        | 0  | 1,822          | 0  | 3,727  | 5,549                      | 6,286          | 259              | 6,027              | (478)               | 1,078             | 1,119                           | -41  | 5.0  | 1,096,953 |
| 2034   | 0   | 285  | 0                                | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -12                   | 195                        | 0  | 1,616          | 0  | 3,722  | 5,338                      | 6,299          | 263              | 6,036              | (697)               | 1,065             | 1,118                           | -53  | 3.8  | 971,917   |
| 2035   | 0   | 285  | 0                                | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | 0                     | 195                        | 0  | 1,631          | 41   | 3,727  | 5,399                      | 6,368          | 266              | 6,102              | (703)               | 1,098             | 1,123                           | -25  | 6.5  | 982,179   |
| 2036   | 0   | 285  | 0                                | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | -4                    | 191                        | 0  | 1,806          | 41   | 3,759  | 5,606                      | 6,389          | 267              | 6,122              | (516)               | 1,094             | 1,126                           | -31  | 5.9  | 1,087,151 |
| 2037   | 0   | 285  | 0                                | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -9                    | 183                        | 0  | 1,665          | 40   | 3,746  | 5,452                      | 6,411          | 265              | 6,146              | (694)               | 1,082             | 1,134                           | -52  | 4.0  | 1,005,219 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 273 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Reference Portfolio Under ECR Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)-(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,071           | 492                      | 15,135                    | 31,007                           | 81,685                                  | 12,112        | 253,463  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,889           | 506                      | 16,000                    | 28,844                           | 61,186                                  | 11,299        | 280,487  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 154,029           | 424                      | 14,344                    | 63,989                           | 41,300                                  | 10,679        | 301,442  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 29,363           | 149,262           | 426                      | 14,672                    | 58,161                           | 49,962                                  | 3,240         | 298,152  |
| 2027                               | 39,856                          | 32,536                     | 77,234                   | 36,849           | 109,259           | 322                      | 11,217                    | 68,487                           | 48,482                                  | -14,417       | 312,862  |
| 2028                               | 39,988                          | 64,442                     | 115,327                  | 44,967           | 64,197            | 136                      | 5,678                     | 113,709                          | 38,112                                  | -41,227       | 369,107  |
| 2029                               | 40,015                          | 104,675                    | 168,469                  | 55,858           | 61,629            | 25,461                   | 4,351                     | 115,696                          | 48,279                                  | -50,444       | 477,431  |
| 2030                               | 40,042                          | 111,000                    | 163,188                  | 58,959           | 46,541            | 19,377                   | 4,148                     | 116,334                          | 47,685                                  | -62,821       | 449,084  |
| 2031                               | 40,070                          | 117,716                    | 159,530                  | 60,582           | 46,563            | 19,177                   | 4,239                     | 103,745                          | 52,849                                  | -74,740       | 424,033  |
| 2032                               | 40,099                          | 124,327                    | 156,871                  | 64,036           | 34,137            | 14,178                   | 4,398                     | 98,672                           | 53,232                                  | -86,992       | 396,495  |
| 2033                               | 40,128                          | 131,081                    | 155,254                  | 67,467           | 29,316            | 12,123                   | 4,183                     | 91,863                           | 56,794                                  | -97,151       | 377,471  |
| 2034                               | 40,158                          | 137,981                    | 154,158                  | 70,967           | 31,457            | 12,940                   | 4,342                     | 79,990                           | 17,836                                  | -108,530      | 351,627  |
| 2035                               | 40,188                          | 145,047                    | 152,972                  | 74,522           | 28,984            | 12,090                   | 4,179                     | 73,805                           | 85,805                                  | -120,756      | 325,227  |
| 2036                               | 40,219                          | 145,047                    | 141,371                  | 75,186           | 34,540            | 14,535                   | 4,690                     | 71,966                           | 98,515                                  | -114,096      | 314,944  |
| 2037                               | 40,250                          | 148,440                    | 135,456                  | 76,420           | 37,614            | 16,361                   | 4,742                     | 67,128                           | 106,455                                 | -86,254       | 333,701  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 673,571                    | 1,005,465                | 449,412          | 896,075           | 80,598                   | 84,667                    | 724,936                          | 577,947                                 | (412,300)     | 3,304,908  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 274 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Reference Portfolio Under ECR Scenario

|        | Resource (Capacity) Additions   |  |                               |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |   |                            |                |                  |                    |                     |                   | Carbon Output                   |      |           |           |
|--------|---|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|---|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|-----------|-----------|
|        | (12)  | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                     | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36)      |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Forced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Incram) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Incram)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |           |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh                                       | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |           |           |
| 2023   | 73  | 934  | 2                             | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,142          | 0  | 0   | 6,142                      | 5,488          | 19               | 5,469              | 673                 | 1,019             | 986                             | 33   | 12.6      | 5,542,263 |
| 2024   | 78  | 934  | (3)                           | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,278          | 0  | 0   | 6,278                      | 5,903          | 46               | 5,857              | 420                 | 1,026             | 987                             | 39   | 13.2      | 5,577,639 |
| 2025   | 78  | 934  | 0                             | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,962          | 0  | 0   | 4,962                      | 5,835          | 79               | 5,756              | (793)               | 1,032             | 965                             | 66   | 16.4      | 4,541,279 |
| 2026   | 82  | 934  | 0                             | 5      | 7               | 21     | 0            | 0      | 11            | 11     | 0                     | 0                          | 0  | 4,748          | 0  | 307                                       | 5,055                      | 5,699          | 118              | 5,581              | (527)               | 1,054             | 1,010                           | 44   | 13.7      | 4,503,874 |
| 2027   | 0   | 934  | 0                             | 5      | 6               | 26     | 0            | 0      | 11            | 23     | 96                    | 96                         | 3,468  | 0              | 1,112  | 4,580                                     | 5,649                      | 151            | 5,498            | (918)              | 1,084               | 1,002             | 82                              | 17.8 | 3,338,222 |           |
| 2028   | 495   | 285  | 0                             | 5      | 4               | 31     | 0            | 0      | 23            | 45     | 80                    | 176                        | 1,833  | 0              | 2,224  | 4,057                                     | 5,613                      | 179            | 5,434            | (1,378)            | 1,037               | 994               | 43                              | 13.6 | 1,667,341 |           |
| 2029   | 0   | 285  | 0                             | 5      | 4               | 34     | 0            | 0      | 21            | 66     | 25                    | 200                        | 1,159  | 0              | 3,023  | 4,183                                     | 5,578                      | 200            | 5,378            | (1,195)            | 1,047               | 988               | 59                              | 15.4 | 701,012   |           |
| 2030   | 0   | 285  | 0                             | 5      | 3               | 37     | 0            | 0      | 16            | 83     | -5                    | 195                        | 847  | 0              | 3,341  | 4,188                                     | 5,536                      | 217            | 5,319            | (1,131)            | 1,061               | 982               | 79                              | 17.8 | 508,081   |           |
| 2031   | 0   | 285  | 0                             | 5      | (0)             | 36     | 0            | 0      | 10            | 92     | -11                   | 184                        | 788  | 0              | 3,653  | 4,441                                     | 5,500                      | 220            | 5,281            | (840)              | 1,059               | 976               | 83                              | 18.2 | 478,999   |           |
| 2032   | 0   | 285  | 0                             | 5      | (1)             | 36     | 0            | 0      | 6             | 98     | -10                   | 174                        | 563  | 0              | 3,972  | 4,535                                     | 5,472                      | 221            | 5,251            | (716)              | 1,054               | 969               | 85                              | 18.4 | 337,462   |           |
| 2033   | 0   | 285  | 0                             | 5      | (1)             | 35     | 0            | 0      | 11            | 109    | -5                    | 169                        | 458  | 0              | 4,239  | 4,697                                     | 5,435                      | 219            | 5,216            | (520)              | 1,059               | 967               | 92                              | 19.3 | 274,798   |           |
| 2034   | 0   | 285  | 0                             | 5      | (1)             | 34     | 0            | 0      | 11            | 120    | -1                    | 168                        | 463  | 0              | 4,535  | 4,998                                     | 5,392                      | 216            | 5,176            | (178)              | 1,068               | 957               | 111                             | 21.5 | 279,395   |           |
| 2035   | 0   | 285  | 0                             | 5      | (1)             | 33     | 0            | 0      | 11            | 131    | -3                    | 165                        | 411  | 0              | 4,846  | 5,257                                     | 5,350                      | 213            | 5,137            | 120                | 1,075               | 951               | 124                             | 23.2 | 248,503   |           |
| 2036   | 0   | 285  | 0                             | 5      | (1)             | 32     | 0            | 0      | 0             | 131    | -5                    | 160                        | 475  | 0              | 4,895  | 5,370                                     | 5,307                      | 209            | 5,098            | 272                | 1,069               | 942               | 127                             | 23.6 | 284,555   |           |
| 2037   | 0   | 285  | 0                             | 5      | (1)             | 31     | 0            | 0      | 0             | 131    | 10                    | 170                        | 504  | 0              | 4,979  | 5,483                                     | 5,266                      | 203            | 5,062            | 421                | 1,078               | 938               | 140                             | 25.2 | 305,074   |           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 275 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**REF-HC Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 181,071           | 492                      | 15,135                    | 31,106                           | 81,420                                  | 12,112        | 252,455  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 185,889           | 506                      | 16,000                    | 29,083                           | 60,703                                  | 11,299        | 279,340  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 154,029           | 424                      | 14,344                    | 64,504                           | 40,729                                  | 10,679        | 300,110  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 29,870           | 149,262           | 426                      | 14,672                    | 52,390                           | 58,242                                  | -3,235        | 299,362  |
| 2027                               | 39,856                          | 46,251                     | 95,304                   | 39,621           | 109,259           | 322                      | 11,217                    | 57,055                           | 59,040                                  | -26,172       | 313,673  |
| 2028                               | 39,988                          | 88,825                     | 146,712                  | 49,831           | 64,197            | 136                      | 5,678                     | 91,462                           | 54,374                                  | -58,971       | 373,485  |
| 2029                               | 40,015                          | 115,458                    | 177,260                  | 56,409           | 61,629            | 25,461                   | 4,351                     | 104,179                          | 54,863                                  | -56,629       | 473,268  |
| 2030                               | 40,042                          | 121,783                    | 171,754                  | 59,478           | 46,541            | 19,377                   | 4,148                     | 104,315                          | 54,356                                  | -69,127       | 443,956  |
| 2031                               | 40,070                          | 128,498                    | 167,906                  | 59,989           | 46,563            | 19,177                   | 4,239                     | 93,307                           | 60,343                                  | -81,110       | 418,296  |
| 2032                               | 40,099                          | 135,110                    | 164,874                  | 63,572           | 34,137            | 14,178                   | 4,398                     | 88,870                           | 61,389                                  | -93,475       | 390,374  |
| 2033                               | 40,128                          | 141,863                    | 163,357                  | 67,186           | 29,316            | 12,123                   | 4,183                     | 83,607                           | 66,153                                  | -103,484      | 372,127  |
| 2034                               | 40,158                          | 141,863                    | 151,921                  | 67,948           | 31,457            | 12,940                   | 4,342                     | 83,589                           | 68,757                                  | -105,833      | 359,628  |
| 2035                               | 40,188                          | 141,863                    | 141,329                  | 68,698           | 28,984            | 12,090                   | 4,179                     | 88,153                           | 67,996                                  | -108,618      | 348,870  |
| 2036                               | 40,219                          | 141,863                    | 131,255                  | 69,453           | 34,540            | 14,535                   | 4,690                     | 86,626                           | 79,013                                  | -90,163       | 354,005  |
| 2037                               | 40,250                          | 149,268                    | 132,036                  | 73,190           | 37,614            | 16,361                   | 4,742                     | 73,284                           | 96,553                                  | -56,920       | 373,273  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 738,522                    | 1,062,897                | 442,304          | 896,075           | 80,598                   | 84,667                    | 683,581                          | 602,497                                 | (427,862)     | 3,338,716  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 276 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
REF-HC Portfolio Under ECR Scenario

|      | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                |                    |                     |                   | Carbon Output                   |      |           |
|------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|----------------|--------------------|---------------------|-------------------|---------------------------------|------|-----------|
|      | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27)=(24)+(25)+(26)                          | (28)                       | (29)           | (30)=(29)-(28) | (31)=(30)-(27)     | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36)      |
|      | (Current and Planned)<br>Supply-Side +<br>Purchased Forced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity       | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |           |
|      | Ann MW  | Cum MW   | Ann MW                           | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | Ann MW                | Cum MW                     | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh            | GWh                | MW                  | MW                | MW                              | %    | tons      |
| 2023 | 73  | 934  | 2                                | 9      | 2               | 2      | 0            | 0      | 0             | 0      | 0                     | 0                          | 6,142  | 0              | 0  | 6,142  | 5,488                      | 13             | 5,475          | 667                | 1,017               | 986               | 32                              | 12.4 | 5,542,263 |
| 2024 | 78  | 934  | (3)                              | 5      | 3               | 5      | 0            | 0      | 0             | 0      | 0                     | 0                          | 6,278  | 0              | 0  | 6,278  | 5,903                      | 33             | 5,870          | 407                | 1,022               | 987               | 35                              | 12.8 | 5,577,639 |
| 2025 | 78  | 934  | 0                                | 5      | 4               | 9      | 0            | 0      | 0             | 0      | 0                     | 0                          | 4,962  | 0              | 0  | 4,962  | 5,835                      | 58             | 5,777          | (814)              | 1,026               | 965               | 61                              | 15.8 | 4,541,279 |
| 2026 | 79  | 934  | 0                                | 5      | 5               | 14     | 0            | 0      | 23            | 23     | 0                     | 0                          | 4,748  | 0              | 613  | 5,361  | 5,699                      | 97             | 5,602          | (241)              | 1,055               | 1,010             | 45                              | 13.8 | 4,503,874 |
| 2027 | 0   | 934  | 0                                | 5      | 4               | 18     | 0            | 0      | 23            | 45     | 78                    | 78                         | 3,468  | 0              | 1,623  | 5,092  | 5,649                      | 124            | 5,526          | (434)              | 1,081               | 1,002             | 79                              | 17.5 | 3,338,222 |
| 2028 | 461   | 285  | 0                                | 5      | 3               | 21     | 0            | 0      | 23            | 68     | 131                   | 210                        | 1,833  | 0              | 3,035  | 4,867  | 5,613                      | 146            | 5,466          | (599)              | 1,050               | 994               | 56                              | 15.0 | 1,667,341 |
| 2029 | 0   | 285  | 0                                | 5      | 3               | 24     | 0            | 0      | 10            | 77     | -9                    | 200                        | 1,159  | 0              | 3,327  | 4,486  | 5,578                      | 164            | 5,414          | (928)              | 1,048               | 988               | 60                              | 15.5 | 701,012   |
| 2030 | 0   | 285  | 0                                | 5      | 2               | 26     | 0            | 0      | 17            | 94     | -5                    | 195                        | 847  | 0              | 3,647  | 4,494  | 5,536                      | 178            | 5,359          | (864)              | 1,062               | 982               | 80                              | 17.8 | 508,081   |
| 2031 | 0   | 285  | 0                                | 5      | (1)             | 24     | 0            | 0      | 10            | 104    | -11                   | 184                        | 788  | 0              | 3,959  | 4,748  | 5,500                      | 160            | 5,340          | (593)              | 1,059               | 976               | 82                              | 18.1 | 478,999   |
| 2032 | 0   | 285  | 0                                | 5      | (1)             | 24     | 0            | 0      | 5             | 109    | -10                   | 174                        | 563  | 0              | 4,280  | 4,843  | 5,472                      | 151            | 5,320          | (478)              | 1,053               | 969               | 84                              | 18.3 | 337,462   |
| 2033 | 0   | 285  | 0                                | 5      | (1)             | 23     | 0            | 0      | 11            | 120    | -5                    | 169                        | 458  | 0              | 4,543  | 5,000  | 5,435                      | 141            | 5,294          | (294)              | 1,058               | 967               | 91                              | 19.2 | 274,798   |
| 2034 | 0   | 285  | 0                                | 5      | (1)             | 22     | 0            | 0      | 0             | 120    | -1                    | 168                        | 463  | 0              | 4,535  | 4,998  | 5,392                      | 130            | 5,262          | (264)              | 1,056               | 957               | 99                              | 20.2 | 279,395   |
| 2035 | 0   | 285  | 0                                | 5      | (1)             | 21     | 0            | 0      | 0             | 120    | -3                    | 165                        | 411  | 0              | 4,542  | 4,953  | 5,350                      | 120            | 5,230          | (277)              | 1,053               | 951               | 102                             | 20.6 | 248,503   |
| 2036 | 0   | 285  | 0                                | 5      | (1)             | 20     | 0            | 0      | 0             | 120    | -5                    | 160                        | 475  | 0              | 4,587  | 5,062  | 5,307                      | 110            | 5,197          | (135)              | 1,047               | 942               | 104                             | 21.0 | 284,555   |
| 2037 | 0   | 285  | 0                                | 5      | (1)             | 19     | 0            | 0      | 11            | 131    | -4                    | 156                        | 504  | 0              | 4,879  | 5,383  | 5,266                      | 100            | 5,166          | 217                | 1,053               | 938               | 114                             | 22.2 | 305,074   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 277 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CETA Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)-(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 181,071           | 492                      | 15,135                    | 31,476                           | 81,420                                  | 12,112        | 252,826  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 185,889           | 506                      | 16,000                    | 29,799                           | 60,703                                  | 11,299        | 280,057  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 154,029           | 424                      | 14,344                    | 65,362                           | 40,729                                  | 10,679        | 300,968  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 32,329           | 149,262           | 426                      | 14,672                    | 54,355                           | 58,309                                  | -3,235        | 303,718  |
| 2027                               | 39,856                          | 49,647                     | 100,146                  | 42,756           | 109,259           | 322                      | 11,217                    | 54,615                           | 61,649                                  | -28,061       | 318,107  |
| 2028                               | 39,988                          | 95,777                     | 156,048                  | 53,556           | 64,197            | 136                      | 5,678                     | 88,781                           | 60,927                                  | -62,884       | 380,351  |
| 2029                               | 40,015                          | 136,011                    | 204,975                  | 64,309           | 61,629            | 25,461                   | 4,351                     | 84,043                           | 83,443                                  | -72,861       | 464,490  |
| 2030                               | 40,042                          | 145,229                    | 200,551                  | 67,893           | 46,541            | 19,377                   | 4,148                     | 82,020                           | 89,274                                  | -88,462       | 428,065  |
| 2031                               | 40,070                          | 151,944                    | 193,942                  | 69,561           | 46,563            | 19,177                   | 4,239                     | 71,529                           | 99,210                                  | -101,063      | 396,752  |
| 2032                               | 40,099                          | 161,582                    | 193,158                  | 73,701           | 34,137            | 14,178                   | 4,398                     | 65,798                           | 108,120                                 | -116,441      | 362,489  |
| 2033                               | 40,128                          | 168,335                    | 189,305                  | 77,184           | 29,316            | 12,123                   | 4,183                     | 61,823                           | 116,066                                 | -126,718      | 339,613  |
| 2034                               | 40,158                          | 168,335                    | 176,284                  | 77,803           | 31,457            | 12,940                   | 4,342                     | 61,437                           | 120,635                                 | -129,378      | 322,743  |
| 2035                               | 40,188                          | 172,046                    | 168,523                  | 79,259           | 28,984            | 12,090                   | 4,179                     | 64,077                           | 120,486                                 | -130,879      | 317,981  |
| 2036                               | 40,219                          | 172,046                    | 156,543                  | 79,964           | 34,540            | 14,535                   | 4,690                     | 62,351                           | 134,322                                 | -113,066      | 317,501  |
| 2037                               | 40,250                          | 178,831                    | 154,815                  | 81,908           | 37,614            | 16,361                   | 4,742                     | 57,763                           | 149,914                                 | -74,246       | 348,124  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 867,463                    | 1,197,556                | 493,550          | 896,075           | 80,598                   | 84,667                    | 580,966                          | 818,279                                 | (529,393)     | 3,233,634  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 278 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 CETA Portfolio Under ECR Scenario

|        | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |  |                            |                |                  |                    |                     |                   | Carbon Output                   |      |         |           |
|--------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|---------|-----------|
|        | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36)    |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |         |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |         |           |
| 2023   | 105   | 934  | 2                                | 9      | 2               | 2      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,142          | 0  | 0  | 6,142                      | 5,488          | 13               | 5,475              | 667                 | 1,049             | 986                             | 64   | 16.0    | 5,542,263 |
| 2024   | 118   | 934  | (3)                              | 5      | 3               | 5      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,278          | 0  | 0  | 6,278                      | 5,903          | 33               | 5,870              | 407                 | 1,062             | 987                             | 75   | 17.3    | 5,577,639 |
| 2025   | 103   | 934  | 0                                | 5      | 4               | 9      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,962          | 0  | 0  | 4,962                      | 5,835          | 58               | 5,777              | (814)               | 1,051             | 965                             | 86   | 18.6    | 4,541,279 |
| 2026   | 133   | 934  | 0                                | 5      | 7               | 16     | 0            | 0      | 23            | 23     | 0                     | 0                          | 0  | 4,748          | 0  | 613  | 5,361                      | 5,699          | 100              | 5,600              | (238)               | 1,111             | 1,010                           | 101  | 19.9    | 4,503,874 |
| 2027   | 4   | 934  | 0                                | 5      | 6               | 22     | 0            | 0      | 23            | 45     | 96                    | 96                         | 0  | 3,468          | 0  | 1,723  | 5,192                      | 5,649          | 136              | 5,514              | (322)               | 1,107             | 1,002                           | 104  | 20.3    | 3,338,222 |
| 2028   | 488   | 285  | 0                                | 5      | 5               | 28     | 0            | 0      | 23            | 68     | 148                   | 243                        | 0  | 1,833          | 0  | 3,235  | 5,068                      | 5,613          | 167              | 5,446              | (378)               | 1,117             | 994                             | 123  | 22.4    | 1,667,341 |
| 2029   | 0   | 285  | 0                                | 5      | 4               | 32     | 0            | 0      | 21            | 88     | 22                    | 266                        | 0  | 1,159          | 0  | 4,031  | 5,190                      | 5,578          | 191              | 5,387              | (196)               | 1,132             | 988                             | 144  | 24.8    | 701,012   |
| 2030   | 0   | 285  | 0                                | 5      | 3               | 35     | 0            | 0      | 18            | 106    | 11                    | 277                        | 0  | 847            | 0  | 4,453  | 5,300                      | 5,536          | 211              | 5,325              | (25)                | 1,165             | 982                             | 183  | 29.3    | 508,081   |
| 2031   | 0   | 285  | 0                                | 5      | 0               | 36     | 0            | 0      | 9             | 116    | -14                   | 262                        | 0  | 788            | 0  | 4,766  | 5,554                      | 5,500          | 216              | 5,284              | 270                 | 1,160             | 976                             | 183  | 29.4    | 478,999   |
| 2032   | 0   | 285  | 0                                | 5      | (0)             | 35     | 0            | 0      | 4             | 120    | 3                     | 265                        | 0  | 563            | 0  | 5,190  | 5,753                      | 5,472          | 219              | 5,252              | 500                 | 1,167             | 969                             | 197  | 31.1    | 337,462   |
| 2033   | 0   | 285  | 0                                | 5      | (1)             | 35     | 0            | 0      | 11            | 131    | -8                    | 257                        | 0  | 458            | 0  | 5,447  | 5,904                      | 5,435          | 218              | 5,217              | 688                 | 1,169             | 967                             | 201  | 31.6    | 274,798   |
| 2034   | 0   | 285  | 0                                | 5      | (1)             | 34     | 0            | 0      | 0             | 131    | -2                    | 255                        | 0  | 463            | 0  | 5,438  | 5,901                      | 5,392          | 216              | 5,176              | 725                 | 1,166             | 957                             | 209  | 32.7    | 279,395   |
| 2035   | 0   | 285  | 0                                | 5      | (1)             | 33     | 50           | 0      | 0             | 131    | -4                    | 251                        | 411  | 39             | 5,446  | 5,896  | 5,397                      | 213            | 5,184            | 712                | 1,202               | 951               | 251                             | 37.7 | 248,503 |           |
| 2036   | 0   | 285  | 0                                | 5      | (1)             | 32     | 0            | 50     | 0             | 131    | -8                    | 243                        | 475  | 40             | 5,497  | 6,012  | 5,355                      | 209            | 5,145            | 867                | 1,192               | 942               | 250                             | 37.8 | 284,555 |           |
| 2037   | 0   | 285  | 0                                | 5      | (1)             | 31     | 0            | 50     | 0             | 131    | 21                    | 264                        | 0  | 504            | 40   | 5,679  | 6,223                      | 5,314          | 203              | 5,110              | 1,113               | 1,212             | 938                             | 273  | 40.7    | 305,074   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 279 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**ECR Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |  |                                     |                                   |                           |                            |                                   |                                    |   |  |                        |   |
|------------------------------------|--|-------------------------------------|-----------------------------------|---------------------------|----------------------------|-----------------------------------|------------------------------------|---|--|------------------------|---|
|                                    | (1)<br>Existing<br>Depreciation<br>\$000 | (2)<br>New<br>Depreciation<br>\$000 | (3)<br>Capital<br>Charge<br>\$000 | (4)<br>Fixed O&M<br>\$000 | (5)<br>Fuel Costs<br>\$000 | (6)<br>Emission<br>Costs<br>\$000 | (7)<br>Other<br>VOM Costs<br>\$000 | (8)<br>Market Purchases<br>Costs<br>\$000 | (9)<br>Less:<br>Market Sales<br>Revenue<br>\$000 | (10)<br>Taxes<br>\$000 | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs<br>\$000 |
| 2023                               | 38,400                                   | 0                                   | 39,371                            | 13,974                    | 181,071                    | 492                               | 15,135                             | 31,274                                    | 80,911   | 12,112                 | 250,919   |
| 2024                               | 38,764                                   | 0                                   | 37,615                            | 16,905                    | 185,889                    | 506                               | 16,000                             | 29,676                                    | 59,569   | 11,299                 | 277,085   |
| 2025                               | 39,081                                   | 0                                   | 35,747                            | 16,564                    | 154,029                    | 424                               | 14,344                             | 65,931                                    | 39,260   | 10,679                 | 297,539   |
| 2026                               | 39,553                                   | 16,706                              | 57,958                            | 29,254                    | 149,262                    | 426                               | 14,672                             | 52,276                                    | 56,421   | -3,235                 | 300,451   |
| 2027                               | 39,856                                   | 39,458                              | 85,620                            | 37,548                    | 109,259                    | 322                               | 11,217                             | 62,982                                    | 53,386   | -22,395                | 310,481   |
| 2028                               | 39,988                                   | 102,068                             | 166,745                           | 54,345                    | 64,197                     | 136                               | 5,678                              | 82,350                                    | 57,644   | -91,958                | 365,905   |
| 2029                               | 40,015                                   | 145,585                             | 215,117                           | 65,417                    | 43,485                     | 17,599                            | 2,798                              | 84,224                                    | 73,735   | -82,872                | 457,633   |
| 2030                               | 40,042                                   | 151,910                             | 204,063                           | 68,012                    | 32,049                     | 13,105                            | 2,539                              | 82,864                                    | 79,475   | -96,624                | 418,484   |
| 2031                               | 40,054                                   | 167,266                             | 209,051                           | 77,518                    | 24,079                     | 9,804                             | 2,190                              | 84,789                                    | 100,671  | -116,618               | 397,461   |
| 2032                               | 40,054                                   | 196,842                             | 229,935                           | 86,154                    | 12,747                     | 5,444                             | 1,977                              | 62,936                                    | 123,609  | -229,792               | 282,689   |
| 2033                               | 40,054                                   | 203,596                             | 221,431                           | 89,756                    | 12,000                     | 5,067                             | 1,958                              | 56,528                                    | 139,006  | -133,128               | 358,256   |
| 2034                               | 40,054                                   | 203,596                             | 205,434                           | 90,552                    | 12,459                     | 5,268                             | 1,993                              | 57,372                                    | 146,366  | -136,426               | 333,936   |
| 2035                               | 40,054                                   | 203,596                             | 190,859                           | 91,362                    | 11,358                     | 4,865                             | 1,882                              | 58,501                                    | 148,267  | -140,091               | 314,119   |
| 2036                               | 40,054                                   | 206,909                             | 181,904                           | 92,868                    | 13,004                     | 5,615                             | 2,127                              | 55,042                                    | 162,678  | -124,236               | 310,609   |
| 2037                               | 40,054                                   | 206,909                             | 168,853                           | 93,640                    | 14,707                     | 6,536                             | 2,146                              | 52,774                                    | 165,075  | -96,106                | 324,439   |
| Cumulative Present Worth 2023-2037 | 380,095                                  | 979,247                             | 1,289,709                         | 518,481                   | 805,515                    | 42,781                            | 74,626                             | 575,565                                   | 858,063  | (652,984)              | 3,154,972   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 280 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
ECR Portfolio Under ECR Scenario

|        | Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               | Energy & Capacity Positions |                    |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                              |
|--------|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|-----------------------------|--------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|        | (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)                        | (24)               | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|        | (Current and Planned) Supply-Side + Purchased Forced Capacity (UCAP) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |                             | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW | Cum MW   | Ann MW | Cum MW   | Ann MW | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh                         | GWh                | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | MW               | MW       | MW              | %                | tons           |                              |
| 2023   | 70   | 934    | 2  | 9      | 0                             | 0      | 0               | 0      | 0            | 0      | 0             | 6,142                       | 0                  | 0                    | 6,142                              | 5,488                 | 1  | 5,487                               | 655                     | 1,013            | 986      | 27              | 11.9             | 5,542,263      |                              |
| 2024   | 78   | 934    | (3)  | 5      | 0                             | 0      | 0               | 0      | 0            | 0      | 0             | 6,278                       | 0                  | 0                    | 6,278                              | 5,903                 | 1  | 5,902                               | 375                     | 1,017            | 987      | 31              | 12.3             | 5,577,639      |                              |
| 2025   | 78   | 934    | 0  | 5      | 0                             | 0      | 0               | 0      | 0            | 0      | 0             | 4,962                       | 0                  | 0                    | 4,962                              | 5,835                 | 1  | 5,834                               | (871)                   | 1,018            | 965      | 52              | 14.9             | 4,541,279      |                              |
| 2026   | 43   | 934    | 0  | 5      | 5                             | 5      | 0               | 0      | 23           | 23     | 0             | 4,748                       | 0                  | 613                  | 5,361                              | 5,699                 | 36                                       | 5,664                               | (303)                   | 1,010            | 1,010    | 1               | 9.0              | 4,503,874      |                              |
| 2027   | 0  | 934    | 0  | 5      | 5                             | 10     | 0               | 0      | 23           | 45     | 44            | 3,468                       | 0                  | 1,423                | 4,892                              | 5,649                 | 67                                       | 5,583                               | (691)                   | 1,038            | 1,002    | 36              | 12.9             | 3,338,222      |                              |
| 2028   | 339  | 285    | 0  | 5      | 4                             | 14     | 0               | 0      | 23           | 68     | 199           | 1,833                       | 0                  | 2,934                | 4,767                              | 5,613                 | 94                                       | 5,518                               | (751)                   | 995              | 994      | 1               | 9.1              | 1,667,341      |                              |
| 2029   | 0  | 285    | 0  | 5      | 3                             | 17     | 0               | 0      | 21           | 88     | 87            | 805                         | 0                  | 4,131                | 4,936                              | 5,578                 | 117                                      | 5,460                               | (524)                   | 996              | 988      | 8               | 9.8              | 484,358        |                              |
| 2030   | 0  | 285    | 0  | 5      | 3                             | 20     | 0               | 0      | 18           | 106    | -5            | 576                         | 0                  | 4,453                | 5,030                              | 5,536                 | 137                                      | 5,399                               | (370)                   | 1,012            | 982      | 30              | 12.2             | 343,451        |                              |
| 2031   | 206  | 0      | 0  | 5      | 5                             | 25     | 0               | 0      | 9            | 116    | 31            | 399                         | 0                  | 5,066                | 5,465                              | 5,500                 | 164                                      | 5,336                               | 129                     | 978              | 976      | 1               | 9.1              | 244,979        |                              |
| 2032   | 0  | 0      | 0  | 5      | 4                             | 29     | 200             | 200    | 4            | 120    | 30            | 213                         | 161                | 5,692                | 6,066                              | 5,665                 | 188                                      | 5,477                               | 589                     | 974              | 969      | 5               | 9.5              | 129,622        |                              |
| 2033   | 0  | 0      | 0  | 5      | 4                             | 33     | 0               | 200    | 11           | 131    | -12           | 190                         | 159                | 5,947                | 6,295                              | 5,626                 | 207                                      | 5,419                               | 876                     | 977              | 967      | 9               | 10.0             | 114,881        |                              |
| 2034   | 0  | 0      | 0  | 5      | 3                             | 36     | 0               | 200    | 0            | 131    | -3            | 187                         | 157                | 5,938                | 6,282                              | 5,580                 | 222                                      | 5,357                               | 924                     | 976              | 957      | 19              | 11.1             | 113,746        |                              |
| 2035   | 0  | 0      | 0  | 5      | 2                             | 38     | 0               | 200    | 0            | 131    | -6            | 165                         | 157                | 5,946                | 6,268                              | 5,539                 | 235                                      | 5,304                               | 965                     | 973              | 951      | 22              | 11.4             | 100,022        |                              |
| 2036   | 0  | 0      | 0  | 5      | 2                             | 40     | 0               | 200    | 0            | 131    | 2             | 181                         | 159                | 6,100                | 6,440                              | 5,497                 | 245                                      | 5,253                               | 1,187                   | 970              | 942      | 28              | 12.2             | 109,960        |                              |
| 2037   | 0  | 0      | 0  | 5      | 1                             | 41     | 0               | 200    | 0            | 131    | -9            | 201                         | 161                | 6,079                | 6,441                              | 5,458                 | 250                                      | 5,208                               | 1,233                   | 962              | 938      | 24              | 11.7             | 121,915        |                              |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 281 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**NCR Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 20,030           | 181,071           | 492                      | 15,135                    | 30,975                           | 81,783                                  | 12,112        | 255,804  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 25,977           | 185,889           | 506                      | 16,000                    | 28,761                           | 61,364                                  | 11,299        | 283,447  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 28,492           | 154,029           | 424                      | 14,344                    | 63,810                           | 41,519                                  | 10,679        | 305,087  |
| 2026                               | 39,553                          | 16,706                     | 57,958                   | 38,428           | 149,262           | 426                      | 14,672                    | 50,866                           | 59,620                                  | -3,235        | 305,017  |
| 2027                               | 39,856                          | 42,855                     | 90,462                   | 47,611           | 109,259           | 322                      | 11,217                    | 58,120                           | 58,151                                  | -24,284       | 317,267  |
| 2028                               | 39,988                          | 74,761                     | 127,235                  | 55,894           | 64,197            | 136                      | 5,678                     | 101,134                          | 46,949                                  | -51,284       | 370,790  |
| 2029                               | 40,015                          | 101,649                    | 158,295                  | 61,534           | 61,629            | 25,461                   | 4,351                     | 128,531                          | 38,458                                  | -92,026       | 450,981  |
| 2030                               | 40,042                          | 101,649                    | 145,495                  | 61,939           | 46,541            | 19,377                   | 4,148                     | 144,411                          | 31,503                                  | -40,811       | 491,289  |
| 2031                               | 40,070                          | 101,892                    | 134,842                  | 47,061           | 46,563            | 19,177                   | 4,239                     | 150,171                          | 27,795                                  | -43,433       | 472,787  |
| 2032                               | 40,099                          | 101,892                    | 125,410                  | 47,616           | 34,137            | 14,178                   | 4,398                     | 166,837                          | 22,509                                  | -45,997       | 466,061  |
| 2033                               | 40,128                          | 101,892                    | 117,434                  | 48,182           | 29,316            | 12,123                   | 4,183                     | 178,095                          | 16,822                                  | -46,982       | 467,549  |
| 2034                               | 40,158                          | 101,892                    | 109,746                  | 48,755           | 31,457            | 12,940                   | 4,342                     | 180,192                          | 16,895                                  | -48,676       | 463,911  |
| 2035                               | 40,188                          | 105,603                    | 106,292                  | 50,138           | 28,984            | 12,090                   | 4,179                     | 188,577                          | 16,235                                  | -49,083       | 470,733  |
| 2036                               | 40,219                          | 105,603                    | 98,134                   | 50,744           | 34,540            | 14,535                   | 4,690                     | 189,427                          | 22,362                                  | -29,422       | 486,110  |
| 2037                               | 40,250                          | 105,603                    | 90,127                   | 51,359           | 37,614            | 16,361                   | 4,742                     | 190,782                          | 23,265                                  | 3,066         | 516,639  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 580,887                    | 884,537                  | 416,723          | 896,075           | 80,598                   | 84,667                    | 1,039,467                        | 405,521                                 | (244,029)     | 3,713,835  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 282 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 NCR Portfolio Under ECR Scenario

|        | Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |       | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                              |
|--------|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|-------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|        | (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)  | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|        | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |       | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW | Cum MW   | Ann MW | Cum MW   | Ann MW | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh   | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | MW               | MW       | MW              | %                | tons           |                              |
| 2023   | 73   | 934    | 2  | 9      | 5                             | 5      | 0               | 0      | 0            | 0      | 0             | 6,142 | 0                           | 0                    | 6,142                              | 5,488                 | 21                                       | 5,467                               | 675                     | 1,020            | 986      | 34              | 12.7             | 5,542,263      |                              |
| 2024   | 78   | 934    | (3)  | 5      | 6                             | 11     | 0               | 0      | 0            | 0      | 0             | 6,278 | 0                           | 0                    | 6,278                              | 5,903                 | 51                                       | 5,853                               | 425                     | 1,028            | 987      | 41              | 13.5             | 5,577,639      |                              |
| 2025   | 78   | 934    | 0  | 5      | 7                             | 18     | 0               | 0      | 0            | 0      | 0             | 4,962 | 0                           | 0                    | 4,962                              | 5,835                 | 87                                       | 5,748                               | (786)                   | 1,036            | 965      | 71              | 16.9             | 4,541,279      |                              |
| 2026   | 60   | 934    | 0  | 5      | 10                            | 28     | 0               | 0      | 23           | 23     | 0             | 4,748 | 0                           | 613                  | 5,361                              | 5,699                 | 141                                      | 5,559                               | (198)                   | 1,050            | 1,010    | 40              | 13.3             | 4,503,874      |                              |
| 2027   | 0  | 934    | 0  | 5      | 7                             | 36     | 0               | 0      | 23           | 45     | 61            | 3,468 | 0                           | 1,523                | 4,992                              | 5,649                 | 178                                      | 5,472                               | (480)                   | 1,081            | 1,002    | 79              | 17.5             | 3,338,222      |                              |
| 2028   | 494  | 285    | 0  | 5      | 6                             | 42     | 0               | 0      | 23           | 68     | 81            | 1,833 | 0                           | 2,633                | 4,466                              | 5,613                 | 209                                      | 5,404                               | (938)                   | 1,035            | 994      | 41              | 13.5             | 1,667,341      |                              |
| 2029   | 0  | 285    | 0  | 5      | 5                             | 46     | 100             | 100    | (2)          | 66     | -7            | 1,159 | 81                          | 2,623                | 3,864                              | 5,675                 | 233                                      | 5,442                               | (1,579)                 | 1,076            | 988      | 88              | 18.6             | 701,012        |                              |
| 2030   | 0  | 285    | 0  | 5      | 4                             | 50     | 0               | 100    | 5            | 71     | -5            | 847   | 81                          | 2,636                | 3,563                              | 5,633                 | 252                                      | 5,381                               | (1,818)                 | 1,079            | 982      | 98              | 19.8             | 508,081        |                              |
| 2031   | 0  | 285    | 0  | 5      | (8)                           | 42     | 0               | 100    | (2)          | 69     | -9            | 788   | 80                          | 2,639                | 3,508                              | 5,596                 | 207                                      | 5,390                               | (1,882)                 | 1,061            | 976      | 85              | 18.4             | 478,999        |                              |
| 2032   | 0  | 285    | 0  | 5      | (6)                           | 36     | 0               | 100    | (4)          | 65     | -8            | 563   | 80                          | 2,648                | 3,292                              | 5,568                 | 178                                      | 5,390                               | (2,098)                 | 1,043            | 969      | 73              | 17.2             | 337,462        |                              |
| 2033   | 1  | 285    | 0  | 5      | (6)                           | 30     | 0               | 100    | 0            | 65     | -3            | 458   | 80                          | 2,623                | 3,161                              | 5,530                 | 150                                      | 5,381                               | (2,220)                 | 1,035            | 967      | 68              | 16.6             | 274,798        |                              |
| 2034   | 4  | 285    | 0  | 5      | (6)                           | 25     | 0               | 100    | 0            | 65     | -1            | 463   | 78                          | 2,619                | 3,161                              | 5,486                 | 123                                      | 5,363                               | (2,202)                 | 1,032            | 957      | 75              | 17.4             | 279,395        |                              |
| 2035   | 0  | 285    | 0  | 5      | (5)                           | 20     | 50              | 150    | 0            | 65     | -2            | 411   | 118                         | 2,623                | 3,152                              | 5,492                 | 98                                       | 5,393                               | (2,241)                 | 1,062            | 951      | 111             | 21.7             | 248,503        |                              |
| 2036   | 0  | 285    | 0  | 5      | (5)                           | 15     | 0               | 150    | 0            | 65     | -3            | 475   | 119                         | 2,648                | 3,242                              | 5,450                 | 76                                       | 5,374                               | (2,131)                 | 1,051            | 942      | 109             | 21.5             | 284,555        |                              |
| 2037   | 0  | 285    | 0  | 5      | (4)                           | 11     | 0               | 150    | 0            | 65     | -2            | 504   | 120                         | 2,640                | 3,264                              | 5,410                 | 56                                       | 5,354                               | (2,090)                 | 1,045            | 938      | 106             | 21.3             | 305,074        |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 283 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CC Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,071           | 492                      | 15,135                    | 31,007                           | 81,685                                  | 12,112        | 253,463  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,889           | 506                      | 16,000                    | 28,897                           | 61,186                                  | 11,299        | 280,540  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 154,029           | 424                      | 14,344                    | 63,989                           | 41,300                                  | 10,679        | 301,442  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 34,968           | 149,262           | 426                      | 14,672                    | 57,341                           | 50,368                                  | 3,240         | 302,532  |
| 2027                               | 39,856                          | 40,896                     | 89,154                   | 45,382           | 109,259           | 322                      | 11,217                    | 60,770                           | 55,431                                  | -21,296       | 320,130  |
| 2028                               | 39,988                          | 87,027                     | 146,109                  | 56,204           | 64,197            | 136                      | 5,678                     | 88,158                           | 54,786                                  | -55,925       | 376,788  |
| 2029                               | 40,015                          | 121,966                    | 191,586                  | 64,299           | 112,834           | 47,588                   | 9,866                     | 34,292                           | 99,479                                  | -43,928       | 479,039  |
| 2030                               | 40,042                          | 128,291                    | 185,533                  | 67,375           | 106,828           | 45,444                   | 9,376                     | 32,791                           | 108,969                                 | -56,388       | 450,322  |
| 2031                               | 40,070                          | 135,006                    | 180,845                  | 66,708           | 111,683           | 47,099                   | 9,561                     | 26,215                           | 126,768                                 | -68,501       | 421,916  |
| 2032                               | 40,099                          | 135,006                    | 167,699                  | 67,394           | 107,829           | 45,570                   | 9,280                     | 28,375                           | 123,133                                 | -72,021       | 406,097  |
| 2033                               | 40,128                          | 135,006                    | 157,164                  | 68,045           | 104,607           | 43,884                   | 9,074                     | 34,165                           | 116,814                                 | -73,278       | 401,980  |
| 2034                               | 40,158                          | 135,006                    | 147,148                  | 68,810           | 106,731           | 44,752                   | 8,984                     | 36,466                           | 119,972                                 | -75,440       | 392,643  |
| 2035                               | 40,188                          | 138,717                    | 141,663                  | 70,385           | 108,283           | 46,232                   | 9,143                     | 35,152                           | 119,831                                 | -76,312       | 393,620  |
| 2036                               | 40,219                          | 138,717                    | 131,776                  | 71,205           | 113,162           | 48,365                   | 9,381                     | 35,614                           | 130,045                                 | -68,579       | 389,815  |
| 2037                               | 40,250                          | 138,717                    | 122,042                  | 71,954           | 113,630           | 49,592                   | 9,720                     | 34,192                           | 129,434                                 | -28,787       | 421,875  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 724,491                    | 1,065,925                | 477,958          | 1,221,956         | 220,341                  | 108,403                   | 414,220                          | 840,899                                 | (315,782)     | 3,457,044  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 284 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
CC Portfolio Under ECR Scenario

|        | Resource (Capacity) Additions  |  |                               |        |                 |        |              |        |               |        |                    |                      | Energy & Capacity Positions        |                |  |                                     |                         |                |                  |                  |                  |                | Carbon Output  |               |      |
|--------|--|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-------------------------|----------------|------------------|------------------|------------------|----------------|----------------|---------------|------|
|        | (12)   | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)               | (23)                 | (24)                               | (25)           | (26)                                     | (27) = (24)+(25)+(26)               | (28)                    | (29)           | (30) = (29)-(28) | (31) = (30)-(27) | (32)             | (33)           | (34)=(33)-(32) | (35)          | (36) |
|        | (Current and Planned) Supply-Side + Purchased Unforced Capacity (UCAP) | (Current and Planned) Interruptible Load and Demand Response | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity         | Peak + Reserves  | Capacity Surplus | Reserve Margin | Existing Units | CO2 Emissions |      |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW             | GWh                  | GWh                                | GWh            | GWh                                      | GWh                                 | GWh                     | GWh            | GWh              | MW               | MW               | MW             | %              | tons          |      |
| 2023   | 73   | 934  | 2                             | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                  | 6,142                | 0                                  | 0              | 6,142                                    | 5,488                               | 19                      | 5,469          | 673              | 1,019            | 986              | 33             | 12.6           | 5,542,263     |      |
| 2024   | 81   | 934  | (3)                           | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                  | 6,278                | 0                                  | 0              | 6,278                                    | 5,903                               | 46                      | 5,857          | 420              | 1,029            | 987              | 42             | 13.6           | 5,577,639     |      |
| 2025   | 78   | 934  | 0                             | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                  | 4,962                | 0                                  | 0              | 4,962                                    | 5,835                               | 79                      | 5,756          | (793)            | 1,032            | 965              | 66             | 16.4           | 4,541,279     |      |
| 2026   | 67   | 934  | 0                             | 5      | 10              | 24     | 0            | 0      | 11            | 11     | 0                  | 4,748                | 0                                  | 307            | 5,055                                    | 5,699                               | 131                     | 5,568          | (514)            | 1,042            | 1,010            | 32             | 12.4           | 4,503,874     |      |
| 2027   | 0  | 934  | 0                             | 5      | 8               | 32     | 0            | 0      | 23            | 34     | 96                 | 3,468                | 0                                  | 1,418          | 4,886                                    | 5,649                               | 167                     | 5,482          | (596)            | 1,101            | 1,002            | 98             | 19.6           | 3,338,222     |      |
| 2028   | 313  | 285  | 0                             | 5      | 6               | 38     | 0            | 0      | 23            | 57     | 148                | 1,833                | 0                                  | 2,930          | 4,763                                    | 5,613                               | 198                     | 5,414          | (651)            | 941              | 994              | -53            | 3.1            | 1,667,341     |      |
| 2029   | 0  | 285  | 0                             | 5      | 5               | 43     | 0            | 0      | (1)           | 55     | 22                 | 3,098                | 0                                  | 3,119          | 6,217                                    | 5,578                               | 222                     | 5,355          | 862              | 1,051            | 988              | 63             | 15.9           | 1,310,805     |      |
| 2030   | 0  | 285  | 0                             | 5      | 4               | 47     | 0            | 0      | 16            | 71     | -5                 | 2,875                | 0                                  | 3,436          | 6,310                                    | 5,536                               | 241                     | 5,295          | 1,015            | 1,066            | 982              | 84             | 18.3           | 1,192,226     |      |
| 2031   | 0  | 285  | 0                             | 5      | 0               | 47     | 0            | 0      | 10            | 81     | -14                | 2,834                | 0                                  | 3,746          | 6,580                                    | 5,500                               | 244                     | 5,257          | 1,324            | 1,062            | 976              | 86             | 18.5           | 1,176,859     |      |
| 2032   | 0  | 285  | 0                             | 5      | 1               | 48     | 0            | 0      | (5)           | 76     | -12                | 2,685                | 0                                  | 3,759          | 6,444                                    | 5,472                               | 254                     | 5,218          | 1,226            | 1,046            | 969              | 77             | 17.6           | 1,084,832     |      |
| 2033   | 0  | 285  | 0                             | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -7                 | 2,485                | 0                                  | 3,727          | 6,213                                    | 5,435                               | 259                     | 5,176          | 1,037            | 1,039            | 967              | 72             | 17.1           | 994,832       |      |
| 2034   | 0  | 285  | 0                             | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -2                 | 2,404                | 0                                  | 3,722          | 6,127                                    | 5,392                               | 263                     | 5,129          | 998              | 1,038            | 957              | 80             | 18.1           | 966,297       |      |
| 2035   | 0  | 285  | 0                             | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | -4                 | 2,365                | 39                                 | 3,727          | 6,132                                    | 5,397                               | 266                     | 5,131          | 1,000            | 1,075            | 951              | 124            | 23.1           | 950,528       |      |
| 2036   | 0  | 285  | 0                             | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | -7                 | 2,348                | 40                                 | 3,759          | 6,147                                    | 5,355                               | 267                     | 5,087          | 1,059            | 1,066            | 942              | 124            | 23.3           | 947,027       |      |
| 2037   | 0  | 285  | 0                             | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -5                 | 2,294                | 40                                 | 3,746          | 6,080                                    | 5,314                               | 265                     | 5,049          | 1,032            | 1,060            | 938              | 122            | 23.1           | 924,883       |      |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 285 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**No Wind Portfolio Under ECR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 181,071           | 492                      | 15,135                    | 31,308                           | 80,911                                  | 12,112        | 250,953  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 185,889           | 506                      | 16,000                    | 29,730                           | 59,569                                  | 11,299        | 277,138  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 154,029           | 424                      | 14,344                    | 65,931                           | 39,260                                  | 10,679        | 297,539  |
| 2026                               | 39,553                          | 7,071                      | 44,220                   | 25,388           | 149,262           | 426                      | 14,672                    | 61,635                           | 45,190                                  | 6,667         | 303,704  |
| 2027                               | 39,856                          | 24,051                     | 65,287                   | 29,916           | 109,259           | 322                      | 11,217                    | 81,791                           | 39,606                                  | -3,691        | 318,402  |
| 2028                               | 39,988                          | 79,805                     | 138,777                  | 43,789           | 64,197            | 136                      | 5,678                     | 123,199                          | 43,020                                  | -75,559       | 376,992  |
| 2029                               | 40,015                          | 109,225                    | 168,748                  | 49,114           | 43,485            | 17,599                   | 2,798                     | 193,877                          | 56,268                                  | -56,787       | 511,805  |
| 2030                               | 40,042                          | 112,118                    | 157,504                  | 49,354           | 32,049            | 13,105                   | 2,539                     | 213,123                          | 61,329                                  | -35,326       | 523,177  |
| 2031                               | 40,070                          | 115,322                    | 148,914                  | 54,217           | 32,144            | 12,983                   | 2,561                     | 218,360                          | 67,183                                  | -40,555       | 516,834  |
| 2032                               | 40,099                          | 118,348                    | 141,235                  | 55,488           | 21,390            | 8,734                    | 2,421                     | 229,313                          | 66,196                                  | -31,740       | 519,093  |
| 2033                               | 40,128                          | 118,348                    | 131,452                  | 56,094           | 17,316            | 7,056                    | 2,225                     | 240,046                          | 65,074                                  | -33,691       | 513,901  |
| 2034                               | 40,158                          | 118,348                    | 122,757                  | 56,817           | 18,997            | 7,673                    | 2,349                     | 244,423                          | 70,938                                  | -35,766       | 504,817  |
| 2035                               | 40,188                          | 121,583                    | 118,911                  | 58,210           | 17,626            | 7,225                    | 2,297                     | 251,465                          | 77,488                                  | -40,354       | 499,663  |
| 2036                               | 40,219                          | 121,583                    | 110,049                  | 58,992           | 21,536            | 8,920                    | 2,564                     | 250,199                          | 76,989                                  | -35,473       | 501,598  |
| 2037                               | 40,250                          | 128,368                    | 111,155                  | 61,043           | 22,907            | 9,825                    | 2,596                     | 251,302                          | 86,559                                  | -19,264       | 521,622  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 631,162                    | 927,337                  | 372,953          | 830,761           | 52,477                   | 75,958                    | 1,386,041                        | 578,986                                 | (196,426)     | 3,881,707  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 286 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 No Wind Portfolio Under ECR Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 |                  |                | Carbon Output                |           |           |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|-----------|-----------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |           |           |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |           |           |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |           |           |
| 2023   | 73     | 934  | 2      | 9                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,142                       | 0                    | 0                                  | 6,142                 | 5,488                                    | 1                                   | 5,487                   | 655              | 1,016    | 986             | 30               | 12.2           | 5,542,263                    |           |           |
| 2024   | 78     | 934  | (3)    | 5                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 6,278                       | 0                    | 0                                  | 6,278                 | 5,903                                    | 1                                   | 5,902                   | 375              | 1,017    | 987             | 31               | 12.3           | 5,577,639                    |           |           |
| 2025   | 78     | 934  | 0      | 5                             | 0      | 0               | 0      | 0            | 0      | 0             | 0      | 4,962                       | 0                    | 0                                  | 4,962                 | 5,835                                    | 1                                   | 5,834                   | (871)            | 1,018    | 965             | 52               | 14.9           | 4,541,279                    |           |           |
| 2026   | 78     | 934  | 0      | 5                             | 6      | 6               | 0      | 0            | 0      | 0             | 0      | 4,748                       | 0                    | 200                                | 4,948                 | 5,699                                    | 45                                  | 5,654                   | (707)            | 1,072    | 1,010           | 63               | 15.7           | 4,503,874                    |           |           |
| 2027   | 0      | 934  | 0      | 5                             | 5      | 11              | 0      | 0            | 0      | 0             | 0      | 81                          | 130                  | 3,468                              | 0                     | 4,168                                    | 5,649                               | 76                      | 5,573            | (1,405)  | 1,080           | 1,002            | 78             | 17.4                         | 3,338,222 |           |
| 2028   | 407    | 285  | 0      | 5                             | 4      | 15              | 0      | 0            | 0      | 0             | 0      | 224                         | 354                  | 1,833                              | 0                     | 1,606                                    | 3,439                               | 5,613                   | 104              | 5,509    | (2,070)         | 1,127            | 994            | 133                          | 23.5      | 1,667,341 |
| 2029   | 0      | 285  | 0      | 5                             | 3      | 18              | 50     | 50           | 0      | 0             | 0      | 67                          | 421                  | 805                                | 41                    | 2,100                                    | 2,946                               | 5,627                   | 127              | 5,499    | (2,554)         | 1,060            | 988            | 72                           | 16.8      | 484,358   |
| 2030   | 0      | 285  | 0      | 5                             | 3      | 21              | 0      | 50           | 0      | 0             | 0      | 11                          | 432                  | 576                                | 40                    | 2,200                                    | 2,817                               | 5,585                   | 147              | 5,438    | (2,621)         | 1,074            | 982            | 92                           | 19.2      | 343,451   |
| 2031   | 0      | 285  | 0      | 5                             | 4      | 25              | 0      | 50           | 0      | 0             | 0      | -5                          | 427                  | 534                                | 40                    | 2,300                                    | 2,874                               | 5,548                   | 164              | 5,384    | (2,510)         | 1,073            | 976            | 97                           | 19.7      | 324,200   |
| 2032   | 0      | 285  | 0      | 5                             | 4      | 29              | 0      | 50           | 0      | 0             | 0      | -3                          | 425                  | 349                                | 40                    | 2,410                                    | 2,799                               | 5,520                   | 188              | 5,332    | (2,533)         | 1,075            | 969            | 105                          | 20.8      | 207,840   |
| 2033   | 0      | 285  | 0      | 5                             | 4      | 33              | 0      | 50           | 0      | 0             | 0      | -13                         | 411                  | 268                                | 40                    | 2,400                                    | 2,708                               | 5,483                   | 207              | 5,276    | (2,568)         | 1,065            | 967            | 98                           | 20.0      | 159,917   |
| 2034   | 0      | 285  | 0      | 5                             | 3      | 36              | 0      | 50           | 0      | 0             | 0      | -3                          | 408                  | 276                                | 39                    | 2,400                                    | 2,715                               | 5,439                   | 222              | 5,217    | (2,501)         | 1,065            | 957            | 108                          | 21.2      | 165,649   |
| 2035   | 0      | 285  | 0      | 5                             | 2      | 38              | 0      | 50           | 0      | 0             | 0      | 8                           | 416                  | 246                                | 39                    | 2,500                                    | 2,786                               | 5,397                   | 235              | 5,162    | (2,377)         | 1,075            | 951            | 124                          | 23.1      | 148,481   |
| 2036   | 0      | 285  | 0      | 5                             | 2      | 40              | 0      | 50           | 0      | 0             | 0      | -14                         | 402                  | 294                                | 40                    | 2,510                                    | 2,843                               | 5,355                   | 245              | 5,110    | (2,266)         | 1,060            | 942            | 118                          | 22.5      | 174,595   |
| 2037   | 0      | 285  | 0      | 5                             | 1      | 41              | 0      | 50           | 0      | 0             | 0      | 17                          | 419                  | 303                                | 40                    | 2,700                                    | 3,044                               | 5,314                   | 250              | 5,064    | (2,020)         | 1,078            | 938            | 139                          | 25.1      | 183,159   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 287 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Preferred Plan Under ECR Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,071           | 492                      | 15,135                    | 31,007                           | 81,685                                  | 12,112        | 253,463  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 185,889           | 506                      | 16,000                    | 28,897                           | 61,186                                  | 11,299        | 280,540  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 154,029           | 424                      | 14,344                    | 63,989                           | 41,300                                  | 10,679        | 301,442  |
| 2026                               | 39,553                          | 7,955                      | 45,482                   | 34,968           | 149,262           | 426                      | 14,672                    | 57,341                           | 50,368                                  | 3,240         | 302,532  |
| 2027                               | 39,856                          | 40,896                     | 89,154                   | 45,382           | 109,259           | 322                      | 11,217                    | 60,770                           | 55,431                                  | -21,296       | 320,130  |
| 2028                               | 40,133                          | 87,027                     | 146,370                  | 56,204           | 64,197            | 136                      | 5,678                     | 88,158                           | 54,786                                  | -55,845       | 377,273  |
| 2029                               | 40,160                          | 113,025                    | 175,785                  | 61,150           | 61,629            | 25,461                   | 4,351                     | 119,938                          | 59,744                                  | -49,906       | 491,848  |
| 2030                               | 40,187                          | 119,350                    | 170,434                  | 64,171           | 46,541            | 19,377                   | 4,148                     | 121,226                          | 59,537                                  | -62,215       | 463,683  |
| 2031                               | 40,215                          | 126,065                    | 166,427                  | 63,445           | 46,563            | 19,177                   | 4,239                     | 108,594                          | 64,592                                  | -74,183       | 435,950  |
| 2032                               | 40,244                          | 126,065                    | 153,942                  | 64,069           | 34,137            | 14,178                   | 4,398                     | 118,026                          | 56,509                                  | -77,561       | 420,990  |
| 2033                               | 40,273                          | 126,065                    | 144,049                  | 64,658           | 29,316            | 12,123                   | 4,183                     | 125,101                          | 50,617                                  | -78,681       | 416,470  |
| 2034                               | 40,303                          | 126,065                    | 134,658                  | 65,360           | 31,457            | 12,940                   | 4,342                     | 124,924                          | 52,931                                  | -80,708       | 406,409  |
| 2035                               | 40,333                          | 129,776                    | 129,781                  | 66,869           | 28,984            | 12,090                   | 4,179                     | 128,708                          | 51,086                                  | -81,451       | 408,183  |
| 2036                               | 40,364                          | 129,776                    | 120,487                  | 67,622           | 34,540            | 14,535                   | 4,690                     | 127,185                          | 59,320                                  | -73,590       | 406,289  |
| 2037                               | 40,395                          | 129,776                    | 111,344                  | 68,302           | 37,614            | 16,361                   | 4,742                     | 125,407                          | 59,387                                  | -33,672       | 440,882  |
| Cumulative Present Worth 2023-2037 | 381,214                         | 682,427                    | 1,002,942                | 462,116          | 896,075           | 80,598                   | 84,667                    | 831,718                          | 554,223                                 | (341,457)     | 3,526,078  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 288 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Preferred Plan Under ECR Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 |                  |                | Carbon Output                |  |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|--|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |  |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |  |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |  |
| 2023   | 73     | 934  | 2      | 9                             | 3      | 3               | 0      | 0            | 0      | 0             | 0      | 6,142                       | 0                    | 0                                  | 6,142                 | 5,488                                    | 19                                  | 5,469                   | 673              | 1,019    | 986             | 33               | 12.6           | 5,542,263                    |  |
| 2024   | 81     | 934  | (3)    | 5                             | 5      | 8               | 0      | 0            | 0      | 0             | 0      | 6,278                       | 0                    | 0                                  | 6,278                 | 5,903                                    | 46                                  | 5,857                   | 420              | 1,029    | 987             | 42               | 13.6           | 5,577,639                    |  |
| 2025   | 78     | 934  | 0      | 5                             | 6      | 14              | 0      | 0            | 0      | 0             | 0      | 4,962                       | 0                    | 0                                  | 4,962                 | 5,835                                    | 79                                  | 5,756                   | (793)            | 1,032    | 965             | 66               | 16.4           | 4,541,279                    |  |
| 2026   | 76     | 934  | 0      | 5                             | 10     | 24              | 0      | 0            | 11     | 11            | 0      | 4,748                       | 0                    | 307                                | 5,055                 | 5,699                                    | 131                                 | 5,568                   | (514)            | 1,051    | 1,010           | 41               | 13.4           | 4,503,874                    |  |
| 2027   | 0      | 934  | 0      | 5                             | 8      | 32              | 0      | 0            | 23     | 34            | 96     | 3,468                       | 0                    | 1,418                              | 4,886                 | 5,649                                    | 167                                 | 5,482                   | (596)            | 1,101    | 1,002           | 98               | 19.6           | 3,338,222                    |  |
| 2028   | 448    | 285  | 0      | 5                             | 6      | 38              | 0      | 0            | 23     | 57            | 148    | 1,833                       | 0                    | 2,930                              | 4,763                 | 5,613                                    | 198                                 | 5,414                   | (651)            | 1,076    | 994             | 82               | 17.9           | 1,667,341                    |  |
| 2029   | 0      | 285  | 0      | 5                             | 5      | 43              | 0      | 0            | (1)    | 55            | 22     | 1,159                       | 0                    | 3,119                              | 4,279                 | 5,578                                    | 222                                 | 5,355                   | (1,077)          | 1,110    | 988             | 122              | 22.4           | 701,012                      |  |
| 2030   | 0      | 285  | 0      | 5                             | 4      | 47              | 0      | 0            | 16     | 71            | -5     | 847                         | 0                    | 3,436                              | 4,282                 | 5,536                                    | 241                                 | 5,295                   | (1,012)          | 1,125    | 982             | 143              | 24.8           | 508,081                      |  |
| 2031   | 0      | 285  | 0      | 5                             | 0      | 47              | 0      | 0            | 10     | 81            | -14    | 788                         | 0                    | 3,746                              | 4,535                 | 5,500                                    | 244                                 | 5,257                   | (722)            | 1,121    | 976             | 145              | 25.1           | 478,999                      |  |
| 2032   | 0      | 285  | 0      | 5                             | 1      | 48              | 0      | 0            | (5)    | 76            | -12    | 563                         | 0                    | 3,759                              | 4,322                 | 5,472                                    | 254                                 | 5,218                   | (896)            | 1,105    | 969             | 136              | 24.2           | 337,462                      |  |
| 2033   | 0      | 285  | 0      | 5                             | 0      | 48              | 0      | 0            | 0      | 76            | -7     | 458                         | 0                    | 3,727                              | 4,185                 | 5,435                                    | 259                                 | 5,176                   | (991)            | 1,098    | 967             | 131              | 23.7           | 274,798                      |  |
| 2034   | 0      | 285  | 0      | 5                             | (0)    | 48              | 0      | 0            | 0      | 76            | -2     | 463                         | 0                    | 3,722                              | 4,185                 | 5,392                                    | 263                                 | 5,129                   | (943)            | 1,096    | 957             | 139              | 24.8           | 279,395                      |  |
| 2035   | 0      | 285  | 0      | 5                             | (0)    | 48              | 50     | 0            | 0      | 76            | -4     | 411                         | 39                   | 3,727                              | 4,177                 | 5,397                                    | 266                                 | 5,131                   | (954)            | 1,134    | 951             | 183              | 29.9           | 248,503                      |  |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 47              | 0      | 50           | 0      | 76            | -7     | 475                         | 40                   | 3,759                              | 4,274                 | 5,355                                    | 267                                 | 5,087                   | (814)            | 1,125    | 942             | 183              | 30.1           | 284,555                      |  |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 46              | 0      | 50           | 0      | 76            | -5     | 504                         | 40                   | 3,746                              | 4,290                 | 5,314                                    | 265                                 | 5,049                   | (758)            | 1,119    | 938             | 181              | 29.9           | 305,074                      |  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 289 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
Reference Portfolio Under NCR Scenario

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)-(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,960           | 494                      | 15,192                    | 33,926                           | 77,475                                  | 12,112        | 261,540  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 171,979           | 474                      | 15,916                    | 37,288                           | 47,303                                  | 11,299        | 288,788  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 117,868           | 325                      | 12,086                    | 71,165                           | 22,323                                  | 10,679        | 289,077  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 29,437           | 86,530            | 247                      | 10,709                    | 78,206                           | 15,317                                  | 3,491         | 287,411  |
| 2027                               | 39,856                          | 35,081                     | 80,785                   | 37,287           | 70,987            | 183                      | 7,204                     | 62,986                           | 12,376                                  | -13,045       | 308,948  |
| 2028                               | 39,988                          | 70,883                     | 124,024                  | 46,117           | 31,411            | 40                       | 3,163                     | 106,445                          | 10,996                                  | -37,817       | 373,257  |
| 2029                               | 40,015                          | 114,661                    | 181,265                  | 57,811           | 93,339            | 12                       | 4,045                     | 13,343                           | 56,765                                  | -45,306       | 402,418  |
| 2030                               | 40,042                          | 122,562                    | 176,929                  | 61,551           | 116,647           | 83                       | 5,575                     | 6,881                            | 92,430                                  | -57,102       | 380,739  |
| 2031                               | 40,070                          | 130,911                    | 174,341                  | 63,644           | 102,990           | 41                       | 4,927                     | 8,417                            | 85,549                                  | -68,400       | 371,391  |
| 2032                               | 40,099                          | 139,212                    | 172,829                  | 67,627           | 103,960           | 49                       | 4,695                     | 7,838                            | 98,383                                  | -80,001       | 357,925  |
| 2033                               | 40,128                          | 147,715                    | 172,457                  | 71,647           | 96,083            | 12                       | 4,091                     | 12,135                           | 95,710                                  | -89,473       | 359,084  |
| 2034                               | 40,158                          | 156,425                    | 172,685                  | 75,800           | 107,485           | 60                       | 4,997                     | 9,300                            | 118,152                                 | -100,134      | 348,623  |
| 2035                               | 40,188                          | 165,370                    | 172,820                  | 80,076           | 111,887           | 49                       | 5,110                     | 5,875                            | 133,911                                 | -111,627      | 335,837  |
| 2036                               | 40,219                          | 165,370                    | 159,755                  | 81,130           | 110,761           | 49                       | 4,784                     | 5,198                            | 136,918                                 | -105,280      | 325,067  |
| 2037                               | 40,250                          | 169,488                    | 153,631                  | 82,862           | 115,188           | 43                       | 5,068                     | 4,742                            | 144,956                                 | -77,309       | 349,005  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 754,055                    | 1,091,259                | 469,468          | 1,063,009         | 1,722                    | 77,034                    | 346,708                          | 646,852                                 | (374,603)     | 3,162,230  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 290 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
Reference Portfolio Under NCR Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 |                  | Carbon Output  |                              |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023   | 73     | 934  | 2      | 9                             | 3      | 3               | 0      | 0            | 0      | 0             | 0      | 6,171                       | 0                    | 0                                  | 6,171                 | 5,643                                    | 19                                  | 5,624                   | 547              | 1,019    | 1,014           | 5                | 9.5            | 5,561,729                    |
| 2024   | 78     | 934  | (3)    | 5                             | 5      | 8               | 0      | 0            | 0      | 0             | 0      | 6,043                       | 0                    | 0                                  | 6,043                 | 6,118                                    | 46                                  | 6,072                   | (29)             | 1,026    | 1,019           | 6                | 9.6            | 5,266,459                    |
| 2025   | 78     | 934  | 0      | 5                             | 6      | 14              | 0      | 0            | 0      | 0             | 0      | 4,368                       | 0                    | 0                                  | 4,368                 | 6,060                                    | 79                                  | 5,980                   | (1,612)          | 1,032    | 1,002           | 29               | 12.1           | 3,607,786                    |
| 2026   | 82     | 934  | 0      | 5                             | 7      | 21              | 0      | 0            | 14     | 14            | 0      | 3,416                       | 0                    | 307                                | 3,722                 | 5,948                                    | 118                                 | 5,830                   | (2,108)          | 1,056    | 1,054           | 2                | 9.1            | 2,739,741                    |
| 2027   | 0      | 934  | 0      | 5                             | 6      | 26              | 0      | 0            | 14     | 27            | 96     | 2,841                       | 0                    | 1,112                              | 3,953                 | 5,918                                    | 151                                 | 5,767                   | (1,814)          | 1,088    | 1,050           | 39               | 12.9           | 2,063,800                    |
| 2028   | 495    | 285  | 0      | 5                             | 4      | 31              | 0      | 0            | 24     | 51            | 80     | 1,151                       | 0                    | 2,224                              | 3,375                 | 5,911                                    | 179                                 | 5,733                   | (2,358)          | 1,043    | 1,044           | -1               | 8.9            | 843,911                      |
| 2029   | 0      | 285  | 0      | 5                             | 4      | 34              | 0      | 0            | 20     | 71            | 25     | 3,802                       | 0                    | 3,023                              | 6,825                 | 5,872                                    | 200                                 | 5,673                   | 1,153            | 1,052    | 1,040           | 11               | 10.1           | 2,282,491                    |
| 2030   | 0      | 285  | 0      | 5                             | 3      | 37              | 0      | 0            | 12     | 83            | -5     | 4,569                       | 0                    | 3,341                              | 7,910                 | 5,850                                    | 217                                 | 5,633                   | 2,277            | 1,061    | 1,037           | 24               | 11.4           | 2,727,966                    |
| 2031   | 0      | 285  | 0      | 5                             | (0)    | 36              | 0      | 0            | 10     | 92            | -13    | 3,960                       | 0                    | 3,653                              | 7,613                 | 5,832                                    | 220                                 | 5,612                   | 2,001            | 1,058    | 1,035           | 22               | 11.3           | 2,371,115                    |
| 2032   | 0      | 285  | 0      | 5                             | (1)    | 36              | 0      | 0            | 6      | 98            | -11    | 3,937                       | 0                    | 3,972                              | 7,910                 | 5,832                                    | 221                                 | 5,612                   | 2,298            | 1,051    | 1,030           | 21               | 11.2           | 2,357,608                    |
| 2033   | 0      | 285  | 0      | 5                             | (1)    | 35              | 0      | 0            | 11     | 109           | -4     | 3,399                       | 0                    | 4,239                              | 7,637                 | 5,795                                    | 219                                 | 5,576                   | 2,061            | 1,057    | 1,031           | 26               | 11.7           | 2,041,863                    |
| 2034   | 0      | 285  | 0      | 5                             | (1)    | 34              | 0      | 0            | 11     | 120           | -4     | 3,662                       | 0                    | 4,535                              | 8,196                 | 5,780                                    | 216                                 | 5,564                   | 2,632            | 1,063    | 1,026           | 38               | 12.9           | 2,202,887                    |
| 2035   | 0      | 285  | 0      | 5                             | (1)    | 33              | 0      | 0            | 11     | 131           | 0      | 3,814                       | 0                    | 4,846                              | 8,660                 | 5,765                                    | 213                                 | 5,552                   | 3,108            | 1,073    | 1,025           | 49               | 14.1           | 2,282,504                    |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 32              | 0      | 0            | 0      | 131           | 0      | 3,818                       | 0                    | 4,895                              | 8,713                 | 5,768                                    | 209                                 | 5,559                   | 3,154            | 1,072    | 1,021           | 52               | 14.5           | 2,288,623                    |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 31              | 0      | 0            | 0      | 131           | 13     | 3,892                       | 0                    | 4,979                              | 8,871                 | 5,734                                    | 203                                 | 5,531                   | 3,340            | 1,084    | 1,022           | 62               | 15.6           | 2,336,246                    |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 291 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**REF-HC Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |  |                                     |                                   |                           |                            |                                   |                                    |   |  |                        |   |
|------------------------------------|--|-------------------------------------|-----------------------------------|---------------------------|----------------------------|-----------------------------------|------------------------------------|---|--|------------------------|---|
|                                    | (1)<br>Existing<br>Depreciation<br>\$000 | (2)<br>New<br>Depreciation<br>\$000 | (3)<br>Capital<br>Charge<br>\$000 | (4)<br>Fixed O&M<br>\$000 | (5)<br>Fuel Costs<br>\$000 | (6)<br>Emission<br>Costs<br>\$000 | (7)<br>Other<br>VOM Costs<br>\$000 | (8)<br>Market Purchases<br>Costs<br>\$000 | (9)<br>Less:<br>Market Sales<br>Revenue<br>\$000 | (10)<br>Taxes<br>\$000 | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs<br>\$000 |
| 2023                               | 38,400                                   | 0                                   | 39,371                            | 16,188                    | 181,960                    | 494                               | 15,192                             | 34,033                                    | 77,211   | 12,112                 | 260,539   |
| 2024                               | 38,764                                   | 0                                   | 37,615                            | 20,887                    | 171,979                    | 474                               | 15,916                             | 37,583                                    | 46,900   | 11,299                 | 287,617   |
| 2025                               | 39,081                                   | 0                                   | 35,747                            | 22,030                    | 117,868                    | 325                               | 12,086                             | 71,676                                    | 21,937   | 10,679                 | 287,556   |
| 2026                               | 39,553                                   | 17,673                              | 59,336                            | 30,019                    | 86,530                     | 247                               | 10,709                             | 71,401                                    | 18,855   | -2,707                 | 293,907   |
| 2027                               | 39,856                                   | 49,813                              | 100,219                           | 40,244                    | 70,987                     | 183                               | 7,204                              | 51,168                                    | 16,743   | -24,264                | 318,667   |
| 2028                               | 39,988                                   | 97,450                              | 158,287                           | 51,396                    | 31,411                     | 40                                | 3,163                              | 86,596                                    | 18,628   | -54,421                | 395,281   |
| 2029                               | 40,015                                   | 125,352                             | 189,386                           | 58,558                    | 93,339                     | 12                                | 4,045                              | 11,550                                    | 64,337   | -51,657                | 406,262   |
| 2030                               | 40,042                                   | 133,253                             | 184,979                           | 62,310                    | 116,647                    | 83                                | 5,575                              | 5,981                                     | 101,034  | -63,541                | 384,296   |
| 2031                               | 40,070                                   | 141,602                             | 182,298                           | 63,316                    | 102,990                    | 41                                | 4,927                              | 7,478                                     | 93,535   | -74,882                | 374,305   |
| 2032                               | 40,099                                   | 149,903                             | 180,468                           | 67,453                    | 103,960                    | 49                                | 4,695                              | 7,073                                     | 106,392  | -86,584                | 360,724   |
| 2033                               | 40,128                                   | 158,406                             | 180,300                           | 71,683                    | 96,083                     | 12                                | 4,091                              | 11,166                                    | 103,341  | -95,884                | 362,643   |
| 2034                               | 40,158                                   | 158,406                             | 167,612                           | 72,781                    | 107,485                    | 60                                | 4,997                              | 9,825                                     | 115,510  | -98,502                | 347,311   |
| 2035                               | 40,188                                   | 158,406                             | 155,972                           | 73,879                    | 111,887                    | 49                                | 5,110                              | 7,414                                     | 120,110  | -101,510               | 331,286   |
| 2036                               | 40,219                                   | 158,406                             | 144,976                           | 74,994                    | 110,761                    | 49                                | 4,784                              | 6,627                                     | 122,443  | -83,254                | 335,118   |
| 2037                               | 40,250                                   | 167,833                             | 147,792                           | 79,535                    | 115,188                    | 43                                | 5,068                              | 5,409                                     | 138,324  | -49,088                | 373,706   |
| Cumulative Present Worth 2023-2037 | 380,430                                  | 816,118                             | 1,144,185                         | 463,218                   | 1,063,009                  | 1,722                             | 77,034                             | 318,195                                   | 663,998  | (391,825)              | 3,208,088   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 292 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 REF-HC Portfolio Under NCR Scenario

| Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                              |
|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
| (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
| (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023   | 73     | 934  | 2      | 9                             | 2      | 2               | 0      | 0            | 0      | 0             | 0      | 6,171                       | 0                    | 0                                  | 6,171                 | 5,643                                    | 13                                  | 5,630                   | 541              | 1,017    | 1,014           | 4                | 9.3            | 5,561,729                    |
| 2024   | 78     | 934  | (3)    | 5                             | 3      | 5               | 0      | 0            | 0      | 0             | 0      | 6,043                       | 0                    | 0                                  | 6,043                 | 6,118                                    | 33                                  | 6,085                   | (42)             | 1,022    | 1,019           | 3                | 9.2            | 5,266,459                    |
| 2025   | 78     | 934  | 0      | 5                             | 4      | 9               | 0      | 0            | 0      | 0             | 0      | 4,368                       | 0                    | 0                                  | 4,368                 | 6,060                                    | 58                                  | 6,001                   | (1,633)          | 1,026    | 1,002           | 24               | 11.5           | 3,607,786                    |
| 2026   | 79     | 934  | 0      | 5                             | 5      | 14              | 0      | 0            | 27     | 27            | 0      | 3,416                       | 0                    | 613                                | 4,029                 | 5,948                                    | 97                                  | 5,851                   | (1,822)          | 1,060    | 1,054           | 5                | 9.5            | 2,739,741                    |
| 2027   | 0      | 934  | 0      | 5                             | 4      | 18              | 0      | 0            | 27     | 54            | 78     | 2,841                       | 0                    | 1,623                              | 4,465                 | 5,918                                    | 124                                 | 5,794                   | (1,330)          | 1,090    | 1,050           | 40               | 13.1           | 2,063,800                    |
| 2028   | 461    | 285  | 0      | 5                             | 3      | 21              | 0      | 0            | 23     | 77            | 131    | 1,151                       | 0                    | 3,035                              | 4,185                 | 5,911                                    | 146                                 | 5,765                   | (1,579)          | 1,059    | 1,044           | 15               | 10.5           | 843,911                      |
| 2029   | 0      | 285  | 0      | 5                             | 3      | 24              | 0      | 0            | 6      | 83            | -9     | 3,802                       | 0                    | 3,327                              | 7,129                 | 5,872                                    | 164                                 | 5,709                   | 1,420            | 1,053    | 1,040           | 12               | 10.2           | 2,282,491                    |
| 2030   | 0      | 285  | 0      | 5                             | 2      | 26              | 0      | 0            | 12     | 94            | -5     | 4,569                       | 0                    | 3,647                              | 8,216                 | 5,850                                    | 178                                 | 5,672                   | 2,544            | 1,062    | 1,037           | 24               | 11.5           | 2,727,966                    |
| 2031   | 0      | 285  | 0      | 5                             | (1)    | 24              | 0      | 0            | 10     | 104           | -13    | 3,960                       | 0                    | 3,959                              | 7,919                 | 5,832                                    | 160                                 | 5,672                   | 2,248            | 1,057    | 1,035           | 22               | 11.2           | 2,371,115                    |
| 2032   | 0      | 285  | 0      | 5                             | (1)    | 24              | 0      | 0            | 5      | 109           | -11    | 3,937                       | 0                    | 4,280                              | 8,217                 | 5,832                                    | 151                                 | 5,681                   | 2,536            | 1,050    | 1,030           | 20               | 11.1           | 2,357,608                    |
| 2033   | 0      | 285  | 0      | 5                             | (1)    | 23              | 0      | 0            | 11     | 120           | -4     | 3,399                       | 0                    | 4,543                              | 7,941                 | 5,795                                    | 141                                 | 5,654                   | 2,287            | 1,057    | 1,031           | 25               | 11.6           | 2,041,863                    |
| 2034   | 0      | 285  | 0      | 5                             | (1)    | 22              | 0      | 0            | 0      | 120           | -4     | 3,662                       | 0                    | 4,535                              | 8,196                 | 5,780                                    | 130                                 | 5,650                   | 2,547            | 1,052    | 1,026           | 26               | 11.7           | 2,202,887                    |
| 2035   | 0      | 285  | 0      | 5                             | (1)    | 21              | 0      | 0            | 0      | 120           | 0      | 3,814                       | 0                    | 4,542                              | 8,356                 | 5,765                                    | 120                                 | 5,645                   | 2,711            | 1,051    | 1,025           | 26               | 11.7           | 2,282,504                    |
| 2036   | 0      | 285  | 0      | 5                             | (1)    | 20              | 0      | 0            | 0      | 120           | 0      | 3,818                       | 0                    | 4,587                              | 8,406                 | 5,768                                    | 110                                 | 5,658                   | 2,747            | 1,050    | 1,021           | 29               | 12.1           | 2,288,623                    |
| 2037   | 0      | 285  | 0      | 5                             | (1)    | 19              | 0      | 0            | 11     | 131           | -1     | 3,892                       | 0                    | 4,879                              | 8,771                 | 5,734                                    | 100                                 | 5,634                   | 3,137            | 1,058    | 1,022           | 37               | 12.8           | 2,336,246                    |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 293 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CETA Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 16,188           | 181,960           | 494                      | 15,192                    | 34,403                           | 77,211                                  | 12,112        | 260,910  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 20,887           | 171,979           | 474                      | 15,916                    | 38,299                           | 46,900                                  | 11,299        | 288,333  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 22,030           | 117,868           | 325                      | 12,086                    | 72,534                           | 21,937                                  | 10,679        | 288,414  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 32,478           | 86,530            | 247                      | 10,709                    | 73,360                           | 18,884                                  | -2,707        | 298,295  |
| 2027                               | 39,856                          | 53,484                     | 105,452                  | 43,421           | 70,987            | 183                      | 7,204                     | 48,716                           | 18,013                                  | -26,003       | 325,286  |
| 2028                               | 39,988                          | 105,065                    | 168,522                  | 55,227           | 31,411            | 40                       | 3,163                     | 83,807                           | 22,021                                  | -57,983       | 407,218  |
| 2029                               | 40,015                          | 148,842                    | 221,144                  | 66,913           | 93,339            | 12                       | 4,045                     | 8,375                            | 86,081                                  | -66,317       | 430,284  |
| 2030                               | 40,042                          | 160,166                    | 218,116                  | 71,344           | 116,647           | 83                       | 5,575                     | 4,301                            | 127,976                                 | -81,114       | 407,184  |
| 2031                               | 40,070                          | 168,515                    | 212,251                  | 73,546           | 102,990           | 41                       | 4,927                     | 5,086                            | 120,622                                 | -93,163       | 393,640  |
| 2032                               | 40,099                          | 180,421                    | 213,175                  | 78,361           | 103,960           | 49                       | 4,695                     | 4,791                            | 137,043                                 | -107,631      | 380,876  |
| 2033                               | 40,128                          | 188,923                    | 210,288                  | 82,503           | 96,083            | 12                       | 4,091                     | 7,657                            | 133,557                                 | -117,282      | 378,846  |
| 2034                               | 40,158                          | 188,923                    | 195,760                  | 83,504           | 107,485           | 60                       | 4,997                     | 6,848                            | 147,118                                 | -120,265      | 360,352  |
| 2035                               | 40,188                          | 193,762                    | 188,013                  | 85,596           | 111,887           | 49                       | 5,110                     | 4,741                            | 153,169                                 | -121,548      | 354,629  |
| 2036                               | 40,219                          | 193,762                    | 174,733                  | 86,710           | 110,761           | 49                       | 4,784                     | 4,214                            | 156,562                                 | -104,014      | 354,656  |
| 2037                               | 40,250                          | 201,998                    | 173,917                  | 89,269           | 115,188           | 43                       | 5,068                     | 3,790                            | 167,954                                 | -64,650       | 396,919  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 964,565                    | 1,299,239                | 518,370          | 1,063,009         | 1,722                    | 77,034                    | 305,723                          | 803,738                                 | (484,377)     | 3,321,975  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 294 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 CETA Portfolio Under NCR Scenario

|        | Resource (Capacity) Additions  |        |  |        |                           |        |                 |        |              |        |               |       | Energy & Capacity Positions |                      |                                    |                       |  |                                 |                         |                  |          |                 | Carbon Output    |                |                              |
|--------|--|--------|--|--------|---------------------------|--------|-----------------|--------|--------------|--------|---------------|-------|-----------------------------|----------------------|------------------------------------|-----------------------|--|---------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|        | (12)   | (13)   | (14)   | (15)   | (16)                      | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)  | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                            | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|        | (Current and Planned Supply-Side + Purchased Forced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Incem) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |       | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Incem) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
| Ann MW | Cum MW   | Ann MW | Cum MW   | Ann MW | Cum MW                    | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | GWh   | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                             | GWh                     | MW               | MW       | MW              | %                | tons           |                              |
| 2023   | 105  | 934    | 2  | 9      | 2                         | 2      | 0               | 0      | 0            | 0      | 0             | 6,171 | 0                           | 0                    | 6,171                              | 5,643                 | 13                                       | 5,630                           | 541                     | 1,049            | 1,014    | 36              | 12.8             | 5,561,729      |                              |
| 2024   | 118  | 934    | (3)  | 5      | 3                         | 5      | 0               | 0      | 0            | 0      | 0             | 6,043 | 0                           | 0                    | 6,043                              | 6,118                 | 33                                       | 6,085                           | (42)                    | 1,062            | 1,019    | 43              | 13.5             | 5,266,459      |                              |
| 2025   | 103  | 934    | 0  | 5      | 4                         | 9      | 0               | 0      | 0            | 0      | 0             | 4,368 | 0                           | 0                    | 4,368                              | 6,060                 | 58                                       | 6,001                           | (1,633)                 | 1,051            | 1,002    | 49              | 14.2             | 3,607,786      |                              |
| 2026   | 133  | 934    | 0  | 5      | 7                         | 16     | 0               | 0      | 27           | 27     | 0             | 3,416 | 0                           | 613                  | 4,029                              | 5,948                 | 100                                      | 5,848                           | (1,819)                 | 1,115            | 1,054    | 61              | 15.3             | 2,739,741      |                              |
| 2027   | 4  | 934    | 0  | 5      | 6                         | 22     | 0               | 0      | 27           | 54     | 96            | 2,841 | 0                           | 1,723                | 4,565                              | 5,918                 | 136                                      | 5,782                           | (1,218)                 | 1,116            | 1,050    | 66              | 15.8             | 2,063,800      |                              |
| 2028   | 488  | 285    | 0  | 5      | 5                         | 28     | 0               | 0      | 23           | 77     | 148           | 1,151 | 0                           | 3,235                | 4,386                              | 5,911                 | 167                                      | 5,745                           | (1,358)                 | 1,126            | 1,044    | 83              | 17.6             | 843,911        |                              |
| 2029   | 0  | 285    | 0  | 5      | 4                         | 32     | 0               | 0      | 18           | 94     | 22            | 3,802 | 0                           | 4,031                | 7,833                              | 5,872                 | 191                                      | 5,681                           | 2,152                   | 1,138            | 1,040    | 98              | 19.2             | 2,282,491      |                              |
| 2030   | 0  | 285    | 0  | 5      | 3                         | 35     | 0               | 0      | 12           | 106    | 11            | 4,569 | 0                           | 4,453                | 9,022                              | 5,850                 | 211                                      | 5,639                           | 3,383                   | 1,165            | 1,037    | 127             | 22.3             | 2,727,966      |                              |
| 2031   | 0  | 285    | 0  | 5      | 0                         | 36     | 0               | 0      | 9            | 116    | -17           | 3,960 | 0                           | 4,766                | 8,726                              | 5,832                 | 216                                      | 5,615                           | 3,111                   | 1,158            | 1,035    | 122             | 21.8             | 2,371,115      |                              |
| 2032   | 0  | 285    | 0  | 5      | (0)                       | 35     | 0               | 0      | 4            | 120    | 0             | 3,937 | 0                           | 5,190                | 9,127                              | 5,832                 | 219                                      | 5,613                           | 3,514                   | 1,162            | 1,030    | 132             | 22.9             | 2,357,608      |                              |
| 2033   | 0  | 285    | 0  | 5      | (1)                       | 35     | 0               | 0      | 11           | 131    | -6            | 3,399 | 0                           | 5,447                | 8,845                              | 5,795                 | 218                                      | 5,577                           | 3,268                   | 1,166            | 1,031    | 135             | 23.2             | 2,041,863      |                              |
| 2034   | 0  | 285    | 0  | 5      | (1)                       | 34     | 0               | 0      | 0            | 131    | -6            | 3,662 | 0                           | 5,438                | 9,100                              | 5,780                 | 216                                      | 5,564                           | 3,536                   | 1,159            | 1,026    | 133             | 23.1             | 2,202,487      |                              |
| 2035   | 0  | 285    | 0  | 5      | (1)                       | 33     | 50              | 0      | 0            | 131    | 0             | 3,814 | 41                          | 5,446                | 9,301                              | 5,814                 | 213                                      | 5,601                           | 3,700                   | 1,198            | 1,025    | 173             | 27.3             | 2,282,504      |                              |
| 2036   | 0  | 285    | 0  | 5      | (1)                       | 32     | 0               | 50     | 0            | 131    | 0             | 248   | 3,818                       | 41                   | 5,497                              | 9,356                 | 5,817                                    | 209                             | 5,608                   | 3,749            | 1,197    | 1,021           | 176              | 27.8           | 2,288,623                    |
| 2037   | 0  | 285    | 0  | 5      | (1)                       | 31     | 0               | 50     | 0            | 131    | 26            | 3,892 | 40                          | 5,679                | 9,611                              | 5,782                 | 203                                      | 5,579                           | 4,032                   | 1,221            | 1,022    | 199             | 30.2             | 2,336,246      |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 295 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**ECR Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |  |                                     |                                   |                           |                            |                                   |                                    |   |  |                        |   |
|------------------------------------|--|-------------------------------------|-----------------------------------|---------------------------|----------------------------|-----------------------------------|------------------------------------|---|--|------------------------|---|
|                                    | (1)<br>Existing<br>Depreciation<br>\$000 | (2)<br>New<br>Depreciation<br>\$000 | (3)<br>Capital<br>Charge<br>\$000 | (4)<br>Fixed O&M<br>\$000 | (5)<br>Fuel Costs<br>\$000 | (6)<br>Emission<br>Costs<br>\$000 | (7)<br>Other<br>VOM Costs<br>\$000 | (8)<br>Market Purchases<br>Costs<br>\$000 | (9)<br>Less:<br>Market Sales<br>Revenue<br>\$000 | (10)<br>Taxes<br>\$000 | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs<br>\$000 |
| 2023                               | 38,400                                   | 0                                   | 39,371                            | 13,974                    | 181,960                    | 494                               | 15,192                             | 34,217                                    | 76,707   | 12,112                 | 259,015   |
| 2024                               | 38,764                                   | 0                                   | 37,615                            | 16,905                    | 171,979                    | 474                               | 15,916                             | 38,304                                    | 45,955   | 11,299                 | 285,300   |
| 2025                               | 39,081                                   | 0                                   | 35,747                            | 16,564                    | 117,868                    | 325                               | 12,086                             | 73,095                                    | 20,973   | 10,679                 | 284,473   |
| 2026                               | 39,553                                   | 17,673                              | 59,336                            | 29,403                    | 86,530                     | 247                               | 10,709                             | 71,513                                    | 18,066   | -2,707                 | 294,192   |
| 2027                               | 39,856                                   | 42,473                              | 89,753                            | 38,087                    | 70,987                     | 183                               | 7,204                              | 57,402                                    | 14,442   | -20,786                | 310,716   |
| 2028                               | 39,988                                   | 112,490                             | 180,976                           | 56,407                    | 31,411                     | 40                                | 3,163                              | 77,827                                    | 20,155   | -91,689                | 390,455   |
| 2029                               | 40,015                                   | 161,437                             | 235,501                           | 68,742                    | 59,161                     | 11                                | 2,812                              | 20,222                                    | 55,604   | -74,700                | 457,598   |
| 2030                               | 40,042                                   | 169,339                             | 224,606                           | 72,246                    | 82,023                     | 82                                | 4,282                              | 8,388                                     | 86,478   | -88,040                | 426,490   |
| 2031                               | 40,054                                   | 187,991                             | 232,469                           | 82,587                    | 49,546                     | 3                                 | 2,329                              | 28,859                                    | 72,046   | -106,627               | 445,166   |
| 2032                               | 40,054                                   | 225,216                             | 260,958                           | 93,043                    | 34,505                     | 1                                 | 1,253                              | 18,306                                    | 73,947   | -249,336               | 350,053   |
| 2033                               | 40,054                                   | 233,719                             | 252,236                           | 97,345                    | 34,809                     | 0                                 | 1,227                              | 17,123                                    | 82,605   | -119,510               | 474,396   |
| 2034                               | 40,054                                   | 233,719                             | 233,902                           | 98,564                    | 34,333                     | 0                                 | 1,324                              | 17,873                                    | 83,849   | -123,309               | 452,611   |
| 2035                               | 40,054                                   | 233,719                             | 217,347                           | 99,811                    | 35,599                     | 0                                 | 1,289                              | 17,126                                    | 85,670   | -127,398               | 431,877   |
| 2036                               | 40,054                                   | 237,724                             | 207,597                           | 101,862                   | 37,111                     | 1                                 | 1,240                              | 15,467                                    | 92,140   | -111,547               | 437,370   |
| 2037                               | 40,054                                   | 237,724                             | 192,948                           | 103,102                   | 39,049                     | 1                                 | 1,353                              | 14,330                                    | 94,677   | -83,759                | 450,124   |
| Cumulative Present Worth 2023-2037 | 380,095                                  | 1,108,151                           | 1,423,288                         | 551,378                   | 785,054                    | 1,577                             | 63,969                             | 363,458                                   | 542,884  | (615,698)              | 3,518,388   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 296 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 ECR Portfolio Under NCR Scenario

|        | Resource (Capacity) Additions  |  |                               |                 |              |               |                    |                      |                                    |                |  |                                     | Energy & Capacity Positions |                |          |                       |                  |                |                              |                  |       |      | Carbon Output  |           |      |
|--------|--|--|-------------------------------|-----------------|--------------|---------------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-----------------------------|----------------|----------|-----------------------|------------------|----------------|------------------------------|------------------|-------|------|----------------|-----------|------|
|        | (12)   | (13)   | (14)                          | (15)            | (16)         | (17)          | (18)               | (19)                 | (20)                               | (21)           | (22)                                     | (23)                                | (24)                        | (25)           | (26)     | (27) = (24)+(25)+(26) | (28)             | (29)           | (30) = (29)-(28)             | (31) = (30)-(27) | (32)  | (33) | (34)=(33)-(32) | (35)      | (36) |
|        | (Current and Planned Supply-Side + Purchased Forced Capacity (UCAP)) | (Current and Planned) Interruptible Load and Demand Response | (Increment) Energy Efficiency | Utility Storage | Generic Wind | Utility Solar | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements     | Energy Surplus | Capacity | Peak + Reserves       | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |                  |       |      |                |           |      |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW          | Cum MW       | Ann MW        | Cum MW             | Ann MW               | Cum MW                             | Ann MW         | Cum MW                                   | GWh                                 | GWh                         | GWh            | GWh      | GWh                   | GWh              | GWh            | GWh                          | MW               | MW    | MW   | %              | tons      |      |
| 2023   | 70   | 934  | 2                             | 9               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 6,171                               | 0                           | 0              | 6,171    | 5,643                 | 1                | 5,642          | 529                          | 1,013            | 1,014 | -1   | 8.8            | 5,561,729 |      |
| 2024   | 78   | 934  | (3)                           | 5               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 6,043                               | 0                           | 0              | 6,043    | 6,118                 | 1                | 6,117          | (74)                         | 1,017            | 1,019 | -2   | 8.7            | 5,266,459 |      |
| 2025   | 78   | 934  | 0                             | 5               | 0            | 0             | 0                  | 0                    | 0                                  | 0              | 0  | 4,368                               | 0                           | 0              | 4,368    | 6,060                 | 1                | 6,058          | (1,690)                      | 1,018            | 1,002 | 15   | 10.6           | 3,607,786 |      |
| 2026   | 43   | 934  | 0                             | 5               | 5            | 5             | 0                  | 0                    | 27                                 | 27             | 0  | 3,416                               | 0                           | 613            | 4,029    | 5,948                 | 36               | 5,912          | (1,884)                      | 1,015            | 1,054 | -39  | 4.9            | 2,739,741 |      |
| 2027   | 0  | 934  | 0                             | 5               | 5            | 10            | 0                  | 0                    | 27                                 | 54             | 44                                       | 2,841                               | 0                           | 1,423          | 4,265    | 5,918                 | 67               | 5,851          | (1,587)                      | 1,047            | 1,050 | -3   | 8.7            | 2,063,800 |      |
| 2028   | 339  | 285  | 0                             | 5               | 4            | 14            | 0                  | 0                    | 23                                 | 77             | 200                                      | 1,151                               | 0                           | 2,934          | 4,085    | 5,911                 | 94               | 5,817          | (1,732)                      | 1,003            | 1,044 | -40  | 4.7            | 843,911   |      |
| 2029   | 0  | 285  | 0                             | 5               | 3            | 17            | 0                  | 0                    | 18                                 | 94             | 87                                       | 2,348                               | 0                           | 4,131          | 6,479    | 5,872                 | 117              | 5,755          | 724                          | 1,001            | 1,040 | -40  | 4.8            | 1,396,091 |      |
| 2030   | 0  | 285  | 0                             | 5               | 3            | 20            | 0                  | 0                    | 12                                 | 106            | -5                                       | 3,148                               | 0                           | 4,453          | 7,602    | 5,850                 | 137              | 5,713          | 1,889                        | 1,010            | 1,037 | -27  | 6.1            | 1,862,004 |      |
| 2031   | 206  | 0  | 0                             | 5               | 5            | 25            | 0                  | 0                    | 9                                  | 116            | 28                                       | 1,888                               | 0                           | 5,066          | 6,954    | 5,832                 | 164              | 5,667          | 1,287                        | 973              | 1,035 | -62  | 2.4            | 1,132,136 |      |
| 2032   | 0  | 0  | 0                             | 5               | 4            | 29            | 200                | 200                  | 4                                  | 120            | 26                                       | 1,363                               | 165                         | 5,692          | 7,220    | 6,030                 | 188              | 5,842          | 1,377                        | 961              | 1,030 | -69  | 1.6            | 831,729   |      |
| 2033   | 0  | 0  | 0                             | 5               | 4            | 33            | 0                  | 200                  | 11                                 | 131            | -9                                       | 1,276                               | 164                         | 5,947          | 7,386    | 5,991                 | 207              | 5,785          | 1,602                        | 966              | 1,031 | -65  | 2.1            | 779,618   |      |
| 2034   | 0  | 0  | 0                             | 5               | 3            | 36            | 0                  | 200                  | 0                                  | 131            | -9                                       | 1,219                               | 165                         | 5,938          | 7,321    | 5,977                 | 222              | 5,755          | 1,566                        | 960              | 1,026 | -66  | 1.9            | 744,667   |      |
| 2035   | 0  | 0  | 0                             | 5               | 2            | 38            | 0                  | 200                  | 0                                  | 131            | 0  | 1,265                               | 163                         | 5,946          | 7,374    | 5,961                 | 235              | 5,726          | 1,649                        | 962              | 1,025 | -62  | 2.3            | 772,228   |      |
| 2036   | 0  | 0  | 0                             | 5               | 2            | 40            | 0                  | 200                  | 0                                  | 131            | 14                                       | 1,324                               | 163                         | 6,100          | 7,587    | 5,964                 | 245              | 5,719          | 1,868                        | 978              | 1,021 | -42  | 4.4            | 809,084   |      |
| 2037   | 0  | 0  | 0                             | 5               | 1            | 41            | 0                  | 200                  | 0                                  | 131            | -3                                       | 1,371                               | 160                         | 6,079          | 7,610    | 5,926                 | 250              | 5,675          | 1,934                        | 970              | 1,022 | -52  | 3.4            | 837,310   |      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 297 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**NCR Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 20,030           | 181,960           | 494                      | 15,192                    | 33,891                           | 77,572                                  | 12,112        | 263,879  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 25,977           | 171,979           | 474                      | 15,916                    | 37,185                           | 47,452                                  | 11,299        | 291,757  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 28,492           | 117,868           | 325                      | 12,086                    | 70,991                           | 22,481                                  | 10,679        | 292,789  |
| 2026                               | 39,553                          | 17,673                     | 59,336                   | 38,577           | 86,530            | 247                      | 10,709                    | 69,696                           | 19,481                                  | -2,707        | 300,133  |
| 2027                               | 39,856                          | 46,143                     | 94,986                   | 48,192           | 70,987            | 183                      | 7,204                     | 52,177                           | 16,317                                  | -22,525       | 320,886  |
| 2028                               | 39,988                          | 81,945                     | 136,805                  | 57,246           | 31,411            | 40                       | 3,163                     | 95,712                           | 15,221                                  | -47,510       | 383,578  |
| 2029                               | 40,015                          | 110,510                    | 168,732                  | 63,626           | 93,339            | 12                       | 4,045                     | 15,500                           | 47,533                                  | -100,764      | 347,481  |
| 2030                               | 40,042                          | 110,510                    | 154,921                  | 64,456           | 116,647           | 83                       | 5,575                     | 9,837                            | 73,354                                  | -36,749       | 391,970  |
| 2031                               | 40,070                          | 110,753                    | 143,481                  | 49,752           | 102,990           | 41                       | 4,927                     | 14,783                           | 57,074                                  | -39,539       | 370,184  |
| 2032                               | 40,099                          | 110,753                    | 133,404                  | 50,485           | 103,960           | 49                       | 4,695                     | 15,768                           | 59,113                                  | -42,242       | 357,858  |
| 2033                               | 40,128                          | 110,753                    | 124,956                  | 51,236           | 96,083            | 12                       | 4,091                     | 26,187                           | 49,437                                  | -43,328       | 360,681  |
| 2034                               | 40,158                          | 110,753                    | 116,855                  | 51,999           | 107,485           | 60                       | 4,997                     | 24,192                           | 59,141                                  | -45,110       | 352,248  |
| 2035                               | 40,188                          | 115,592                    | 114,265                  | 53,821           | 111,887           | 49                       | 5,110                     | 21,655                           | 62,379                                  | -45,118       | 355,070  |
| 2036                               | 40,219                          | 115,592                    | 105,531                  | 54,633           | 110,761           | 49                       | 4,784                     | 19,637                           | 61,489                                  | -25,580       | 364,137  |
| 2037                               | 40,250                          | 115,592                    | 96,991                   | 55,458           | 115,188           | 43                       | 5,068                     | 18,098                           | 62,812                                  | 6,794         | 390,671  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 632,242                    | 934,721                  | 432,471          | 1,063,009         | 1,722                    | 77,034                    | 368,940                          | 449,088                                 | (229,969)     | 3,211,511  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 298 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
NCR Portfolio Under NCR Scenario

|        | Resource (Capacity) Additions  |  |                               |        |                 |        |              |        |               |        |                    |                      | Energy & Capacity Positions        |                |  |                                     |                         |                |                  |                  |                  |                |                              | Carbon Output |      |           |
|--------|--|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|--------------------|----------------------|------------------------------------|----------------|--|-------------------------------------|-------------------------|----------------|------------------|------------------|------------------|----------------|------------------------------|---------------|------|-----------|
|        | (12)   | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)               | (23)                 | (24)                               | (25)           | (26)                                     | (27) = (24)+(25)+(26)               | (28)                    | (29)           | (30) = (29)-(28) | (31) = (30)-(27) | (32)             | (33)           | (34)=(33)-(32)               | (35)          | (36) |           |
|        | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) | (Current and Planned Interruptible Load and Demand Response) | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus | Capacity         | Peak + Reserves  | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |               |      |           |
| Ann MW | Cum MW   | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW             | GWh                  | GWh                                | GWh            | GWh                                      | GWh                                 | GWh                     | GWh            | GWh              | MW               | MW               | MW             | %                            | tons          |      |           |
| 2023   | 73   | 934  | 2                             | 9      | 5               | 5      | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 6,171          | 0  | 0                                   | 6,171                   | 5,643          | 21               | 5,622            | 549              | 1,020          | 1,014                        | 6             | 9.6  | 5,561,729 |
| 2024   | 78   | 934  | (3)                           | 5      | 6               | 11     | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 6,043          | 0  | 0                                   | 6,043                   | 6,118          | 51               | 6,067            | (24)             | 1,028          | 1,019                        | 9             | 9.9  | 5,266,459 |
| 2025   | 78   | 934  | 0                             | 5      | 7               | 18     | 0            | 0      | 0             | 0      | 0                  | 0                    | 0                                  | 4,368          | 0  | 0                                   | 4,368                   | 6,060          | 87               | 5,973            | (1,605)          | 1,036          | 1,002                        | 33            | 12.6 | 3,607,786 |
| 2026   | 60   | 934  | 0                             | 5      | 10              | 28     | 0            | 0      | 27            | 27     | 0                  | 0                    | 0                                  | 3,416          | 0  | 613                                 | 4,029                   | 5,948          | 141              | 5,807            | (1,779)          | 1,055          | 1,054                        | 1             | 9.0  | 2,739,741 |
| 2027   | 0  | 934  | 0                             | 5      | 7               | 36     | 0            | 0      | 27            | 54     | 61                 | 61                   | 0                                  | 2,841          | 0  | 1,523                               | 4,365                   | 5,918          | 178              | 5,740            | (1,376)          | 1,090          | 1,050                        | 40            | 13.1 | 2,063,800 |
| 2028   | 494  | 285  | 0                             | 5      | 6               | 42     | 0            | 0      | 23            | 77     | 81                 | 142                  | 0                                  | 1,151          | 0  | 2,633                               | 3,784                   | 5,911          | 209              | 5,702            | (1,919)          | 1,045          | 1,044                        | 1             | 9.0  | 843,911   |
| 2029   | 0  | 285  | 0                             | 5      | 5               | 46     | 100          | 100    | (6)           | 71     | -7                 | 135                  | 0                                  | 3,802          | 80                                       | 2,623                               | 6,505                   | 5,968          | 233              | 5,735            | 769              | 1,078          | 1,040                        | 38            | 12.9 | 2,282,491 |
| 2030   | 0  | 285  | 0                             | 5      | 4               | 50     | 0            | 100    | 0             | 71     | -5                 | 130                  | 0                                  | 4,569          | 81                                       | 2,636                               | 7,285                   | 5,947          | 252              | 5,695            | 1,591            | 1,077          | 1,037                        | 39            | 13.1 | 2,727,966 |
| 2031   | 0  | 285  | 0                             | 5      | (8)             | 42     | 0            | 100    | (2)           | 69     | -10                | 120                  | 0                                  | 3,960          | 81                                       | 2,639                               | 6,681                   | 5,929          | 207              | 5,723            | 958              | 1,058          | 1,035                        | 22            | 11.3 | 2,371,115 |
| 2032   | 0  | 285  | 0                             | 5      | (6)             | 36     | 0            | 100    | (4)           | 65     | -9                 | 111                  | 0                                  | 3,937          | 82                                       | 2,648                               | 6,668                   | 5,931          | 178              | 5,753            | 915              | 1,039          | 1,030                        | 9             | 9.8  | 2,357,608 |
| 2033   | 1  | 285  | 0                             | 5      | (6)             | 30     | 0            | 100    | 0             | 65     | -2                 | 109                  | 0                                  | 3,399          | 82                                       | 2,623                               | 6,104                   | 5,893          | 150              | 5,744            | 360              | 1,032          | 1,031                        | 0             | 9.0  | 2,041,863 |
| 2034   | 4  | 285  | 0                             | 5      | (6)             | 25     | 0            | 100    | 0             | 65     | -2                 | 107                  | 0                                  | 3,662          | 82                                       | 2,619                               | 6,363                   | 5,879          | 123              | 5,756            | 607              | 1,027          | 1,026                        | 1             | 9.0  | 2,202,487 |
| 2035   | 0  | 285  | 0                             | 5      | (5)             | 20     | 50           | 150    | 0             | 65     | 0                  | 107                  | 0                                  | 3,814          | 123                                      | 2,623                               | 6,559                   | 5,912          | 98               | 5,813            | 746              | 1,057          | 1,025                        | 33            | 12.4 | 2,282,504 |
| 2036   | 0  | 285  | 0                             | 5      | (5)             | 15     | 0            | 150    | 0             | 65     | 0                  | 107                  | 0                                  | 3,818          | 122                                      | 2,648                               | 6,589                   | 5,915          | 76               | 5,839            | 750              | 1,053          | 1,021                        | 32            | 12.4 | 2,288,623 |
| 2037   | 0  | 285  | 0                             | 5      | (4)             | 11     | 0            | 150    | 0             | 65     | -1                 | 106                  | 0                                  | 3,892          | 120                                      | 2,640                               | 6,651                   | 5,878          | 56               | 5,822            | 830              | 1,044          | 1,022                        | 23            | 11.3 | 2,336,246 |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 299 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**CC Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,960           | 494                      | 15,192                    | 33,926                           | 77,475                                  | 12,112        | 261,540  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 171,979           | 474                      | 15,916                    | 37,342                           | 47,303                                  | 11,299        | 288,841  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 117,868           | 325                      | 12,086                    | 71,165                           | 22,323                                  | 10,679        | 289,077  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 35,043           | 86,530            | 247                      | 10,709                    | 77,333                           | 15,497                                  | 3,491         | 291,963  |
| 2027                               | 39,856                          | 44,227                     | 93,824                   | 45,934           | 70,987            | 183                      | 7,204                     | 55,042                           | 15,233                                  | -19,496       | 322,527  |
| 2028                               | 39,988                          | 95,807                     | 158,008                  | 57,720           | 31,411            | 40                       | 3,163                     | 82,277                           | 18,873                                  | -51,268       | 398,273  |
| 2029                               | 40,015                          | 131,624                    | 203,425                  | 66,312           | 71,348            | 11                       | 11,201                    | 11,009                           | 58,148                                  | -39,074       | 437,723  |
| 2030                               | 40,042                          | 139,525                    | 198,511                  | 70,031           | 94,599            | 83                       | 12,607                    | 2,969                            | 92,448                                  | -50,911       | 415,006  |
| 2031                               | 40,070                          | 147,874                    | 195,001                  | 69,820           | 82,163            | 40                       | 11,912                    | 4,410                            | 87,031                                  | -62,380       | 401,879  |
| 2032                               | 40,099                          | 147,874                    | 180,658                  | 70,729           | 83,265            | 49                       | 11,979                    | 3,964                            | 88,580                                  | -66,156       | 383,880  |
| 2033                               | 40,128                          | 147,874                    | 169,294                  | 71,611           | 77,673            | 11                       | 11,448                    | 9,483                            | 80,077                                  | -67,591       | 379,853  |
| 2034                               | 40,158                          | 147,874                    | 158,537                  | 72,614           | 91,414            | 59                       | 12,281                    | 4,960                            | 92,574                                  | -69,911       | 365,413  |
| 2035                               | 40,188                          | 152,713                    | 153,656                  | 74,678           | 93,590            | 49                       | 12,718                    | 3,968                            | 96,368                                  | -70,440       | 364,752  |
| 2036                               | 40,219                          | 152,713                    | 143,006                  | 75,754           | 89,324            | 49                       | 12,731                    | 3,777                            | 94,951                                  | -62,870       | 359,751  |
| 2037                               | 40,250                          | 152,713                    | 132,553                  | 76,767           | 90,481            | 43                       | 12,974                    | 4,819                            | 96,662                                  | -23,233       | 390,705  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 792,329                    | 1,135,766                | 495,665          | 966,458           | 1,720                    | 111,613                   | 309,981                          | 575,578                                 | (284,611)     | 3,333,773  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 300 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 CC Portfolio Under NCR Scenario

|      | Resource (Capacity) Additions  |        |  |        |                               |        |                 |        |              |        |               |        | Energy & Capacity Positions |                      |                                    |                       |  |                                     |                         |                  |          |                 | Carbon Output    |                |                              |
|------|--|--------|--|--------|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------------|----------------------|------------------------------------|-----------------------|--|-------------------------------------|-------------------------|------------------|----------|-----------------|------------------|----------------|------------------------------|
|      | (12)   | (13)   | (14)   | (15)   | (16)                          | (17)   | (18)            | (19)   | (20)         | (21)   | (22)          | (23)   | (24)                        | (25)                 | (26)                               | (27) = (24)+(25)+(26) | (28)                                     | (29)                                | (30) = (29)-(28)        | (31) = (30)-(27) | (32)     | (33)            | (34)=(33)-(32)   | (35)           | (36)                         |
|      | (Current and Planned Supply-Side + Purchased Unforced Capacity (UCAP)) |        | (Current and Planned) Interruptible Load and Demand Response |        | (Increment) Energy Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal Generation          | (New) Battery Energy | (New) Generic Wind + Utility Solar | = Market Sales        | Load (Net of Embedded EE + Battery Load) | Less: (Increment) Energy Efficiency | = Net Load Requirements | Energy Surplus   | Capacity | Peak + Reserves | Capacity Surplus | Reserve Margin | Existing Units CO2 Emissions |
|      | Ann MW   | Cum MW | Ann MW   | Cum MW | Ann MW                        | Cum MW | Ann MW          | Cum MW | Ann MW       | Cum MW | Ann MW        | Cum MW | GWh                         | GWh                  | GWh                                | GWh                   | GWh                                      | GWh                                 | GWh                     | GWh              | MW       | MW              | MW               | %              | tons                         |
| 2023 | 73   | 934    | 2  | 9      | 3                             | 3      | 0               | 0      | 0            | 0      | 0             | 6,171  | 0                           | 0                    | 6,171                              | 5,643                 | 19                                       | 5,624                               | 547                     | 1,019            | 1,014    | 5               | 9.5              | 5,561,729      |                              |
| 2024 | 81   | 934    | (3)  | 5      | 5                             | 8      | 0               | 0      | 0            | 0      | 0             | 6,043  | 0                           | 0                    | 6,043                              | 6,118                 | 46                                       | 6,072                               | (29)                    | 1,029            | 1,019    | 9               | 9.9              | 5,266,459      |                              |
| 2025 | 78   | 934    | 0  | 5      | 6                             | 14     | 0               | 0      | 0            | 0      | 0             | 4,368  | 0                           | 0                    | 4,368                              | 6,060                 | 79                                       | 5,980                               | (1,612)                 | 1,032            | 1,002    | 29              | 12.1             | 3,607,786      |                              |
| 2026 | 67   | 934    | 0  | 5      | 10                            | 24     | 0               | 0      | 14           | 14     | 0             | 3,416  | 0                           | 307                  | 3,722                              | 5,948                 | 131                                      | 5,817                               | (2,095)                 | 1,044            | 1,054    | -10             | 7.9              | 2,739,741      |                              |
| 2027 | 0  | 934    | 0  | 5      | 8                             | 32     | 0               | 0      | 27           | 41     | 96            | 2,841  | 0                           | 1,418                | 4,259                              | 5,918                 | 167                                      | 5,750                               | (1,492)                 | 1,107            | 1,050    | 58              | 14.9             | 2,063,800      |                              |
| 2028 | 313  | 285    | 0  | 5      | 6                             | 38     | 0               | 0      | 23           | 64     | 148           | 1,151  | 0                           | 2,930                | 4,081                              | 5,911                 | 198                                      | 5,713                               | (1,631)                 | 949              | 1,044    | -95             | -0.9             | 843,911        |                              |
| 2029 | 0  | 285    | 0  | 5      | 5                             | 43     | 0               | 0      | (5)          | 59     | 22            | 3,923  | 0                           | 3,119                | 7,042                              | 5,872                 | 222                                      | 5,650                               | 1,392                   | 1,055            | 1,040    | 15              | 10.5             | 1,701,843      |                              |
| 2030 | 0  | 285    | 0  | 5      | 4                             | 47     | 0               | 0      | 12           | 71     | -5            | 4,705  | 0                           | 3,436                | 8,140                              | 5,850                 | 241                                      | 5,608                               | 2,532                   | 1,066            | 1,037    | 28              | 11.9             | 2,168,201      |                              |
| 2031 | 0  | 285    | 0  | 5      | 0                             | 47     | 0               | 0      | 10           | 81     | -16           | 4,155  | 0                           | 3,746                | 7,901                              | 5,832                 | 244                                      | 5,588                               | 2,314                   | 1,060            | 1,035    | 25              | 11.6             | 1,850,505      |                              |
| 2032 | 0  | 285    | 0  | 5      | 1                             | 48     | 0               | 0      | (5)          | 76     | -14           | 4,135  | 0                           | 3,759                | 7,894                              | 5,832                 | 254                                      | 5,579                               | 2,315                   | 1,042            | 1,030    | 12              | 10.2             | 1,847,716      |                              |
| 2033 | 0  | 285    | 0  | 5      | 0                             | 48     | 0               | 0      | 0            | 76     | -5            | 3,722  | 0                           | 3,727                | 7,449                              | 5,795                 | 259                                      | 5,536                               | 1,913                   | 1,037            | 1,031    | 6               | 9.6              | 1,618,431      |                              |
| 2034 | 0  | 285    | 0  | 5      | (0)                           | 48     | 0               | 0      | 0            | 76     | -5            | 4,082  | 0                           | 3,722                | 7,804                              | 5,780                 | 263                                      | 5,517                               | 2,287                   | 1,032            | 1,026    | 6               | 9.6              | 1,842,313      |                              |
| 2035 | 0  | 285    | 0  | 5      | (0)                           | 48     | 50              | 0      | 0            | 76     | 0             | 4,160  | 41                          | 3,727                | 7,928                              | 5,814                 | 266                                      | 5,548                               | 2,380                   | 1,071            | 1,025    | 46              | 13.9             | 1,873,912      |                              |
| 2036 | 0  | 285    | 0  | 5      | (1)                           | 47     | 0               | 50     | 0            | 76     | 0             | 4,058  | 41                          | 3,759                | 7,858                              | 5,817                 | 267                                      | 5,550                               | 2,308                   | 1,071            | 1,021    | 50              | 14.3             | 1,811,222      |                              |
| 2037 | 0  | 285    | 0  | 5      | (1)                           | 46     | 0               | 50     | 0            | 76     | -2            | 4,034  | 40                          | 3,746                | 7,821                              | 5,782                 | 265                                      | 5,517                               | 2,304                   | 1,067            | 1,022    | 45              | 13.7             | 1,800,578      |                              |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 301 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**No Wind Portfolio Under NCR Scenario**

| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 13,974           | 181,960           | 494                      | 15,192                    | 34,252                           | 76,707                                  | 12,112        | 259,049  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 16,905           | 171,979           | 474                      | 15,916                    | 38,357                           | 45,955                                  | 11,299        | 285,354  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 16,564           | 117,868           | 325                      | 12,086                    | 73,095                           | 20,973                                  | 10,679        | 284,473  |
| 2026                               | 39,553                          | 7,469                      | 44,788                   | 25,451           | 86,530            | 247                      | 10,709                    | 82,001                           | 13,228                                  | 6,884         | 290,404  |
| 2027                               | 39,856                          | 25,820                     | 67,742                   | 30,210           | 70,987            | 183                      | 7,204                     | 76,165                           | 9,231                                   | -2,741        | 306,195  |
| 2028                               | 39,988                          | 87,901                     | 149,971                  | 45,464           | 31,411            | 40                       | 3,163                     | 111,143                          | 15,131                                  | -79,140       | 374,809  |
| 2029                               | 40,015                          | 120,441                    | 182,870                  | 51,651           | 59,161            | 11                       | 2,812                     | 64,809                           | 34,108                                  | -57,620       | 430,042  |
| 2030                               | 40,042                          | 123,864                    | 170,950                  | 52,432           | 82,023            | 82                       | 4,282                     | 46,355                           | 48,497                                  | -29,669       | 441,864  |
| 2031                               | 40,070                          | 127,622                    | 161,979                  | 57,534           | 68,511            | 40                       | 3,550                     | 57,999                           | 43,611                                  | -34,845       | 438,849  |
| 2032                               | 40,099                          | 131,227                    | 154,035                  | 58,985           | 69,455            | 49                       | 3,441                     | 55,456                           | 44,939                                  | -25,948       | 441,859  |
| 2033                               | 40,128                          | 131,227                    | 143,385                  | 59,693           | 61,274            | 11                       | 2,864                     | 67,495                           | 39,624                                  | -28,085       | 438,369  |
| 2034                               | 40,158                          | 131,227                    | 134,000                  | 60,519           | 73,152            | 59                       | 3,673                     | 60,180                           | 46,618                                  | -30,309       | 426,041  |
| 2035                               | 40,188                          | 135,124                    | 130,446                  | 62,110           | 76,288            | 49                       | 3,822                     | 56,553                           | 49,762                                  | -34,675       | 420,141  |
| 2036                               | 40,219                          | 135,124                    | 120,846                  | 63,003           | 73,650            | 49                       | 3,544                     | 57,824                           | 49,442                                  | -29,951       | 414,864  |
| 2037                               | 40,250                          | 143,360                    | 123,341                  | 65,361           | 76,139            | 42                       | 3,716                     | 55,507                           | 53,450                                  | -13,098       | 441,168  |
| Cumulative Present Worth 2023-2037 | 380,430                         | 698,340                    | 996,152                  | 390,739          | 897,286           | 1,719                    | 70,982                    | 598,684                          | 369,714                                 | (175,557)     | 3,489,061  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 302 of 1182

Kentucky POWER COMPANY  
2022 INTEGRATED RESOURCE PLAN  
No Wind Portfolio Under NCR Scenario

|        | Resource (Capacity) Additions   |  |                                  |        |                 |        |              |        |               |        |                       | Energy & Capacity Positions |  |                |  |  |                            |                |                  |                    |                     | Carbon Output     |                                 |       |      |           |           |
|--------|---|--|----------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|-----------------------------|--|----------------|--|--|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|-------|------|-----------|-----------|
|        | (12)  | (13)   | (14)                             | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                        | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                        | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35)  | (36) |           |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Increment) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy  | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Increment)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |       |      |           |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                           | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | Ann MW                      | Cum MW   | GWh            | GWh  | GWh  | GWh                        | GWh            | GWh              | GWh                | MW                  | MW                | MW                              | %     | tons |           |           |
| 2023   | 73  | 934  | 2                                | 9      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 6,171          | 0  | 0  | 6,171                      | 5,643          | 1                | 5,642              | 529                 | 1,016             | 1,014                           | 2     | 9.1  | 5,561,729 |           |
| 2024   | 78  | 934  | (3)                              | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 6,043          | 0  | 0  | 6,043                      | 6,118          | 1                | 6,117              | (74)                | 1,017             | 1,019                           | -2    | 8.7  | 5,266,459 |           |
| 2025   | 78  | 934  | 0                                | 5      | 0               | 0      | 0            | 0      | 0             | 0      | 0                     | 0                           | 0  | 4,368          | 0  | 0  | 4,368                      | 6,060          | 1                | 6,058              | (1,690)             | 1,018             | 1,002                           | 15    | 10.6 | 3,607,786 |           |
| 2026   | 78  | 934  | 0                                | 5      | 6               | 6      | 0            | 0      | 0             | 0      | 0                     | 0                           | 44   | 3,416          | 0  | 200  | 3,616                      | 5,948          | 45               | 5,903              | (2,288)             | 1,068             | 1,054                           | 14    | 10.4 | 2,739,741 |           |
| 2027   | 0   | 934  | 0                                | 5      | 5               | 11     | 0            | 0      | 0             | 0      | 0                     | 0                           | 86   | 2,841          | 0  | 700  | 3,541                      | 5,918          | 76               | 5,842              | (2,300)             | 1,080             | 1,050                           | 30    | 12.1 | 2,063,800 |           |
| 2028   | 407   | 285  | 0                                | 5      | 4               | 15     | 0            | 0      | 0             | 0      | 0                     | 0                           | 224  | 1,151          | 0  | 1,606  | 2,757                      | 5,911          | 104              | 5,807              | (3,050)             | 1,126             | 1,044                           | 82    | 17.5 | 843,911   |           |
| 2029   | 0   | 285  | 0                                | 5      | 3               | 18     | 50           | 50     | 0             | 0      | 0                     | 0                           | 67   | 2,348          | 40   | 2,100  | 4,488                      | 5,920          | 127              | 5,793              | (1,305)             | 1,057             | 1,040                           | 16    | 10.6 | 1,396,091 |           |
| 2030   | 0   | 285  | 0                                | 5      | 3               | 21     | 0            | 50     | 0             | 0      | 0                     | 0                           | 11   | 3,148          | 41   | 2,200  | 5,389                      | 5,898          | 147              | 5,752              | (362)               | 1,071             | 1,037                           | 33    | 12.4 | 1,862,004 |           |
| 2031   | 0   | 285  | 0                                | 5      | 4               | 25     | 0            | 50     | 0             | 0      | 0                     | 0                           | -8   | 2,576          | 41   | 2,300  | 4,917                      | 5,880          | 164              | 5,716              | (799)               | 1,066             | 1,035                           | 31    | 12.2 | 1,526,991 |           |
| 2032   | 0   | 285  | 0                                | 5      | 4               | 29     | 0            | 50     | 0             | 0      | 0                     | 0                           | -6   | 2,574          | 41   | 2,410  | 5,025                      | 5,882          | 188              | 5,694              | (669)               | 1,064             | 1,030                           | 34    | 12.5 | 1,525,878 |           |
| 2033   | 0   | 285  | 0                                | 5      | 4               | 33     | 0            | 50     | 0             | 0      | 0                     | 0                           | -10  | 2,123          | 41   | 2,400  | 4,564                      | 5,844          | 207              | 5,637              | (1,074)             | 1,057             | 1,031                           | 26    | 11.7 | 1,262,246 |           |
| 2034   | 0   | 285  | 0                                | 5      | 3               | 36     | 0            | 50     | 0             | 0      | 0                     | 0                           | -10  | 2,443          | 41   | 2,400  | 4,885                      | 5,829          | 222              | 5,607              | (723)               | 1,050             | 1,026                           | 25    | 11.5 | 1,457,820 |           |
| 2035   | 0   | 285  | 0                                | 5      | 2               | 38     | 0            | 50     | 0             | 0      | 0                     | 0                           | 14   | 411            | 2,549  | 41   | 2,500                      | 5,080          | 5,814            | 235                | 5,579               | (489)             | 1,067                           | 1,025 | 42   | 13.4      | 1,510,276 |
| 2036   | 0   | 285  | 0                                | 5      | 2               | 40     | 0            | 50     | 0             | 0      | 0                     | 0                           | 0  | 411            | 2,494  | 41   | 2,510                      | 5,045          | 5,817            | 245                | 5,572               | (528)             | 1,069                           | 1,021 | 48   | 14.1      | 1,479,539 |
| 2037   | 0   | 285  | 0                                | 5      | 1               | 41     | 0            | 50     | 0             | 0      | 0                     | 0                           | 25   | 2,521          | 40   | 2,700  | 5,261                      | 5,782          | 250              | 5,532              | (271)               | 1,091             | 1,022                           | 70    | 16.4 | 1,498,936 |           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 303 of 1182

**KENTUCKY POWER COMPANY**  
**2023 INTEGRATED RESOURCE PLAN**  
**Preferred Plan Under NCR Scenario**

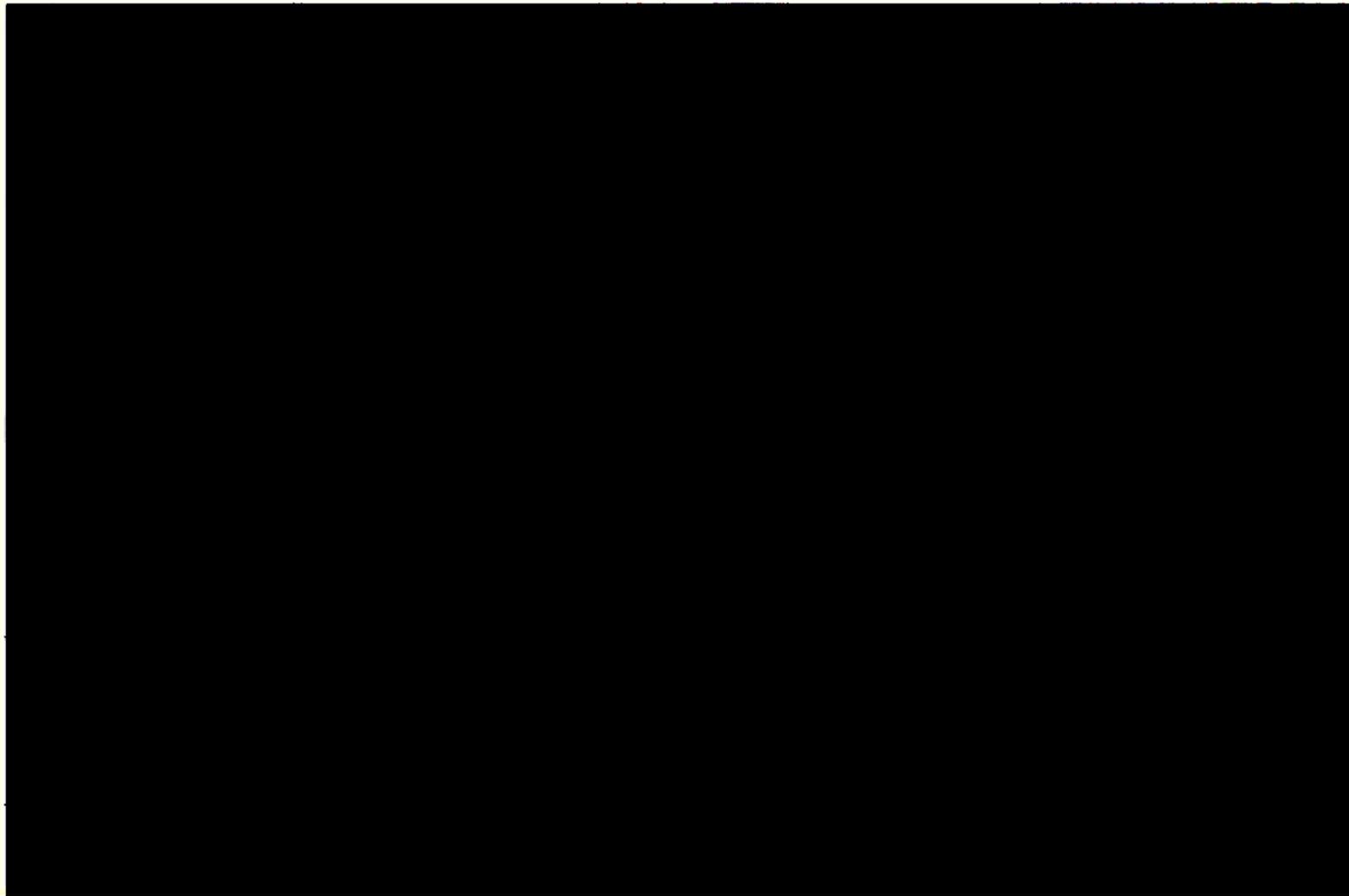
| Utility Costs (Nominal\$000)       |                                 |                            |                          |                  |                   |                          |                           |                                  |   |               |  |
|------------------------------------|---------------------------------|----------------------------|--------------------------|------------------|-------------------|--------------------------|---------------------------|----------------------------------|---|---------------|--|
|                                    | (1)<br>Existing<br>Depreciation | (2)<br>New<br>Depreciation | (3)<br>Capital<br>Charge | (4)<br>Fixed O&M | (5)<br>Fuel Costs | (6)<br>Emission<br>Costs | (7)<br>Other<br>VOM Costs | (8)<br>Market Purchases<br>Costs | (9)<br>Less:<br>Market Sales<br>Revenue | (10)<br>Taxes | (11)=(1)thru(8)-(9)+(10)<br>GRAND TOTAL,<br>Net Utility<br>Costs |
|                                    | \$000                           | \$000                      | \$000                    | \$000            | \$000             | \$000                    | \$000                     | \$000                            | \$000                                   | \$000         | \$000  |
| 2023                               | 38,400                          | 0                          | 39,371                   | 17,559           | 181,960           | 494                      | 15,192                    | 33,926                           | 77,475                                  | 12,112        | 261,540  |
| 2024                               | 38,764                          | 0                          | 37,615                   | 22,756           | 171,979           | 474                      | 15,916                    | 37,342                           | 47,303                                  | 11,299        | 288,841  |
| 2025                               | 39,081                          | 0                          | 35,747                   | 24,449           | 117,868           | 325                      | 12,086                    | 71,165                           | 22,323                                  | 10,679        | 289,077  |
| 2026                               | 39,553                          | 8,416                      | 46,138                   | 35,043           | 86,530            | 247                      | 10,709                    | 77,333                           | 15,497                                  | 3,491         | 291,963  |
| 2027                               | 39,856                          | 44,227                     | 93,824                   | 45,934           | 70,987            | 183                      | 7,204                     | 55,042                           | 15,233                                  | -19,496       | 322,527  |
| 2028                               | 40,133                          | 95,807                     | 158,269                  | 57,720           | 31,411            | 40                       | 3,163                     | 82,277                           | 18,873                                  | -51,188       | 398,758  |
| 2029                               | 40,160                          | 122,683                    | 187,624                  | 63,164           | 93,339            | 12                       | 4,045                     | 13,970                           | 60,856                                  | -45,052       | 419,087  |
| 2030                               | 40,187                          | 130,585                    | 183,412                  | 66,826           | 116,647           | 83                       | 5,575                     | 7,235                            | 95,956                                  | -56,738       | 397,856  |
| 2031                               | 40,215                          | 138,933                    | 180,583                  | 66,556           | 102,990           | 41                       | 4,927                     | 8,645                            | 88,687                                  | -68,061       | 386,143  |
| 2032                               | 40,244                          | 138,933                    | 166,901                  | 67,405           | 103,960           | 49                       | 4,695                     | 9,286                            | 91,337                                  | -71,696       | 368,440  |
| 2033                               | 40,273                          | 138,933                    | 156,179                  | 68,225           | 96,083            | 12                       | 4,091                     | 16,081                           | 79,815                                  | -72,994       | 367,069  |
| 2034                               | 40,303                          | 138,933                    | 146,047                  | 69,164           | 107,485           | 60                       | 4,997                     | 14,707                           | 91,982                                  | -75,180       | 354,534  |
| 2035                               | 40,333                          | 143,772                    | 141,774                  | 71,162           | 111,887           | 49                       | 5,110                     | 11,731                           | 96,273                                  | -75,579       | 353,968  |
| 2036                               | 40,364                          | 143,772                    | 131,717                  | 72,171           | 110,761           | 49                       | 4,784                     | 10,093                           | 97,283                                  | -67,882       | 348,547  |
| 2037                               | 40,395                          | 143,772                    | 121,855                  | 73,115           | 115,188           | 43                       | 5,068                     | 8,710                            | 99,883                                  | -28,118       | 380,146  |
| Cumulative Present Worth 2023-2037 | 381,214                         | 750,264                    | 1,072,782                | 479,824          | 1,063,009         | 1,722                    | 77,034                    | 335,961                          | 583,850                                 | (310,287)     | 3,267,675  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 304 of 1182

Kentucky POWER COMPANY  
 2022 INTEGRATED RESOURCE PLAN  
 Preferred Plan Under NCR Scenario

|        | Resource (Capacity) Additions   |  |                               |        |                 |        |              |        |               |        |                       |                            | Energy & Capacity Positions                    |                |  |   |                            |                |                  |                    |                     |                   | Carbon Output                   |      |      |           |
|--------|---|--|-------------------------------|--------|-----------------|--------|--------------|--------|---------------|--------|-----------------------|----------------------------|--|----------------|--|---|----------------------------|----------------|------------------|--------------------|---------------------|-------------------|---------------------------------|------|------|-----------|
|        | (12)  | (13)   | (14)                          | (15)   | (16)            | (17)   | (18)         | (19)   | (20)          | (21)   | (22)                  | (23)                       | (24)   | (25)           | (26)   | (27) = (24)+(25)+(26)                     | (28)                       | (29)           | (30) = (29)-(28) | (31) = (30)-(27)   | (32)                | (33)              | (34)=(33)-(32)                  | (35) | (36) |           |
|        | (Current and Planned)<br>Supply-Side +<br>Purchased Unforced<br>Capacity (UCAP) | (Current and Planned)<br>Interruptible Load and<br>Demand Response | (Incram) Energy<br>Efficiency |        | Utility Storage |        | Generic Wind |        | Utility Solar |        | Thermal<br>Generation | (New)<br>Battery<br>Energy | (New)<br>Generic<br>Wind +<br>Utility<br>Solar | = Market Sales | Load (Net<br>of<br>Embedded<br>EE + Battery<br>Load) | Less:<br>(Incram)<br>Energy<br>Efficiency | = Net Load<br>Requirements | Energy Surplus | Capacity         | Peak +<br>Reserves | Capacity<br>Surplus | Reserve<br>Margin | Existing Units<br>CO2 Emissions |      |      |           |
| Ann MW | Cum MW  | Ann MW   | Cum MW                        | Ann MW | Cum MW          | Ann MW | Cum MW       | Ann MW | Cum MW        | Ann MW | Cum MW                | GWh                        | GWh  | GWh            | GWh  | GWh                                       | GWh                        | GWh            | GWh              | MW                 | MW                  | MW                | %                               | tons |      |           |
| 2023   | 73  | 934  | 2                             | 9      | 3               | 3      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,171          | 0  | 0   | 6,171                      | 5,643          | 19               | 5,624              | 547                 | 1,019             | 1,014                           | 5    | 9.5  | 5,561,729 |
| 2024   | 81  | 934  | (3)                           | 5      | 5               | 8      | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 6,043          | 0  | 0   | 6,043                      | 6,118          | 46               | 6,072              | (29)                | 1,029             | 1,019                           | 9    | 9.9  | 5,266,459 |
| 2025   | 78  | 934  | 0                             | 5      | 6               | 14     | 0            | 0      | 0             | 0      | 0                     | 0                          | 0  | 4,368          | 0  | 0   | 4,368                      | 6,060          | 79               | 5,980              | (1,612)             | 1,032             | 1,002                           | 29   | 12.1 | 3,607,786 |
| 2026   | 76  | 934  | 0                             | 5      | 10              | 24     | 0            | 0      | 14            | 14     | 0                     | 0                          | 0  | 3,416          | 0  | 307                                       | 3,722                      | 5,948          | 131              | 5,817              | (2,095)             | 1,053             | 1,054                           | -1   | 8.8  | 2,739,741 |
| 2027   | 0   | 934  | 0                             | 5      | 8               | 32     | 0            | 0      | 27            | 41     | 96                    | 96                         | 0  | 2,841          | 0  | 1,418                                     | 4,259                      | 5,918          | 167              | 5,750              | (1,492)             | 1,107             | 1,050                           | 58   | 14.9 | 2,063,800 |
| 2028   | 448   | 285  | 0                             | 5      | 6               | 38     | 0            | 0      | 23            | 64     | 148                   | 244                        | 0  | 1,151          | 0  | 2,930                                     | 4,081                      | 5,911          | 198              | 5,713              | (1,631)             | 1,084             | 1,044                           | 40   | 13.1 | 843,911   |
| 2029   | 0   | 285  | 0                             | 5      | 5               | 43     | 0            | 0      | (5)           | 59     | 22                    | 265                        | 0  | 3,802          | 0  | 3,119                                     | 6,921                      | 5,872          | 222              | 5,650              | 1,271               | 1,114             | 1,040                           | 74   | 16.6 | 2,282,491 |
| 2030   | 0   | 285  | 0                             | 5      | 4               | 47     | 0            | 0      | 12            | 71     | -5                    | 260                        | 0  | 4,569          | 0  | 3,436                                     | 8,004                      | 5,850          | 241              | 5,608              | 2,396               | 1,125             | 1,037                           | 87   | 18.1 | 2,727,966 |
| 2031   | 0   | 285  | 0                             | 5      | 0               | 47     | 0            | 0      | 10            | 81     | -16                   | 245                        | 0  | 3,960          | 0  | 3,746                                     | 7,706                      | 5,832          | 244              | 5,588              | 2,119               | 1,119             | 1,035                           | 84   | 17.8 | 2,371,115 |
| 2032   | 0   | 285  | 0                             | 5      | 1               | 48     | 0            | 0      | (5)           | 76     | -14                   | 231                        | 0  | 3,937          | 0  | 3,759                                     | 7,696                      | 5,832          | 254              | 5,579              | 2,117               | 1,101             | 1,030                           | 71   | 16.4 | 2,357,608 |
| 2033   | 0   | 285  | 0                             | 5      | 0               | 48     | 0            | 0      | 0             | 76     | -5                    | 225                        | 0  | 3,399          | 0  | 3,727                                     | 7,126                      | 5,795          | 259              | 5,536              | 1,590               | 1,096             | 1,031                           | 65   | 15.8 | 2,041,863 |
| 2034   | 0   | 285  | 0                             | 5      | (0)             | 48     | 0            | 0      | 0             | 76     | -5                    | 220                        | 0  | 3,662          | 0  | 3,722                                     | 7,384                      | 5,780          | 263              | 5,517              | 1,867               | 1,091             | 1,026                           | 65   | 15.8 | 2,202,487 |
| 2035   | 0   | 285  | 0                             | 5      | (0)             | 48     | 50           | 0      | 0             | 76     | 0                     | 220                        | 0  | 3,814          | 41   | 3,727                                     | 7,582                      | 5,814          | 266              | 5,548              | 2,034               | 1,130             | 1,025                           | 105  | 20.1 | 2,282,504 |
| 2036   | 0   | 285  | 0                             | 5      | (1)             | 47     | 0            | 50     | 0             | 76     | 0                     | 220                        | 0  | 3,818          | 41   | 3,759                                     | 7,618                      | 5,817          | 267              | 5,550              | 2,068               | 1,130             | 1,021                           | 109  | 20.6 | 2,288,623 |
| 2037   | 0   | 285  | 0                             | 5      | (1)             | 46     | 0            | 50     | 0             | 76     | -2                    | 218                        | 0  | 3,892          | 40   | 3,746                                     | 7,678                      | 5,782          | 265              | 5,517              | 2,161               | 1,126             | 1,022                           | 104  | 20.0 | 2,336,246 |

**Exhibit F** – Transmission Maps



|  |   |  |       |        |        |       |        |        |        |        |        |      |  |
|--|---|--|-------|--------|--------|-------|--------|--------|--------|--------|--------|------|--|
|  | <p>  Station<br/>  Service Territory         </p> | <p><b>Legend</b>      AEP Transmission Lines</p> <table border="0"> <tr> <td> 69 kV</td> <td> 138 kV</td> <td> 345 kV</td> </tr> <tr> <td> 88 kV</td> <td> 161 kV</td> <td> 500 kV</td> </tr> <tr> <td> 115 kV</td> <td> 230 kV</td> <td> 765 kV</td> </tr> </table> | 69 kV | 138 kV | 345 kV | 88 kV | 161 kV | 500 kV | 115 kV | 230 kV | 765 kV | <br> | <p><b>Kentucky AEP Transmission Lines</b></p> <p>Transmission Line Engineering Group</p> <p> <small>Source: American Electric Power, ESRI      Drawn By: Matthew Lowe<br/>       Projection: VA state plane South NAD83 Feet      Date: 11/01/2022<br/>       Comments:      Approved By:</small> </p> |
| 69 kV  | 138 kV  | 345 kV   |       |        |        |       |        |        |        |        |        |      |  |
| 88 kV  | 161 kV  | 500 kV   |       |        |        |       |        |        |        |        |        |      |  |
| 115 kV   | 230 kV  | 765 kV   |       |        |        |       |        |        |        |        |        |      |  |
| <p><small>This drawing from the Transmission Line Projects Engineering Group of American Electric Power is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please contact the sender and destroy all copies of the original document.</small></p> |   |  |       |        |        |       |        |        |        |        |        |      |  |



|  |   |   |         |  |          |         |          |          |          |          |          |  |  |
|--|---|---|---------|--|----------|---------|----------|----------|----------|----------|----------|--|--|
|  | <ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Station</li> <li><span style="background-color: lightblue; border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Service Territory</li> </ul> | <p><b>Legend</b>      AEP Transmission Lines</p> <table border="0"> <tr> <td style="color: green;">— 69 kV</td> <td style="color: red;">— 138 kV</td> <td style="color: blue;">— 345 kV</td> </tr> <tr> <td style="color: cyan;">— 88 kV</td> <td style="color: orange;">— 161 kV</td> <td style="color: magenta;">— 500 kV</td> </tr> <tr> <td style="color: brown;">— 115 kV</td> <td style="color: pink;">— 230 kV</td> <td style="color: green;">— 765 kV</td> </tr> </table> | — 69 kV | — 138 kV   | — 345 kV | — 88 kV | — 161 kV | — 500 kV | — 115 kV | — 230 kV | — 765 kV |  | <p><b>AEP East Transmission System</b></p> |
| — 69 kV  | — 138 kV  | — 345 kV  |         |  |          |         |          |          |          |          |          |  |  |
| — 88 kV  | — 161 kV  | — 500 kV  |         |  |          |         |          |          |          |          |          |  |  |
| — 115 kV   | — 230 kV  | — 765 kV  |         |  |          |         |          |          |          |          |          |  |  |
|  |   |   |         | <p>Transmission Line Engineering Group</p>   |          |         |          |          |          |          |          |  |  |
|  |   |   |         | <p>Source: American Electric Power, ESRI      Drawn By: Matthew Lowe<br/>       Projection: VA state plane South NAD83 Feet      Date: 11/01/2022<br/>       Comments:      Approved By:</p> |          |         |          |          |          |          |          |  |  |
| <p><small>This drawing from the Transmission Line Projects Engineering Group of American Electric Power is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please contact the sender and destroy all copies of the original document.</small></p> |   |   |         |  |          |         |          |          |          |          |          |  |  |

**Exhibit G** – Supplemental Data and Details

**EXHIBIT G-1**

| <b>KENTUCKY POWER COMPANY<br/>DETAILS OF EXISTING AND PLANNED FACILITIES<br/>(2023-2037)</b> |                 |               |                           |             |                            |                    |   |                 |                  |                   |
|--|-----------------|---------------|---------------------------|-------------|----------------------------|--------------------|---|-----------------|------------------|-------------------|
| <b>Plant Name / Unit Number</b>  | <b>Location</b> | <b>Status</b> | <b>COD <sup>(A)</sup></b> | <b>Type</b> | <b>ICAP <sup>(C)</sup></b> | <b>Entitlement</b> | <b>Fuel Storage<br/>Capacity <sup>(D)</sup></b> | <b>Upgrades</b> | <b>Deratings</b> | <b>Retirement</b> |
| Mitchell 1   | Moundsville, WV | Existing      | 1971                      | Coal        | 385                        | 50%                | 500,000 tons                                    | --              | --               | --                |
| Mitchell 2   | Moundsville, WV | Existing      | 1971                      | Coal        | 395                        | 50%                | 500,000 tons                                    | --              | --               | --                |
| Big Sandy 1 - Gas  | Louisa, KY      | Existing      | 1963 <sup>(B)</sup>       | Natural Gas | 295                        | 100%               | N/A   | --              | --               | --                |

<sup>(A)</sup> COD = Commercial Operation Date

<sup>(B)</sup> Big Sandy Unit 1 entered commercial operation in 1963 as coal-fired steam unit. This unit was converted to fire on natural gas in 2016

<sup>(C)</sup> ICAP = PJM Installed Capacity. These values represent the Company's share of each units total ICAP

<sup>(D)</sup> Fuel storage capacities listed here represent each unit's share of the total capacity of the site, and not just the Company's share







**EXHIBIT G-5**

| KENTUCKY POWER COMPANY<br>STEAM GENERATING CAPACITY                     |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Projected Average Fuel Costs (c/MMBtu) - Nominal Dollars<br>(2023-2037) |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Plant Name / Unit Number  | 2023       | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| Mitchell 1  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mitchell 2  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Big Sandy 1 - Gas   | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

| KENTUCKY POWER COMPANY<br>STEAM GENERATING CAPACITY                       |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Projected Average Fuel Costs (c/MMBtu) - 2023 Real Dollars<br>(2023-2037) |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Plant Name / Unit Number  | 2023       | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| Mitchell 1  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mitchell 2  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Big Sandy 1 - Gas   | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 314 of 1182

EXHIBIT G-6

| KENTUCKY POWER COMPANY   |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
|--|------|------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| Projected Capital Costs per kW of Rated Capacity (\$/kW) - Nominal Dollars |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
| (2023-2037)  |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
| Unit   | 2023 | 2024 | 2025 | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032 | 2033 | 2034 | 2035  | 2036 | 2037 |
| Gas CT 240 MW  |      |      |      |       |       |       | 1,208 |       |       |      |      |      |       |      |      |
| Wind Tier 1  |      |      |      | 2,047 | 2,023 | 1,987 |       | 1,922 | 1,972 |      |      |      |       |      |      |
| Wind Tier 2  |      |      |      |       | 2,225 | 2,186 |       |       |       |      |      |      |       |      |      |
| Solar Tier 1   |      |      |      |       | 1,786 | 1,745 | 1,708 |       |       |      |      |      |       |      |      |
| Solar Tier 2   |      |      |      |       |       | 1,919 |       |       |       |      |      |      |       |      |      |
| Lithium Ion  |      |      |      |       |       |       |       |       |       |      |      |      | 1,884 |      |      |

| KENTUCKY POWER COMPANY   |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
|--|------|------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|------|------|
| Projected Capital Costs per kW of Rated Capacity (\$/kW) - 2023 Real Dollars |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
| (2023-2037)  |      |      |      |       |       |       |       |       |       |      |      |      |       |      |      |
| Unit   | 2023 | 2024 | 2025 | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032 | 2033 | 2034 | 2035  | 2036 | 2037 |
| Gas CT 240 MW  |      |      |      |       |       |       | 1,071 |       |       |      |      |      |       |      |      |
| Wind Tier 1  |      |      |      | 1,921 | 1,862 | 1,795 |       | 1,676 | 1,689 |      |      |      |       |      |      |
| Wind Tier 2  |      |      |      |       | 2,048 | 1,975 |       |       |       |      |      |      |       |      |      |
| Solar Tier 1   |      |      |      |       | 1,644 | 1,576 | 1,516 |       |       |      |      |      |       |      |      |
| Solar Tier 2   |      |      |      |       |       | 1,734 |       |       |       |      |      |      |       |      |      |
| Lithium Ion  |      |      |      |       |       |       |       |       |       |      |      |      | 1,499 |      |      |

| KENTUCKY POWER COMPANY                            |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
|---|------|------|------|---------|---------|---------|---------|---------|---------|------|------|------|--------|------|------|
| Projected Capital Costs (\$000) - Nominal Dollars |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
| (2023-2037)                                       |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
| Unit  | 2023 | 2024 | 2025 | 2026    | 2027    | 2028    | 2029    | 2030    | 2031    | 2032 | 2033 | 2034 | 2035   | 2036 | 2037 |
| Gas CT 240 MW                                     |      |      |      |         |         |         | 579,615 |         |         |      |      |      |        |      |      |
| Wind Tier 1                                       |      |      |      | 204,739 | 202,266 | 198,736 |         | 192,222 | 197,202 |      |      |      |        |      |      |
| Wind Tier 2                                       |      |      |      |         | 222,493 | 218,610 |         |         |         |      |      |      |        |      |      |
| Solar Tier 1                                      |      |      |      |         | 446,473 | 261,731 | 170,839 |         |         |      |      |      |        |      |      |
| Solar Tier 2                                      |      |      |      |         |         | 575,808 |         |         |         |      |      |      |        |      |      |
| Lithium Ion                                       |      |      |      |         |         |         |         |         |         |      |      |      | 94,180 |      |      |

| KENTUCKY POWER COMPANY                              |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
|---|------|------|------|---------|---------|---------|---------|---------|---------|------|------|------|--------|------|------|
| Projected Capital Costs (\$000) - 2023 Real Dollars |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
| (2023-2037)   |      |      |      |         |         |         |         |         |         |      |      |      |        |      |      |
| Unit  | 2023 | 2024 | 2025 | 2026    | 2027    | 2028    | 2029    | 2030    | 2031    | 2032 | 2033 | 2034 | 2035   | 2036 | 2037 |
| Gas CT 240 MW                                       |      |      |      |         |         |         | 514,277 |         |         |      |      |      |        |      |      |
| Wind Tier 1   |      |      |      | 192,119 | 186,155 | 179,517 |         | 167,558 | 168,915 |      |      |      |        |      |      |
| Wind Tier 2   |      |      |      |         | 204,771 | 197,469 |         |         |         |      |      |      |        |      |      |
| Solar Tier 1  |      |      |      |         | 410,911 | 236,420 | 151,581 |         |         |      |      |      |        |      |      |
| Solar Tier 2  |      |      |      |         |         | 520,124 |         |         |         |      |      |      |        |      |      |
| Lithium Ion   |      |      |      |         |         |         |         |         |         |      |      |      | 74,926 |      |      |

**EXHIBIT G-7**

| KENTUCKY POWER COMPANY<br>STEAM GENERATING CAPACITY       |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Projected Non-Fuel Variable O&M (\$000) - Nominal Dollars |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| (2023-2037)   |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Plant Name / Unit Number                                  | 2023       | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| Mitchell 1  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mitchell 2  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Big Sandy 1 - Gas   | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

| KENTUCKY POWER COMPANY<br>STEAM GENERATING CAPACITY         |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Projected Non-Fuel Variable O&M (\$000) - 2023 Real Dollars |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| (2023-2037)   |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Plant Name / Unit Number                                    | 2023       | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| Mitchell 1  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Mitchell 2  | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Big Sandy 1 - Gas   | [REDACTED] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |



KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 317 of 1182

EXHIBIT G-9

| KENTUCKY POWER COMPANY   |  |                                     |                    |                                   |       |       |                      |                      |       |                          |         |                                     |             |                      |             |
|--|--|-------------------------------------|--------------------|-----------------------------------|-------|-------|----------------------|----------------------|-------|--------------------------|---------|-------------------------------------|-------------|----------------------|-------------|
| Annual Internal Energy Requirements, Energy Resources and Energy Inputs<br>(2023-2037) |  |                                     |                    |                                   |       |       |                      |                      |       |                          |         |                                     |             |                      |             |
| Load and Energy Efficiency (GWh)   |  |                                     |                    | Energy Resources (GWh)            |       |       |                      |                      |       | Net Energy Surplus (GWh) |         | Energy Inputs(By Primary Fuel Type) |             |                      |             |
| Energy Requirements (GWh)  |  |                                     |                    | Generation (By Primary Fuel Type) |       |       | Renewables/Purchases |                      |       | Sales/(Purchases)        |         | Coal-fired Generation               |             | Gas-fired Generation |             |
| Year   | Base Forecast<br>Internal Energy<br>Requirements | Energy<br>Efficiency <sup>(A)</sup> | Adjusted<br>Energy | Coal                              | Gas   | Total | Utility<br>Solar     | Distributed<br>Solar | Wind  | Total <sup>(B)</sup>     | GWh     | Tons (000) <sup>(C)</sup>           | MMBtu (000) | MCF (000)            | MMBtu (000) |
| 2023   | 5,643  | 19                                  | 5,624              | 4,322                             | 1,858 | 6,180 | 0                    | 0                    | 0     | 0                        | 556     | 1,765                               | 43,879      | 17,370               | 18,013      |
| 2024   | 6,118  | 46                                  | 6,072              | 4,022                             | 2,048 | 6,070 | 0                    | 0                    | 0     | 0                        | (1)     | 1,643                               | 40,848      | 19,152               | 19,861      |
| 2025   | 6,060  | 79                                  | 5,980              | 2,758                             | 1,820 | 4,578 | 0                    | 0                    | 0     | 0                        | (1,402) | 1,128                               | 28,046      | 17,042               | 17,672      |
| 2026   | 5,948  | 131                                 | 5,817              | 2,385                             | 1,623 | 4,007 | 0                    | 0                    | 0     | 0                        | (1,503) | 978                                 | 24,302      | 15,206               | 15,768      |
| 2027   | 5,918  | 167                                 | 5,750              | 1,526                             | 1,590 | 3,116 | 500                  | 0                    | 917   | 1,418                    | (1,217) | 626                                 | 15,556      | 15,011               | 15,566      |
| 2028   | 5,911  | 198                                 | 5,713              | 796                               | 799   | 1,596 | 1,406                | 0                    | 1,525 | 2,930                    | (1,186) | 328                                 | 8,155       | 7,484                | 7,761       |
| 2029   | 5,872  | 222                                 | 5,650              | 0                                 | 3,603 | 3,603 | 1,600                | 0                    | 1,519 | 3,119                    | 1,072   | 0                                   | 0           | 34,721               | 36,005      |
| 2030   | 5,850  | 241                                 | 5,608              | 0                                 | 2,456 | 2,456 | 1,600                | 0                    | 1,835 | 3,436                    | 283     | 0                                   | 0           | 23,681               | 24,557      |
| 2031   | 5,832  | 244                                 | 5,588              | 0                                 | 2,456 | 2,456 | 1,600                | 0                    | 2,146 | 3,746                    | 102     | 0                                   | 0           | 18,712               | 19,404      |
| 2032   | 5,832  | 254                                 | 5,579              | 0                                 | 2,164 | 2,164 | 1,606                | 0                    | 2,153 | 3,759                    | (124)   | 0                                   | 0           | 16,316               | 16,920      |
| 2033   | 5,795  | 259                                 | 5,536              | 0                                 | 2,336 | 2,336 | 1,600                | 0                    | 2,127 | 3,727                    | (75)    | 0                                   | 0           | 16,716               | 17,334      |
| 2034   | 5,780  | 263                                 | 5,517              | 0                                 | 2,026 | 2,026 | 1,600                | 0                    | 2,122 | 3,722                    | (277)   | 0                                   | 0           | 14,624               | 15,165      |
| 2035   | 5,814  | 266                                 | 5,499              | 0                                 | 1,948 | 1,948 | 1,600                | 0                    | 2,127 | 3,727                    | (281)   | 0                                   | 0           | 14,412               | 14,945      |
| 2036   | 5,817  | 267                                 | 5,501              | 0                                 | 2,310 | 2,310 | 1,606                | 0                    | 2,153 | 3,759                    | (20)    | 0                                   | 0           | 16,653               | 17,269      |
| 2037   | 5,781  | 265                                 | 5,469              | 0                                 | 1,558 | 1,558 | 1,600                | 0                    | 2,146 | 3,746                    | (172)   | 0                                   | 0           | 14,996               | 15,551      |

<sup>(A)</sup> Represents incremental EE from DSM programs  
<sup>(B)</sup> Total of generic solar additions and wind purchases  
<sup>(C)</sup> Baseline from 2021 average delivered coal mmbtu/ton

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 318 of 1182

EXHIBIT G-10

| KENTUCKY POWER COMPANY<br>DEMAND SIDE PROGRAM DETAILS<br>(2023-2037) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  |
| Residential Energy Efficiency Programs <sup>(A)(B)(C)</sup>          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Annual Energy Savings (GWh)  | 6.2   | 13.5  | 21.8  | 44.0  | 54.9  | 63.6  | 70.5  | 76.0  | 67.7  | 68.7  | 69.8  | 71.2  | 72.7  | 74.1  | 74.9  |
| Peak Demand Savings (MW)   | 2     | 4     | 6     | 11    | 15    | 18    | 21    | 23    | 21    | 21    | 20    | 20    | 19    | 19    | 18    |
| Cost (\$000)   | 1,581 | 2,137 | 2,757 | 8,444 | 8,315 | 8,185 | 8,111 | 8,038 | 3,431 | 3,456 | 3,483 | 3,554 | 3,601 | 3,640 | 3,694 |
| Project Cost of Generation Savings (\$000)                           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Commercial Energy Efficiency Programs <sup>(A)(E)(F)</sup>           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Annual Energy Savings (GWh)  | 12.0  | 31.9  | 57.1  | 86.6  | 112.1 | 133.8 | 151.4 | 165.0 | 175.8 | 183.6 | 188.6 | 191.3 | 192.7 | 191.7 | 189.5 |
| Peak Demand Savings (MW)   | 2     | 5     | 8     | 13    | 16    | 20    | 22    | 24    | 26    | 27    | 28    | 28    | 28    | 28    | 28    |
| Cost (\$000) <sup>(D)</sup>  | 2,090 | 3,685 | 4,954 | 6,214 | 5,948 | 5,890 | 5,695 | 5,613 | 5,469 | 5,331 | 5,156 | 5,021 | 4,906 | 4,814 | 4,649 |
| Project Cost of Generation Savings (\$000)                           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |

<sup>(A)</sup> Includes only Incremental EE programs

<sup>(B)</sup> Includes the following bundles: Residential Low/Medium 23-25, IQW 23-25, Residential Low/Medium 26-30, Residential High 26-30, Residential Behavior 26-30, IQW 26-30, Residential Low/Medium 31-42, IQW 31-42

<sup>(C)</sup> Program life ranges from 12-26 years. See Section 4.2 for details

<sup>(D)</sup> Aggregated annual cost of programs

<sup>(E)</sup> Includes the following bundles: C&I Low 23-25, C&I Low 26-30, C&I Low 31-42

<sup>(F)</sup> Program life ranges from 15-23 years. See Section 4.2 for details.

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 319 of 1182

EXHIBIT G-11

| KENTUCKY POWER COMPANY<br>RESOURCE CAPACITY<br>PJM MW RATINGS <sup>(A)</sup><br>(2023-2037) |       |        |        |        |        |        |       |       |       |       |       |       |       |       |       |
|---|-------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 2023  | 2024   | 2025   | 2026   | 2027   | 2028   | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  |
| ICAP <sup>(B)</sup>   |       |        |        |        |        |        |       |       |       |       |       |       |       |       |       |
| Coal  | 780   | 780    | 780    | 780    | 780    | 780    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| Gas-Steam <sup>(C)</sup>  | 295   | 295    | 295    | 295    | 295    | 295    | 295   | 295   | 295   | 295   | 295   | 295   | 295   | 295   | 295   |
| STMP  | 70    | 78     | 78     |        |        |        |       |       |       |       |       |       |       |       |       |
| Total ICAP  | 1,148 | 1,153  | 1,153  | 1,075  | 1,075  | 1,075  | 295   | 295   | 295   | 295   | 295   | 295   | 295   | 295   | 295   |
| EFORd   | 9.96% | 11.29% | 10.79% | 11.66% | 11.42% | 11.86% | 2.67% | 2.84% | 2.67% | 2.84% | 2.61% | 2.45% | 2.84% | 2.61% | 2.67% |
| UCAP  |       |        |        |        |        |        |       |       |       |       |       |       |       |       |       |
| Coal  | 649   | 649    | 649    | 649    | 649    | 649    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| Gas-Steam   | 285   | 285    | 285    | 285    | 285    | 285    | 285   | 285   | 285   | 285   | 285   | 285   | 285   | 285   | 285   |
| Existing EE   | 8.5   | 5.4    | 5.4    | 5.4    | 5.4    | 5.4    | 5.4   | 5.4   | 5.4   | 5.4   | 5.4   | 5.4   | 5.4   | 5.4   | 5.4   |
| Total UCAP Resources  |       |        |        |        |        |        |       |       |       |       |       |       |       |       |       |
| Coincident Peak Load  | 930   | 936    | 920    | 968    | 964    | 958    | 955   | 952   | 950   | 946   | 946   | 942   | 941   | 937   | 938   |
| FPR   | 1.089 | 1.089  | 1.089  | 1.089  | 1.089  | 1.089  | 1.089 | 1.089 | 1.089 | 1.089 | 1.089 | 1.089 | 1.089 | 1.089 | 1.089 |
| Total Obligation  | 1,014 | 1,019  | 1,002  | 1,054  | 1,050  | 1,044  | 1,040 | 1,037 | 1,035 | 1,030 | 1,031 | 1,026 | 1,025 | 1,021 | 1,022 |
| <b>Net Capacity Position before Additions</b> <sup>(F)</sup>                                | -1    | -2     | 15     | -115   | -110   | -104   | -750  | -747  | -745  | -740  | -741  | -735  | -734  | -730  | -731  |
| <b>Reserve Margin before Additions</b> <sup>(F)</sup>                                       | 9%    | 9%     | 11%    | -3%    | -3%    | -2%    | -70%  | -70%  | -69%  | -69%  | -69%  | -69%  | -69%  | -69%  | -69%  |
| Incremental Resources   |       |        |        |        |        |        |       |       |       |       |       |       |       |       |       |
| Wind Tier 1   | 0     | 0      | 0      | 100    | 200    | 300    | 300   | 400   | 500   | 500   | 500   | 500   | 500   | 500   | 500   |
| Wind Tier 2   | 0     | 0      | 0      | 0      | 100    | 200    | 200   | 200   | 200   | 200   | 200   | 200   | 200   | 200   | 200   |
| Solar Tier 1  | 0     | 0      | 0      | 0      | 250    | 400    | 500   | 500   | 500   | 500   | 500   | 500   | 500   | 500   | 500   |
| Solar Tier 2  | 0     | 0      | 0      | 0      | 0      | 300    | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   |
| New EE  | 12    | 14     | 20     | 30     | 37     | 43     | 49    | 53    | 53    | 53    | 53    | 53    | 53    | 53    | 52    |
| New STMP  | 3     | 0      | 0      | 78     | 0      | 407    |       |       |       |       |       |       |       |       |       |
| Total Incremental Resources   | 15    | 14     | 20     | 208    | 587    | 1,650  | 1,349 | 1,453 | 1,553 | 1,553 | 1,553 | 1,553 | 1,553 | 1,553 | 1,552 |
| <b>Net Capacity Position with Additions</b> <sup>(F)</sup>                                  | 5     | 6      | 29     | 1      | 61     | 1      | 64    | 70    | 74    | 70    | 64    | 63    | 94    | 91    | 83    |
| <b>Reserve Margin with Additions</b> <sup>(F)</sup>   | 10%   | 10%    | 12%    | 9%     | 15%    | 9%     | 16%   | 16%   | 17%   | 16%   | 16%   | 16%   | 19%   | 19%   | 18%   |

<sup>(A)</sup> Net Capacity Positions are shown in terms of PJM capacities or UCAP values, where UCAP = Unforced Capacity

<sup>(B)</sup> ICAP = Installed Capacity

<sup>(C)</sup> Big Sandy is extended to operated until 2041

<sup>(D)</sup> EFORd = Equivalent Demand Forced Outage Rate

<sup>(E)</sup> FPR = Forecast Pool Requirement

<sup>(F)</sup> Net Capacity Positions and Reserve Margin shown represent the Company's position and margin above the obligation which accounts for PJM's FPR. PJM's FPR accounts for PJM's Installed Reserve Margin (IRM). See Section 3.2 of the Report for more details

EXHIBIT G-12

| KENTUCKY POWER COMPANY                                 |             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|--|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ANNUAL REVENUE REQUIREMENTS OF PREFERRED PLAN (\$000s) |             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|  | 2023        | 2024      | 2025      | 2026      | 2027      | 2028      | 2029      | 2030      | 2031      | 2032      | 2033      | 2034      | 2035      | 2036      | 2037      |
| Revenue Requirement (Nominal \$)                       | \$260,595   | \$291,549 | \$296,660 | \$301,216 | \$335,398 | \$391,597 | \$440,655 | \$449,331 | \$434,080 | \$420,721 | \$411,362 | \$402,476 | \$406,995 | \$402,796 | \$435,288 |
| Revenue Requirement (\$2023)                           | \$260,595   | \$284,995 | \$284,175 | \$282,648 | \$308,683 | \$353,727 | \$390,981 | \$391,678 | \$371,814 | \$353,861 | \$339,645 | \$326,203 | \$323,789 | \$314,464 | \$333,440 |
| Present Value of Revenue Requirements (\$000s)         | \$3,506,215 |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Discount Rate  | 6.19%       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |

**Exhibit H – Load Forecast Model Details and Input Data**

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 322 of 1182

## LONG-TERM CUSTOMERS

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 323 of 1182

The MEANS Procedure

| Variable | Label                 | Mean      |
|----------|-----------------------|-----------|
| YEAR     | YEAR                  | 2029.00   |
| MONTH    | MONTH                 | 6.5000000 |
| cr_kpc   | Residential Customers | 140527.00 |

Kentucky Power Company  
 Residential Customers  
 Endogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 324 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 1   | 2001 | 1     | 144223 |
| 2   | 2001 | 2     | 144273 |
| 3   | 2001 | 3     | 144119 |
| 4   | 2001 | 4     | 143978 |
| 5   | 2001 | 5     | 143932 |
| 6   | 2001 | 6     | 143849 |
| 7   | 2001 | 7     | 143853 |
| 8   | 2001 | 8     | 143911 |
| 9   | 2001 | 9     | 144012 |
| 10  | 2001 | 10    | 144138 |
| 11  | 2001 | 11    | 144214 |
| 12  | 2001 | 12    | 144447 |
| 13  | 2002 | 1     | 144776 |
| 14  | 2002 | 2     | 144635 |
| 15  | 2002 | 3     | 144570 |
| 16  | 2002 | 4     | 144471 |
| 17  | 2002 | 5     | 144097 |
| 18  | 2002 | 6     | 144170 |
| 19  | 2002 | 7     | 144163 |
| 20  | 2002 | 8     | 144235 |
| 21  | 2002 | 9     | 144234 |
| 22  | 2002 | 10    | 144277 |
| 23  | 2002 | 11    | 144470 |
| 24  | 2002 | 12    | 144696 |
| 25  | 2003 | 1     | 144903 |
| 26  | 2003 | 2     | 144848 |
| 27  | 2003 | 3     | 144700 |
| 28  | 2003 | 4     | 144415 |
| 29  | 2003 | 5     | 144250 |
| 30  | 2003 | 6     | 144177 |
| 31  | 2003 | 7     | 144130 |
| 32  | 2003 | 8     | 144290 |
| 33  | 2003 | 9     | 144411 |
| 34  | 2003 | 10    | 144406 |
| 35  | 2003 | 11    | 144466 |
| 36  | 2003 | 12    | 144850 |
| 37  | 2004 | 1     | 145096 |
| 38  | 2004 | 2     | 144846 |
| 39  | 2004 | 3     | 144789 |
| 40  | 2004 | 4     | 144670 |
| 41  | 2004 | 5     | 144359 |
| 42  | 2004 | 6     | 144117 |
| 43  | 2004 | 7     | 144037 |
| 44  | 2004 | 8     | 144066 |
| 45  | 2004 | 9     | 144081 |
| 46  | 2004 | 10    | 144159 |
| 47  | 2004 | 11    | 144360 |
| 48  | 2004 | 12    | 144623 |
| 49  | 2005 | 1     | 144900 |
| 50  | 2005 | 2     | 144415 |

Kentucky Power Company  
 Residential Customers  
 Endogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 325 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 51  | 2005 | 3     | 145259 |
| 52  | 2005 | 4     | 144955 |
| 53  | 2005 | 5     | 144302 |
| 54  | 2005 | 6     | 144342 |
| 55  | 2005 | 7     | 144274 |
| 56  | 2005 | 8     | 144231 |
| 57  | 2005 | 9     | 144191 |
| 58  | 2005 | 10    | 144223 |
| 59  | 2005 | 11    | 144419 |
| 60  | 2005 | 12    | 144641 |
| 61  | 2006 | 1     | 144830 |
| 62  | 2006 | 2     | 144530 |
| 63  | 2006 | 3     | 145013 |
| 64  | 2006 | 4     | 144560 |
| 65  | 2006 | 5     | 144258 |
| 66  | 2006 | 6     | 144120 |
| 67  | 2006 | 7     | 144118 |
| 68  | 2006 | 8     | 144248 |
| 69  | 2006 | 9     | 144269 |
| 70  | 2006 | 10    | 144313 |
| 71  | 2006 | 11    | 144545 |
| 72  | 2006 | 12    | 144554 |
| 73  | 2007 | 1     | 144815 |
| 74  | 2007 | 2     | 144843 |
| 75  | 2007 | 3     | 144494 |
| 76  | 2007 | 4     | 144179 |
| 77  | 2007 | 5     | 143841 |
| 78  | 2007 | 6     | 143743 |
| 79  | 2007 | 7     | 143666 |
| 80  | 2007 | 8     | 143970 |
| 81  | 2007 | 9     | 144118 |
| 82  | 2007 | 10    | 144087 |
| 83  | 2007 | 11    | 144181 |
| 84  | 2007 | 12    | 144542 |
| 85  | 2008 | 1     | 144825 |
| 86  | 2008 | 2     | 144690 |
| 87  | 2008 | 3     | 144365 |
| 88  | 2008 | 4     | 143988 |
| 89  | 2008 | 5     | 143799 |
| 90  | 2008 | 6     | 143710 |
| 91  | 2008 | 7     | 143789 |
| 92  | 2008 | 8     | 143832 |
| 93  | 2008 | 9     | 143855 |
| 94  | 2008 | 10    | 143884 |
| 95  | 2008 | 11    | 144121 |
| 96  | 2008 | 12    | 144407 |
| 97  | 2009 | 1     | 144472 |
| 98  | 2009 | 2     | 144302 |
| 99  | 2009 | 3     | 144126 |
| 100 | 2009 | 4     | 143754 |

Kentucky Power Company  
 Residential Customers  
 Endogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 326 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 101 | 2009 | 5     | 143405 |
| 102 | 2009 | 6     | 143404 |
| 103 | 2009 | 7     | 143215 |
| 104 | 2009 | 8     | 143272 |
| 105 | 2009 | 9     | 143258 |
| 106 | 2009 | 10    | 143276 |
| 107 | 2009 | 11    | 143420 |
| 108 | 2009 | 12    | 143633 |
| 109 | 2010 | 1     | 143805 |
| 110 | 2010 | 2     | 143788 |
| 111 | 2010 | 3     | 143618 |
| 112 | 2010 | 4     | 143153 |
| 113 | 2010 | 5     | 142803 |
| 114 | 2010 | 6     | 142743 |
| 115 | 2010 | 7     | 142667 |
| 116 | 2010 | 8     | 142742 |
| 117 | 2010 | 9     | 142470 |
| 118 | 2010 | 10    | 142457 |
| 119 | 2010 | 11    | 142699 |
| 120 | 2010 | 12    | 142708 |
| 121 | 2011 | 1     | 143185 |
| 122 | 2011 | 2     | 142735 |
| 123 | 2011 | 3     | 142867 |
| 124 | 2011 | 4     | 142173 |
| 125 | 2011 | 5     | 141679 |
| 126 | 2011 | 6     | 141463 |
| 127 | 2011 | 7     | 141398 |
| 128 | 2011 | 8     | 141531 |
| 129 | 2011 | 9     | 141286 |
| 130 | 2011 | 10    | 141180 |
| 131 | 2011 | 11    | 141320 |
| 132 | 2011 | 12    | 141500 |
| 133 | 2012 | 1     | 141565 |
| 134 | 2012 | 2     | 141707 |
| 135 | 2012 | 3     | 141335 |
| 136 | 2012 | 4     | 140895 |
| 137 | 2012 | 5     | 140790 |
| 138 | 2012 | 6     | 140611 |
| 139 | 2012 | 7     | 140697 |
| 140 | 2012 | 8     | 140645 |
| 141 | 2012 | 9     | 140641 |
| 142 | 2012 | 10    | 140571 |
| 143 | 2012 | 11    | 140781 |
| 144 | 2012 | 12    | 140909 |
| 145 | 2013 | 1     | 141093 |
| 146 | 2013 | 2     | 140913 |
| 147 | 2013 | 3     | 140755 |
| 148 | 2013 | 4     | 140501 |
| 149 | 2013 | 5     | 140166 |
| 150 | 2013 | 6     | 139896 |

Kentucky Power Company  
 Residential Customers  
 Endogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 327 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 151 | 2013 | 7     | 139651 |
| 152 | 2013 | 8     | 139694 |
| 153 | 2013 | 9     | 139623 |
| 154 | 2013 | 10    | 139665 |
| 155 | 2013 | 11    | 139889 |
| 156 | 2013 | 12    | 140119 |
| 157 | 2014 | 1     | 140271 |
| 158 | 2014 | 2     | 140091 |
| 159 | 2014 | 3     | 139931 |
| 160 | 2014 | 4     | 139255 |
| 161 | 2014 | 5     | 138875 |
| 162 | 2014 | 6     | 138595 |
| 163 | 2014 | 7     | 138447 |
| 164 | 2014 | 8     | 138262 |
| 165 | 2014 | 9     | 138304 |
| 166 | 2014 | 10    | 138245 |
| 167 | 2014 | 11    | 138492 |
| 168 | 2014 | 12    | 138726 |
| 169 | 2015 | 1     | 138726 |
| 170 | 2015 | 2     | 138781 |
| 171 | 2015 | 3     | 138747 |
| 172 | 2015 | 4     | 138064 |
| 173 | 2015 | 5     | 137608 |
| 174 | 2015 | 6     | 137535 |
| 175 | 2015 | 7     | 137529 |
| 176 | 2015 | 8     | 137572 |
| 177 | 2015 | 9     | 137565 |
| 178 | 2015 | 10    | 137600 |
| 179 | 2015 | 11    | 137679 |
| 180 | 2015 | 12    | 137921 |
| 181 | 2016 | 1     | 138019 |
| 182 | 2016 | 2     | 137998 |
| 183 | 2016 | 3     | 137583 |
| 184 | 2016 | 4     | 137293 |
| 185 | 2016 | 5     | 136978 |
| 186 | 2016 | 6     | 136721 |
| 187 | 2016 | 7     | 136599 |
| 188 | 2016 | 8     | 136648 |
| 189 | 2016 | 9     | 136648 |
| 190 | 2016 | 10    | 136374 |
| 191 | 2016 | 11    | 136515 |
| 192 | 2016 | 12    | 136781 |
| 193 | 2017 | 1     | 136772 |
| 194 | 2017 | 2     | 136525 |
| 195 | 2017 | 3     | 136455 |
| 196 | 2017 | 4     | 135945 |
| 197 | 2017 | 5     | 135797 |
| 198 | 2017 | 6     | 135604 |
| 199 | 2017 | 7     | 135510 |
| 200 | 2017 | 8     | 135496 |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 328 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 201 | 2017 | 9     | 135661 |
| 202 | 2017 | 10    | 135483 |
| 203 | 2017 | 11    | 135713 |
| 204 | 2017 | 12    | 135794 |
| 205 | 2018 | 1     | 135945 |
| 206 | 2018 | 2     | 135758 |
| 207 | 2018 | 3     | 135432 |
| 208 | 2018 | 4     | 135133 |
| 209 | 2018 | 5     | 134816 |
| 210 | 2018 | 6     | 134581 |
| 211 | 2018 | 7     | 134743 |
| 212 | 2018 | 8     | 134620 |
| 213 | 2018 | 9     | 134705 |
| 214 | 2018 | 10    | 134459 |
| 215 | 2018 | 11    | 134652 |
| 216 | 2018 | 12    | 134757 |
| 217 | 2019 | 1     | 134730 |
| 218 | 2019 | 2     | 134491 |
| 219 | 2019 | 3     | 134340 |
| 220 | 2019 | 4     | 134212 |
| 221 | 2019 | 5     | 133947 |
| 222 | 2019 | 6     | 133735 |
| 223 | 2019 | 7     | 133751 |
| 224 | 2019 | 8     | 133708 |
| 225 | 2019 | 9     | 133732 |
| 226 | 2019 | 10    | 133623 |
| 227 | 2019 | 11    | 133614 |
| 228 | 2019 | 12    | 133854 |
| 229 | 2020 | 1     | 133843 |
| 230 | 2020 | 2     | 133675 |
| 231 | 2020 | 3     | 133756 |
| 232 | 2020 | 4     | 133894 |
| 233 | 2020 | 5     | 134115 |
| 234 | 2020 | 6     | 134289 |
| 235 | 2020 | 7     | 134395 |
| 236 | 2020 | 8     | 134531 |
| 237 | 2020 | 9     | 134624 |
| 238 | 2020 | 10    | 134679 |
| 239 | 2020 | 11    | 134749 |
| 240 | 2020 | 12    | 134862 |
| 241 | 2021 | 1     | 134725 |
| 242 | 2021 | 2     | 133661 |
| 243 | 2021 | 3     | 134884 |
| 244 | 2021 | 4     | 133988 |
| 245 | 2021 | 5     | 133667 |
| 246 | 2021 | 6     | 133515 |
| 247 | 2021 | 7     | 133417 |
| 248 | 2021 | 8     | 133535 |
| 249 | 2021 | 9     | 133555 |
| 250 | 2021 | 10    | 133469 |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 251 | 2021 | 11    | 133616 |
| 252 | 2021 | 12    | 133624 |
| 253 | 2022 | 1     | .      |
| 254 | 2022 | 2     | .      |
| 255 | 2022 | 3     | .      |
| 256 | 2022 | 4     | .      |
| 257 | 2022 | 5     | .      |
| 258 | 2022 | 6     | .      |
| 259 | 2022 | 7     | .      |
| 260 | 2022 | 8     | .      |
| 261 | 2022 | 9     | .      |
| 262 | 2022 | 10    | .      |
| 263 | 2022 | 11    | .      |
| 264 | 2022 | 12    | .      |
| 265 | 2023 | 1     | .      |
| 266 | 2023 | 2     | .      |
| 267 | 2023 | 3     | .      |
| 268 | 2023 | 4     | .      |
| 269 | 2023 | 5     | .      |
| 270 | 2023 | 6     | .      |
| 271 | 2023 | 7     | .      |
| 272 | 2023 | 8     | .      |
| 273 | 2023 | 9     | .      |
| 274 | 2023 | 10    | .      |
| 275 | 2023 | 11    | .      |
| 276 | 2023 | 12    | .      |
| 277 | 2024 | 1     | .      |
| 278 | 2024 | 2     | .      |
| 279 | 2024 | 3     | .      |
| 280 | 2024 | 4     | .      |
| 281 | 2024 | 5     | .      |
| 282 | 2024 | 6     | .      |
| 283 | 2024 | 7     | .      |
| 284 | 2024 | 8     | .      |
| 285 | 2024 | 9     | .      |
| 286 | 2024 | 10    | .      |
| 287 | 2024 | 11    | .      |
| 288 | 2024 | 12    | .      |
| 289 | 2025 | 1     | .      |
| 290 | 2025 | 2     | .      |
| 291 | 2025 | 3     | .      |
| 292 | 2025 | 4     | .      |
| 293 | 2025 | 5     | .      |
| 294 | 2025 | 6     | .      |
| 295 | 2025 | 7     | .      |
| 296 | 2025 | 8     | .      |
| 297 | 2025 | 9     | .      |
| 298 | 2025 | 10    | .      |
| 299 | 2025 | 11    | .      |
| 300 | 2025 | 12    | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 301 | 2026 | 1     | .      |
| 302 | 2026 | 2     | .      |
| 303 | 2026 | 3     | .      |
| 304 | 2026 | 4     | .      |
| 305 | 2026 | 5     | .      |
| 306 | 2026 | 6     | .      |
| 307 | 2026 | 7     | .      |
| 308 | 2026 | 8     | .      |
| 309 | 2026 | 9     | .      |
| 310 | 2026 | 10    | .      |
| 311 | 2026 | 11    | .      |
| 312 | 2026 | 12    | .      |
| 313 | 2027 | 1     | .      |
| 314 | 2027 | 2     | .      |
| 315 | 2027 | 3     | .      |
| 316 | 2027 | 4     | .      |
| 317 | 2027 | 5     | .      |
| 318 | 2027 | 6     | .      |
| 319 | 2027 | 7     | .      |
| 320 | 2027 | 8     | .      |
| 321 | 2027 | 9     | .      |
| 322 | 2027 | 10    | .      |
| 323 | 2027 | 11    | .      |
| 324 | 2027 | 12    | .      |
| 325 | 2028 | 1     | .      |
| 326 | 2028 | 2     | .      |
| 327 | 2028 | 3     | .      |
| 328 | 2028 | 4     | .      |
| 329 | 2028 | 5     | .      |
| 330 | 2028 | 6     | .      |
| 331 | 2028 | 7     | .      |
| 332 | 2028 | 8     | .      |
| 333 | 2028 | 9     | .      |
| 334 | 2028 | 10    | .      |
| 335 | 2028 | 11    | .      |
| 336 | 2028 | 12    | .      |
| 337 | 2029 | 1     | .      |
| 338 | 2029 | 2     | .      |
| 339 | 2029 | 3     | .      |
| 340 | 2029 | 4     | .      |
| 341 | 2029 | 5     | .      |
| 342 | 2029 | 6     | .      |
| 343 | 2029 | 7     | .      |
| 344 | 2029 | 8     | .      |
| 345 | 2029 | 9     | .      |
| 346 | 2029 | 10    | .      |
| 347 | 2029 | 11    | .      |
| 348 | 2029 | 12    | .      |
| 349 | 2030 | 1     | .      |
| 350 | 2030 | 2     | .      |

Kentucky Power Company  
 Residential Customers  
 Endogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 331 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 351 | 2030 | 3     | .      |
| 352 | 2030 | 4     | .      |
| 353 | 2030 | 5     | .      |
| 354 | 2030 | 6     | .      |
| 355 | 2030 | 7     | .      |
| 356 | 2030 | 8     | .      |
| 357 | 2030 | 9     | .      |
| 358 | 2030 | 10    | .      |
| 359 | 2030 | 11    | .      |
| 360 | 2030 | 12    | .      |
| 361 | 2031 | 1     | .      |
| 362 | 2031 | 2     | .      |
| 363 | 2031 | 3     | .      |
| 364 | 2031 | 4     | .      |
| 365 | 2031 | 5     | .      |
| 366 | 2031 | 6     | .      |
| 367 | 2031 | 7     | .      |
| 368 | 2031 | 8     | .      |
| 369 | 2031 | 9     | .      |
| 370 | 2031 | 10    | .      |
| 371 | 2031 | 11    | .      |
| 372 | 2031 | 12    | .      |
| 373 | 2032 | 1     | .      |
| 374 | 2032 | 2     | .      |
| 375 | 2032 | 3     | .      |
| 376 | 2032 | 4     | .      |
| 377 | 2032 | 5     | .      |
| 378 | 2032 | 6     | .      |
| 379 | 2032 | 7     | .      |
| 380 | 2032 | 8     | .      |
| 381 | 2032 | 9     | .      |
| 382 | 2032 | 10    | .      |
| 383 | 2032 | 11    | .      |
| 384 | 2032 | 12    | .      |
| 385 | 2033 | 1     | .      |
| 386 | 2033 | 2     | .      |
| 387 | 2033 | 3     | .      |
| 388 | 2033 | 4     | .      |
| 389 | 2033 | 5     | .      |
| 390 | 2033 | 6     | .      |
| 391 | 2033 | 7     | .      |
| 392 | 2033 | 8     | .      |
| 393 | 2033 | 9     | .      |
| 394 | 2033 | 10    | .      |
| 395 | 2033 | 11    | .      |
| 396 | 2033 | 12    | .      |
| 397 | 2034 | 1     | .      |
| 398 | 2034 | 2     | .      |
| 399 | 2034 | 3     | .      |
| 400 | 2034 | 4     | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 401 | 2034 | 5     | .      |
| 402 | 2034 | 6     | .      |
| 403 | 2034 | 7     | .      |
| 404 | 2034 | 8     | .      |
| 405 | 2034 | 9     | .      |
| 406 | 2034 | 10    | .      |
| 407 | 2034 | 11    | .      |
| 408 | 2034 | 12    | .      |
| 409 | 2035 | 1     | .      |
| 410 | 2035 | 2     | .      |
| 411 | 2035 | 3     | .      |
| 412 | 2035 | 4     | .      |
| 413 | 2035 | 5     | .      |
| 414 | 2035 | 6     | .      |
| 415 | 2035 | 7     | .      |
| 416 | 2035 | 8     | .      |
| 417 | 2035 | 9     | .      |
| 418 | 2035 | 10    | .      |
| 419 | 2035 | 11    | .      |
| 420 | 2035 | 12    | .      |
| 421 | 2036 | 1     | .      |
| 422 | 2036 | 2     | .      |
| 423 | 2036 | 3     | .      |
| 424 | 2036 | 4     | .      |
| 425 | 2036 | 5     | .      |
| 426 | 2036 | 6     | .      |
| 427 | 2036 | 7     | .      |
| 428 | 2036 | 8     | .      |
| 429 | 2036 | 9     | .      |
| 430 | 2036 | 10    | .      |
| 431 | 2036 | 11    | .      |
| 432 | 2036 | 12    | .      |
| 433 | 2037 | 1     | .      |
| 434 | 2037 | 2     | .      |
| 435 | 2037 | 3     | .      |
| 436 | 2037 | 4     | .      |
| 437 | 2037 | 5     | .      |
| 438 | 2037 | 6     | .      |
| 439 | 2037 | 7     | .      |
| 440 | 2037 | 8     | .      |
| 441 | 2037 | 9     | .      |
| 442 | 2037 | 10    | .      |
| 443 | 2037 | 11    | .      |
| 444 | 2037 | 12    | .      |
| 445 | 2038 | 1     | .      |
| 446 | 2038 | 2     | .      |
| 447 | 2038 | 3     | .      |
| 448 | 2038 | 4     | .      |
| 449 | 2038 | 5     | .      |
| 450 | 2038 | 6     | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 333 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 451 | 2038 | 7     | .      |
| 452 | 2038 | 8     | .      |
| 453 | 2038 | 9     | .      |
| 454 | 2038 | 10    | .      |
| 455 | 2038 | 11    | .      |
| 456 | 2038 | 12    | .      |
| 457 | 2039 | 1     | .      |
| 458 | 2039 | 2     | .      |
| 459 | 2039 | 3     | .      |
| 460 | 2039 | 4     | .      |
| 461 | 2039 | 5     | .      |
| 462 | 2039 | 6     | .      |
| 463 | 2039 | 7     | .      |
| 464 | 2039 | 8     | .      |
| 465 | 2039 | 9     | .      |
| 466 | 2039 | 10    | .      |
| 467 | 2039 | 11    | .      |
| 468 | 2039 | 12    | .      |
| 469 | 2040 | 1     | .      |
| 470 | 2040 | 2     | .      |
| 471 | 2040 | 3     | .      |
| 472 | 2040 | 4     | .      |
| 473 | 2040 | 5     | .      |
| 474 | 2040 | 6     | .      |
| 475 | 2040 | 7     | .      |
| 476 | 2040 | 8     | .      |
| 477 | 2040 | 9     | .      |
| 478 | 2040 | 10    | .      |
| 479 | 2040 | 11    | .      |
| 480 | 2040 | 12    | .      |
| 481 | 2041 | 1     | .      |
| 482 | 2041 | 2     | .      |
| 483 | 2041 | 3     | .      |
| 484 | 2041 | 4     | .      |
| 485 | 2041 | 5     | .      |
| 486 | 2041 | 6     | .      |
| 487 | 2041 | 7     | .      |
| 488 | 2041 | 8     | .      |
| 489 | 2041 | 9     | .      |
| 490 | 2041 | 10    | .      |
| 491 | 2041 | 11    | .      |
| 492 | 2041 | 12    | .      |
| 493 | 2042 | 1     | .      |
| 494 | 2042 | 2     | .      |
| 495 | 2042 | 3     | .      |
| 496 | 2042 | 4     | .      |
| 497 | 2042 | 5     | .      |
| 498 | 2042 | 6     | .      |
| 499 | 2042 | 7     | .      |
| 500 | 2042 | 8     | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 334 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 501 | 2042 | 9     | .      |
| 502 | 2042 | 10    | .      |
| 503 | 2042 | 11    | .      |
| 504 | 2042 | 12    | .      |
| 505 | 2043 | 1     | .      |
| 506 | 2043 | 2     | .      |
| 507 | 2043 | 3     | .      |
| 508 | 2043 | 4     | .      |
| 509 | 2043 | 5     | .      |
| 510 | 2043 | 6     | .      |
| 511 | 2043 | 7     | .      |
| 512 | 2043 | 8     | .      |
| 513 | 2043 | 9     | .      |
| 514 | 2043 | 10    | .      |
| 515 | 2043 | 11    | .      |
| 516 | 2043 | 12    | .      |
| 517 | 2044 | 1     | .      |
| 518 | 2044 | 2     | .      |
| 519 | 2044 | 3     | .      |
| 520 | 2044 | 4     | .      |
| 521 | 2044 | 5     | .      |
| 522 | 2044 | 6     | .      |
| 523 | 2044 | 7     | .      |
| 524 | 2044 | 8     | .      |
| 525 | 2044 | 9     | .      |
| 526 | 2044 | 10    | .      |
| 527 | 2044 | 11    | .      |
| 528 | 2044 | 12    | .      |
| 529 | 2045 | 1     | .      |
| 530 | 2045 | 2     | .      |
| 531 | 2045 | 3     | .      |
| 532 | 2045 | 4     | .      |
| 533 | 2045 | 5     | .      |
| 534 | 2045 | 6     | .      |
| 535 | 2045 | 7     | .      |
| 536 | 2045 | 8     | .      |
| 537 | 2045 | 9     | .      |
| 538 | 2045 | 10    | .      |
| 539 | 2045 | 11    | .      |
| 540 | 2045 | 12    | .      |
| 541 | 2046 | 1     | .      |
| 542 | 2046 | 2     | .      |
| 543 | 2046 | 3     | .      |
| 544 | 2046 | 4     | .      |
| 545 | 2046 | 5     | .      |
| 546 | 2046 | 6     | .      |
| 547 | 2046 | 7     | .      |
| 548 | 2046 | 8     | .      |
| 549 | 2046 | 9     | .      |
| 550 | 2046 | 10    | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 335 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 551 | 2046 | 11    | .      |
| 552 | 2046 | 12    | .      |
| 553 | 2047 | 1     | .      |
| 554 | 2047 | 2     | .      |
| 555 | 2047 | 3     | .      |
| 556 | 2047 | 4     | .      |
| 557 | 2047 | 5     | .      |
| 558 | 2047 | 6     | .      |
| 559 | 2047 | 7     | .      |
| 560 | 2047 | 8     | .      |
| 561 | 2047 | 9     | .      |
| 562 | 2047 | 10    | .      |
| 563 | 2047 | 11    | .      |
| 564 | 2047 | 12    | .      |
| 565 | 2048 | 1     | .      |
| 566 | 2048 | 2     | .      |
| 567 | 2048 | 3     | .      |
| 568 | 2048 | 4     | .      |
| 569 | 2048 | 5     | .      |
| 570 | 2048 | 6     | .      |
| 571 | 2048 | 7     | .      |
| 572 | 2048 | 8     | .      |
| 573 | 2048 | 9     | .      |
| 574 | 2048 | 10    | .      |
| 575 | 2048 | 11    | .      |
| 576 | 2048 | 12    | .      |
| 577 | 2049 | 1     | .      |
| 578 | 2049 | 2     | .      |
| 579 | 2049 | 3     | .      |
| 580 | 2049 | 4     | .      |
| 581 | 2049 | 5     | .      |
| 582 | 2049 | 6     | .      |
| 583 | 2049 | 7     | .      |
| 584 | 2049 | 8     | .      |
| 585 | 2049 | 9     | .      |
| 586 | 2049 | 10    | .      |
| 587 | 2049 | 11    | .      |
| 588 | 2049 | 12    | .      |
| 589 | 2050 | 1     | .      |
| 590 | 2050 | 2     | .      |
| 591 | 2050 | 3     | .      |
| 592 | 2050 | 4     | .      |
| 593 | 2050 | 5     | .      |
| 594 | 2050 | 6     | .      |
| 595 | 2050 | 7     | .      |
| 596 | 2050 | 8     | .      |
| 597 | 2050 | 9     | .      |
| 598 | 2050 | 10    | .      |
| 599 | 2050 | 11    | .      |
| 600 | 2050 | 12    | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 601 | 2051 | 1     | .      |
| 602 | 2051 | 2     | .      |
| 603 | 2051 | 3     | .      |
| 604 | 2051 | 4     | .      |
| 605 | 2051 | 5     | .      |
| 606 | 2051 | 6     | .      |
| 607 | 2051 | 7     | .      |
| 608 | 2051 | 8     | .      |
| 609 | 2051 | 9     | .      |
| 610 | 2051 | 10    | .      |
| 611 | 2051 | 11    | .      |
| 612 | 2051 | 12    | .      |
| 613 | 2052 | 1     | .      |
| 614 | 2052 | 2     | .      |
| 615 | 2052 | 3     | .      |
| 616 | 2052 | 4     | .      |
| 617 | 2052 | 5     | .      |
| 618 | 2052 | 6     | .      |
| 619 | 2052 | 7     | .      |
| 620 | 2052 | 8     | .      |
| 621 | 2052 | 9     | .      |
| 622 | 2052 | 10    | .      |
| 623 | 2052 | 11    | .      |
| 624 | 2052 | 12    | .      |
| 625 | 2053 | 1     | .      |
| 626 | 2053 | 2     | .      |
| 627 | 2053 | 3     | .      |
| 628 | 2053 | 4     | .      |
| 629 | 2053 | 5     | .      |
| 630 | 2053 | 6     | .      |
| 631 | 2053 | 7     | .      |
| 632 | 2053 | 8     | .      |
| 633 | 2053 | 9     | .      |
| 634 | 2053 | 10    | .      |
| 635 | 2053 | 11    | .      |
| 636 | 2053 | 12    | .      |
| 637 | 2054 | 1     | .      |
| 638 | 2054 | 2     | .      |
| 639 | 2054 | 3     | .      |
| 640 | 2054 | 4     | .      |
| 641 | 2054 | 5     | .      |
| 642 | 2054 | 6     | .      |
| 643 | 2054 | 7     | .      |
| 644 | 2054 | 8     | .      |
| 645 | 2054 | 9     | .      |
| 646 | 2054 | 10    | .      |
| 647 | 2054 | 11    | .      |
| 648 | 2054 | 12    | .      |
| 649 | 2055 | 1     | .      |
| 650 | 2055 | 2     | .      |

Kentucky Power Company  
Residential Customers  
Endogenous Variables

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 337 of 1182

| Obs | YEAR | MONTH | cr_kpc |
|-----|------|-------|--------|
| 651 | 2055 | 3     | .      |
| 652 | 2055 | 4     | .      |
| 653 | 2055 | 5     | .      |
| 654 | 2055 | 6     | .      |
| 655 | 2055 | 7     | .      |
| 656 | 2055 | 8     | .      |
| 657 | 2055 | 9     | .      |
| 658 | 2055 | 10    | .      |
| 659 | 2055 | 11    | .      |
| 660 | 2055 | 12    | .      |
| 661 | 2056 | 1     | .      |
| 662 | 2056 | 2     | .      |
| 663 | 2056 | 3     | .      |
| 664 | 2056 | 4     | .      |
| 665 | 2056 | 5     | .      |
| 666 | 2056 | 6     | .      |
| 667 | 2056 | 7     | .      |
| 668 | 2056 | 8     | .      |
| 669 | 2056 | 9     | .      |
| 670 | 2056 | 10    | .      |
| 671 | 2056 | 11    | .      |
| 672 | 2056 | 12    | .      |
| 673 | 2057 | 1     | .      |
| 674 | 2057 | 2     | .      |
| 675 | 2057 | 3     | .      |
| 676 | 2057 | 4     | .      |
| 677 | 2057 | 5     | .      |
| 678 | 2057 | 6     | .      |
| 679 | 2057 | 7     | .      |
| 680 | 2057 | 8     | .      |
| 681 | 2057 | 9     | .      |
| 682 | 2057 | 10    | .      |
| 683 | 2057 | 11    | .      |
| 684 | 2057 | 12    | .      |

Kentucky Power Company  
 Residential Customers  
 Exogenous Variables

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 338 of 1182

The MEANS Procedure

| Variable | Label                                      | Mean        |
|----------|--|-------------|
| YEAR     | YEAR                                       | 2029.00     |
| MONTH    | MONTH                                      | 6.5000000   |
| N_kpc    | Service Area Population                    | 379.1024727 |
| hh_kpc   | Service Area Households                    | 158.5021498 |
| hs_kpc   | Service Area Housing Stock                 | 207.7119124 |
| d1       | Binary Variable-January                    | 0.0833333   |
| d2       | Binary Variable-February                   | 0.0833333   |
| d3       | Binary Variable-March                      | 0.0833333   |
| d4       | Binary Variable-April                      | 0.0833333   |
| d5       | Binary Variable-May                        | 0.0833333   |
| d6       | Binary Variable-June                       | 0.0833333   |
| d7       | Binary Variable-July                       | 0.0833333   |
| d8       | Binary Variable-August                     | 0.0833333   |
| d9       | Binary Variable-September                  | 0.0833333   |
| d10      | Binary Variable-October                    | 0.0833333   |
| d11      | Binary Variable-November                   | 0.0833333   |
| dmar06   | Binary Variable-March 2006                 | 0.0014620   |
| dmar05   | Binary Variable-March 2005                 | 0.0014620   |
| dmay05   | Binary Variable-May 2005                   | 0.0014620   |
| aprjun20 | Binary Variable-April through June 2020    | 0.0043860   |
| janjul20 | Binary Variable-January through July 2020  | 0.0102339   |
| maroct20 | Binary Variable-March through October 2020 | 0.0116959   |
| feb21    | Binary Variable-February 2021              | 0.0014620   |
| mar21    | Binary Variable-March 2021                 | 0.0014620   |

































Kentucky Power Company  
 Residential Customers  
 Model Estimation

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 355 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model cr\_kpc  
 Dependent Variable cr\_kpc  
 Label Residential Customers

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 22  | 4.06E9         | 1.8455E8    | 12086.6 | <.0001 |
| Error           | 229 | 3496531        | 15268.69    |         |        |
| Corrected Total | 251 | 4.0635E9       |             |         |        |

Root MSE 123.56656 R-Square 0.99914  
 Dependent Mean 140527.000 Adj R-Sq 0.99906  
 Coeff Var 0.08793

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                              |
|-----------|----|--------------------|----------------|---------|---------|---|
| Intercept | 1  | -1482.44           | 468.2726       | -3.17   | 0.0018  | Intercept                                   |
| cr1       | 1  | 0.980891           | 0.015741       | 62.31   | <.0001  | Residential Customers, Lagged               |
| hsnindx   | 1  | 1784.435           | 2406.993       | 0.74    | 0.4592  | Service Area Housing Stock-Population Index |
| hh_kpc    | 1  | 15.48067           | 15.59328       | 0.99    | 0.3219  | Service Area Households                     |
| d1        | 1  | -50.9095           | 38.57739       | -1.32   | 0.1883  | Binary Variable-January                     |
| d2        | 1  | -339.899           | 39.42089       | -8.62   | <.0001  | Binary Variable-February                    |
| d3        | 1  | -363.769           | 40.27146       | -9.03   | <.0001  | Binary Variable-March                       |
| d4        | 1  | -578.346           | 38.63416       | -14.97  | <.0001  | Binary Variable-April                       |
| d5        | 1  | -486.048           | 38.80240       | -12.53  | <.0001  | Binary Variable-May                         |
| d6        | 1  | -345.618           | 38.52097       | -8.97   | <.0001  | Binary Variable-June                        |
| d7        | 1  | -252.325           | 38.70501       | -6.52   | <.0001  | Binary Variable-July                        |
| d8        | 1  | -162.429           | 38.71883       | -4.20   | <.0001  | Binary Variable-August                      |
| d9        | 1  | -197.833           | 38.53241       | -5.13   | <.0001  | Binary Variable-September                   |

Kentucky Power Company  
 Residential Customers  
 Model Estimation

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 356 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable                    | DF | Parameter Estimate | Standard Error | t Value  | Pr >  t | Variable Label                             |
|-----------------------------|----|--------------------|----------------|----------|---------|--|
| d10                         | 1  | -238.411           | 38.44807       | -6.20    | <.0001  | Binary Variable-October                    |
| d11                         | 1  | -36.7858           | 38.26021       | -0.96    | 0.3373  | Binary Variable-November                   |
| dmay05                      | 1  | -389.585           | 127.7430       | -3.05    | 0.0026  | Binary Variable-May 2005                   |
| dmar05                      | 1  | 975.5912           | 128.2558       | 7.61     | <.0001  | Binary Variable-March 2005                 |
| dmar06                      | 1  | 625.4384           | 127.5118       | 4.90     | <.0001  | Binary Variable-March 2006                 |
| aprjun20                    | 1  | 290.6242           | 102.1447       | 2.85     | 0.0048  | Binary Variable-April through June 2020    |
| janjul20                    | 1  | 19.23164           | 72.03314       | 0.27     | 0.7897  | Binary Variable-January through July 2020  |
| maroct20                    | 1  | 202.1433           | 65.55731       | 3.08     | 0.0023  | Binary Variable-March through October 2020 |
| feb21                       | 1  | -832.736           | 128.2676       | -6.49    | <.0001  | Binary Variable-February 2021              |
| mar21                       | 1  | 1460.095           | 128.1648       | 11.39    | <.0001  | Binary Variable-March 2021                 |
| Durbin-Watson               |    |                    |                | 2.318908 |         |  |
| Number of Observations      |    |                    |                | 252      |         |  |
| First-Order Autocorrelation |    |                    |                | -0.16501 |         |  |

Kentucky Power Company  
 Residential Customers  
 Model Residuals

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 357 of 1182

| time         |       | Residual Values |
|--------------|-------|-----------------|
|              |       | Sum             |
| 2001.0000000 | ***** | -165.0417       |
| 2001.0833333 | ***** | 177.1492        |
| 2001.1666667 |       | -2.0830         |
| 2001.2500000 | ***** | 222.3705        |
| 2001.3333333 | ***** | 221.9392        |
| 2001.4166667 | **    | 42.8701         |
| 2001.5000000 | **    | 33.9657         |
| 2001.5833333 |       | -3.2189         |
| 2001.6666667 | ****  | 74.7350         |
| 2001.7500000 | ***** | 140.3709        |
| 2001.8333333 | ***** | -110.8633       |
| 2001.9166667 |       | 8.6720          |
| 2002.0000000 | ***** | 158.3693        |
| 2002.0833333 | *     | -18.4257        |
| 2002.1666667 | ****  | 76.6773         |
| 2002.2500000 | ***** | 253.9547        |
| 2002.3333333 | ***** | -117.2675       |
| 2002.4166667 | ***** | 180.2833        |
| 2002.5000000 |       | 6.6261          |
| 2002.5833333 |       | -6.0310         |
| 2002.6666667 | **    | -43.6520        |
| 2002.7500000 | **    | 39.6448         |
| 2002.8333333 | *     | -12.1909        |
| 2002.9166667 | *     | -13.2010        |
| 2003.0000000 | *     | 23.0130         |
| 2003.0833333 | ***   | 53.6088         |
| 2003.1666667 | *     | -16.6972        |
| 2003.2500000 | ***   | 58.1355         |
| 2003.3333333 | ****  | 80.6464         |
| 2003.4166667 | *     | 29.5564         |
| 2003.5000000 | **    | -38.4468        |
| 2003.5833333 | ****  | 78.6112         |
| 2003.6666667 | ****  | 79.0895         |
| 2003.7500000 |       | -2.9610         |
| 2003.8333333 | ***** | -138.5057       |
| 2003.9166667 | ***** | 150.9953        |
| 2004.0000000 | ****  | 72.9993         |
| 2004.0833333 | ***** | -128.1597       |
| 2004.1666667 | ****  | 84.9586         |
| 2004.2500000 | ***** | 237.4158        |
| 2004.3333333 | **    | -48.4877        |
| 2004.4166667 | ***** | -125.4252       |
| 2004.5000000 | ***   | -61.1910        |
| 2004.5833333 | **    | -43.7782        |
| 2004.6666667 | *     | -22.2567        |
| 2004.7500000 | ****  | 81.0292         |
| 2004.8333333 |       | 3.0892          |
| 2004.9166667 | **    | 31.3063         |
| 2005.0000000 | ***** | 100.9757        |

Kentucky Power Company  
 Residential Customers  
 Model Residuals

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 358 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2005.0833333 | ***** | -367.3603 |
| 2005.1666667 |       | 0.0000    |
| 2005.2500000 | ***   | 57.8169   |
| 2005.3333333 |       | -0.0000   |
| 2005.4166667 | ***** | 150.4601  |
| 2005.5000000 | **    | -49.8358  |
| 2005.5833333 | ***** | -115.5830 |
| 2005.6666667 | ****  | -77.1955  |
| 2005.7500000 | **    | 35.5625   |
| 2005.8333333 |       | -0.3675   |
| 2005.9166667 |       | -6.1694   |
| 2006.0000000 | *     | 17.8795   |
| 2006.0833333 | ***** | -177.0597 |
| 2006.1666667 |       | 0.0000    |
| 2006.2500000 | ****  | -85.3333  |
| 2006.3333333 | **    | -34.0126  |
| 2006.4166667 | *     | -15.0220  |
| 2006.5000000 | *     | 26.0168   |
| 2006.5833333 | ***   | 68.7986   |
| 2006.6666667 |       | -1.7346   |
| 2006.7500000 | ***   | 62.6291   |
| 2006.8333333 | ***   | 50.0867   |
| 2006.9166667 | ***** | -205.1812 |
| 2007.0000000 | ***** | 98.5408   |
| 2007.0833333 | ***** | 159.5949  |
| 2007.1666667 | ***** | -192.9110 |
| 2007.2500000 | **    | 49.0404   |
| 2007.3333333 | ****  | -72.1856  |
| 2007.4166667 | *     | 21.0085   |
| 2007.5000000 | **    | -53.0491  |
| 2007.5833333 | ***** | 236.7468  |
| 2007.6666667 | ***** | 122.1662  |
| 2007.7500000 | *     | -13.2053  |
| 2007.8333333 | ***** | -90.0425  |
| 2007.9166667 | ***** | 142.3150  |
| 2008.0000000 | ***** | 123.1138  |
| 2008.0833333 |       | 0.1478    |
| 2008.1666667 | ***** | -167.8695 |
| 2008.2500000 | *     | -10.7842  |
| 2008.3333333 | ****  | 78.4856   |
| 2008.4166667 | **    | 35.3176   |
| 2008.5000000 | ***** | 109.2366  |
| 2008.5833333 | *     | -14.1884  |
| 2008.6666667 |       | 2.9351    |
| 2008.7500000 | ***   | 50.9817   |
| 2008.8333333 | ***   | 58.9889   |
| 2008.9166667 | ****  | 76.8667   |
| 2009.0000000 | ****  | -85.9556  |
| 2009.0833333 | *     | -29.3749  |
| 2009.1666667 | *     | -13.2814  |
| 2009.2500000 |       | 3.4989    |
| 2009.3333333 | ****  | -71.2703  |

Kentucky Power Company  
 Residential Customers  
 Model Residuals

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2009.4166667 |       | ***** | 131.3321  |
| 2009.5000000 | ***** |       | -148.1877 |
| 2009.5833333 |       |       | 6.2065    |
| 2009.6666667 | *     |       | -26.4125  |
| 2009.7500000 | **    |       | 47.7658   |
| 2009.8333333 | *     |       | -25.5986  |
| 2009.9166667 | *     |       | 11.1364   |
| 2010.0000000 | *     |       | 27.4593   |
| 2010.0833333 |       | ***** | 132.4562  |
| 2010.1666667 |       |       | 4.5323    |
| 2010.2500000 | ****  |       | -77.7055  |
| 2010.3333333 | ***   |       | -62.6233  |
| 2010.4166667 |       | ****  | 81.2968   |
| 2010.5000000 | *     |       | -28.4447  |
| 2010.5833333 | **    |       | 31.7174   |
| 2010.6666667 | ***** |       | -278.1944 |
| 2010.7500000 | *     |       | 16.2535   |
| 2010.8333333 | ***   |       | 69.3847   |
| 2010.9166667 | ***** |       | -195.8501 |
| 2011.0000000 |       | ***** | 323.8139  |
| 2011.0833333 | ***** |       | -304.9621 |
| 2011.1666667 |       | ***** | 292.5267  |
| 2011.2500000 | ***** |       | -315.9388 |
| 2011.3333333 | ***** |       | -220.8678 |
| 2011.4166667 | ***** |       | -91.8428  |
| 2011.5000000 | **    |       | -37.0065  |
| 2011.5833333 |       | ****  | 71.3854   |
| 2011.6666667 | ***** |       | -266.8989 |
| 2011.7500000 | ****  |       | -89.9857  |
| 2011.8333333 | **    |       | -45.4309  |
| 2011.9166667 | **    |       | -37.1552  |
| 2012.0000000 | ***** |       | -94.7277  |
| 2012.0833333 |       | ***** | 275.1391  |
| 2012.1666667 | ***** |       | -209.6996 |
| 2012.2500000 | ***   |       | -67.5932  |
| 2012.3333333 |       | ***** | 169.2617  |
| 2012.4166667 | **    |       | -44.7200  |
| 2012.5000000 |       | ***** | 125.8193  |
| 2012.5833333 | ***** |       | -98.3444  |
| 2012.6666667 | *     |       | -14.0137  |
| 2012.7500000 | **    |       | -37.8067  |
| 2012.8333333 | **    |       | 40.7916   |
| 2012.9166667 | ****  |       | -72.5481  |
| 2013.0000000 | **    |       | 38.7376   |
| 2013.0833333 | **    |       | -31.4532  |
| 2013.1666667 | *     |       | 12.2186   |
| 2013.2500000 |       | ***** | 128.9562  |
| 2013.3333333 | **    |       | -48.0351  |
| 2013.4166667 | ***** |       | -128.7412 |
| 2013.5000000 | ***** |       | -201.1516 |
| 2013.5833333 |       |       | -6.6835   |
| 2013.6666667 | ****  |       | -83.4457  |

Kentucky Power Company  
 Residential Customers  
 Model Residuals

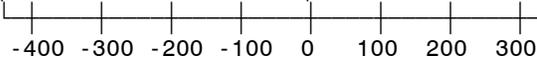
KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 360 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2013.7500000 |       | ***   | 69.7870   |
| 2013.8333333 |       | ***   | 51.9700   |
| 2013.9166667 |       | *     | 26.5666   |
| 2014.0000000 |       |       | 5.5623    |
| 2014.0833333 |       | **    | -33.2295  |
| 2014.1666667 |       |       | 8.6221    |
| 2014.2500000 | ***** |       | -294.3222 |
| 2014.3333333 | ***** |       | -101.9118 |
| 2014.4166667 | ***** |       | -147.7443 |
| 2014.5000000 | ***** |       | -112.4457 |
| 2014.5833333 | ***** |       | -240.0716 |
| 2014.6666667 |       | *     | 21.0199   |
| 2014.7500000 |       | **    | -36.2955  |
| 2014.8333333 |       | ***   | 69.3300   |
| 2014.9166667 |       | *     | 26.6773   |
| 2015.0000000 | ***** |       | -148.8044 |
| 2015.0833333 |       | ***** | 197.6662  |
| 2015.1666667 |       | ***** | 136.1655  |
| 2015.2500000 | ***** |       | -296.3537 |
| 2015.3333333 | ***** |       | -172.1374 |
| 2015.4166667 |       | ***   | 64.1737   |
| 2015.5000000 |       | **    | 38.8808   |
| 2015.5833333 |       |       | 0.1775    |
| 2015.6666667 |       | *     | -11.3810  |
| 2015.7500000 |       | ****  | 73.3008   |
| 2015.8333333 | ****  |       | -81.4148  |
| 2015.9166667 |       | **    | 48.6785   |
| 2016.0000000 |       | **    | -36.6453  |
| 2016.0833333 |       | ***** | 137.9393  |
| 2016.1666667 | ***** |       | -229.5711 |
| 2016.2500000 |       | ***** | 105.3822  |
| 2016.3333333 |       | *     | -13.7417  |
| 2016.4166667 | ***** |       | -98.1467  |
| 2016.5000000 | ***   |       | -56.9019  |
| 2016.5833333 |       | *     | 26.7882   |
| 2016.6666667 |       | *     | 19.2306   |
| 2016.7500000 | ***** |       | -208.8813 |
| 2016.8333333 |       |       | 4.6927    |
| 2016.9166667 |       | ***** | 101.0182  |
| 2017.0000000 | ***** |       | -112.0224 |
| 2017.0833333 | ***   |       | -56.0929  |
| 2017.1666667 |       | ***** | 144.8780  |
| 2017.2500000 | ****  |       | -77.1966  |
| 2017.3333333 |       | ***** | 186.9483  |
| 2017.4166667 |       |       | 2.3150    |
| 2017.5000000 |       |       | 7.2803    |
| 2017.5833333 |       |       | -2.0978   |
| 2017.6666667 |       | ***** | 213.7802  |
| 2017.7500000 | ****  |       | -84.1719  |
| 2017.8333333 |       | ***** | 119.7239  |
| 2017.9166667 | ***   |       | -60.9240  |
| 2018.0000000 |       | ***   | 62.7298   |

Kentucky Power Company  
 Residential Customers  
 Model Residuals

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 361 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2018.0833333 |       | *     | 17.3356   |
| 2018.1666667 | ***** |       | -100.5096 |
| 2018.2500000 |       | ***** | 135.9286  |
| 2018.3333333 |       | *     | 21.3621   |
| 2018.4166667 | **    |       | -41.2451  |
| 2018.5000000 |       | ***** | 260.4203  |
| 2018.5833333 | ***** |       | -108.3247 |
| 2018.6666667 |       | ***** | 136.1537  |
| 2018.7500000 | ***** |       | -148.9734 |
| 2018.8333333 |       | ****  | 87.6264   |
| 2018.9166667 |       | *     | -29.4244  |
| 2019.0000000 | ***** |       | -104.0024 |
| 2019.0833333 |       | *     | -23.7382  |
| 2019.1666667 |       | ****  | 87.0646   |
| 2019.2500000 |       | ***** | 325.0230  |
| 2019.3333333 |       | ***** | 96.0135   |
| 2019.4166667 |       |       | 5.6252    |
| 2019.5000000 |       | ***** | 137.6034  |
| 2019.5833333 |       | *     | -10.4505  |
| 2019.6666667 |       | ***** | 91.0228   |
| 2019.7500000 |       |       | -1.6100   |
| 2019.8333333 | ***** |       | -106.3630 |
| 2019.9166667 |       | ***** | 104.2761  |
| 2020.0000000 | ***** |       | -111.5241 |
| 2020.0833333 |       | *     | 18.8189   |
| 2020.1666667 |       | ****  | 84.9787   |
| 2020.2500000 |       | ***   | 66.2555   |
| 2020.3333333 |       | ***   | 58.7067   |
| 2020.4166667 | ***** |       | -124.9622 |
| 2020.5000000 |       |       | 7.7266    |
| 2020.5833333 | **    |       | -30.2480  |
| 2020.6666667 | **    |       | -34.1585  |
| 2020.7500000 |       | *     | -28.2987  |
| 2020.8333333 |       |       | -9.9340   |
| 2020.9166667 |       |       | -0.3009   |
| 2021.0000000 | ***** |       | -194.4706 |
| 2021.0833333 |       |       | 0.0000    |
| 2021.1666667 |       |       | -0.0000   |
| 2021.2500000 | ***** |       | -418.5508 |
| 2021.3333333 |       | **    | 49.1772   |
| 2021.4166667 |       | ****  | 73.6108   |
| 2021.5000000 |       | **    | 33.0849   |
| 2021.5833333 |       | ***** | 158.5883  |
| 2021.6666667 |       | ***** | 99.2107   |
| 2021.7500000 |       | **    | 34.8644   |
| 2021.8333333 |       | ***   | 65.0274   |
| 2021.9166667 | ***** |       | -107.7543 |



Residual Values

Kentucky Power Company  
 Residential Customer  
 Model Simulation

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 362 of 1182

The SIMLIN Procedure

Inverse Coefficient Matrix for Endogenous Variables

| Variable | cr_kpc |
|----------|--------|
| cr_kpc   | 1.0000 |

Reduced Form for Lagged Endogenous Variables

| Variable | cr1    |
|----------|--------|
| cr_kpc   | 0.9809 |

Reduced Form for Exogenous Variables

| Variable | hsnindx | hh_kpc  | d1       | d2        | d3        | d4        | d5        | d6      |
|----------|---------|---------|----------|-----------|-----------|-----------|-----------|---------|
| cr_kpc   | 1784    | 15.4807 | -50.9095 | -339.8994 | -363.7691 | -578.3465 | -486.0480 | -345.61 |

Reduced Form for Exogenous Variables

| Variable | d7        | d8        | d9        | d10       | d11      | dmay05    | dmar05   | dmar06 |
|----------|-----------|-----------|-----------|-----------|----------|-----------|----------|--------|
| cr_kpc   | -252.3254 | -162.4287 | -197.8329 | -238.4109 | -36.7858 | -389.5849 | 975.5912 | 625.43 |

Reduced Form for Exogenous Variables

| Variable | aprjun20 | janjul20 | maroct20 | feb21     | mar21 | Intercept |
|----------|----------|----------|----------|-----------|-------|-----------|
| cr_kpc   | 290.6242 | 19.2316  | 202.1433 | -832.7358 | 1460  | -148      |

Kentucky Power Company  
 Residential Customers  
 Model Simulation

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 363 of 1182

The SIMLIN Procedure

Fit Statistics

| Variable | N   | Mean Error | Mean Pct Error | Mean Abs Error | Mean Abs Pct Error | RMS Error | RMS Pct Error | Label                |
|----------|-----|------------|----------------|----------------|--------------------|-----------|---------------|----------------------|
| cr_kpc   | 252 | -1.3299    | -0.008880      | 588.0602       | 0.41826            | 683.6332  | 0.4871        | Residential Customer |

Kentucky Power Company  
 Residential Customers  
 Actual and Forecast

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 364 of 1182

| Year | Residential Customers | Growth Rate |
|------|-----------------------|-------------|
| 2001 | 144079.08             | .           |
| 2002 | 144399.50             | 0.2         |
| 2003 | 144487.17             | 0.1         |
| 2004 | 144433.58             | 0.0         |
| 2005 | 144512.67             | 0.1         |
| 2006 | 144446.50             | 0.0         |
| 2007 | 144206.58             | -0.2        |
| 2008 | 144105.42             | -0.1        |
| 2009 | 143628.08             | -0.3        |
| 2010 | 142971.08             | -0.5        |
| 2011 | 141859.75             | -0.8        |
| 2012 | 140928.92             | -0.7        |
| 2013 | 140163.75             | -0.5        |
| 2014 | 138957.83             | -0.9        |
| 2015 | 137943.92             | -0.7        |
| 2016 | 137013.08             | -0.7        |
| 2017 | 135896.25             | -0.8        |
| 2018 | 134966.75             | -0.7        |
| 2019 | 133978.08             | -0.7        |
| 2020 | 134284.33             | 0.2         |
| 2021 | 133906.34             | -0.3        |
| 2022 | 132497.76             | -1.1        |
| 2023 | 131195.02             | -1.0        |
| 2024 | 130081.98             | -0.8        |
| 2025 | 129098.53             | -0.8        |
| 2026 | 128204.43             | -0.7        |
| 2027 | 127373.09             | -0.6        |
| 2028 | 126584.15             | -0.6        |
| 2029 | 125827.50             | -0.6        |
| 2030 | 125098.90             | -0.6        |
| 2031 | 124390.56             | -0.6        |
| 2032 | 123695.16             | -0.6        |
| 2033 | 123009.89             | -0.6        |
| 2034 | 122324.06             | -0.6        |
| 2035 | 121634.28             | -0.6        |
| 2036 | 120939.63             | -0.6        |
| 2037 | 120229.26             | -0.6        |
| 2038 | 119496.17             | -0.6        |
| 2039 | 118737.93             | -0.6        |
| 2040 | 117958.26             | -0.7        |
| 2041 | 117159.83             | -0.7        |
| 2042 | 116342.74             | -0.7        |
| 2043 | 115506.83             | -0.7        |
| 2044 | 114652.14             | -0.7        |
| 2045 | 113784.86             | -0.8        |
| 2046 | 112906.16             | -0.8        |
| 2047 | 112015.50             | -0.8        |
| 2048 | 111113.98             | -0.8        |
| 2049 | 110203.79             | -0.8        |

Kentucky Power Company  
Residential Customers  
Actual and Forecast

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 365 of 1182

| Year | Residential Customers | Growth Rate |
|------|-----------------------|-------------|
| 2050 | 109289.96             | -0.8        |
| 2051 | 108378.35             | -0.8        |
| 2052 | 107474.50             | -0.8        |
| 2053 | 106579.27             | -0.8        |
| 2054 | 105692.14             | -0.8        |
| 2055 | 104812.69             | -0.8        |
| 2056 | 103940.56             | -0.8        |
| 2057 | 103075.49             | -0.8        |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 366 of 1182

The MEANS Procedure

| Variable | Label                | Mean      |
|----------|----------------------|-----------|
| YEAR     | YEAR                 | 2028.50   |
| MONTH    | MONTH                | 6.5000000 |
| cc_kpc   | Commercial Customers | 29211.33  |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 367 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 1   | 2000 | 1     | 25331  |
| 2   | 2000 | 2     | 25282  |
| 3   | 2000 | 3     | 25311  |
| 4   | 2000 | 4     | 25327  |
| 5   | 2000 | 5     | 25431  |
| 6   | 2000 | 6     | 25460  |
| 7   | 2000 | 7     | 25553  |
| 8   | 2000 | 8     | 25605  |
| 9   | 2000 | 9     | 25597  |
| 10  | 2000 | 10    | 25596  |
| 11  | 2000 | 11    | 25750  |
| 12  | 2000 | 12    | 25765  |
| 13  | 2001 | 1     | 25718  |
| 14  | 2001 | 2     | 25785  |
| 15  | 2001 | 3     | 25748  |
| 16  | 2001 | 4     | 25819  |
| 17  | 2001 | 5     | 25876  |
| 18  | 2001 | 6     | 25911  |
| 19  | 2001 | 7     | 25942  |
| 20  | 2001 | 8     | 25971  |
| 21  | 2001 | 9     | 26078  |
| 22  | 2001 | 10    | 26151  |
| 23  | 2001 | 11    | 26236  |
| 24  | 2001 | 12    | 26356  |
| 25  | 2002 | 1     | 26454  |
| 26  | 2002 | 2     | 26430  |
| 27  | 2002 | 3     | 26967  |
| 28  | 2002 | 4     | 26499  |
| 29  | 2002 | 5     | 26568  |
| 30  | 2002 | 6     | 26594  |
| 31  | 2002 | 7     | 26774  |
| 32  | 2002 | 8     | 26798  |
| 33  | 2002 | 9     | 26840  |
| 34  | 2002 | 10    | 26773  |
| 35  | 2002 | 11    | 26847  |
| 36  | 2002 | 12    | 26903  |
| 37  | 2003 | 1     | 26893  |
| 38  | 2003 | 2     | 26858  |
| 39  | 2003 | 3     | 26904  |
| 40  | 2003 | 4     | 26912  |
| 41  | 2003 | 5     | 26961  |
| 42  | 2003 | 6     | 27000  |
| 43  | 2003 | 7     | 27038  |
| 44  | 2003 | 8     | 27940  |
| 45  | 2003 | 9     | 27992  |
| 46  | 2003 | 10    | 28029  |
| 47  | 2003 | 11    | 28046  |
| 48  | 2003 | 12    | 28110  |
| 49  | 2004 | 1     | 28131  |
| 50  | 2004 | 2     | 28104  |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 368 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 51  | 2004 | 3     | 28127  |
| 52  | 2004 | 4     | 28166  |
| 53  | 2004 | 5     | 28189  |
| 54  | 2004 | 6     | 28233  |
| 55  | 2004 | 7     | 28321  |
| 56  | 2004 | 8     | 28361  |
| 57  | 2004 | 9     | 28421  |
| 58  | 2004 | 10    | 28472  |
| 59  | 2004 | 11    | 28442  |
| 60  | 2004 | 12    | 28496  |
| 61  | 2005 | 1     | 28555  |
| 62  | 2005 | 2     | 28492  |
| 63  | 2005 | 3     | 28726  |
| 64  | 2005 | 4     | 28742  |
| 65  | 2005 | 5     | 28820  |
| 66  | 2005 | 6     | 28921  |
| 67  | 2005 | 7     | 28896  |
| 68  | 2005 | 8     | 28995  |
| 69  | 2005 | 9     | 29068  |
| 70  | 2005 | 10    | 29079  |
| 71  | 2005 | 11    | 29040  |
| 72  | 2005 | 12    | 29064  |
| 73  | 2006 | 1     | 29121  |
| 74  | 2006 | 2     | 29047  |
| 75  | 2006 | 3     | 29187  |
| 76  | 2006 | 4     | 29148  |
| 77  | 2006 | 5     | 29245  |
| 78  | 2006 | 6     | 29278  |
| 79  | 2006 | 7     | 29279  |
| 80  | 2006 | 8     | 29339  |
| 81  | 2006 | 9     | 29384  |
| 82  | 2006 | 10    | 29597  |
| 83  | 2006 | 11    | 29433  |
| 84  | 2006 | 12    | 29354  |
| 85  | 2007 | 1     | 29460  |
| 86  | 2007 | 2     | 29416  |
| 87  | 2007 | 3     | 29460  |
| 88  | 2007 | 4     | 29427  |
| 89  | 2007 | 5     | 29570  |
| 90  | 2007 | 6     | 29678  |
| 91  | 2007 | 7     | 29736  |
| 92  | 2007 | 8     | 29828  |
| 93  | 2007 | 9     | 29876  |
| 94  | 2007 | 10    | 29925  |
| 95  | 2007 | 11    | 29935  |
| 96  | 2007 | 12    | 29922  |
| 97  | 2008 | 1     | 29969  |
| 98  | 2008 | 2     | 29955  |
| 99  | 2008 | 3     | 29975  |
| 100 | 2008 | 4     | 30023  |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 369 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 101 | 2008 | 5     | 30069  |
| 102 | 2008 | 6     | 30080  |
| 103 | 2008 | 7     | 29341  |
| 104 | 2008 | 8     | 29387  |
| 105 | 2008 | 9     | 29479  |
| 106 | 2008 | 10    | 29482  |
| 107 | 2008 | 11    | 29453  |
| 108 | 2008 | 12    | 29540  |
| 109 | 2009 | 1     | 29552  |
| 110 | 2009 | 2     | 29486  |
| 111 | 2009 | 3     | 29604  |
| 112 | 2009 | 4     | 29479  |
| 113 | 2009 | 5     | 29457  |
| 114 | 2009 | 6     | 29567  |
| 115 | 2009 | 7     | 29524  |
| 116 | 2009 | 8     | 29559  |
| 117 | 2009 | 9     | 29581  |
| 118 | 2009 | 10    | 29614  |
| 119 | 2009 | 11    | 29595  |
| 120 | 2009 | 12    | 29635  |
| 121 | 2010 | 1     | 29670  |
| 122 | 2010 | 2     | 29652  |
| 123 | 2010 | 3     | 29669  |
| 124 | 2010 | 4     | 29699  |
| 125 | 2010 | 5     | 29710  |
| 126 | 2010 | 6     | 29863  |
| 127 | 2010 | 7     | 29814  |
| 128 | 2010 | 8     | 29867  |
| 129 | 2010 | 9     | 29864  |
| 130 | 2010 | 10    | 29878  |
| 131 | 2010 | 11    | 29971  |
| 132 | 2010 | 12    | 29828  |
| 133 | 2011 | 1     | 30017  |
| 134 | 2011 | 2     | 29782  |
| 135 | 2011 | 3     | 29964  |
| 136 | 2011 | 4     | 29852  |
| 137 | 2011 | 5     | 29900  |
| 138 | 2011 | 6     | 29936  |
| 139 | 2011 | 7     | 29908  |
| 140 | 2011 | 8     | 30057  |
| 141 | 2011 | 9     | 30031  |
| 142 | 2011 | 10    | 30047  |
| 143 | 2011 | 11    | 30046  |
| 144 | 2011 | 12    | 30032  |
| 145 | 2012 | 1     | 30029  |
| 146 | 2012 | 2     | 29991  |
| 147 | 2012 | 3     | 29891  |
| 148 | 2012 | 4     | 29979  |
| 149 | 2012 | 5     | 30000  |
| 150 | 2012 | 6     | 30057  |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 370 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 151 | 2012 | 7     | 30096  |
| 152 | 2012 | 8     | 30111  |
| 153 | 2012 | 9     | 30146  |
| 154 | 2012 | 10    | 30087  |
| 155 | 2012 | 11    | 30157  |
| 156 | 2012 | 12    | 30165  |
| 157 | 2013 | 1     | 30181  |
| 158 | 2013 | 2     | 30147  |
| 159 | 2013 | 3     | 30078  |
| 160 | 2013 | 4     | 30102  |
| 161 | 2013 | 5     | 30159  |
| 162 | 2013 | 6     | 30190  |
| 163 | 2013 | 7     | 30215  |
| 164 | 2013 | 8     | 30252  |
| 165 | 2013 | 9     | 30824  |
| 166 | 2013 | 10    | 30381  |
| 167 | 2013 | 11    | 30296  |
| 168 | 2013 | 12    | 30359  |
| 169 | 2014 | 1     | 30419  |
| 170 | 2014 | 2     | 30347  |
| 171 | 2014 | 3     | 30382  |
| 172 | 2014 | 4     | 30320  |
| 173 | 2014 | 5     | 30342  |
| 174 | 2014 | 6     | 30337  |
| 175 | 2014 | 7     | 30388  |
| 176 | 2014 | 8     | 30373  |
| 177 | 2014 | 9     | 30463  |
| 178 | 2014 | 10    | 30448  |
| 179 | 2014 | 11    | 30411  |
| 180 | 2014 | 12    | 30412  |
| 181 | 2015 | 1     | 30428  |
| 182 | 2015 | 2     | 30401  |
| 183 | 2015 | 3     | 30457  |
| 184 | 2015 | 4     | 30405  |
| 185 | 2015 | 5     | 30390  |
| 186 | 2015 | 6     | 30504  |
| 187 | 2015 | 7     | 30611  |
| 188 | 2015 | 8     | 30595  |
| 189 | 2015 | 9     | 30499  |
| 190 | 2015 | 10    | 30444  |
| 191 | 2015 | 11    | 30370  |
| 192 | 2015 | 12    | 30397  |
| 193 | 2016 | 1     | 30328  |
| 194 | 2016 | 2     | 30339  |
| 195 | 2016 | 3     | 30261  |
| 196 | 2016 | 4     | 30243  |
| 197 | 2016 | 5     | 30252  |
| 198 | 2016 | 6     | 30305  |
| 199 | 2016 | 7     | 30300  |
| 200 | 2016 | 8     | 30322  |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 371 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 201 | 2016 | 9     | 30365  |
| 202 | 2016 | 10    | 30315  |
| 203 | 2016 | 11    | 30237  |
| 204 | 2016 | 12    | 30243  |
| 205 | 2017 | 1     | 30131  |
| 206 | 2017 | 2     | 30080  |
| 207 | 2017 | 3     | 30121  |
| 208 | 2017 | 4     | 30070  |
| 209 | 2017 | 5     | 30147  |
| 210 | 2017 | 6     | 30156  |
| 211 | 2017 | 7     | 30206  |
| 212 | 2017 | 8     | 30166  |
| 213 | 2017 | 9     | 30184  |
| 214 | 2017 | 10    | 30154  |
| 215 | 2017 | 11    | 30163  |
| 216 | 2017 | 12    | 30141  |
| 217 | 2018 | 1     | 30212  |
| 218 | 2018 | 2     | 30085  |
| 219 | 2018 | 3     | 30026  |
| 220 | 2018 | 4     | 30032  |
| 221 | 2018 | 5     | 30082  |
| 222 | 2018 | 6     | 30079  |
| 223 | 2018 | 7     | 30130  |
| 224 | 2018 | 8     | 30169  |
| 225 | 2018 | 9     | 30151  |
| 226 | 2018 | 10    | 30071  |
| 227 | 2018 | 11    | 30060  |
| 228 | 2018 | 12    | 29956  |
| 229 | 2019 | 1     | 29890  |
| 230 | 2019 | 2     | 30011  |
| 231 | 2019 | 3     | 29915  |
| 232 | 2019 | 4     | 30017  |
| 233 | 2019 | 5     | 30002  |
| 234 | 2019 | 6     | 29964  |
| 235 | 2019 | 7     | 30061  |
| 236 | 2019 | 8     | 30001  |
| 237 | 2019 | 9     | 29981  |
| 238 | 2019 | 10    | 29932  |
| 239 | 2019 | 11    | 29903  |
| 240 | 2019 | 12    | 29929  |
| 241 | 2020 | 1     | 29955  |
| 242 | 2020 | 2     | 29862  |
| 243 | 2020 | 3     | 29854  |
| 244 | 2020 | 4     | 29889  |
| 245 | 2020 | 5     | 29927  |
| 246 | 2020 | 6     | 30026  |
| 247 | 2020 | 7     | 30075  |
| 248 | 2020 | 8     | 30129  |
| 249 | 2020 | 9     | 30166  |
| 250 | 2020 | 10    | 30245  |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 372 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 251 | 2020 | 11    | 30202  |
| 252 | 2020 | 12    | 30172  |
| 253 | 2021 | 1     | 30140  |
| 254 | 2021 | 2     | 29759  |
| 255 | 2021 | 3     | 30446  |
| 256 | 2021 | 4     | 30141  |
| 257 | 2021 | 5     | 30227  |
| 258 | 2021 | 6     | 30267  |
| 259 | 2021 | 7     | 30321  |
| 260 | 2021 | 8     | 30375  |
| 261 | 2021 | 9     | 30332  |
| 262 | 2021 | 10    | 30263  |
| 263 | 2021 | 11    | 30256  |
| 264 | 2021 | 12    | 30141  |
| 265 | 2022 | 1     | .      |
| 266 | 2022 | 2     | .      |
| 267 | 2022 | 3     | .      |
| 268 | 2022 | 4     | .      |
| 269 | 2022 | 5     | .      |
| 270 | 2022 | 6     | .      |
| 271 | 2022 | 7     | .      |
| 272 | 2022 | 8     | .      |
| 273 | 2022 | 9     | .      |
| 274 | 2022 | 10    | .      |
| 275 | 2022 | 11    | .      |
| 276 | 2022 | 12    | .      |
| 277 | 2023 | 1     | .      |
| 278 | 2023 | 2     | .      |
| 279 | 2023 | 3     | .      |
| 280 | 2023 | 4     | .      |
| 281 | 2023 | 5     | .      |
| 282 | 2023 | 6     | .      |
| 283 | 2023 | 7     | .      |
| 284 | 2023 | 8     | .      |
| 285 | 2023 | 9     | .      |
| 286 | 2023 | 10    | .      |
| 287 | 2023 | 11    | .      |
| 288 | 2023 | 12    | .      |
| 289 | 2024 | 1     | .      |
| 290 | 2024 | 2     | .      |
| 291 | 2024 | 3     | .      |
| 292 | 2024 | 4     | .      |
| 293 | 2024 | 5     | .      |
| 294 | 2024 | 6     | .      |
| 295 | 2024 | 7     | .      |
| 296 | 2024 | 8     | .      |
| 297 | 2024 | 9     | .      |
| 298 | 2024 | 10    | .      |
| 299 | 2024 | 11    | .      |
| 300 | 2024 | 12    | .      |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 373 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 301 | 2025 | 1     | .      |
| 302 | 2025 | 2     | .      |
| 303 | 2025 | 3     | .      |
| 304 | 2025 | 4     | .      |
| 305 | 2025 | 5     | .      |
| 306 | 2025 | 6     | .      |
| 307 | 2025 | 7     | .      |
| 308 | 2025 | 8     | .      |
| 309 | 2025 | 9     | .      |
| 310 | 2025 | 10    | .      |
| 311 | 2025 | 11    | .      |
| 312 | 2025 | 12    | .      |
| 313 | 2026 | 1     | .      |
| 314 | 2026 | 2     | .      |
| 315 | 2026 | 3     | .      |
| 316 | 2026 | 4     | .      |
| 317 | 2026 | 5     | .      |
| 318 | 2026 | 6     | .      |
| 319 | 2026 | 7     | .      |
| 320 | 2026 | 8     | .      |
| 321 | 2026 | 9     | .      |
| 322 | 2026 | 10    | .      |
| 323 | 2026 | 11    | .      |
| 324 | 2026 | 12    | .      |
| 325 | 2027 | 1     | .      |
| 326 | 2027 | 2     | .      |
| 327 | 2027 | 3     | .      |
| 328 | 2027 | 4     | .      |
| 329 | 2027 | 5     | .      |
| 330 | 2027 | 6     | .      |
| 331 | 2027 | 7     | .      |
| 332 | 2027 | 8     | .      |
| 333 | 2027 | 9     | .      |
| 334 | 2027 | 10    | .      |
| 335 | 2027 | 11    | .      |
| 336 | 2027 | 12    | .      |
| 337 | 2028 | 1     | .      |
| 338 | 2028 | 2     | .      |
| 339 | 2028 | 3     | .      |
| 340 | 2028 | 4     | .      |
| 341 | 2028 | 5     | .      |
| 342 | 2028 | 6     | .      |
| 343 | 2028 | 7     | .      |
| 344 | 2028 | 8     | .      |
| 345 | 2028 | 9     | .      |
| 346 | 2028 | 10    | .      |
| 347 | 2028 | 11    | .      |
| 348 | 2028 | 12    | .      |
| 349 | 2029 | 1     | .      |
| 350 | 2029 | 2     | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 374 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 351 | 2029 | 3     | .      |
| 352 | 2029 | 4     | .      |
| 353 | 2029 | 5     | .      |
| 354 | 2029 | 6     | .      |
| 355 | 2029 | 7     | .      |
| 356 | 2029 | 8     | .      |
| 357 | 2029 | 9     | .      |
| 358 | 2029 | 10    | .      |
| 359 | 2029 | 11    | .      |
| 360 | 2029 | 12    | .      |
| 361 | 2030 | 1     | .      |
| 362 | 2030 | 2     | .      |
| 363 | 2030 | 3     | .      |
| 364 | 2030 | 4     | .      |
| 365 | 2030 | 5     | .      |
| 366 | 2030 | 6     | .      |
| 367 | 2030 | 7     | .      |
| 368 | 2030 | 8     | .      |
| 369 | 2030 | 9     | .      |
| 370 | 2030 | 10    | .      |
| 371 | 2030 | 11    | .      |
| 372 | 2030 | 12    | .      |
| 373 | 2031 | 1     | .      |
| 374 | 2031 | 2     | .      |
| 375 | 2031 | 3     | .      |
| 376 | 2031 | 4     | .      |
| 377 | 2031 | 5     | .      |
| 378 | 2031 | 6     | .      |
| 379 | 2031 | 7     | .      |
| 380 | 2031 | 8     | .      |
| 381 | 2031 | 9     | .      |
| 382 | 2031 | 10    | .      |
| 383 | 2031 | 11    | .      |
| 384 | 2031 | 12    | .      |
| 385 | 2032 | 1     | .      |
| 386 | 2032 | 2     | .      |
| 387 | 2032 | 3     | .      |
| 388 | 2032 | 4     | .      |
| 389 | 2032 | 5     | .      |
| 390 | 2032 | 6     | .      |
| 391 | 2032 | 7     | .      |
| 392 | 2032 | 8     | .      |
| 393 | 2032 | 9     | .      |
| 394 | 2032 | 10    | .      |
| 395 | 2032 | 11    | .      |
| 396 | 2032 | 12    | .      |
| 397 | 2033 | 1     | .      |
| 398 | 2033 | 2     | .      |
| 399 | 2033 | 3     | .      |
| 400 | 2033 | 4     | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 375 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 401 | 2033 | 5     | .      |
| 402 | 2033 | 6     | .      |
| 403 | 2033 | 7     | .      |
| 404 | 2033 | 8     | .      |
| 405 | 2033 | 9     | .      |
| 406 | 2033 | 10    | .      |
| 407 | 2033 | 11    | .      |
| 408 | 2033 | 12    | .      |
| 409 | 2034 | 1     | .      |
| 410 | 2034 | 2     | .      |
| 411 | 2034 | 3     | .      |
| 412 | 2034 | 4     | .      |
| 413 | 2034 | 5     | .      |
| 414 | 2034 | 6     | .      |
| 415 | 2034 | 7     | .      |
| 416 | 2034 | 8     | .      |
| 417 | 2034 | 9     | .      |
| 418 | 2034 | 10    | .      |
| 419 | 2034 | 11    | .      |
| 420 | 2034 | 12    | .      |
| 421 | 2035 | 1     | .      |
| 422 | 2035 | 2     | .      |
| 423 | 2035 | 3     | .      |
| 424 | 2035 | 4     | .      |
| 425 | 2035 | 5     | .      |
| 426 | 2035 | 6     | .      |
| 427 | 2035 | 7     | .      |
| 428 | 2035 | 8     | .      |
| 429 | 2035 | 9     | .      |
| 430 | 2035 | 10    | .      |
| 431 | 2035 | 11    | .      |
| 432 | 2035 | 12    | .      |
| 433 | 2036 | 1     | .      |
| 434 | 2036 | 2     | .      |
| 435 | 2036 | 3     | .      |
| 436 | 2036 | 4     | .      |
| 437 | 2036 | 5     | .      |
| 438 | 2036 | 6     | .      |
| 439 | 2036 | 7     | .      |
| 440 | 2036 | 8     | .      |
| 441 | 2036 | 9     | .      |
| 442 | 2036 | 10    | .      |
| 443 | 2036 | 11    | .      |
| 444 | 2036 | 12    | .      |
| 445 | 2037 | 1     | .      |
| 446 | 2037 | 2     | .      |
| 447 | 2037 | 3     | .      |
| 448 | 2037 | 4     | .      |
| 449 | 2037 | 5     | .      |
| 450 | 2037 | 6     | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 376 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 451 | 2037 | 7     | .      |
| 452 | 2037 | 8     | .      |
| 453 | 2037 | 9     | .      |
| 454 | 2037 | 10    | .      |
| 455 | 2037 | 11    | .      |
| 456 | 2037 | 12    | .      |
| 457 | 2038 | 1     | .      |
| 458 | 2038 | 2     | .      |
| 459 | 2038 | 3     | .      |
| 460 | 2038 | 4     | .      |
| 461 | 2038 | 5     | .      |
| 462 | 2038 | 6     | .      |
| 463 | 2038 | 7     | .      |
| 464 | 2038 | 8     | .      |
| 465 | 2038 | 9     | .      |
| 466 | 2038 | 10    | .      |
| 467 | 2038 | 11    | .      |
| 468 | 2038 | 12    | .      |
| 469 | 2039 | 1     | .      |
| 470 | 2039 | 2     | .      |
| 471 | 2039 | 3     | .      |
| 472 | 2039 | 4     | .      |
| 473 | 2039 | 5     | .      |
| 474 | 2039 | 6     | .      |
| 475 | 2039 | 7     | .      |
| 476 | 2039 | 8     | .      |
| 477 | 2039 | 9     | .      |
| 478 | 2039 | 10    | .      |
| 479 | 2039 | 11    | .      |
| 480 | 2039 | 12    | .      |
| 481 | 2040 | 1     | .      |
| 482 | 2040 | 2     | .      |
| 483 | 2040 | 3     | .      |
| 484 | 2040 | 4     | .      |
| 485 | 2040 | 5     | .      |
| 486 | 2040 | 6     | .      |
| 487 | 2040 | 7     | .      |
| 488 | 2040 | 8     | .      |
| 489 | 2040 | 9     | .      |
| 490 | 2040 | 10    | .      |
| 491 | 2040 | 11    | .      |
| 492 | 2040 | 12    | .      |
| 493 | 2041 | 1     | .      |
| 494 | 2041 | 2     | .      |
| 495 | 2041 | 3     | .      |
| 496 | 2041 | 4     | .      |
| 497 | 2041 | 5     | .      |
| 498 | 2041 | 6     | .      |
| 499 | 2041 | 7     | .      |
| 500 | 2041 | 8     | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 377 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 501 | 2041 | 9     | .      |
| 502 | 2041 | 10    | .      |
| 503 | 2041 | 11    | .      |
| 504 | 2041 | 12    | .      |
| 505 | 2042 | 1     | .      |
| 506 | 2042 | 2     | .      |
| 507 | 2042 | 3     | .      |
| 508 | 2042 | 4     | .      |
| 509 | 2042 | 5     | .      |
| 510 | 2042 | 6     | .      |
| 511 | 2042 | 7     | .      |
| 512 | 2042 | 8     | .      |
| 513 | 2042 | 9     | .      |
| 514 | 2042 | 10    | .      |
| 515 | 2042 | 11    | .      |
| 516 | 2042 | 12    | .      |
| 517 | 2043 | 1     | .      |
| 518 | 2043 | 2     | .      |
| 519 | 2043 | 3     | .      |
| 520 | 2043 | 4     | .      |
| 521 | 2043 | 5     | .      |
| 522 | 2043 | 6     | .      |
| 523 | 2043 | 7     | .      |
| 524 | 2043 | 8     | .      |
| 525 | 2043 | 9     | .      |
| 526 | 2043 | 10    | .      |
| 527 | 2043 | 11    | .      |
| 528 | 2043 | 12    | .      |
| 529 | 2044 | 1     | .      |
| 530 | 2044 | 2     | .      |
| 531 | 2044 | 3     | .      |
| 532 | 2044 | 4     | .      |
| 533 | 2044 | 5     | .      |
| 534 | 2044 | 6     | .      |
| 535 | 2044 | 7     | .      |
| 536 | 2044 | 8     | .      |
| 537 | 2044 | 9     | .      |
| 538 | 2044 | 10    | .      |
| 539 | 2044 | 11    | .      |
| 540 | 2044 | 12    | .      |
| 541 | 2045 | 1     | .      |
| 542 | 2045 | 2     | .      |
| 543 | 2045 | 3     | .      |
| 544 | 2045 | 4     | .      |
| 545 | 2045 | 5     | .      |
| 546 | 2045 | 6     | .      |
| 547 | 2045 | 7     | .      |
| 548 | 2045 | 8     | .      |
| 549 | 2045 | 9     | .      |
| 550 | 2045 | 10    | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 378 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 551 | 2045 | 11    | .      |
| 552 | 2045 | 12    | .      |
| 553 | 2046 | 1     | .      |
| 554 | 2046 | 2     | .      |
| 555 | 2046 | 3     | .      |
| 556 | 2046 | 4     | .      |
| 557 | 2046 | 5     | .      |
| 558 | 2046 | 6     | .      |
| 559 | 2046 | 7     | .      |
| 560 | 2046 | 8     | .      |
| 561 | 2046 | 9     | .      |
| 562 | 2046 | 10    | .      |
| 563 | 2046 | 11    | .      |
| 564 | 2046 | 12    | .      |
| 565 | 2047 | 1     | .      |
| 566 | 2047 | 2     | .      |
| 567 | 2047 | 3     | .      |
| 568 | 2047 | 4     | .      |
| 569 | 2047 | 5     | .      |
| 570 | 2047 | 6     | .      |
| 571 | 2047 | 7     | .      |
| 572 | 2047 | 8     | .      |
| 573 | 2047 | 9     | .      |
| 574 | 2047 | 10    | .      |
| 575 | 2047 | 11    | .      |
| 576 | 2047 | 12    | .      |
| 577 | 2048 | 1     | .      |
| 578 | 2048 | 2     | .      |
| 579 | 2048 | 3     | .      |
| 580 | 2048 | 4     | .      |
| 581 | 2048 | 5     | .      |
| 582 | 2048 | 6     | .      |
| 583 | 2048 | 7     | .      |
| 584 | 2048 | 8     | .      |
| 585 | 2048 | 9     | .      |
| 586 | 2048 | 10    | .      |
| 587 | 2048 | 11    | .      |
| 588 | 2048 | 12    | .      |
| 589 | 2049 | 1     | .      |
| 590 | 2049 | 2     | .      |
| 591 | 2049 | 3     | .      |
| 592 | 2049 | 4     | .      |
| 593 | 2049 | 5     | .      |
| 594 | 2049 | 6     | .      |
| 595 | 2049 | 7     | .      |
| 596 | 2049 | 8     | .      |
| 597 | 2049 | 9     | .      |
| 598 | 2049 | 10    | .      |
| 599 | 2049 | 11    | .      |
| 600 | 2049 | 12    | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 379 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 601 | 2050 | 1     | .      |
| 602 | 2050 | 2     | .      |
| 603 | 2050 | 3     | .      |
| 604 | 2050 | 4     | .      |
| 605 | 2050 | 5     | .      |
| 606 | 2050 | 6     | .      |
| 607 | 2050 | 7     | .      |
| 608 | 2050 | 8     | .      |
| 609 | 2050 | 9     | .      |
| 610 | 2050 | 10    | .      |
| 611 | 2050 | 11    | .      |
| 612 | 2050 | 12    | .      |
| 613 | 2051 | 1     | .      |
| 614 | 2051 | 2     | .      |
| 615 | 2051 | 3     | .      |
| 616 | 2051 | 4     | .      |
| 617 | 2051 | 5     | .      |
| 618 | 2051 | 6     | .      |
| 619 | 2051 | 7     | .      |
| 620 | 2051 | 8     | .      |
| 621 | 2051 | 9     | .      |
| 622 | 2051 | 10    | .      |
| 623 | 2051 | 11    | .      |
| 624 | 2051 | 12    | .      |
| 625 | 2052 | 1     | .      |
| 626 | 2052 | 2     | .      |
| 627 | 2052 | 3     | .      |
| 628 | 2052 | 4     | .      |
| 629 | 2052 | 5     | .      |
| 630 | 2052 | 6     | .      |
| 631 | 2052 | 7     | .      |
| 632 | 2052 | 8     | .      |
| 633 | 2052 | 9     | .      |
| 634 | 2052 | 10    | .      |
| 635 | 2052 | 11    | .      |
| 636 | 2052 | 12    | .      |
| 637 | 2053 | 1     | .      |
| 638 | 2053 | 2     | .      |
| 639 | 2053 | 3     | .      |
| 640 | 2053 | 4     | .      |
| 641 | 2053 | 5     | .      |
| 642 | 2053 | 6     | .      |
| 643 | 2053 | 7     | .      |
| 644 | 2053 | 8     | .      |
| 645 | 2053 | 9     | .      |
| 646 | 2053 | 10    | .      |
| 647 | 2053 | 11    | .      |
| 648 | 2053 | 12    | .      |
| 649 | 2054 | 1     | .      |
| 650 | 2054 | 2     | .      |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
KPSC Case No. 2023-00092  
Volume A - Public Version  
Page 380 of 1182

| Obs | YEAR | MONTH | cc_kpc |
|-----|------|-------|--------|
| 651 | 2054 | 3     | .      |
| 652 | 2054 | 4     | .      |
| 653 | 2054 | 5     | .      |
| 654 | 2054 | 6     | .      |
| 655 | 2054 | 7     | .      |
| 656 | 2054 | 8     | .      |
| 657 | 2054 | 9     | .      |
| 658 | 2054 | 10    | .      |
| 659 | 2054 | 11    | .      |
| 660 | 2054 | 12    | .      |
| 661 | 2055 | 1     | .      |
| 662 | 2055 | 2     | .      |
| 663 | 2055 | 3     | .      |
| 664 | 2055 | 4     | .      |
| 665 | 2055 | 5     | .      |
| 666 | 2055 | 6     | .      |
| 667 | 2055 | 7     | .      |
| 668 | 2055 | 8     | .      |
| 669 | 2055 | 9     | .      |
| 670 | 2055 | 10    | .      |
| 671 | 2055 | 11    | .      |
| 672 | 2055 | 12    | .      |
| 673 | 2056 | 1     | .      |
| 674 | 2056 | 2     | .      |
| 675 | 2056 | 3     | .      |
| 676 | 2056 | 4     | .      |
| 677 | 2056 | 5     | .      |
| 678 | 2056 | 6     | .      |
| 679 | 2056 | 7     | .      |
| 680 | 2056 | 8     | .      |
| 681 | 2056 | 9     | .      |
| 682 | 2056 | 10    | .      |
| 683 | 2056 | 11    | .      |
| 684 | 2056 | 12    | .      |
| 685 | 2057 | 1     | .      |
| 686 | 2057 | 2     | .      |
| 687 | 2057 | 3     | .      |
| 688 | 2057 | 4     | .      |
| 689 | 2057 | 5     | .      |
| 690 | 2057 | 6     | .      |
| 691 | 2057 | 7     | .      |
| 692 | 2057 | 8     | .      |
| 693 | 2057 | 9     | .      |
| 694 | 2057 | 10    | .      |
| 695 | 2057 | 11    | .      |
| 696 | 2057 | 12    | .      |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 381 of 1182

The MEANS Procedure

| Variable | Label                             | Mean        |
|----------|-----------------------------------|-------------|
| YEAR     | YEAR                              | 2028.50     |
| MONTH    | MONTH                             | 6.5000000   |
| N_kpc    | Service Area Population           | 380.1442303 |
| D020N    | Binary Variable-2002 On           | 0.9655172   |
| d04on    | Binary Variable-2004 On           | 0.9310345   |
| d07on    | Binary Variable-2007 On           | 0.8793103   |
| d093on   | Binary Variable-July 2009 On      | 0.8362069   |
| d1       | January                           | 0.0833333   |
| d2       | February                          | 0.0833333   |
| d3       | March                             | 0.0833333   |
| d4       | April                             | 0.0833333   |
| d5       | May                               | 0.0833333   |
| d6       | June                              | 0.0833333   |
| d7       | July                              | 0.0833333   |
| d8       | August                            | 0.0833333   |
| d9       | September                         | 0.0833333   |
| d10      | October                           | 0.0833333   |
| d11      | November                          | 0.0833333   |
| YR_KPC   | Service Area Real Personal Income | 14354.32    |
| d13on    | Binary Variable-2013 On           | 0.7758621   |
| sep18on  | Binary Variable-September 2018 On | 0.6781609   |
| aug19on  | Binary Variable-August 2019 On    | 0.6623563   |
| feb19on  | Binary Variable-February 2019 On  | 0.6709770   |
| mar21on  | Binary Variable-March 2021 On     | 0.6350575   |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 382 of 1182

| Year | Month | Price (\$/MWh) | Days of the Month |    |    |    |    |    |    |    |    |     |     |     |     | Demand (MW) | Renewable (MW) | Transmission (MW) | Other (MW) | Total (MW) |     |     |   |
|------|-------|----------------|-------------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-------------|----------------|-------------------|------------|------------|-----|-----|---|
|      |       |                | D1                | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 | D11 | D12 | D13 |             |                |                   |            |            | D14 | D15 |   |
| 2000 | 1     | 440.892        | 0                 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10460.91          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 2     | 440.668        | 0                 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10480.82          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 3     | 440.432        | 0                 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10506.11          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 4     | 440.189        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10536.26          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 5     | 439.937        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0   | 0   | 0           | 0              | 10569.25          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 6     | 439.678        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0   | 0   | 0           | 0              | 10604.10          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 7     | 439.416        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0   | 0   | 0           | 0              | 10642.28          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 8     | 439.146        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1   | 0   | 0           | 0              | 10686.30          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 9     | 438.879        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 1   | 0           | 0              | 10735.22          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 10    | 438.609        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 1           | 0              | 10787.31          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 11    | 438.351        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 1              | 10839.27          | 0          | 0          | 0   | 0   | 0 |
| 2000 | 12    | 438.096        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10888.39          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 1     | 437.850        | 0                 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10934.68          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 2     | 437.628        | 0                 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 10975.24          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 3     | 437.427        | 0                 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11012.86          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 4     | 437.232        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11051.10          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 5     | 437.064        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0   | 0   | 0           | 0              | 11091.73          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 6     | 436.923        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0   | 0   | 0           | 0              | 11136.14          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 7     | 436.811        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0   | 0   | 0           | 0              | 11180.52          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 8     | 436.726        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1   | 0   | 0           | 0              | 11220.35          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 9     | 436.668        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 1   | 0           | 0              | 11251.36          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 10    | 436.633        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 1           | 0              | 11276.07          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 11    | 436.616        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 1              | 11297.96          | 0          | 0          | 0   | 0   | 0 |
| 2001 | 12    | 436.612        | 0                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11319.25          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 1     | 436.620        | 1                 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11338.83          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 2     | 436.632        | 1                 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11353.13          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 3     | 436.648        | 1                 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11361.55          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 4     | 436.664        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11365.68          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 5     | 436.671        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0   | 0   | 0           | 0              | 11367.54          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 6     | 436.673        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0   | 0   | 0           | 0              | 11368.89          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 7     | 436.662        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0   | 0   | 0           | 0              | 11369.26          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 8     | 436.636        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1   | 0   | 0           | 0              | 11367.35          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 9     | 436.596        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 1   | 0           | 0              | 11362.32          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 10    | 436.542        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 1           | 0              | 11354.74          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 11    | 436.476        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 1              | 11345.65          | 0          | 0          | 0   | 0   | 0 |
| 2002 | 12    | 436.400        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11336.42          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 1     | 436.312        | 1                 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11329.37          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 2     | 436.216        | 1                 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11327.36          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 3     | 436.112        | 1                 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11331.16          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 4     | 435.995        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0   | 0   | 0           | 0              | 11337.71          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 5     | 435.870        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0   | 0   | 0           | 0              | 11342.01          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 6     | 435.741        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0   | 0   | 0           | 0              | 11340.96          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 7     | 435.602        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0   | 0   | 0           | 0              | 11336.85          | 0          | 0          | 0   | 0   | 0 |
| 2003 | 8     | 435.458        | 1                 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1   | 0   | 0           | 0              | 11333.74          | 0          | 0          | 0   | 0   | 0 |

**KENTUCKY POWER COMPANY**  
**COMMERCIAL CUSTOMERS**  
**EXOGENOUS VARIABLES**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 383 of 1182

| Obs | Year | Month | N       | D |   |   |   |   |   |   |   |   |   |   |   |   | Y | s        | a | f | m |   |   |
|-----|------|-------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|---|
|     |      |       |         | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | R |   |          |   |   |   | e | u |
|     |      |       |         | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |   |   |          |   |   |   |   |   |
| 45  | 2003 | 9     | 435.308 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11334.42 | 0 | 0 | 0 | 0 | 0 |
| 46  | 2003 | 10    | 435.157 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11337.74 | 0 | 0 | 0 | 0 | 0 |
| 47  | 2003 | 11    | 435.011 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11341.45 | 0 | 0 | 0 | 0 | 0 |
| 48  | 2003 | 12    | 434.863 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11343.70 | 0 | 0 | 0 | 0 | 0 |
| 49  | 2004 | 1     | 434.719 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11343.96 | 0 | 0 | 0 | 0 | 0 |
| 50  | 2004 | 2     | 434.584 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11342.15 | 0 | 0 | 0 | 0 | 0 |
| 51  | 2004 | 3     | 434.455 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11338.84 | 0 | 0 | 0 | 0 | 0 |
| 52  | 2004 | 4     | 434.341 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11336.53 | 0 | 0 | 0 | 0 | 0 |
| 53  | 2004 | 5     | 434.233 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 11338.52 | 0 | 0 | 0 | 0 | 0 |
| 54  | 2004 | 6     | 434.139 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 11346.57 | 0 | 0 | 0 | 0 | 0 |
| 55  | 2004 | 7     | 434.062 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11358.19 | 0 | 0 | 0 | 0 | 0 |
| 56  | 2004 | 8     | 433.999 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11369.70 | 0 | 0 | 0 | 0 | 0 |
| 57  | 2004 | 9     | 433.953 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11378.21 | 0 | 0 | 0 | 0 | 0 |
| 58  | 2004 | 10    | 433.915 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11384.94 | 0 | 0 | 0 | 0 | 0 |
| 59  | 2004 | 11    | 433.890 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11392.05 | 0 | 0 | 0 | 0 | 0 |
| 60  | 2004 | 12    | 433.869 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11401.45 | 0 | 0 | 0 | 0 | 0 |
| 61  | 2005 | 1     | 433.855 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11414.49 | 0 | 0 | 0 | 0 | 0 |
| 62  | 2005 | 2     | 433.846 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11430.96 | 0 | 0 | 0 | 0 | 0 |
| 63  | 2005 | 3     | 433.834 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11451.58 | 0 | 0 | 0 | 0 | 0 |
| 64  | 2005 | 4     | 433.825 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11474.96 | 0 | 0 | 0 | 0 | 0 |
| 65  | 2005 | 5     | 433.811 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 11497.51 | 0 | 0 | 0 | 0 | 0 |
| 66  | 2005 | 6     | 433.796 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 11517.63 | 0 | 0 | 0 | 0 | 0 |
| 67  | 2005 | 7     | 433.771 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11537.95 | 0 | 0 | 0 | 0 | 0 |
| 68  | 2005 | 8     | 433.738 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11562.43 | 0 | 0 | 0 | 0 | 0 |
| 69  | 2005 | 9     | 433.702 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11592.31 | 0 | 0 | 0 | 0 | 0 |
| 70  | 2005 | 10    | 433.655 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11627.04 | 0 | 0 | 0 | 0 | 0 |
| 71  | 2005 | 11    | 433.605 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11664.72 | 0 | 0 | 0 | 0 | 0 |
| 72  | 2005 | 12    | 433.551 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11703.24 | 0 | 0 | 0 | 0 | 0 |
| 73  | 2006 | 1     | 433.496 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11740.26 | 0 | 0 | 0 | 0 | 0 |
| 74  | 2006 | 2     | 433.439 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11770.55 | 0 | 0 | 0 | 0 | 0 |
| 75  | 2006 | 3     | 433.380 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11793.65 | 0 | 0 | 0 | 0 | 0 |
| 76  | 2006 | 4     | 433.321 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11810.16 | 0 | 0 | 0 | 0 | 0 |
| 77  | 2006 | 5     | 433.260 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 11819.82 | 0 | 0 | 0 | 0 | 0 |
| 78  | 2006 | 6     | 433.202 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 11824.23 | 0 | 0 | 0 | 0 | 0 |
| 79  | 2006 | 7     | 433.146 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11827.16 | 0 | 0 | 0 | 0 | 0 |
| 80  | 2006 | 8     | 433.089 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11834.47 | 0 | 0 | 0 | 0 | 0 |
| 81  | 2006 | 9     | 433.036 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11849.14 | 0 | 0 | 0 | 0 | 0 |
| 82  | 2006 | 10    | 432.985 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11863.44 | 0 | 0 | 0 | 0 | 0 |
| 83  | 2006 | 11    | 432.935 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11866.15 | 0 | 0 | 0 | 0 | 0 |
| 84  | 2006 | 12    | 432.884 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11851.18 | 0 | 0 | 0 | 0 | 0 |
| 85  | 2007 | 1     | 432.826 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11828.46 | 0 | 0 | 0 | 0 | 0 |
| 86  | 2007 | 2     | 432.775 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11814.05 | 0 | 0 | 0 | 0 | 0 |
| 87  | 2007 | 3     | 432.713 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11817.56 | 0 | 0 | 0 | 0 | 0 |
| 88  | 2007 | 4     | 432.650 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11839.63 | 0 | 0 | 0 | 0 | 0 |

**KENTUCKY POWER COMPANY**  
**COMMERCIAL CUSTOMERS**  
**EXOGENOUS VARIABLES**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 384 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | N<br>_<br>k<br>p<br>c | D<br>d<br>o<br>n | d<br>o<br>o<br>n | d<br>o<br>o<br>n | d<br>o<br>o<br>n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | Y<br>R<br>_<br>K<br>P<br>C | s a f m               |                       |                       |                       |                       |
|-------------|------------------|-----------------------|-----------------------|------------------|------------------|------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|             |                  |                       |                       |                  |                  |                  |                  |   |   |   |   |   |   |   |   |   |   |   |                            | e u e a               |                       |                       |                       |                       |
|             |                  |                       |                       |                  |                  |                  |                  |   |   |   |   |   |   |   |   |   |   |   |                            | d<br>p<br>g<br>b<br>r | 1<br>1<br>1<br>1<br>2 | 3<br>8<br>9<br>9<br>1 | o<br>o<br>o<br>o<br>o | n<br>n<br>n<br>n<br>n |
| 89          | 2007             | 5                     | 432.580               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11877.40                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 90          | 2007             | 6                     | 432.505               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 11928.23                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 91          | 2007             | 7                     | 432.427               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 11992.52                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 92          | 2007             | 8                     | 432.338               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12070.64                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 93          | 2007             | 9                     | 432.246               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12157.04                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 94          | 2007             | 10                    | 432.150               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12249.96                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 95          | 2007             | 11                    | 432.050               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12346.42                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 96          | 2007             | 12                    | 431.949               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12444.20                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 97          | 2008             | 1                     | 431.851               | 1                | 1                | 1                | 0                | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12544.59                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 98          | 2008             | 2                     | 431.752               | 1                | 1                | 1                | 0                | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12643.07                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 99          | 2008             | 3                     | 431.655               | 1                | 1                | 1                | 0                | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12740.88                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 100         | 2008             | 4                     | 431.562               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12830.14                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 101         | 2008             | 5                     | 431.472               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12896.68                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 102         | 2008             | 6                     | 431.391               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12933.06                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 103         | 2008             | 7                     | 431.313               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12946.06                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 104         | 2008             | 8                     | 431.244               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12950.01                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 105         | 2008             | 9                     | 431.182               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12956.47                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 106         | 2008             | 10                    | 431.120               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12962.95                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 107         | 2008             | 11                    | 431.070               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12962.39                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 108         | 2008             | 12                    | 431.021               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12950.32                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 109         | 2009             | 1                     | 430.977               | 1                | 1                | 1                | 0                | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12930.67                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 110         | 2009             | 2                     | 430.934               | 1                | 1                | 1                | 0                | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12911.59                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 111         | 2009             | 3                     | 430.895               | 1                | 1                | 1                | 0                | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12897.11                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 112         | 2009             | 4                     | 430.857               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12886.98                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 113         | 2009             | 5                     | 430.818               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12880.33                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 114         | 2009             | 6                     | 430.778               | 1                | 1                | 1                | 0                | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12876.07                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 115         | 2009             | 7                     | 430.740               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12874.48                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 116         | 2009             | 8                     | 430.698               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12874.86                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 117         | 2009             | 9                     | 430.657               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12876.43                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 118         | 2009             | 10                    | 430.613               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12882.87                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 119         | 2009             | 11                    | 430.573               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12899.16                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 120         | 2009             | 12                    | 430.531               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12927.92                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 121         | 2010             | 1                     | 430.491               | 1                | 1                | 1                | 1                | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12964.31                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 122         | 2010             | 2                     | 430.454               | 1                | 1                | 1                | 1                | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12998.24                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 123         | 2010             | 3                     | 430.418               | 1                | 1                | 1                | 1                | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13026.58                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 124         | 2010             | 4                     | 430.382               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13053.49                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 125         | 2010             | 5                     | 430.350               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13084.12                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 126         | 2010             | 6                     | 430.324               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13121.94                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 127         | 2010             | 7                     | 430.299               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13161.95                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 128         | 2010             | 8                     | 430.277               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13197.06                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 129         | 2010             | 9                     | 430.257               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13221.59                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 130         | 2010             | 10                    | 430.233               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13239.83                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 131         | 2010             | 11                    | 430.206               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 13258.12                   | 0                     | 0                     | 0                     | 0                     | 0                     |
| 132         | 2010             | 12                    | 430.170               | 1                | 1                | 1                | 1                | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13280.28                   | 0                     | 0                     | 0                     | 0                     | 0                     |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 385 of 1182

|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   | Y        | s a f m |   |   |   |   |   |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---|---|---|---|---|---|
|     |      | M  | N       | D | d | d | d | 0 |   |   |   |   |   |   |   |   |   |          |         | R | d | p | g | b | r |
| O   | Y    | 0  | _       | 0 | 0 | 0 | 9 |   |   |   |   |   |   |   |   |   |   |          | _       | 1 | 1 | 1 | 1 | 2 |   |
| b   | A    | T  | k       | 2 | 4 | 7 | 3 |   |   |   |   |   |   |   |   |   |   |          | K       | 3 | 8 | 9 | 9 | 1 |   |
| s   | R    | H  | c       | N | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1        | P       | o | o | o | o | o |   |
|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   | C        | n       | n | n | n | n |   |   |
| 133 | 2011 | 1  | 430.126 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13302.79 | 0       | 0 | 0 | 0 | 0 |   |   |
| 134 | 2011 | 2  | 430.072 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13318.30 | 0       | 0 | 0 | 0 | 0 |   |   |
| 135 | 2011 | 3  | 430.002 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13323.85 | 0       | 0 | 0 | 0 | 0 |   |   |
| 136 | 2011 | 4  | 429.914 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13321.24 | 0       | 0 | 0 | 0 | 0 |   |   |
| 137 | 2011 | 5  | 429.807 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13313.94 | 0       | 0 | 0 | 0 | 0 |   |   |
| 138 | 2011 | 6  | 429.677 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13306.00 | 0       | 0 | 0 | 0 | 0 |   |   |
| 139 | 2011 | 7  | 429.525 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13301.73 | 0       | 0 | 0 | 0 | 0 |   |   |
| 140 | 2011 | 8  | 429.344 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13305.58 | 0       | 0 | 0 | 0 | 0 |   |   |
| 141 | 2011 | 9  | 429.143 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13318.28 | 0       | 0 | 0 | 0 | 0 |   |   |
| 142 | 2011 | 10 | 428.925 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 13330.21 | 0       | 0 | 0 | 0 | 0 |   |   |
| 143 | 2011 | 11 | 428.688 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13328.58 | 0       | 0 | 0 | 0 | 0 |   |   |
| 144 | 2011 | 12 | 428.439 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13305.43 | 0       | 0 | 0 | 0 | 0 |   |   |
| 145 | 2012 | 1  | 428.172 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13267.99 | 0       | 0 | 0 | 0 | 0 |   |   |
| 146 | 2012 | 2  | 427.907 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13230.66 | 0       | 0 | 0 | 0 | 0 |   |   |
| 147 | 2012 | 3  | 427.638 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13200.04 | 0       | 0 | 0 | 0 | 0 |   |   |
| 148 | 2012 | 4  | 427.361 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13170.18 | 0       | 0 | 0 | 0 | 0 |   |   |
| 149 | 2012 | 5  | 427.081 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13131.72 | 0       | 0 | 0 | 0 | 0 |   |   |
| 150 | 2012 | 6  | 426.807 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13078.48 | 0       | 0 | 0 | 0 | 0 |   |   |
| 151 | 2012 | 7  | 426.533 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13014.84 | 0       | 0 | 0 | 0 | 0 |   |   |
| 152 | 2012 | 8  | 426.266 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12948.40 | 0       | 0 | 0 | 0 | 0 |   |   |
| 153 | 2012 | 9  | 426.005 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12887.84 | 0       | 0 | 0 | 0 | 0 |   |   |
| 154 | 2012 | 10 | 425.752 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12830.92 | 0       | 0 | 0 | 0 | 0 |   |   |
| 155 | 2012 | 11 | 425.499 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12774.11 | 0       | 0 | 0 | 0 | 0 |   |   |
| 156 | 2012 | 12 | 425.255 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12715.63 | 0       | 0 | 0 | 0 | 0 |   |   |
| 157 | 2013 | 1  | 425.005 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12657.95 | 1       | 0 | 0 | 0 | 0 |   |   |
| 158 | 2013 | 2  | 424.772 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12609.31 | 1       | 0 | 0 | 0 | 0 |   |   |
| 159 | 2013 | 3  | 424.540 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12570.03 | 1       | 0 | 0 | 0 | 0 |   |   |
| 160 | 2013 | 4  | 424.300 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12537.51 | 1       | 0 | 0 | 0 | 0 |   |   |
| 161 | 2013 | 5  | 424.063 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12510.35 | 1       | 0 | 0 | 0 | 0 |   |   |
| 162 | 2013 | 6  | 423.825 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12486.83 | 1       | 0 | 0 | 0 | 0 |   |   |
| 163 | 2013 | 7  | 423.584 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12469.32 | 1       | 0 | 0 | 0 | 0 |   |   |
| 164 | 2013 | 8  | 423.342 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12460.14 | 1       | 0 | 0 | 0 | 0 |   |   |
| 165 | 2013 | 9  | 423.098 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12460.67 | 1       | 0 | 0 | 0 | 0 |   |   |
| 166 | 2013 | 10 | 422.857 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12471.48 | 1       | 0 | 0 | 0 | 0 |   |   |
| 167 | 2013 | 11 | 422.611 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12493.11 | 1       | 0 | 0 | 0 | 0 |   |   |
| 168 | 2013 | 12 | 422.361 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12525.11 | 1       | 0 | 0 | 0 | 0 |   |   |
| 169 | 2014 | 1  | 422.106 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12563.68 | 1       | 0 | 0 | 0 | 0 |   |   |
| 170 | 2014 | 2  | 421.861 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12600.76 | 1       | 0 | 0 | 0 | 0 |   |   |
| 171 | 2014 | 3  | 421.608 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12634.32 | 1       | 0 | 0 | 0 | 0 |   |   |
| 172 | 2014 | 4  | 421.345 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12665.87 | 1       | 0 | 0 | 0 | 0 |   |   |
| 173 | 2014 | 5  | 421.077 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12696.16 | 1       | 0 | 0 | 0 | 0 |   |   |
| 174 | 2014 | 6  | 420.805 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12726.79 | 1       | 0 | 0 | 0 | 0 |   |   |
| 175 | 2014 | 7  | 420.527 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12758.02 | 1       | 0 | 0 | 0 | 0 |   |   |
| 176 | 2014 | 8  | 420.240 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12790.65 | 1       | 0 | 0 | 0 | 0 |   |   |



KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 387 of 1182

| O b s | Y E A R | M O N T H | N k c   | D | d | d | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | Y R      | s a f e u e | m e a s u r e |   |   |   |
|-------|---------|-----------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|-------------|---------------|---|---|---|
|       |         |           |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |          |             |               |   |   |   |
| 221   | 2018    | 5         | 403.676 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12642.35 | 1           | 0             | 0 | 0 | 0 |
| 222   | 2018    | 6         | 403.321 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12633.56 | 1           | 0             | 0 | 0 | 0 |
| 223   | 2018    | 7         | 402.907 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12625.70 | 1           | 0             | 0 | 0 | 0 |
| 224   | 2018    | 8         | 402.435 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12610.85 | 1           | 0             | 0 | 0 | 0 |
| 225   | 2018    | 9         | 401.930 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12585.97 | 1           | 1             | 0 | 0 | 0 |
| 226   | 2018    | 10        | 401.406 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12556.94 | 1           | 1             | 0 | 0 | 0 |
| 227   | 2018    | 11        | 400.864 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12532.66 | 1           | 1             | 0 | 0 | 0 |
| 228   | 2018    | 12        | 400.334 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12518.76 | 1           | 1             | 0 | 0 | 0 |
| 229   | 2019    | 1         | 399.821 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12510.64 | 1           | 1             | 0 | 0 | 0 |
| 230   | 2019    | 2         | 399.360 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12501.40 | 1           | 1             | 0 | 1 | 0 |
| 231   | 2019    | 3         | 398.949 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12486.71 | 1           | 1             | 0 | 1 | 0 |
| 232   | 2019    | 4         | 398.586 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12472.03 | 1           | 1             | 0 | 1 | 0 |
| 233   | 2019    | 5         | 398.307 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12467.43 | 1           | 1             | 0 | 1 | 0 |
| 234   | 2019    | 6         | 398.119 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12480.10 | 1           | 1             | 0 | 1 | 0 |
| 235   | 2019    | 7         | 398.043 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12510.62 | 1           | 1             | 0 | 1 | 0 |
| 236   | 2019    | 8         | 398.070 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12557.03 | 1           | 1             | 1 | 1 | 0 |
| 237   | 2019    | 9         | 398.190 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12613.99 | 1           | 1             | 1 | 1 | 0 |
| 238   | 2019    | 10        | 398.379 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12677.32 | 1           | 1             | 1 | 1 | 0 |
| 239   | 2019    | 11        | 398.617 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12741.82 | 1           | 1             | 1 | 1 | 0 |
| 240   | 2019    | 12        | 398.886 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12806.90 | 1           | 1             | 1 | 1 | 0 |
| 241   | 2020    | 1         | 399.174 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12887.33 | 1           | 1             | 1 | 1 | 0 |
| 242   | 2020    | 2         | 399.445 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12996.38 | 1           | 1             | 1 | 1 | 0 |
| 243   | 2020    | 3         | 399.686 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13145.20 | 1           | 1             | 1 | 1 | 0 |
| 244   | 2020    | 4         | 399.889 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13315.00 | 1           | 1             | 1 | 1 | 0 |
| 245   | 2020    | 5         | 400.028 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13470.19 | 1           | 1             | 1 | 1 | 0 |
| 246   | 2020    | 6         | 400.082 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13588.70 | 1           | 1             | 1 | 1 | 0 |
| 247   | 2020    | 7         | 400.032 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13687.13 | 1           | 1             | 1 | 1 | 0 |
| 248   | 2020    | 8         | 399.877 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13796.44 | 1           | 1             | 1 | 1 | 0 |
| 249   | 2020    | 9         | 399.630 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13930.73 | 1           | 1             | 1 | 1 | 0 |
| 250   | 2020    | 10        | 399.307 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14078.37 | 1           | 1             | 1 | 1 | 0 |
| 251   | 2020    | 11        | 398.920 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 14215.77 | 1           | 1             | 1 | 1 | 0 |
| 252   | 2020    | 12        | 398.482 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14323.92 | 1           | 1             | 1 | 1 | 0 |
| 253   | 2021    | 1         | 398.006 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14402.01 | 1           | 1             | 1 | 1 | 0 |
| 254   | 2021    | 2         | 397.533 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14450.21 | 1           | 1             | 1 | 1 | 0 |
| 255   | 2021    | 3         | 397.058 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14474.65 | 1           | 1             | 1 | 1 | 1 |
| 256   | 2021    | 4         | 396.572 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14473.57 | 1           | 1             | 1 | 1 | 1 |
| 257   | 2021    | 5         | 396.111 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14441.75 | 1           | 1             | 1 | 1 | 1 |
| 258   | 2021    | 6         | 395.690 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 14377.52 | 1           | 1             | 1 | 1 | 1 |
| 259   | 2021    | 7         | 395.321 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14283.27 | 1           | 1             | 1 | 1 | 1 |
| 260   | 2021    | 8         | 395.003 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 14165.17 | 1           | 1             | 1 | 1 | 1 |
| 261   | 2021    | 9         | 394.738 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 14036.25 | 1           | 1             | 1 | 1 | 1 |
| 262   | 2021    | 10        | 394.519 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13895.96 | 1           | 1             | 1 | 1 | 1 |
| 263   | 2021    | 11        | 394.337 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 13743.32 | 1           | 1             | 1 | 1 | 1 |
| 264   | 2021    | 12        | 394.186 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13578.99 | 1           | 1             | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 388 of 1182

|     |      | Y  | M       | N | D | d | d | d | 0 |   |   |   |   |   |   |   |   |   |          | Y | s | a | f | m |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|---|---|
|     |      | O  | O       | — | 0 | 0 | 0 | 0 | 9 |   |   |   |   |   |   |   |   |   |          | R | d | p | g | b | r |
|     |      | E  | N       | k | 2 | 4 | 7 | 3 |   |   |   |   |   |   |   |   |   |   |          | — | 1 | 1 | 1 | 1 | 2 |
|     |      | A  | T       | p | 0 | o | o | o | d | d | d | d | d | d | d | d | d | d | d        | K | 3 | 8 | 9 | 9 | 1 |
|     |      | R  | H       | c | N | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1        | P | o | o | o | o | o |
|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |          | C | n | n | n | n | n |
| 265 | 2022 | 1  | 394.052 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13406.08 | 1 | 1 | 1 | 1 | 1 |   |
| 266 | 2022 | 2  | 393.945 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13242.96 | 1 | 1 | 1 | 1 | 1 |   |
| 267 | 2022 | 3  | 393.845 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13087.60 | 1 | 1 | 1 | 1 | 1 |   |
| 268 | 2022 | 4  | 393.746 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12939.83 | 1 | 1 | 1 | 1 | 1 |   |
| 269 | 2022 | 5  | 393.642 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12809.96 | 1 | 1 | 1 | 1 | 1 |   |
| 270 | 2022 | 6  | 393.527 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12702.63 | 1 | 1 | 1 | 1 | 1 |   |
| 271 | 2022 | 7  | 393.397 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12623.29 | 1 | 1 | 1 | 1 | 1 |   |
| 272 | 2022 | 8  | 393.242 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 12572.54 | 1 | 1 | 1 | 1 | 1 |   |
| 273 | 2022 | 9  | 393.071 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12549.16 | 1 | 1 | 1 | 1 | 1 |   |
| 274 | 2022 | 10 | 392.885 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12548.91 | 1 | 1 | 1 | 1 | 1 |   |
| 275 | 2022 | 11 | 392.693 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12568.16 | 1 | 1 | 1 | 1 | 1 |   |
| 276 | 2022 | 12 | 392.483 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12603.54 | 1 | 1 | 1 | 1 | 1 |   |
| 277 | 2023 | 1  | 392.267 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12651.54 | 1 | 1 | 1 | 1 | 1 |   |
| 278 | 2023 | 2  | 392.054 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12704.28 | 1 | 1 | 1 | 1 | 1 |   |
| 279 | 2023 | 3  | 391.837 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12760.33 | 1 | 1 | 1 | 1 | 1 |   |
| 280 | 2023 | 4  | 391.615 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12819.12 | 1 | 1 | 1 | 1 | 1 |   |
| 281 | 2023 | 5  | 391.394 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12876.62 | 1 | 1 | 1 | 1 | 1 |   |
| 282 | 2023 | 6  | 391.178 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12930.27 | 1 | 1 | 1 | 1 | 1 |   |
| 283 | 2023 | 7  | 390.967 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12976.28 | 1 | 1 | 1 | 1 | 1 |   |
| 284 | 2023 | 8  | 390.760 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13013.07 | 1 | 1 | 1 | 1 | 1 |   |
| 285 | 2023 | 9  | 390.564 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13039.81 | 1 | 1 | 1 | 1 | 1 |   |
| 286 | 2023 | 10 | 390.375 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 13058.57 | 1 | 1 | 1 | 1 | 1 |   |
| 287 | 2023 | 11 | 390.187 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13071.17 | 1 | 1 | 1 | 1 | 1 |   |
| 288 | 2023 | 12 | 390.008 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13079.09 | 1 | 1 | 1 | 1 | 1 |   |
| 289 | 2024 | 1  | 389.826 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13083.28 | 1 | 1 | 1 | 1 | 1 |   |
| 290 | 2024 | 2  | 389.653 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13084.28 | 1 | 1 | 1 | 1 | 1 |   |
| 291 | 2024 | 3  | 389.483 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13083.07 | 1 | 1 | 1 | 1 | 1 |   |
| 292 | 2024 | 4  | 389.309 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13080.94 | 1 | 1 | 1 | 1 | 1 |   |
| 293 | 2024 | 5  | 389.132 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13079.46 | 1 | 1 | 1 | 1 | 1 |   |
| 294 | 2024 | 6  | 388.957 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13080.05 | 1 | 1 | 1 | 1 | 1 |   |
| 295 | 2024 | 7  | 388.777 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 13083.89 | 1 | 1 | 1 | 1 | 1 |   |
| 296 | 2024 | 8  | 388.594 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13091.39 | 1 | 1 | 1 | 1 | 1 |   |
| 297 | 2024 | 9  | 388.411 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13101.86 | 1 | 1 | 1 | 1 | 1 |   |
| 298 | 2024 | 10 | 388.226 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 13115.04 | 1 | 1 | 1 | 1 | 1 |   |
| 299 | 2024 | 11 | 388.040 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13130.57 | 1 | 1 | 1 | 1 | 1 |   |
| 300 | 2024 | 12 | 387.851 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13148.10 | 1 | 1 | 1 | 1 | 1 |   |
| 301 | 2025 | 1  | 387.660 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13167.47 | 1 | 1 | 1 | 1 | 1 |   |
| 302 | 2025 | 2  | 387.473 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13186.86 | 1 | 1 | 1 | 1 | 1 |   |
| 303 | 2025 | 3  | 387.291 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13206.72 | 1 | 1 | 1 | 1 | 1 |   |
| 304 | 2025 | 4  | 387.101 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13227.20 | 1 | 1 | 1 | 1 | 1 |   |
| 305 | 2025 | 5  | 386.909 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13247.07 | 1 | 1 | 1 | 1 | 1 |   |
| 306 | 2025 | 6  | 386.722 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 13265.82 | 1 | 1 | 1 | 1 | 1 |   |
| 307 | 2025 | 7  | 386.535 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13283.17 | 1 | 1 | 1 | 1 | 1 |   |
| 308 | 2025 | 8  | 386.340 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13299.48 | 1 | 1 | 1 | 1 | 1 |   |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 389 of 1182

|     | Y    | M  | N       | D | d | d | d | d | d | d | d | d | d | d | d | d | d | d | Y | s | a        | f        | m |   |   |   |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|----------|---|---|---|---|---|
|     | E    | O  | k       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | R | e | u        | e        | a |   |   |   |   |
| O   | A    | N  | p       | 2 | 4 | 7 | 3 |   |   |   |   |   |   |   |   |   |   |   | K | 3 | 8        | 9        | 9 |   |   |   |   |
| b   | A    | T  | p       | 0 | o | o | o | d | d | d | d | d | d | d | d | d | d | 1 | P | o | o        | o        | o |   |   |   |   |
| s   | R    | H  | c       | N | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | C | n | n        | n        | n |   |   |   |   |
| 309 | 2025 | 9  | 386.153 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13314.56 | 1        | 1 | 1 | 1 | 1 |   |
| 310 | 2025 | 10 | 385.967 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13328.72 | 1        | 1 | 1 | 1 | 1 |   |
| 311 | 2025 | 11 | 385.781 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0        | 13341.91 | 1 | 1 | 1 | 1 | 1 |
| 312 | 2025 | 12 | 385.597 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13354.15 | 1 | 1 | 1 | 1 | 1 |
| 313 | 2026 | 1  | 385.410 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13365.92 | 1 | 1 | 1 | 1 | 1 |
| 314 | 2026 | 2  | 385.232 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13376.85 | 1 | 1 | 1 | 1 | 1 |
| 315 | 2026 | 3  | 385.056 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13387.87 | 1 | 1 | 1 | 1 | 1 |
| 316 | 2026 | 4  | 384.871 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13399.69 | 1 | 1 | 1 | 1 | 1 |
| 317 | 2026 | 5  | 384.690 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13412.24 | 1 | 1 | 1 | 1 | 1 |
| 318 | 2026 | 6  | 384.510 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13425.86 | 1 | 1 | 1 | 1 | 1 |
| 319 | 2026 | 7  | 384.326 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13440.75 | 1 | 1 | 1 | 1 | 1 |
| 320 | 2026 | 8  | 384.143 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0        | 13457.25 | 1 | 1 | 1 | 1 | 1 |
| 321 | 2026 | 9  | 383.960 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0        | 13474.66 | 1 | 1 | 1 | 1 | 1 |
| 322 | 2026 | 10 | 383.777 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0        | 13493.08 | 1 | 1 | 1 | 1 | 1 |
| 323 | 2026 | 11 | 383.599 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0        | 13512.32 | 1 | 1 | 1 | 1 | 1 |
| 324 | 2026 | 12 | 383.415 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13532.22 | 1 | 1 | 1 | 1 | 1 |
| 325 | 2027 | 1  | 383.230 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13552.98 | 1 | 1 | 1 | 1 | 1 |
| 326 | 2027 | 2  | 383.054 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13573.12 | 1 | 1 | 1 | 1 | 1 |
| 327 | 2027 | 3  | 382.878 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13593.55 | 1 | 1 | 1 | 1 | 1 |
| 328 | 2027 | 4  | 382.695 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13614.95 | 1 | 1 | 1 | 1 | 1 |
| 329 | 2027 | 5  | 382.511 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13636.65 | 1 | 1 | 1 | 1 | 1 |
| 330 | 2027 | 6  | 382.325 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13658.60 | 1 | 1 | 1 | 1 | 1 |
| 331 | 2027 | 7  | 382.142 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13680.65 | 1 | 1 | 1 | 1 | 1 |
| 332 | 2027 | 8  | 381.950 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0        | 13702.99 | 1 | 1 | 1 | 1 | 1 |
| 333 | 2027 | 9  | 381.765 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0        | 13724.86 | 1 | 1 | 1 | 1 | 1 |
| 334 | 2027 | 10 | 381.579 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0        | 13746.61 | 1 | 1 | 1 | 1 | 1 |
| 335 | 2027 | 11 | 381.391 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0        | 13768.26 | 1 | 1 | 1 | 1 | 1 |
| 336 | 2027 | 12 | 381.202 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13789.85 | 1 | 1 | 1 | 1 | 1 |
| 337 | 2028 | 1  | 381.013 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13811.75 | 1 | 1 | 1 | 1 | 1 |
| 338 | 2028 | 2  | 380.826 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13832.94 | 1 | 1 | 1 | 1 | 1 |
| 339 | 2028 | 3  | 380.643 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13854.17 | 1 | 1 | 1 | 1 | 1 |
| 340 | 2028 | 4  | 380.455 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13875.76 | 1 | 1 | 1 | 1 | 1 |
| 341 | 2028 | 5  | 380.267 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13897.32 | 1 | 1 | 1 | 1 | 1 |
| 342 | 2028 | 6  | 380.078 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13918.83 | 1 | 1 | 1 | 1 | 1 |
| 343 | 2028 | 7  | 379.892 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 13940.38 | 1 | 1 | 1 | 1 | 1 |
| 344 | 2028 | 8  | 379.700 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0        | 13962.37 | 1 | 1 | 1 | 1 | 1 |
| 345 | 2028 | 9  | 379.514 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0        | 13984.07 | 1 | 1 | 1 | 1 | 1 |
| 346 | 2028 | 10 | 379.326 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0        | 14005.63 | 1 | 1 | 1 | 1 | 1 |
| 347 | 2028 | 11 | 379.139 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0        | 14026.79 | 1 | 1 | 1 | 1 | 1 |
| 348 | 2028 | 12 | 378.953 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 14047.39 | 1 | 1 | 1 | 1 | 1 |
| 349 | 2029 | 1  | 378.762 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 14067.86 | 1 | 1 | 1 | 1 | 1 |
| 350 | 2029 | 2  | 378.581 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 14087.08 | 1 | 1 | 1 | 1 | 1 |
| 351 | 2029 | 3  | 378.401 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 14106.16 | 1 | 1 | 1 | 1 | 1 |
| 352 | 2029 | 4  | 378.214 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | 14125.69 | 1 | 1 | 1 | 1 | 1 |

**KENTUCKY POWER COMPANY**  
**COMMERCIAL CUSTOMERS**  
**EXOGENOUS VARIABLES**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 390 of 1182

| Month | Year | Value | Jan     | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Yr Total | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec      | Yr Total |   |   |   |   |   |
|-------|------|-------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|---|---|---|---|---|
| 353   | 2029 | 5     | 378.028 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14144.89 | 1        | 1 | 1 | 1 | 1 | 1 |
| 354   | 2029 | 6     | 377.839 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14163.66 | 1        | 1 | 1 | 1 | 1 | 1 |
| 355   | 2029 | 7     | 377.652 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14181.92 | 1        | 1 | 1 | 1 | 1 | 1 |
| 356   | 2029 | 8     | 377.461 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14199.99 | 1        | 1 | 1 | 1 | 1 | 1 |
| 357   | 2029 | 9     | 377.274 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14217.37 | 1        | 1 | 1 | 1 | 1 | 1 |
| 358   | 2029 | 10    | 377.088 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 14234.40 | 1        | 1 | 1 | 1 | 1 | 1 |
| 359   | 2029 | 11    | 376.899 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 14251.12 | 1        | 1 | 1 | 1 | 1 | 1 |
| 360   | 2029 | 12    | 376.712 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14267.59 | 1        | 1 | 1 | 1 | 1 | 1 |
| 361   | 2030 | 1     | 376.522 | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14284.15 | 1        | 1 | 1 | 1 | 1 | 1 |
| 362   | 2030 | 2     | 376.340 | 1   | 1   | 1   | 1   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14299.82 | 1        | 1 | 1 | 1 | 1 | 1 |
| 363   | 2030 | 3     | 376.159 | 1   | 1   | 1   | 1   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14315.51 | 1        | 1 | 1 | 1 | 1 | 1 |
| 364   | 2030 | 4     | 375.972 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14331.93 | 1        | 1 | 1 | 1 | 1 | 1 |
| 365   | 2030 | 5     | 375.783 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14348.80 | 1        | 1 | 1 | 1 | 1 | 1 |
| 366   | 2030 | 6     | 375.599 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14366.27 | 1        | 1 | 1 | 1 | 1 | 1 |
| 367   | 2030 | 7     | 375.413 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14384.43 | 1        | 1 | 1 | 1 | 1 | 1 |
| 368   | 2030 | 8     | 375.221 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14403.48 | 1        | 1 | 1 | 1 | 1 | 1 |
| 369   | 2030 | 9     | 375.033 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14422.61 | 1        | 1 | 1 | 1 | 1 | 1 |
| 370   | 2030 | 10    | 374.849 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 14441.97 | 1        | 1 | 1 | 1 | 1 | 1 |
| 371   | 2030 | 11    | 374.662 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 14461.37 | 1        | 1 | 1 | 1 | 1 | 1 |
| 372   | 2030 | 12    | 374.475 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14480.67 | 1        | 1 | 1 | 1 | 1 | 1 |
| 373   | 2031 | 1     | 374.287 | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14500.08 | 1        | 1 | 1 | 1 | 1 | 1 |
| 374   | 2031 | 2     | 374.109 | 1   | 1   | 1   | 1   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14518.28 | 1        | 1 | 1 | 1 | 1 | 1 |
| 375   | 2031 | 3     | 373.929 | 1   | 1   | 1   | 1   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14536.14 | 1        | 1 | 1 | 1 | 1 | 1 |
| 376   | 2031 | 4     | 373.744 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14554.18 | 1        | 1 | 1 | 1 | 1 | 1 |
| 377   | 2031 | 5     | 373.557 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14571.71 | 1        | 1 | 1 | 1 | 1 | 1 |
| 378   | 2031 | 6     | 373.373 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14588.64 | 1        | 1 | 1 | 1 | 1 | 1 |
| 379   | 2031 | 7     | 373.191 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14604.94 | 1        | 1 | 1 | 1 | 1 | 1 |
| 380   | 2031 | 8     | 373.000 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14620.91 | 1        | 1 | 1 | 1 | 1 | 1 |
| 381   | 2031 | 9     | 372.817 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14636.13 | 1        | 1 | 1 | 1 | 1 | 1 |
| 382   | 2031 | 10    | 372.632 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 14650.90 | 1        | 1 | 1 | 1 | 1 | 1 |
| 383   | 2031 | 11    | 372.449 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 14665.18 | 1        | 1 | 1 | 1 | 1 | 1 |
| 384   | 2031 | 12    | 372.263 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14678.99 | 1        | 1 | 1 | 1 | 1 | 1 |
| 385   | 2032 | 1     | 372.079 | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14692.62 | 1        | 1 | 1 | 1 | 1 | 1 |
| 386   | 2032 | 2     | 371.899 | 1   | 1   | 1   | 1   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14705.49 | 1        | 1 | 1 | 1 | 1 | 1 |
| 387   | 2032 | 3     | 371.716 | 1   | 1   | 1   | 1   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14718.17 | 1        | 1 | 1 | 1 | 1 | 1 |
| 388   | 2032 | 4     | 371.535 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14731.01 | 1        | 1 | 1 | 1 | 1 | 1 |
| 389   | 2032 | 5     | 371.351 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14743.96 | 1        | 1 | 1 | 1 | 1 | 1 |
| 390   | 2032 | 6     | 371.169 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14757.17 | 1        | 1 | 1 | 1 | 1 | 1 |
| 391   | 2032 | 7     | 370.985 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14770.72 | 1        | 1 | 1 | 1 | 1 | 1 |
| 392   | 2032 | 8     | 370.803 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14784.83 | 1        | 1 | 1 | 1 | 1 | 1 |
| 393   | 2032 | 9     | 370.623 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14799.00 | 1        | 1 | 1 | 1 | 1 | 1 |
| 394   | 2032 | 10    | 370.441 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 14813.33 | 1        | 1 | 1 | 1 | 1 | 1 |
| 395   | 2032 | 11    | 370.260 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 14827.75 | 1        | 1 | 1 | 1 | 1 | 1 |
| 396   | 2032 | 12    | 370.079 | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0        | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 14842.14 | 1        | 1 | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 391 of 1182

| O b s | Y E A R | M O N T H | N k p c | D 0 2 0 0 N | d 4 0 0 n | d 7 0 0 n | d 3 0 0 n | d 1 0 0 1 | d 2 0 0 2 | d 3 0 0 3 | d 4 0 0 4 | d 5 0 0 5 | d 6 0 0 6 | d 7 0 0 7 | d 8 0 0 8 | d 9 0 0 9 | d 1 0 0 0 | d 1 1 0 0 | Y R K P C | s e p o n | a d p o n | f 1 1 1 1 | m e e o o |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|-------|---------|-----------|---------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|       |         |           |         |             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 14856.66 | 14870.32 | 14883.77 | 14897.52 | 14911.19 | 14924.84 | 14938.42 | 14952.09 | 14965.39 | 14978.51 | 14991.41 | 15004.08 | 15016.73 | 15028.60 | 15040.36 | 15052.52 | 15064.85 | 15077.45 | 15090.32 | 15103.61 |
| 397   | 2033    | 1         | 369.894 | 1           | 1         | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 14856.66  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 398   | 2033    | 2         | 369.718 | 1           | 1         | 1         | 1         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 14870.32  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 399   | 2033    | 3         | 369.546 | 1           | 1         | 1         | 1         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 14883.77  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 400   | 2033    | 4         | 369.363 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 14897.52  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 401   | 2033    | 5         | 369.182 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 14911.19  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 402   | 2033    | 6         | 369.002 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 14924.84  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 403   | 2033    | 7         | 368.819 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 14938.42  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 404   | 2033    | 8         | 368.639 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 14952.09  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 405   | 2033    | 9         | 368.453 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 14965.39  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 406   | 2033    | 10        | 368.272 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 14978.51  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 407   | 2033    | 11        | 368.090 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 14991.41  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 408   | 2033    | 12        | 367.909 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15004.08  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 409   | 2034    | 1         | 367.723 | 1           | 1         | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15016.73  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 410   | 2034    | 2         | 367.548 | 1           | 1         | 1         | 1         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15028.60  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 411   | 2034    | 3         | 367.373 | 1           | 1         | 1         | 1         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15040.36  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 412   | 2034    | 4         | 367.194 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15052.52  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 413   | 2034    | 5         | 367.011 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15064.85  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 414   | 2034    | 6         | 366.833 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 15077.45  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 415   | 2034    | 7         | 366.653 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 15090.32  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 416   | 2034    | 8         | 366.471 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 15103.61  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 417   | 2034    | 9         | 366.292 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 15116.79  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 418   | 2034    | 10        | 366.113 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 15129.99  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 419   | 2034    | 11        | 365.936 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 15143.13  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 420   | 2034    | 12        | 365.757 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15156.16  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 421   | 2035    | 1         | 365.576 | 1           | 1         | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15169.24  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 422   | 2035    | 2         | 365.402 | 1           | 1         | 1         | 1         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15181.52  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 423   | 2035    | 3         | 365.228 | 1           | 1         | 1         | 1         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15193.64  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 424   | 2035    | 4         | 365.049 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15206.00  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 425   | 2035    | 5         | 364.868 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15218.22  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 426   | 2035    | 6         | 364.685 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 15230.29  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 427   | 2035    | 7         | 364.504 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 15242.19  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 428   | 2035    | 8         | 364.315 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 15254.10  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 429   | 2035    | 9         | 364.132 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 15265.64  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 430   | 2035    | 10        | 363.947 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 15277.01  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 431   | 2035    | 11        | 363.759 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 15288.21  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 432   | 2035    | 12        | 363.573 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15299.22  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 433   | 2036    | 1         | 363.384 | 1           | 1         | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15310.18  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 434   | 2036    | 2         | 363.197 | 1           | 1         | 1         | 1         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15320.51  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 435   | 2036    | 3         | 363.015 | 1           | 1         | 1         | 1         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15330.55  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 436   | 2036    | 4         | 362.826 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15340.60  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 437   | 2036    | 5         | 362.635 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 15350.66  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 438   | 2036    | 6         | 362.453 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 15360.87  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 439   | 2036    | 7         | 362.263 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 0         | 15371.21  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| 440   | 2036    | 8         | 362.076 | 1           | 1         | 1         | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 1         | 0         | 0         | 0         | 0         | 15381.81  | 1         | 1         | 1         | 1        | 1        |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |



KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 393 of 1182

|     |      | Y  | M       | N | D | d | d | d | d | d | d | d | d | d | d | d | d | d        | Y | s | a | f | m |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|---|
|     |      | O  | O       | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0        | R | e | u | e | a |
| O   | E    | N  | k       | 2 | 4 | 7 | 3 | d | d | d | d | d | d | d | d | d | d | 1        | K | 3 | 8 | 9 | 9 |
| b   | A    | T  | p       | 0 | 0 | 0 | 0 | d | d | d | d | d | d | d | d | d | d | 1        | P | 0 | 0 | 0 | 0 |
| s   | R    | H  | c       | N | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1        | C | n | n | n | n |
| 485 | 2040 | 5  | 353.544 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15766.93 | 1 | 1 | 1 | 1 | 1 |
| 486 | 2040 | 6  | 353.349 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15775.26 | 1 | 1 | 1 | 1 | 1 |
| 487 | 2040 | 7  | 353.153 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15783.64 | 1 | 1 | 1 | 1 | 1 |
| 488 | 2040 | 8  | 352.955 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15792.23 | 1 | 1 | 1 | 1 | 1 |
| 489 | 2040 | 9  | 352.759 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15800.78 | 1 | 1 | 1 | 1 | 1 |
| 490 | 2040 | 10 | 352.566 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 15809.35 | 1 | 1 | 1 | 1 | 1 |
| 491 | 2040 | 11 | 352.369 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 15817.85 | 1 | 1 | 1 | 1 | 1 |
| 492 | 2040 | 12 | 352.172 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15826.22 | 1 | 1 | 1 | 1 | 1 |
| 493 | 2041 | 1  | 351.976 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15834.60 | 1 | 1 | 1 | 1 | 1 |
| 494 | 2041 | 2  | 351.787 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15842.51 | 1 | 1 | 1 | 1 | 1 |
| 495 | 2041 | 3  | 351.597 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15850.40 | 1 | 1 | 1 | 1 | 1 |
| 496 | 2041 | 4  | 351.401 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15858.62 | 1 | 1 | 1 | 1 | 1 |
| 497 | 2041 | 5  | 351.206 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15866.97 | 1 | 1 | 1 | 1 | 1 |
| 498 | 2041 | 6  | 351.011 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15875.48 | 1 | 1 | 1 | 1 | 1 |
| 499 | 2041 | 7  | 350.815 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15884.17 | 1 | 1 | 1 | 1 | 1 |
| 500 | 2041 | 8  | 350.618 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15893.12 | 1 | 1 | 1 | 1 | 1 |
| 501 | 2041 | 9  | 350.420 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15902.01 | 1 | 1 | 1 | 1 | 1 |
| 502 | 2041 | 10 | 350.226 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15910.93 | 1 | 1 | 1 | 1 | 1 |
| 503 | 2041 | 11 | 350.028 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 15919.84 | 1 | 1 | 1 | 1 | 1 |
| 504 | 2041 | 12 | 349.830 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15928.67 | 1 | 1 | 1 | 1 | 1 |
| 505 | 2042 | 1  | 349.633 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15937.57 | 1 | 1 | 1 | 1 | 1 |
| 506 | 2042 | 2  | 349.440 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15945.92 | 1 | 1 | 1 | 1 | 1 |
| 507 | 2042 | 3  | 349.252 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15954.16 | 1 | 1 | 1 | 1 | 1 |
| 508 | 2042 | 4  | 349.057 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 15962.66 | 1 | 1 | 1 | 1 | 1 |
| 509 | 2042 | 5  | 348.860 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15971.24 | 1 | 1 | 1 | 1 | 1 |
| 510 | 2042 | 6  | 348.660 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 15979.98 | 1 | 1 | 1 | 1 | 1 |
| 511 | 2042 | 7  | 348.466 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15988.88 | 1 | 1 | 1 | 1 | 1 |
| 512 | 2042 | 8  | 348.265 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 15998.05 | 1 | 1 | 1 | 1 | 1 |
| 513 | 2042 | 9  | 348.063 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16007.14 | 1 | 1 | 1 | 1 | 1 |
| 514 | 2042 | 10 | 347.865 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16016.23 | 1 | 1 | 1 | 1 | 1 |
| 515 | 2042 | 11 | 347.669 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16025.23 | 1 | 1 | 1 | 1 | 1 |
| 516 | 2042 | 12 | 347.471 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16034.09 | 1 | 1 | 1 | 1 | 1 |
| 517 | 2043 | 1  | 347.270 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16042.95 | 1 | 1 | 1 | 1 | 1 |
| 518 | 2043 | 2  | 347.077 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16051.27 | 1 | 1 | 1 | 1 | 1 |
| 519 | 2043 | 3  | 346.887 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16059.54 | 1 | 1 | 1 | 1 | 1 |
| 520 | 2043 | 4  | 346.689 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16068.09 | 1 | 1 | 1 | 1 | 1 |
| 521 | 2043 | 5  | 346.489 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16076.73 | 1 | 1 | 1 | 1 | 1 |
| 522 | 2043 | 6  | 346.293 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16085.52 | 1 | 1 | 1 | 1 | 1 |
| 523 | 2043 | 7  | 346.096 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16094.46 | 1 | 1 | 1 | 1 | 1 |
| 524 | 2043 | 8  | 345.895 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 16103.69 | 1 | 1 | 1 | 1 | 1 |
| 525 | 2043 | 9  | 345.698 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16112.86 | 1 | 1 | 1 | 1 | 1 |
| 526 | 2043 | 10 | 345.501 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16122.01 | 1 | 1 | 1 | 1 | 1 |
| 527 | 2043 | 11 | 345.305 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16131.03 | 1 | 1 | 1 | 1 | 1 |
| 528 | 2043 | 12 | 345.106 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16139.81 | 1 | 1 | 1 | 1 | 1 |



KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 395 of 1182

| Year | Month | Rate | D       | d | d | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | Y | R | K        | P | C | s | a | f | m |
|------|-------|------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|---|---|
|      |       |      |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |          |   |   |   |   |   |   |
| 573  | 2047  | 9    | 336.227 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16550.62 | 1 | 1 | 1 | 1 | 1 |   |
| 574  | 2047  | 10   | 336.029 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16561.04 | 1 | 1 | 1 | 1 | 1 |   |
| 575  | 2047  | 11   | 335.828 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16571.43 | 1 | 1 | 1 | 1 | 1 |   |
| 576  | 2047  | 12   | 335.628 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16581.79 | 1 | 1 | 1 | 1 | 1 |   |
| 577  | 2048  | 1    | 335.427 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16592.26 | 1 | 1 | 1 | 1 | 1 |   |
| 578  | 2048  | 2    | 335.232 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16602.32 | 1 | 1 | 1 | 1 | 1 |   |
| 579  | 2048  | 3    | 335.036 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16612.33 | 1 | 1 | 1 | 1 | 1 |   |
| 580  | 2048  | 4    | 334.835 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16622.48 | 1 | 1 | 1 | 1 | 1 |   |
| 581  | 2048  | 5    | 334.642 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16632.66 | 1 | 1 | 1 | 1 | 1 |   |
| 582  | 2048  | 6    | 334.444 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16642.94 | 1 | 1 | 1 | 1 | 1 |   |
| 583  | 2048  | 7    | 334.245 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16653.33 | 1 | 1 | 1 | 1 | 1 |   |
| 584  | 2048  | 8    | 334.046 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16664.02 | 1 | 1 | 1 | 1 | 1 |   |
| 585  | 2048  | 9    | 333.848 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 16674.64 | 1 | 1 | 1 | 1 | 1 |   |
| 586  | 2048  | 10   | 333.649 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16685.27 | 1 | 1 | 1 | 1 | 1 |   |
| 587  | 2048  | 11   | 333.454 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16695.81 | 1 | 1 | 1 | 1 | 1 |   |
| 588  | 2048  | 12   | 333.256 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16706.18 | 1 | 1 | 1 | 1 | 1 |   |
| 589  | 2049  | 1    | 333.057 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16716.53 | 1 | 1 | 1 | 1 | 1 |   |
| 590  | 2049  | 2    | 332.869 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16726.22 | 1 | 1 | 1 | 1 | 1 |   |
| 591  | 2049  | 3    | 332.680 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16735.78 | 1 | 1 | 1 | 1 | 1 |   |
| 592  | 2049  | 4    | 332.480 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16745.57 | 1 | 1 | 1 | 1 | 1 |   |
| 593  | 2049  | 5    | 332.286 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16755.34 | 1 | 1 | 1 | 1 | 1 |   |
| 594  | 2049  | 6    | 332.090 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16765.14 | 1 | 1 | 1 | 1 | 1 |   |
| 595  | 2049  | 7    | 331.892 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16774.96 | 1 | 1 | 1 | 1 | 1 |   |
| 596  | 2049  | 8    | 331.695 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16784.92 | 1 | 1 | 1 | 1 | 1 |   |
| 597  | 2049  | 9    | 331.499 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 16794.70 | 1 | 1 | 1 | 1 | 1 |   |
| 598  | 2049  | 10   | 331.306 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16804.41 | 1 | 1 | 1 | 1 | 1 |   |
| 599  | 2049  | 11   | 331.109 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16813.98 | 1 | 1 | 1 | 1 | 1 |   |
| 600  | 2049  | 12   | 330.911 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16823.39 | 1 | 1 | 1 | 1 | 1 |   |
| 601  | 2050  | 1    | 330.714 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16832.78 | 1 | 1 | 1 | 1 | 1 |   |
| 602  | 2050  | 2    | 330.523 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16841.60 | 1 | 1 | 1 | 1 | 1 |   |
| 603  | 2050  | 3    | 330.336 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16850.33 | 1 | 1 | 1 | 1 | 1 |   |
| 604  | 2050  | 4    | 330.142 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16859.38 | 1 | 1 | 1 | 1 | 1 |   |
| 605  | 2050  | 5    | 329.946 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16868.55 | 1 | 1 | 1 | 1 | 1 |   |
| 606  | 2050  | 6    | 329.754 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16877.94 | 1 | 1 | 1 | 1 | 1 |   |
| 607  | 2050  | 7    | 329.558 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16887.55 | 1 | 1 | 1 | 1 | 1 |   |
| 608  | 2050  | 8    | 329.364 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16897.49 | 1 | 1 | 1 | 1 | 1 |   |
| 609  | 2050  | 9    | 329.168 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 16907.40 | 1 | 1 | 1 | 1 | 1 |   |
| 610  | 2050  | 10   | 328.976 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16917.39 | 1 | 1 | 1 | 1 | 1 |   |
| 611  | 2050  | 11   | 328.783 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16927.41 | 1 | 1 | 1 | 1 | 1 |   |
| 612  | 2050  | 12   | 328.589 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16937.42 | 1 | 1 | 1 | 1 | 1 |   |
| 613  | 2051  | 1    | 328.394 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16947.58 | 1 | 1 | 1 | 1 | 1 |   |
| 614  | 2051  | 2    | 328.206 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16957.23 | 1 | 1 | 1 | 1 | 1 |   |
| 615  | 2051  | 3    | 328.024 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16966.89 | 1 | 1 | 1 | 1 | 1 |   |
| 616  | 2051  | 4    | 327.829 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16976.97 | 1 | 1 | 1 | 1 | 1 |   |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 396 of 1182

| s   | b    | O  | Y       | M | N | D | d | d | d | d | d | d | d | d | d | d | d | d | Y        | s a f m |   |   |   |   |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---|---|---|---|---|
|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |          | R       | d | p | g | b | r |
| O   | E    | N  | A       | O | k | 0 | 0 | 0 | 0 | 9 | d | d | K | 3 | 8 | 9 | 9 | 1 | P        | o       | o | o | o | o |   |
| s   | R    | H  | T       | H | c | N | n | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9        | C       | n | n | n | n | n |
| 617 | 2051 | 5  | 327.639 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 16987.25 | 1       | 1 | 1 | 1 | 1 |   |
| 618 | 2051 | 6  | 327.446 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 16997.82 | 1       | 1 | 1 | 1 | 1 |   |
| 619 | 2051 | 7  | 327.257 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17008.66 | 1       | 1 | 1 | 1 | 1 |   |
| 620 | 2051 | 8  | 327.062 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17019.89 | 1       | 1 | 1 | 1 | 1 |   |
| 621 | 2051 | 9  | 326.870 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17031.11 | 1       | 1 | 1 | 1 | 1 |   |
| 622 | 2051 | 10 | 326.681 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17042.46 | 1       | 1 | 1 | 1 | 1 |   |
| 623 | 2051 | 11 | 326.488 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17053.93 | 1       | 1 | 1 | 1 | 1 |   |
| 624 | 2051 | 12 | 326.301 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17065.50 | 1       | 1 | 1 | 1 | 1 |   |
| 625 | 2052 | 1  | 326.107 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17077.34 | 1       | 1 | 1 | 1 | 1 |   |
| 626 | 2052 | 2  | 325.921 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17088.87 | 1       | 1 | 1 | 1 | 1 |   |
| 627 | 2052 | 3  | 325.733 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17100.48 | 1       | 1 | 1 | 1 | 1 |   |
| 628 | 2052 | 4  | 325.543 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17112.41 | 1       | 1 | 1 | 1 | 1 |   |
| 629 | 2052 | 5  | 325.354 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17124.55 | 1       | 1 | 1 | 1 | 1 |   |
| 630 | 2052 | 6  | 325.165 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17136.93 | 1       | 1 | 1 | 1 | 1 |   |
| 631 | 2052 | 7  | 324.976 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17149.56 | 1       | 1 | 1 | 1 | 1 |   |
| 632 | 2052 | 8  | 324.786 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17162.66 | 1       | 1 | 1 | 1 | 1 |   |
| 633 | 2052 | 9  | 324.597 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17175.77 | 1       | 1 | 1 | 1 | 1 |   |
| 634 | 2052 | 10 | 324.409 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17189.11 | 1       | 1 | 1 | 1 | 1 |   |
| 635 | 2052 | 11 | 324.221 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17202.67 | 1       | 1 | 1 | 1 | 1 |   |
| 636 | 2052 | 12 | 324.032 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17216.42 | 1       | 1 | 1 | 1 | 1 |   |
| 637 | 2053 | 1  | 323.837 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17208.25 | 1       | 1 | 1 | 1 | 1 |   |
| 638 | 2053 | 2  | 323.653 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17221.69 | 1       | 1 | 1 | 1 | 1 |   |
| 639 | 2053 | 3  | 323.459 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17235.28 | 1       | 1 | 1 | 1 | 1 |   |
| 640 | 2053 | 4  | 323.274 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17249.10 | 1       | 1 | 1 | 1 | 1 |   |
| 641 | 2053 | 5  | 323.086 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17263.11 | 1       | 1 | 1 | 1 | 1 |   |
| 642 | 2053 | 6  | 322.901 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17277.33 | 1       | 1 | 1 | 1 | 1 |   |
| 643 | 2053 | 7  | 322.712 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17291.80 | 1       | 1 | 1 | 1 | 1 |   |
| 644 | 2053 | 8  | 322.527 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17306.79 | 1       | 1 | 1 | 1 | 1 |   |
| 645 | 2053 | 9  | 322.341 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17321.84 | 1       | 1 | 1 | 1 | 1 |   |
| 646 | 2053 | 10 | 322.154 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17337.20 | 1       | 1 | 1 | 1 | 1 |   |
| 647 | 2053 | 11 | 321.971 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17352.87 | 1       | 1 | 1 | 1 | 1 |   |
| 648 | 2053 | 12 | 321.780 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17368.85 | 1       | 1 | 1 | 1 | 1 |   |
| 649 | 2054 | 1  | 321.584 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17340.32 | 1       | 1 | 1 | 1 | 1 |   |
| 650 | 2054 | 2  | 321.402 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17355.71 | 1       | 1 | 1 | 1 | 1 |   |
| 651 | 2054 | 3  | 321.202 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17371.31 | 1       | 1 | 1 | 1 | 1 |   |
| 652 | 2054 | 4  | 321.022 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17387.05 | 1       | 1 | 1 | 1 | 1 |   |
| 653 | 2054 | 5  | 320.835 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17402.97 | 1       | 1 | 1 | 1 | 1 |   |
| 654 | 2054 | 6  | 320.654 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17419.06 | 1       | 1 | 1 | 1 | 1 |   |
| 655 | 2054 | 7  | 320.465 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17435.38 | 1       | 1 | 1 | 1 | 1 |   |
| 656 | 2054 | 8  | 320.285 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17452.30 | 1       | 1 | 1 | 1 | 1 |   |
| 657 | 2054 | 9  | 320.102 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17469.31 | 1       | 1 | 1 | 1 | 1 |   |
| 658 | 2054 | 10 | 319.916 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17486.73 | 1       | 1 | 1 | 1 | 1 |   |
| 659 | 2054 | 11 | 319.737 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17504.56 | 1       | 1 | 1 | 1 | 1 |   |
| 660 | 2054 | 12 | 319.545 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17522.81 | 1       | 1 | 1 | 1 | 1 |   |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 397 of 1182

| d   | Y    | M  | N       | D | d | d | d | 0 |   |   |   |   |   |   |   |   |   |   | Y        | s | a | f |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|---|---|---|
|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |          |   |   |   | R |
| 0   | E    | N  | -       | 2 | 4 | 7 | 3 |   |   |   |   |   |   |   |   |   |   |   | -        | 1 | 1 | 1 | 1 |
| b   | A    | T  | p       | 0 | o | o | o | d | d | d | d | d | d | d | d | d | d | d | K        | 3 | 8 | 9 | 9 |
| s   | R    | H  | c       | N | n | n | n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | P        | o | o | o | o |
|     |      |    |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | C        | n | n | n | n |
| 661 | 2055 | 1  | 319.348 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17473.57 | 1 | 1 | 1 | 1 |
| 662 | 2055 | 2  | 319.168 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17490.93 | 1 | 1 | 1 | 1 |
| 663 | 2055 | 3  | 318.962 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17508.58 | 1 | 1 | 1 | 1 |
| 664 | 2055 | 4  | 318.787 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17526.26 | 1 | 1 | 1 | 1 |
| 665 | 2055 | 5  | 318.601 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17544.12 | 1 | 1 | 1 | 1 |
| 666 | 2055 | 6  | 318.423 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17562.11 | 1 | 1 | 1 | 1 |
| 667 | 2055 | 7  | 318.234 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17580.33 | 1 | 1 | 1 | 1 |
| 668 | 2055 | 8  | 318.059 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17599.20 | 1 | 1 | 1 | 1 |
| 669 | 2055 | 9  | 317.879 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17618.21 | 1 | 1 | 1 | 1 |
| 670 | 2055 | 10 | 317.694 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17637.72 | 1 | 1 | 1 | 1 |
| 671 | 2055 | 11 | 317.521 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17657.75 | 1 | 1 | 1 | 1 |
| 672 | 2055 | 12 | 317.326 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17678.30 | 1 | 1 | 1 | 1 |
| 673 | 2056 | 1  | 317.128 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17608.00 | 1 | 1 | 1 | 1 |
| 674 | 2056 | 2  | 316.950 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17627.37 | 1 | 1 | 1 | 1 |
| 675 | 2056 | 3  | 316.739 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17647.10 | 1 | 1 | 1 | 1 |
| 676 | 2056 | 4  | 316.568 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17666.76 | 1 | 1 | 1 | 1 |
| 677 | 2056 | 5  | 316.383 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17686.58 | 1 | 1 | 1 | 1 |
| 678 | 2056 | 6  | 316.210 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17706.51 | 1 | 1 | 1 | 1 |
| 679 | 2056 | 7  | 316.021 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17726.64 | 1 | 1 | 1 | 1 |
| 680 | 2056 | 8  | 315.850 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17747.51 | 1 | 1 | 1 | 1 |
| 681 | 2056 | 9  | 315.673 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17768.55 | 1 | 1 | 1 | 1 |
| 682 | 2056 | 10 | 315.489 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17790.19 | 1 | 1 | 1 | 1 |
| 683 | 2056 | 11 | 315.320 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 17812.45 | 1 | 1 | 1 | 1 |
| 684 | 2056 | 12 | 315.123 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17835.35 | 1 | 1 | 1 | 1 |
| 685 | 2057 | 1  | 314.925 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17743.63 | 1 | 1 | 1 | 1 |
| 686 | 2057 | 2  | 314.748 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17765.04 | 1 | 1 | 1 | 1 |
| 687 | 2057 | 3  | 314.532 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17786.88 | 1 | 1 | 1 | 1 |
| 688 | 2057 | 4  | 314.366 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17808.55 | 1 | 1 | 1 | 1 |
| 689 | 2057 | 5  | 314.182 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17830.37 | 1 | 1 | 1 | 1 |
| 690 | 2057 | 6  | 314.012 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17852.26 | 1 | 1 | 1 | 1 |
| 691 | 2057 | 7  | 313.823 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17874.35 | 1 | 1 | 1 | 1 |
| 692 | 2057 | 8  | 313.658 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 17897.24 | 1 | 1 | 1 | 1 |
| 693 | 2057 | 9  | 313.483 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17920.35 | 1 | 1 | 1 | 1 |
| 694 | 2057 | 10 | 313.300 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 17944.15 | 1 | 1 | 1 | 1 |
| 695 | 2057 | 11 | 313.136 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17968.69 | 1 | 1 | 1 | 1 |
| 696 | 2057 | 12 | 312.938 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17993.98 | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 398 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model cc\_kpc  
 Dependent Variable cc\_kpc  
 Label Commercial Customers

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 21  | 5.4613E8       | 26006029    | 360.86  | <.0001 |
| Error           | 242 | 17440218       | 72067.01    |         |        |
| Corrected Total | 263 | 5.6357E8       |             |         |        |

Root MSE 268.45300 R-Square 0.96905  
 Dependent Mean 29211.3333 Adj R-Sq 0.96637  
 Coeff Var 0.91900

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                                     |
|-----------|----|--------------------|----------------|---------|---------|--|
| Intercept | 1  | 18051.01           | 1977.913       | 9.13    | <.0001  | Intercept  |
| yrnindx   | 1  | 7838.757           | 1988.482       | 3.94    | 0.0001  | Service Area Real Personal Income-Population Index |
| D020N     | 1  | 1283.358           | 77.87930       | 16.48   | <.0001  | Binary Variable-2002 On                            |
| d04on     | 1  | 1770.222           | 70.75147       | 25.02   | <.0001  | Binary Variable-2004 On                            |
| d07on     | 1  | 773.4231           | 71.21377       | 10.86   | <.0001  | Binary Variable-2007 On                            |
| d093on    | 1  | 145.4609           | 65.33370       | 2.23    | 0.0269  | Binary Variable-July 2009 On                       |
| d1        | 1  | -237.734           | 81.99174       | -2.90   | 0.0041  | January  |
| d2        | 1  | -300.095           | 82.31564       | -3.65   | 0.0003  | February   |
| d3        | 1  | -226.559           | 82.09222       | -2.76   | 0.0062  | March  |
| d4        | 1  | -257.987           | 81.96515       | -3.15   | 0.0019  | April  |
| d5        | 1  | -206.875           | 81.85020       | -2.53   | 0.0121  | May  |
| d6        | 1  | -153.675           | 81.75183       | -1.88   | 0.0613  | June   |
| d7        | 1  | -150.676           | 81.57289       | -1.85   | 0.0659  | July   |
| d8        | 1  | -60.4670           | 81.20432       | -0.74   | 0.4572  | August   |
| d9        | 1  | 1.292810           | 81.05615       | 0.02    | 0.9873  | September  |
| d10       | 1  | -8.83877           | 80.99604       | -0.11   | 0.9132  | October  |
| d11       | 1  | -9.22232           | 80.95591       | -0.11   | 0.9094  | November   |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 399 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                    |
|----------|----|--------------------|----------------|---------|---------|-----------------------------------|
| d13on    | 1  | 690.9252           | 87.50824       | 7.90    | <.0001  | Binary Variable-2013 On           |
| sep18on  | 1  | -129.567           | 137.0459       | -0.95   | 0.3454  | Binary Variable-September 2018 On |
| aug19on  | 1  | -216.613           | 132.5579       | -1.63   | 0.1035  | Binary Variable-August 2019 On    |
| feb19on  | 1  | 160.2978           | 166.7987       | 0.96    | 0.3375  | Binary Variable-February 2019 On  |
| mar21on  | 1  | 221.0424           | 105.9150       | 2.09    | 0.0379  | Binary Variable-March 2021 On     |

Durbin-Watson 0.458614  
 Number of Observations 264  
 First-Order Autocorrelation 0.767774

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 400 of 1182

| time         |       | Residual Values |
|--------------|-------|-----------------|
|              |       | Sum             |
| 2000.000000  | ***** | -291.773        |
| 2000.0833333 | ***** | -275.968        |
| 2000.1666667 | ***** | -318.142        |
| 2000.2500000 | ***** | -268.521        |
| 2000.3333333 | ***** | -213.869        |
| 2000.4166667 | ***** | -236.773        |
| 2000.5000000 | ***** | -145.996        |
| 2000.5833333 | ***** | -183.693        |
| 2000.6666667 | ***** | -252.999        |
| 2000.7500000 | ***** | -243.338        |
| 2000.8333333 | ****  | -88.240         |
| 2000.9166667 | ***   | -81.349         |
| 2001.0000000 | ***   | 74.126          |
| 2001.0833333 | ***** | 203.164         |
| 2001.1666667 | ****  | 92.919          |
| 2001.2500000 | ***** | 195.884         |
| 2001.3333333 | ***** | 201.417         |
| 2001.4166667 | ***** | 181.633         |
| 2001.5000000 | ***** | 207.529         |
| 2001.5833333 | ***** | 144.885         |
| 2001.6666667 | ***** | 190.167         |
| 2001.7500000 | ***** | 274.334         |
| 2001.8333333 | ***** | 361.204         |
| 2001.9166667 | ***** | 473.399         |
| 2002.0000000 | ***** | -510.964        |
| 2002.0833333 | ***** | -472.624        |
| 2002.1666667 |       | -7.916          |
| 2002.2500000 | ***** | -442.244        |
| 2002.3333333 | ***** | -421.867        |
| 2002.4166667 | ***** | -446.792        |
| 2002.5000000 | ***** | -267.322        |
| 2002.5833333 | ***** | -330.104        |
| 2002.6666667 | ***** | -345.157        |
| 2002.7500000 | ***** | -396.316        |
| 2002.8333333 | ***** | -315.539        |
| 2002.9166667 | ***** | -262.193        |
| 2003.0000000 | ***   | -66.212         |
| 2003.0833333 | *     | -35.077         |
| 2003.1666667 | **    | -59.007         |
| 2003.2500000 | *     | -15.751         |
| 2003.3333333 | *     | -13.808         |
| 2003.4166667 | *     | -23.517         |
| 2003.5000000 | *     | 16.407          |
| 2003.5833333 | ***** | 833.484         |
| 2003.6666667 | ***** | 829.240         |
| 2003.7500000 | ***** | 882.004         |
| 2003.8333333 | ***** | 905.213         |
| 2003.9166667 | ***** | 966.063         |
| 2004.0000000 | ***** | -577.412        |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
MODEL RESIDUALS

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 401 of 1182

|              |       |          |
|--------------|-------|----------|
| 2004.0833333 | ***** | -537.737 |
| 2004.1666667 | ***** | -583.328 |
| 2004.2500000 | ***** | -507.903 |
| 2004.3333333 | ***** | -531.890 |
| 2004.4166667 | ***** | -538.345 |
| 2004.5000000 | ***** | -451.451 |
| 2004.5833333 | ***** | -499.519 |
| 2004.6666667 | ***** | -498.312 |
| 2004.7500000 | ***** | -433.622 |
| 2004.8333333 | ***** | -459.598 |
| 2004.9166667 | ***** | -411.517 |
| 2005.0000000 | ***** | -150.611 |
| 2005.0833333 | ***** | -151.250 |
| 2005.1666667 |       | 9.214    |
| 2005.2500000 | **    | 56.642   |
| 2005.3333333 | ***   | 83.531   |
| 2005.4166667 | ***** | 131.330  |
| 2005.5000000 | ****  | 103.331  |
| 2005.5833333 | ****  | 112.122  |
| 2005.6666667 | ***** | 123.363  |
| 2005.7500000 | ***** | 144.494  |
| 2005.8333333 | ****  | 105.878  |
| 2005.9166667 | ***** | 120.655  |
| 2006.0000000 | ***** | 375.834  |
| 2006.0833333 | ***** | 363.058  |
| 2006.1666667 | ***** | 429.946  |
| 2006.2500000 | ***** | 424.132  |
| 2006.3333333 | ***** | 472.547  |
| 2006.4166667 | ***** | 455.183  |
| 2006.5000000 | ***** | 456.069  |
| 2006.5833333 | ***** | 428.619  |
| 2006.6666667 | ***** | 414.259  |
| 2006.7500000 | ***** | 640.308  |
| 2006.8333333 | ***** | 481.494  |
| 2006.9166667 | ***** | 400.485  |
| 2007.0000000 | **    | -61.019  |
| 2007.0833333 | **    | -37.734  |
| 2007.1666667 | ***   | -64.109  |
| 2007.2500000 | ***   | -64.619  |
| 2007.3333333 | *     | 26.103   |
| 2007.4166667 | ***   | 77.680   |
| 2007.5000000 | ***** | 127.572  |
| 2007.5833333 | ***** | 123.032  |
| 2007.6666667 | ****  | 102.617  |
| 2007.7500000 | ***** | 154.842  |
| 2007.8333333 | ***** | 158.322  |
| 2007.9166667 | ***** | 129.146  |
| 2008.0000000 | ***** | 363.715  |
| 2008.0833333 | ***** | 402.353  |
| 2008.1666667 | ***** | 339.779  |
| 2008.2500000 | ***** | 411.782  |
| 2008.3333333 | ***** | 402.135  |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 402 of 1182

|              |       |       |          |
|--------------|-------|-------|----------|
| 2008.4166667 |       | ***** | 359.008  |
| 2008.5000000 | ***** |       | -380.888 |
| 2008.5833333 | ***** |       | -421.385 |
| 2008.6666667 | ***** |       | -387.113 |
| 2008.7500000 | ***** |       | -369.401 |
| 2008.8333333 | ***** |       | -392.291 |
| 2008.9166667 | ***** |       | -307.230 |
| 2009.0000000 | ****  |       | -93.678  |
| 2009.0833333 | ****  |       | -91.649  |
| 2009.1666667 | **    |       | -41.624  |
| 2009.2500000 | ***** |       | -129.792 |
| 2009.3333333 | ***** |       | -198.182 |
| 2009.4166667 | ***** |       | -137.372 |
| 2009.5000000 | ***** |       | -325.340 |
| 2009.5833333 | ***** |       | -376.762 |
| 2009.6666667 | ***** |       | -412.158 |
| 2009.7500000 | ***** |       | -364.732 |
| 2009.8333333 | ***** |       | -380.067 |
| 2009.9166667 | ***** |       | -347.602 |
| 2010.0000000 | ***** |       | -118.736 |
| 2010.0833333 | ***   |       | -76.058  |
| 2010.1666667 | ***** |       | -132.915 |
| 2010.2500000 | ***   |       | -71.136  |
| 2010.3333333 | ****  |       | -111.666 |
| 2010.4166667 | *     |       | -13.738  |
| 2010.5000000 | ***   |       | -68.025  |
| 2010.5833333 | ****  |       | -106.363 |
| 2010.6666667 | ***** |       | -170.055 |
| 2010.7500000 | ***** |       | -143.369 |
| 2010.8333333 | **    |       | -47.004  |
| 2010.9166667 | ***** |       | -196.583 |
| 2011.0000000 | ***** |       | 187.051  |
| 2011.0833333 | *     |       | 15.568   |
| 2011.1666667 | ***** |       | 127.402  |
| 2011.2500000 | **    |       | 52.047   |
| 2011.3333333 | **    |       | 54.848   |
| 2011.4166667 | **    |       | 43.562   |
| 2011.5000000 | *     |       | 18.172   |
| 2011.5833333 | ***   |       | 82.412   |
| 2011.6666667 |       |       | -0.023   |
| 2011.7500000 | *     |       | 32.360   |
| 2011.8333333 | **    |       | 40.480   |
| 2011.9166667 | *     |       | 29.085   |
| 2012.0000000 | ***** |       | 232.074  |
| 2012.0833333 | ***** |       | 267.882  |
| 2012.1666667 | ****  |       | 105.522  |
| 2012.2500000 | ***** |       | 236.590  |
| 2012.3333333 | ***** |       | 219.100  |
| 2012.4166667 | ***** |       | 237.021  |
| 2012.5000000 | ***** |       | 288.409  |
| 2012.5833333 | ***** |       | 229.345  |
| 2012.6666667 | ***** |       | 218.563  |

KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 403 of 1182

|              |       |       |          |
|--------------|-------|-------|----------|
| 2012.7500000 |       | ***** | 185.566  |
| 2012.8333333 |       | ***** | 272.123  |
| 2012.9166667 |       | ***** | 287.148  |
| 2013.0000000 | ***** |       | -177.287 |
| 2013.0833333 | ***** |       | -136.510 |
| 2013.1666667 | ***** |       | -267.371 |
| 2013.2500000 | ***** |       | -200.651 |
| 2013.3333333 | ***** |       | -184.471 |
| 2013.4166667 | ***** |       | -197.262 |
| 2013.5000000 | ***** |       | -166.758 |
| 2013.5833333 | ***** |       | -212.103 |
| 2013.6666667 |       | ***** | 305.442  |
| 2013.7500000 | ***** |       | -121.029 |
| 2013.8333333 | ***** |       | -200.268 |
| 2013.9166667 | ***** |       | -142.395 |
| 2014.0000000 |       | ***** | 115.564  |
| 2014.0833333 |       | ****  | 106.739  |
| 2014.1666667 |       | ***   | 70.209   |
| 2014.2500000 |       | **    | 42.527   |
| 2014.3333333 |       | *     | 16.357   |
| 2014.4166667 | **    |       | -39.267  |
| 2014.5000000 |       |       | 11.209   |
| 2014.5833333 | ****  |       | -91.067  |
| 2014.6666667 | **    |       | -59.209  |
| 2014.7500000 | **    |       | -60.076  |
| 2014.8333333 | ****  |       | -92.442  |
| 2014.9166667 | ****  |       | -96.296  |
| 2015.0000000 |       | ***** | 118.408  |
| 2015.0833333 |       | ***** | 159.061  |
| 2015.1666667 |       | ***** | 150.572  |
| 2015.2500000 |       | ***** | 141.755  |
| 2015.3333333 | ****  |       | 87.657   |
| 2015.4166667 | ***** |       | 159.384  |
| 2015.5000000 | ***** |       | 273.932  |
| 2015.5833333 | ***** |       | 179.370  |
| 2015.6666667 | *     |       | 34.654   |
| 2015.7500000 |       |       | 3.737    |
| 2015.8333333 | **    |       | -56.058  |
| 2015.9166667 | *     |       | -25.093  |
| 2016.0000000 |       | ***** | 113.674  |
| 2016.0833333 |       | ***** | 200.135  |
| 2016.1666667 | ***   |       | 64.988   |
| 2016.2500000 | ****  |       | 96.613   |
| 2016.3333333 | ***   |       | 71.226   |
| 2016.4166667 | ***   |       | 84.469   |
| 2016.5000000 | ****  |       | 87.632   |
| 2016.5833333 | *     |       | 30.638   |
| 2016.6666667 | *     |       | 24.219   |
| 2016.7500000 |       |       | -2.466   |
| 2016.8333333 | ***   |       | -67.065  |
| 2016.9166667 | **    |       | -58.353  |
| 2017.0000000 | *     |       | 35.332   |

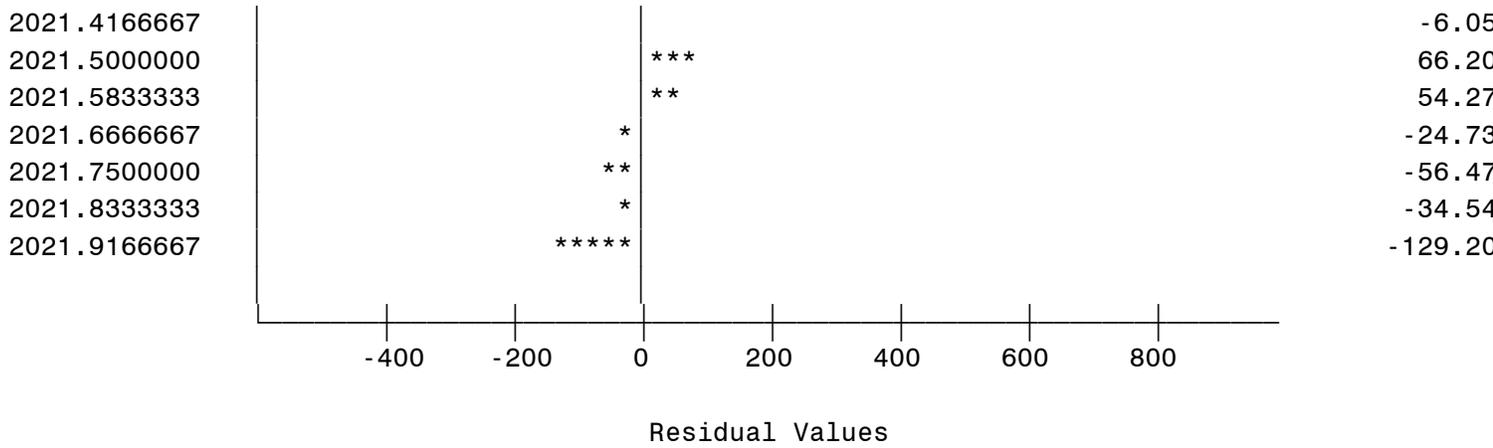
KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 404 of 1182

|              |       |          |
|--------------|-------|----------|
| 2017.0833333 | **    | 53.414   |
| 2017.1666667 | *     | 27.072   |
| 2017.2500000 | *     | 13.393   |
| 2017.3333333 | **    | 44.581   |
| 2017.4166667 |       | 5.281    |
| 2017.5000000 | **    | 57.111   |
| 2017.5833333 | ***   | -67.801  |
| 2017.6666667 | ****  | -105.475 |
| 2017.7500000 | ***** | -118.844 |
| 2017.8333333 | ****  | -103.012 |
| 2017.9166667 | ***** | -127.998 |
| 2018.0000000 | ***** | 143.635  |
| 2018.0833333 | ***   | 84.370   |
| 2018.1666667 | **    | -40.428  |
| 2018.2500000 |       | 6.628    |
| 2018.3333333 | *     | 15.237   |
| 2018.4166667 | *     | -31.827  |
| 2018.5000000 | *     | 25.919   |
| 2018.5833333 | *     | -13.262  |
| 2018.6666667 | **    | 51.135   |
| 2018.7500000 |       | -2.786   |
| 2018.8333333 |       | 2.499    |
| 2018.9166667 | ****  | -96.373  |
| 2019.0000000 | **    | 45.525   |
| 2019.0833333 | ***   | 78.874   |
| 2019.1666667 | ***   | -79.782  |
| 2019.2500000 | ***   | 64.263   |
| 2019.3333333 |       | 5.969    |
| 2019.4166667 | ***   | -81.469  |
| 2019.5000000 |       | 12.144   |
| 2019.5833333 | ***   | 75.025   |
| 2019.6666667 |       | -12.261  |
| 2019.7500000 | **    | -57.930  |
| 2019.8333333 | ****  | -93.801  |
| 2019.9166667 | ***   | -84.712  |
| 2020.0000000 | ***** | 124.455  |
| 2020.0833333 | ***   | 77.373   |
| 2020.1666667 | *     | -24.971  |
| 2020.2500000 | *     | 18.873   |
| 2020.3333333 | *     | -14.028  |
| 2020.4166667 | *     | 17.866   |
| 2020.5000000 | **    | 54.141   |
| 2020.5833333 |       | 8.848    |
| 2020.6666667 | *     | -26.159  |
| 2020.7500000 | **    | 52.736   |
| 2020.8333333 |       | 2.717    |
| 2020.9166667 | **    | -39.088  |
| 2021.0000000 | ***** | 118.299  |
| 2021.0833333 | ***** | -197.383 |
| 2021.1666667 | ***** | 201.968  |
| 2021.2500000 | **    | -60.511  |
| 2021.3333333 |       | -10.926  |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
MODEL RESIDUALS

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 405 of 1182



KENTUCKY POWER COMPANY  
 COMMERCIAL CUSTOMERS  
 ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 406 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2000 | 25500.67  | .           |
| 2001 | 25965.92  | 1.8         |
| 2002 | 26703.92  | 2.8         |
| 2003 | 27390.25  | 2.6         |
| 2004 | 28288.58  | 3.3         |
| 2005 | 28866.5   | 2.0         |
| 2006 | 29284.33  | 1.4         |
| 2007 | 29686.08  | 1.4         |
| 2008 | 29729.42  | 0.1         |
| 2009 | 29554.42  | -0.6        |
| 2010 | 29790.42  | 0.8         |
| 2011 | 29964.33  | 0.6         |
| 2012 | 30059.08  | 0.3         |
| 2013 | 30265.33  | 0.7         |
| 2014 | 30386.83  | 0.4         |
| 2015 | 30458.42  | 0.2         |
| 2016 | 30292.5   | -0.5        |
| 2017 | 30143.25  | -0.5        |
| 2018 | 30087.75  | -0.2        |
| 2019 | 29967.17  | -0.4        |
| 2020 | 30041.83  | 0.2         |
| 2021 | 30222.33  | 0.6         |
| 2022 | 30132.61  | -0.3        |
| 2023 | 30114.31  | -0.1        |
| 2024 | 30106.66  | 0.0         |
| 2025 | 30097.76  | 0.0         |
| 2026 | 30089.06  | 0.0         |
| 2027 | 30088.69  | 0.0         |
| 2028 | 30091.52  | 0.0         |
| 2029 | 30091.86  | 0.0         |
| 2030 | 30087.7   | 0.0         |
| 2031 | 30084.83  | 0.0         |
| 2032 | 30076.35  | 0.0         |
| 2033 | 30067.47  | 0.0         |
| 2034 | 30057.07  | 0.0         |
| 2035 | 30046.34  | 0.0         |
| 2036 | 30031.91  | 0.0         |
| 2037 | 30015.77  | -0.1        |
| 2038 | 29997.1   | -0.1        |
| 2039 | 29976.52  | -0.1        |
| 2040 | 29956.38  | -0.1        |
| 2041 | 29936.28  | -0.1        |
| 2042 | 29916.48  | -0.1        |
| 2043 | 29896.61  | -0.1        |
| 2044 | 29876.61  | -0.1        |
| 2045 | 29856.07  | -0.1        |
| 2046 | 29836.84  | -0.1        |
| 2047 | 29818.75  | -0.1        |
| 2048 | 29801.11  | -0.1        |

KENTUCKY POWER COMPANY  
COMMERCIAL CUSTOMERS  
ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 407 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2049 | 29783.58  | -0.1        |
| 2050 | 29765.27  | -0.1        |
| 2051 | 29748.36  | -0.1        |
| 2052 | 29734.44  | 0.0         |
| 2053 | 29720.94  | 0.0         |
| 2054 | 29707.87  | 0.0         |
| 2055 | 29695.22  | 0.0         |
| 2056 | 29682.99  | 0.0         |
| 2057 | 29671.19  | 0.0         |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 408 of 1182

The MEANS Procedure

| Variable | Label                | Mean      |
|----------|----------------------|-----------|
| YEAR     | YEAR                 | 2028.50   |
| MONTH    | MONTH                | 6.5000000 |
| ci_kpc   | INDUSTRIAL CUSTOMERS | 1353.28   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 409 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 1   | 2000 | 1     | 1594   |
| 2   | 2000 | 2     | 1538   |
| 3   | 2000 | 3     | 1534   |
| 4   | 2000 | 4     | 1538   |
| 5   | 2000 | 5     | 1524   |
| 6   | 2000 | 6     | 1508   |
| 7   | 2000 | 7     | 1516   |
| 8   | 2000 | 8     | 1553   |
| 9   | 2000 | 9     | 1492   |
| 10  | 2000 | 10    | 1523   |
| 11  | 2000 | 11    | 1499   |
| 12  | 2000 | 12    | 1494   |
| 13  | 2001 | 1     | 1512   |
| 14  | 2001 | 2     | 1503   |
| 15  | 2001 | 3     | 1498   |
| 16  | 2001 | 4     | 1501   |
| 17  | 2001 | 5     | 1537   |
| 18  | 2001 | 6     | 1536   |
| 19  | 2001 | 7     | 1521   |
| 20  | 2001 | 8     | 1522   |
| 21  | 2001 | 9     | 1519   |
| 22  | 2001 | 10    | 1523   |
| 23  | 2001 | 11    | 1524   |
| 24  | 2001 | 12    | 1510   |
| 25  | 2002 | 1     | 1488   |
| 26  | 2002 | 2     | 1509   |
| 27  | 2002 | 3     | 1520   |
| 28  | 2002 | 4     | 1500   |
| 29  | 2002 | 5     | 1565   |
| 30  | 2002 | 6     | 1500   |
| 31  | 2002 | 7     | 1501   |
| 32  | 2002 | 8     | 1514   |
| 33  | 2002 | 9     | 1477   |
| 34  | 2002 | 10    | 1468   |
| 35  | 2002 | 11    | 1496   |
| 36  | 2002 | 12    | 1476   |
| 37  | 2003 | 1     | 1470   |
| 38  | 2003 | 2     | 1467   |
| 39  | 2003 | 3     | 1494   |
| 40  | 2003 | 4     | 1503   |
| 41  | 2003 | 5     | 1459   |
| 42  | 2003 | 6     | 1457   |
| 43  | 2003 | 7     | 1450   |
| 44  | 2003 | 8     | 1451   |
| 45  | 2003 | 9     | 1442   |
| 46  | 2003 | 10    | 1428   |
| 47  | 2003 | 11    | 1447   |
| 48  | 2003 | 12    | 1486   |
| 49  | 2004 | 1     | 1479   |
| 50  | 2004 | 2     | 1477   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 410 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 51  | 2004 | 3     | 1471   |
| 52  | 2004 | 4     | 1472   |
| 53  | 2004 | 5     | 1481   |
| 54  | 2004 | 6     | 1463   |
| 55  | 2004 | 7     | 1463   |
| 56  | 2004 | 8     | 1461   |
| 57  | 2004 | 9     | 1459   |
| 58  | 2004 | 10    | 1456   |
| 59  | 2004 | 11    | 1454   |
| 60  | 2004 | 12    | 1454   |
| 61  | 2005 | 1     | 1461   |
| 62  | 2005 | 2     | 1454   |
| 63  | 2005 | 3     | 1473   |
| 64  | 2005 | 4     | 1446   |
| 65  | 2005 | 5     | 1440   |
| 66  | 2005 | 6     | 1462   |
| 67  | 2005 | 7     | 1451   |
| 68  | 2005 | 8     | 1467   |
| 69  | 2005 | 9     | 1460   |
| 70  | 2005 | 10    | 1464   |
| 71  | 2005 | 11    | 1452   |
| 72  | 2005 | 12    | 1457   |
| 73  | 2006 | 1     | 1463   |
| 74  | 2006 | 2     | 1453   |
| 75  | 2006 | 3     | 1472   |
| 76  | 2006 | 4     | 1455   |
| 77  | 2006 | 5     | 1450   |
| 78  | 2006 | 6     | 1464   |
| 79  | 2006 | 7     | 1462   |
| 80  | 2006 | 8     | 1462   |
| 81  | 2006 | 9     | 1460   |
| 82  | 2006 | 10    | 1463   |
| 83  | 2006 | 11    | 1462   |
| 84  | 2006 | 12    | 1458   |
| 85  | 2007 | 1     | 1460   |
| 86  | 2007 | 2     | 1447   |
| 87  | 2007 | 3     | 1446   |
| 88  | 2007 | 4     | 1434   |
| 89  | 2007 | 5     | 1426   |
| 90  | 2007 | 6     | 1436   |
| 91  | 2007 | 7     | 1443   |
| 92  | 2007 | 8     | 1442   |
| 93  | 2007 | 9     | 1438   |
| 94  | 2007 | 10    | 1427   |
| 95  | 2007 | 11    | 1424   |
| 96  | 2007 | 12    | 1417   |
| 97  | 2008 | 1     | 1421   |
| 98  | 2008 | 2     | 1426   |
| 99  | 2008 | 3     | 1432   |
| 100 | 2008 | 4     | 1420   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 411 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 101 | 2008 | 5     | 1420   |
| 102 | 2008 | 6     | 1427   |
| 103 | 2008 | 7     | 1434   |
| 104 | 2008 | 8     | 1422   |
| 105 | 2008 | 9     | 1441   |
| 106 | 2008 | 10    | 1452   |
| 107 | 2008 | 11    | 1447   |
| 108 | 2008 | 12    | 1448   |
| 109 | 2009 | 1     | 1445   |
| 110 | 2009 | 2     | 1450   |
| 111 | 2009 | 3     | 1451   |
| 112 | 2009 | 4     | 1444   |
| 113 | 2009 | 5     | 1435   |
| 114 | 2009 | 6     | 1448   |
| 115 | 2009 | 7     | 1430   |
| 116 | 2009 | 8     | 1436   |
| 117 | 2009 | 9     | 1448   |
| 118 | 2009 | 10    | 1420   |
| 119 | 2009 | 11    | 1426   |
| 120 | 2009 | 12    | 1422   |
| 121 | 2010 | 1     | 1430   |
| 122 | 2010 | 2     | 1421   |
| 123 | 2010 | 3     | 1440   |
| 124 | 2010 | 4     | 1430   |
| 125 | 2010 | 5     | 1429   |
| 126 | 2010 | 6     | 1445   |
| 127 | 2010 | 7     | 1434   |
| 128 | 2010 | 8     | 1430   |
| 129 | 2010 | 9     | 1419   |
| 130 | 2010 | 10    | 1410   |
| 131 | 2010 | 11    | 1419   |
| 132 | 2010 | 12    | 1394   |
| 133 | 2011 | 1     | 1417   |
| 134 | 2011 | 2     | 1411   |
| 135 | 2011 | 3     | 1423   |
| 136 | 2011 | 4     | 1416   |
| 137 | 2011 | 5     | 1415   |
| 138 | 2011 | 6     | 1411   |
| 139 | 2011 | 7     | 1397   |
| 140 | 2011 | 8     | 1400   |
| 141 | 2011 | 9     | 1402   |
| 142 | 2011 | 10    | 1397   |
| 143 | 2011 | 11    | 1397   |
| 144 | 2011 | 12    | 1390   |
| 145 | 2012 | 1     | 1380   |
| 146 | 2012 | 2     | 1369   |
| 147 | 2012 | 3     | 1379   |
| 148 | 2012 | 4     | 1372   |
| 149 | 2012 | 5     | 1372   |
| 150 | 2012 | 6     | 1365   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 412 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 151 | 2012 | 7     | 1366   |
| 152 | 2012 | 8     | 1374   |
| 153 | 2012 | 9     | 1369   |
| 154 | 2012 | 10    | 1362   |
| 155 | 2012 | 11    | 1353   |
| 156 | 2012 | 12    | 1356   |
| 157 | 2013 | 1     | 1354   |
| 158 | 2013 | 2     | 1353   |
| 159 | 2013 | 3     | 1335   |
| 160 | 2013 | 4     | 1342   |
| 161 | 2013 | 5     | 1329   |
| 162 | 2013 | 6     | 1326   |
| 163 | 2013 | 7     | 1317   |
| 164 | 2013 | 8     | 1312   |
| 165 | 2013 | 9     | 1311   |
| 166 | 2013 | 10    | 1303   |
| 167 | 2013 | 11    | 1302   |
| 168 | 2013 | 12    | 1301   |
| 169 | 2014 | 1     | 1300   |
| 170 | 2014 | 2     | 1302   |
| 171 | 2014 | 3     | 1306   |
| 172 | 2014 | 4     | 1297   |
| 173 | 2014 | 5     | 1311   |
| 174 | 2014 | 6     | 1299   |
| 175 | 2014 | 7     | 1300   |
| 176 | 2014 | 8     | 1296   |
| 177 | 2014 | 9     | 1291   |
| 178 | 2014 | 10    | 1299   |
| 179 | 2014 | 11    | 1281   |
| 180 | 2014 | 12    | 1275   |
| 181 | 2015 | 1     | 1286   |
| 182 | 2015 | 2     | 1266   |
| 183 | 2015 | 3     | 1274   |
| 184 | 2015 | 4     | 1271   |
| 185 | 2015 | 5     | 1260   |
| 186 | 2015 | 6     | 1265   |
| 187 | 2015 | 7     | 1271   |
| 188 | 2015 | 8     | 1257   |
| 189 | 2015 | 9     | 1245   |
| 190 | 2015 | 10    | 1238   |
| 191 | 2015 | 11    | 1235   |
| 192 | 2015 | 12    | 1223   |
| 193 | 2016 | 1     | 1213   |
| 194 | 2016 | 2     | 1232   |
| 195 | 2016 | 3     | 1216   |
| 196 | 2016 | 4     | 1204   |
| 197 | 2016 | 5     | 1197   |
| 198 | 2016 | 6     | 1200   |
| 199 | 2016 | 7     | 1185   |
| 200 | 2016 | 8     | 1176   |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 413 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 201 | 2016 | 9     | 1171   |
| 202 | 2016 | 10    | 1165   |
| 203 | 2016 | 11    | 1164   |
| 204 | 2016 | 12    | 1163   |
| 205 | 2017 | 1     | 1215   |
| 206 | 2017 | 2     | 1210   |
| 207 | 2017 | 3     | 1219   |
| 208 | 2017 | 4     | 1214   |
| 209 | 2017 | 5     | 1209   |
| 210 | 2017 | 6     | 1211   |
| 211 | 2017 | 7     | 1220   |
| 212 | 2017 | 8     | 1222   |
| 213 | 2017 | 9     | 1201   |
| 214 | 2017 | 10    | 1210   |
| 215 | 2017 | 11    | 1209   |
| 216 | 2017 | 12    | 1210   |
| 217 | 2018 | 1     | 1206   |
| 218 | 2018 | 2     | 1214   |
| 219 | 2018 | 3     | 1209   |
| 220 | 2018 | 4     | 1203   |
| 221 | 2018 | 5     | 1200   |
| 222 | 2018 | 6     | 1202   |
| 223 | 2018 | 7     | 1203   |
| 224 | 2018 | 8     | 1202   |
| 225 | 2018 | 9     | 1199   |
| 226 | 2018 | 10    | 1206   |
| 227 | 2018 | 11    | 1251   |
| 228 | 2018 | 12    | 1208   |
| 229 | 2019 | 1     | 1199   |
| 230 | 2019 | 2     | 1159   |
| 231 | 2019 | 3     | 1205   |
| 232 | 2019 | 4     | 1196   |
| 233 | 2019 | 5     | 1195   |
| 234 | 2019 | 6     | 1183   |
| 235 | 2019 | 7     | 1201   |
| 236 | 2019 | 8     | 1188   |
| 237 | 2019 | 9     | 1183   |
| 238 | 2019 | 10    | 1174   |
| 239 | 2019 | 11    | 1194   |
| 240 | 2019 | 12    | 1167   |
| 241 | 2020 | 1     | 1148   |
| 242 | 2020 | 2     | 1122   |
| 243 | 2020 | 3     | 1130   |
| 244 | 2020 | 4     | 1134   |
| 245 | 2020 | 5     | 1115   |
| 246 | 2020 | 6     | 1122   |
| 247 | 2020 | 7     | 1119   |
| 248 | 2020 | 8     | 1116   |
| 249 | 2020 | 9     | 1111   |
| 250 | 2020 | 10    | 1113   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 414 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 251 | 2020 | 11    | 1111   |
| 252 | 2020 | 12    | 1096   |
| 253 | 2021 | 1     | 1095   |
| 254 | 2021 | 2     | 1061   |
| 255 | 2021 | 3     | 1106   |
| 256 | 2021 | 4     | 1094   |
| 257 | 2021 | 5     | 1083   |
| 258 | 2021 | 6     | 1081   |
| 259 | 2021 | 7     | 1076   |
| 260 | 2021 | 8     | 1074   |
| 261 | 2021 | 9     | 1076   |
| 262 | 2021 | 10    | 1074   |
| 263 | 2021 | 11    | 1065   |
| 264 | 2021 | 12    | 1061   |
| 265 | 2022 | 1     | .      |
| 266 | 2022 | 2     | .      |
| 267 | 2022 | 3     | .      |
| 268 | 2022 | 4     | .      |
| 269 | 2022 | 5     | .      |
| 270 | 2022 | 6     | .      |
| 271 | 2022 | 7     | .      |
| 272 | 2022 | 8     | .      |
| 273 | 2022 | 9     | .      |
| 274 | 2022 | 10    | .      |
| 275 | 2022 | 11    | .      |
| 276 | 2022 | 12    | .      |
| 277 | 2023 | 1     | .      |
| 278 | 2023 | 2     | .      |
| 279 | 2023 | 3     | .      |
| 280 | 2023 | 4     | .      |
| 281 | 2023 | 5     | .      |
| 282 | 2023 | 6     | .      |
| 283 | 2023 | 7     | .      |
| 284 | 2023 | 8     | .      |
| 285 | 2023 | 9     | .      |
| 286 | 2023 | 10    | .      |
| 287 | 2023 | 11    | .      |
| 288 | 2023 | 12    | .      |
| 289 | 2024 | 1     | .      |
| 290 | 2024 | 2     | .      |
| 291 | 2024 | 3     | .      |
| 292 | 2024 | 4     | .      |
| 293 | 2024 | 5     | .      |
| 294 | 2024 | 6     | .      |
| 295 | 2024 | 7     | .      |
| 296 | 2024 | 8     | .      |
| 297 | 2024 | 9     | .      |
| 298 | 2024 | 10    | .      |
| 299 | 2024 | 11    | .      |
| 300 | 2024 | 12    | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 415 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 301 | 2025 | 1     | .      |
| 302 | 2025 | 2     | .      |
| 303 | 2025 | 3     | .      |
| 304 | 2025 | 4     | .      |
| 305 | 2025 | 5     | .      |
| 306 | 2025 | 6     | .      |
| 307 | 2025 | 7     | .      |
| 308 | 2025 | 8     | .      |
| 309 | 2025 | 9     | .      |
| 310 | 2025 | 10    | .      |
| 311 | 2025 | 11    | .      |
| 312 | 2025 | 12    | .      |
| 313 | 2026 | 1     | .      |
| 314 | 2026 | 2     | .      |
| 315 | 2026 | 3     | .      |
| 316 | 2026 | 4     | .      |
| 317 | 2026 | 5     | .      |
| 318 | 2026 | 6     | .      |
| 319 | 2026 | 7     | .      |
| 320 | 2026 | 8     | .      |
| 321 | 2026 | 9     | .      |
| 322 | 2026 | 10    | .      |
| 323 | 2026 | 11    | .      |
| 324 | 2026 | 12    | .      |
| 325 | 2027 | 1     | .      |
| 326 | 2027 | 2     | .      |
| 327 | 2027 | 3     | .      |
| 328 | 2027 | 4     | .      |
| 329 | 2027 | 5     | .      |
| 330 | 2027 | 6     | .      |
| 331 | 2027 | 7     | .      |
| 332 | 2027 | 8     | .      |
| 333 | 2027 | 9     | .      |
| 334 | 2027 | 10    | .      |
| 335 | 2027 | 11    | .      |
| 336 | 2027 | 12    | .      |
| 337 | 2028 | 1     | .      |
| 338 | 2028 | 2     | .      |
| 339 | 2028 | 3     | .      |
| 340 | 2028 | 4     | .      |
| 341 | 2028 | 5     | .      |
| 342 | 2028 | 6     | .      |
| 343 | 2028 | 7     | .      |
| 344 | 2028 | 8     | .      |
| 345 | 2028 | 9     | .      |
| 346 | 2028 | 10    | .      |
| 347 | 2028 | 11    | .      |
| 348 | 2028 | 12    | .      |
| 349 | 2029 | 1     | .      |
| 350 | 2029 | 2     | .      |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 416 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 351 | 2029 | 3     | .      |
| 352 | 2029 | 4     | .      |
| 353 | 2029 | 5     | .      |
| 354 | 2029 | 6     | .      |
| 355 | 2029 | 7     | .      |
| 356 | 2029 | 8     | .      |
| 357 | 2029 | 9     | .      |
| 358 | 2029 | 10    | .      |
| 359 | 2029 | 11    | .      |
| 360 | 2029 | 12    | .      |
| 361 | 2030 | 1     | .      |
| 362 | 2030 | 2     | .      |
| 363 | 2030 | 3     | .      |
| 364 | 2030 | 4     | .      |
| 365 | 2030 | 5     | .      |
| 366 | 2030 | 6     | .      |
| 367 | 2030 | 7     | .      |
| 368 | 2030 | 8     | .      |
| 369 | 2030 | 9     | .      |
| 370 | 2030 | 10    | .      |
| 371 | 2030 | 11    | .      |
| 372 | 2030 | 12    | .      |
| 373 | 2031 | 1     | .      |
| 374 | 2031 | 2     | .      |
| 375 | 2031 | 3     | .      |
| 376 | 2031 | 4     | .      |
| 377 | 2031 | 5     | .      |
| 378 | 2031 | 6     | .      |
| 379 | 2031 | 7     | .      |
| 380 | 2031 | 8     | .      |
| 381 | 2031 | 9     | .      |
| 382 | 2031 | 10    | .      |
| 383 | 2031 | 11    | .      |
| 384 | 2031 | 12    | .      |
| 385 | 2032 | 1     | .      |
| 386 | 2032 | 2     | .      |
| 387 | 2032 | 3     | .      |
| 388 | 2032 | 4     | .      |
| 389 | 2032 | 5     | .      |
| 390 | 2032 | 6     | .      |
| 391 | 2032 | 7     | .      |
| 392 | 2032 | 8     | .      |
| 393 | 2032 | 9     | .      |
| 394 | 2032 | 10    | .      |
| 395 | 2032 | 11    | .      |
| 396 | 2032 | 12    | .      |
| 397 | 2033 | 1     | .      |
| 398 | 2033 | 2     | .      |
| 399 | 2033 | 3     | .      |
| 400 | 2033 | 4     | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 417 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 401 | 2033 | 5     | .      |
| 402 | 2033 | 6     | .      |
| 403 | 2033 | 7     | .      |
| 404 | 2033 | 8     | .      |
| 405 | 2033 | 9     | .      |
| 406 | 2033 | 10    | .      |
| 407 | 2033 | 11    | .      |
| 408 | 2033 | 12    | .      |
| 409 | 2034 | 1     | .      |
| 410 | 2034 | 2     | .      |
| 411 | 2034 | 3     | .      |
| 412 | 2034 | 4     | .      |
| 413 | 2034 | 5     | .      |
| 414 | 2034 | 6     | .      |
| 415 | 2034 | 7     | .      |
| 416 | 2034 | 8     | .      |
| 417 | 2034 | 9     | .      |
| 418 | 2034 | 10    | .      |
| 419 | 2034 | 11    | .      |
| 420 | 2034 | 12    | .      |
| 421 | 2035 | 1     | .      |
| 422 | 2035 | 2     | .      |
| 423 | 2035 | 3     | .      |
| 424 | 2035 | 4     | .      |
| 425 | 2035 | 5     | .      |
| 426 | 2035 | 6     | .      |
| 427 | 2035 | 7     | .      |
| 428 | 2035 | 8     | .      |
| 429 | 2035 | 9     | .      |
| 430 | 2035 | 10    | .      |
| 431 | 2035 | 11    | .      |
| 432 | 2035 | 12    | .      |
| 433 | 2036 | 1     | .      |
| 434 | 2036 | 2     | .      |
| 435 | 2036 | 3     | .      |
| 436 | 2036 | 4     | .      |
| 437 | 2036 | 5     | .      |
| 438 | 2036 | 6     | .      |
| 439 | 2036 | 7     | .      |
| 440 | 2036 | 8     | .      |
| 441 | 2036 | 9     | .      |
| 442 | 2036 | 10    | .      |
| 443 | 2036 | 11    | .      |
| 444 | 2036 | 12    | .      |
| 445 | 2037 | 1     | .      |
| 446 | 2037 | 2     | .      |
| 447 | 2037 | 3     | .      |
| 448 | 2037 | 4     | .      |
| 449 | 2037 | 5     | .      |
| 450 | 2037 | 6     | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 418 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 451 | 2037 | 7     | .      |
| 452 | 2037 | 8     | .      |
| 453 | 2037 | 9     | .      |
| 454 | 2037 | 10    | .      |
| 455 | 2037 | 11    | .      |
| 456 | 2037 | 12    | .      |
| 457 | 2038 | 1     | .      |
| 458 | 2038 | 2     | .      |
| 459 | 2038 | 3     | .      |
| 460 | 2038 | 4     | .      |
| 461 | 2038 | 5     | .      |
| 462 | 2038 | 6     | .      |
| 463 | 2038 | 7     | .      |
| 464 | 2038 | 8     | .      |
| 465 | 2038 | 9     | .      |
| 466 | 2038 | 10    | .      |
| 467 | 2038 | 11    | .      |
| 468 | 2038 | 12    | .      |
| 469 | 2039 | 1     | .      |
| 470 | 2039 | 2     | .      |
| 471 | 2039 | 3     | .      |
| 472 | 2039 | 4     | .      |
| 473 | 2039 | 5     | .      |
| 474 | 2039 | 6     | .      |
| 475 | 2039 | 7     | .      |
| 476 | 2039 | 8     | .      |
| 477 | 2039 | 9     | .      |
| 478 | 2039 | 10    | .      |
| 479 | 2039 | 11    | .      |
| 480 | 2039 | 12    | .      |
| 481 | 2040 | 1     | .      |
| 482 | 2040 | 2     | .      |
| 483 | 2040 | 3     | .      |
| 484 | 2040 | 4     | .      |
| 485 | 2040 | 5     | .      |
| 486 | 2040 | 6     | .      |
| 487 | 2040 | 7     | .      |
| 488 | 2040 | 8     | .      |
| 489 | 2040 | 9     | .      |
| 490 | 2040 | 10    | .      |
| 491 | 2040 | 11    | .      |
| 492 | 2040 | 12    | .      |
| 493 | 2041 | 1     | .      |
| 494 | 2041 | 2     | .      |
| 495 | 2041 | 3     | .      |
| 496 | 2041 | 4     | .      |
| 497 | 2041 | 5     | .      |
| 498 | 2041 | 6     | .      |
| 499 | 2041 | 7     | .      |
| 500 | 2041 | 8     | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 419 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 501 | 2041 | 9     | .      |
| 502 | 2041 | 10    | .      |
| 503 | 2041 | 11    | .      |
| 504 | 2041 | 12    | .      |
| 505 | 2042 | 1     | .      |
| 506 | 2042 | 2     | .      |
| 507 | 2042 | 3     | .      |
| 508 | 2042 | 4     | .      |
| 509 | 2042 | 5     | .      |
| 510 | 2042 | 6     | .      |
| 511 | 2042 | 7     | .      |
| 512 | 2042 | 8     | .      |
| 513 | 2042 | 9     | .      |
| 514 | 2042 | 10    | .      |
| 515 | 2042 | 11    | .      |
| 516 | 2042 | 12    | .      |
| 517 | 2043 | 1     | .      |
| 518 | 2043 | 2     | .      |
| 519 | 2043 | 3     | .      |
| 520 | 2043 | 4     | .      |
| 521 | 2043 | 5     | .      |
| 522 | 2043 | 6     | .      |
| 523 | 2043 | 7     | .      |
| 524 | 2043 | 8     | .      |
| 525 | 2043 | 9     | .      |
| 526 | 2043 | 10    | .      |
| 527 | 2043 | 11    | .      |
| 528 | 2043 | 12    | .      |
| 529 | 2044 | 1     | .      |
| 530 | 2044 | 2     | .      |
| 531 | 2044 | 3     | .      |
| 532 | 2044 | 4     | .      |
| 533 | 2044 | 5     | .      |
| 534 | 2044 | 6     | .      |
| 535 | 2044 | 7     | .      |
| 536 | 2044 | 8     | .      |
| 537 | 2044 | 9     | .      |
| 538 | 2044 | 10    | .      |
| 539 | 2044 | 11    | .      |
| 540 | 2044 | 12    | .      |
| 541 | 2045 | 1     | .      |
| 542 | 2045 | 2     | .      |
| 543 | 2045 | 3     | .      |
| 544 | 2045 | 4     | .      |
| 545 | 2045 | 5     | .      |
| 546 | 2045 | 6     | .      |
| 547 | 2045 | 7     | .      |
| 548 | 2045 | 8     | .      |
| 549 | 2045 | 9     | .      |
| 550 | 2045 | 10    | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 420 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 551 | 2045 | 11    | .      |
| 552 | 2045 | 12    | .      |
| 553 | 2046 | 1     | .      |
| 554 | 2046 | 2     | .      |
| 555 | 2046 | 3     | .      |
| 556 | 2046 | 4     | .      |
| 557 | 2046 | 5     | .      |
| 558 | 2046 | 6     | .      |
| 559 | 2046 | 7     | .      |
| 560 | 2046 | 8     | .      |
| 561 | 2046 | 9     | .      |
| 562 | 2046 | 10    | .      |
| 563 | 2046 | 11    | .      |
| 564 | 2046 | 12    | .      |
| 565 | 2047 | 1     | .      |
| 566 | 2047 | 2     | .      |
| 567 | 2047 | 3     | .      |
| 568 | 2047 | 4     | .      |
| 569 | 2047 | 5     | .      |
| 570 | 2047 | 6     | .      |
| 571 | 2047 | 7     | .      |
| 572 | 2047 | 8     | .      |
| 573 | 2047 | 9     | .      |
| 574 | 2047 | 10    | .      |
| 575 | 2047 | 11    | .      |
| 576 | 2047 | 12    | .      |
| 577 | 2048 | 1     | .      |
| 578 | 2048 | 2     | .      |
| 579 | 2048 | 3     | .      |
| 580 | 2048 | 4     | .      |
| 581 | 2048 | 5     | .      |
| 582 | 2048 | 6     | .      |
| 583 | 2048 | 7     | .      |
| 584 | 2048 | 8     | .      |
| 585 | 2048 | 9     | .      |
| 586 | 2048 | 10    | .      |
| 587 | 2048 | 11    | .      |
| 588 | 2048 | 12    | .      |
| 589 | 2049 | 1     | .      |
| 590 | 2049 | 2     | .      |
| 591 | 2049 | 3     | .      |
| 592 | 2049 | 4     | .      |
| 593 | 2049 | 5     | .      |
| 594 | 2049 | 6     | .      |
| 595 | 2049 | 7     | .      |
| 596 | 2049 | 8     | .      |
| 597 | 2049 | 9     | .      |
| 598 | 2049 | 10    | .      |
| 599 | 2049 | 11    | .      |
| 600 | 2049 | 12    | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 421 of 1182

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 601 | 2050 | 1     | .      |
| 602 | 2050 | 2     | .      |
| 603 | 2050 | 3     | .      |
| 604 | 2050 | 4     | .      |
| 605 | 2050 | 5     | .      |
| 606 | 2050 | 6     | .      |
| 607 | 2050 | 7     | .      |
| 608 | 2050 | 8     | .      |
| 609 | 2050 | 9     | .      |
| 610 | 2050 | 10    | .      |
| 611 | 2050 | 11    | .      |
| 612 | 2050 | 12    | .      |
| 613 | 2051 | 1     | .      |
| 614 | 2051 | 2     | .      |
| 615 | 2051 | 3     | .      |
| 616 | 2051 | 4     | .      |
| 617 | 2051 | 5     | .      |
| 618 | 2051 | 6     | .      |
| 619 | 2051 | 7     | .      |
| 620 | 2051 | 8     | .      |
| 621 | 2051 | 9     | .      |
| 622 | 2051 | 10    | .      |
| 623 | 2051 | 11    | .      |
| 624 | 2051 | 12    | .      |
| 625 | 2052 | 1     | .      |
| 626 | 2052 | 2     | .      |
| 627 | 2052 | 3     | .      |
| 628 | 2052 | 4     | .      |
| 629 | 2052 | 5     | .      |
| 630 | 2052 | 6     | .      |
| 631 | 2052 | 7     | .      |
| 632 | 2052 | 8     | .      |
| 633 | 2052 | 9     | .      |
| 634 | 2052 | 10    | .      |
| 635 | 2052 | 11    | .      |
| 636 | 2052 | 12    | .      |
| 637 | 2053 | 1     | .      |
| 638 | 2053 | 2     | .      |
| 639 | 2053 | 3     | .      |
| 640 | 2053 | 4     | .      |
| 641 | 2053 | 5     | .      |
| 642 | 2053 | 6     | .      |
| 643 | 2053 | 7     | .      |
| 644 | 2053 | 8     | .      |
| 645 | 2053 | 9     | .      |
| 646 | 2053 | 10    | .      |
| 647 | 2053 | 11    | .      |
| 648 | 2053 | 12    | .      |
| 649 | 2054 | 1     | .      |
| 650 | 2054 | 2     | .      |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ENDOGENOUS VARIABLES

| Obs | YEAR | MONTH | ci_kpc |
|-----|------|-------|--------|
| 651 | 2054 | 3     | .      |
| 652 | 2054 | 4     | .      |
| 653 | 2054 | 5     | .      |
| 654 | 2054 | 6     | .      |
| 655 | 2054 | 7     | .      |
| 656 | 2054 | 8     | .      |
| 657 | 2054 | 9     | .      |
| 658 | 2054 | 10    | .      |
| 659 | 2054 | 11    | .      |
| 660 | 2054 | 12    | .      |
| 661 | 2055 | 1     | .      |
| 662 | 2055 | 2     | .      |
| 663 | 2055 | 3     | .      |
| 664 | 2055 | 4     | .      |
| 665 | 2055 | 5     | .      |
| 666 | 2055 | 6     | .      |
| 667 | 2055 | 7     | .      |
| 668 | 2055 | 8     | .      |
| 669 | 2055 | 9     | .      |
| 670 | 2055 | 10    | .      |
| 671 | 2055 | 11    | .      |
| 672 | 2055 | 12    | .      |
| 673 | 2056 | 1     | .      |
| 674 | 2056 | 2     | .      |
| 675 | 2056 | 3     | .      |
| 676 | 2056 | 4     | .      |
| 677 | 2056 | 5     | .      |
| 678 | 2056 | 6     | .      |
| 679 | 2056 | 7     | .      |
| 680 | 2056 | 8     | .      |
| 681 | 2056 | 9     | .      |
| 682 | 2056 | 10    | .      |
| 683 | 2056 | 11    | .      |
| 684 | 2056 | 12    | .      |
| 685 | 2057 | 1     | .      |
| 686 | 2057 | 2     | .      |
| 687 | 2057 | 3     | .      |
| 688 | 2057 | 4     | .      |
| 689 | 2057 | 5     | .      |
| 690 | 2057 | 6     | .      |
| 691 | 2057 | 7     | .      |
| 692 | 2057 | 8     | .      |
| 693 | 2057 | 9     | .      |
| 694 | 2057 | 10    | .      |
| 695 | 2057 | 11    | .      |
| 696 | 2057 | 12    | .      |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 423 of 1182

The MEANS Procedure

| Variable | Label                            | Mean      |
|----------|----------------------------------|-----------|
| YEAR     | YEAR                             | 2028.50   |
| MONTH    | MONTH                            | 6.5000000 |
| time     | TREND                            | 2028.96   |
| d1       | January                          | 0.0833333 |
| d2       | February                         | 0.0833333 |
| d3       | March                            | 0.0833333 |
| d4       | April                            | 0.0833333 |
| d5       | May                              | 0.0833333 |
| d6       | June                             | 0.0833333 |
| d7       | July                             | 0.0833333 |
| d8       | August                           | 0.0833333 |
| d9       | September                        | 0.0833333 |
| d10      | October                          | 0.0833333 |
| d11      | November                         | 0.0833333 |
| aug15on  | BINARY VARIABLE-AUGUST 2015 ON   | 0.7313218 |
| d17on    | BINARY VARIABLE-2017 ON          | 0.7068966 |
| may16on  | BINARY VARIABLE-MAY 2016 ON      | 0.7183908 |
| dec19on  | Binary Variable-December 2019 On | 0.6566092 |
| apr20on  | Binary Variable-April 2020 On    | 0.6508621 |
| dec20on  | Binary Variable-December 2020 On | 0.6393678 |









KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 428 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | K<br>e<br>n<br>t<br>u<br>c<br>k<br>y<br>P<br>o<br>w<br>e<br>r<br>2<br>0<br>2<br>2<br>I<br>n<br>t<br>e<br>g<br>r<br>a<br>t<br>e<br>d<br>R<br>e<br>s<br>o<br>u<br>r<br>c<br>e<br>P<br>l<br>a<br>n |   |   |   |   |   |   |   |   |   |   |   | a | m | d | a | d |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|             |                  |                       |                  | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 177         | 2014             | 9                     | 2014.67          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 178         | 2014             | 10                    | 2014.75          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 179         | 2014             | 11                    | 2014.83          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 180         | 2014             | 12                    | 2014.92          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 181         | 2015             | 1                     | 2015.00          | 1   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 182         | 2015             | 2                     | 2015.08          | 0   | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 183         | 2015             | 3                     | 2015.17          | 0   | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 184         | 2015             | 4                     | 2015.25          | 0   | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 185         | 2015             | 5                     | 2015.33          | 0   | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 186         | 2015             | 6                     | 2015.42          | 0   | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 187         | 2015             | 7                     | 2015.50          | 0   | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 188         | 2015             | 8                     | 2015.58          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 189         | 2015             | 9                     | 2015.67          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 190         | 2015             | 10                    | 2015.75          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 191         | 2015             | 11                    | 2015.83          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 192         | 2015             | 12                    | 2015.92          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 193         | 2016             | 1                     | 2016.00          | 1   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 194         | 2016             | 2                     | 2016.08          | 0   | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 195         | 2016             | 3                     | 2016.17          | 0   | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 196         | 2016             | 4                     | 2016.25          | 0   | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 197         | 2016             | 5                     | 2016.33          | 0   | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 198         | 2016             | 6                     | 2016.42          | 0   | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 199         | 2016             | 7                     | 2016.50          | 0   | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 200         | 2016             | 8                     | 2016.58          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 201         | 2016             | 9                     | 2016.67          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 202         | 2016             | 10                    | 2016.75          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 203         | 2016             | 11                    | 2016.83          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 204         | 2016             | 12                    | 2016.92          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 205         | 2017             | 1                     | 2017.00          | 1   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 206         | 2017             | 2                     | 2017.08          | 0   | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 207         | 2017             | 3                     | 2017.17          | 0   | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 208         | 2017             | 4                     | 2017.25          | 0   | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 209         | 2017             | 5                     | 2017.33          | 0   | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 210         | 2017             | 6                     | 2017.42          | 0   | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 211         | 2017             | 7                     | 2017.50          | 0   | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 212         | 2017             | 8                     | 2017.58          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 213         | 2017             | 9                     | 2017.67          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 214         | 2017             | 10                    | 2017.75          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 215         | 2017             | 11                    | 2017.83          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 216         | 2017             | 12                    | 2017.92          | 0   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 217         | 2018             | 1                     | 2018.00          | 1   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 218         | 2018             | 2                     | 2018.08          | 0   | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 219         | 2018             | 3                     | 2018.17          | 0   | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 220         | 2018             | 4                     | 2018.25          | 0   | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 429 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | K<br>e<br>n<br>t<br>u<br>c<br>k<br>y<br>P<br>o<br>w<br>e<br>r<br>C<br>o<br>m<br>p<br>a<br>n<br>y<br>E<br>x<br>o<br>g<br>e<br>n<br>o<br>u<br>s<br>V<br>a<br>r<br>i<br>a<br>b<br>l<br>e<br>s |        |        |        |        |        |        |        |        |         |         |   | a<br>p<br>r<br>i<br>l | m<br>a<br>y | j<br>u<br>n<br>e | j<br>u<br>l | a<br>u<br>g<br>u<br>s<br>t | s<br>e<br>p<br>t<br>e<br>m<br>b<br>e<br>r | o<br>c<br>t<br>o<br>b<br>e<br>r | n<br>o<br>v<br>e<br>m<br>b<br>e<br>r | d<br>i<br>c<br>e<br>m<br>b<br>e<br>r |
|-------------|------------------|-----------------------|------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---|-----------------------|-------------|------------------|-------------|----------------------------|---|---------------------------------|--------------------------------------|--------------------------------------|
|             |                  |                       |                  | d<br>1   | d<br>2 | d<br>3 | d<br>4 | d<br>5 | d<br>6 | d<br>7 | d<br>8 | d<br>9 | d<br>10 | d<br>11 |   |                       |             |                  |             |                            |   |                                 |                                      |                                      |
| 221         | 2018             | 5                     | 2018.33          | 0  | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 222         | 2018             | 6                     | 2018.42          | 0  | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 223         | 2018             | 7                     | 2018.50          | 0  | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 224         | 2018             | 8                     | 2018.58          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 225         | 2018             | 9                     | 2018.67          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 226         | 2018             | 10                    | 2018.75          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 227         | 2018             | 11                    | 2018.83          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 228         | 2018             | 12                    | 2018.92          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 229         | 2019             | 1                     | 2019.00          | 1  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 230         | 2019             | 2                     | 2019.08          | 0  | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 231         | 2019             | 3                     | 2019.17          | 0  | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 232         | 2019             | 4                     | 2019.25          | 0  | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 233         | 2019             | 5                     | 2019.33          | 0  | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 234         | 2019             | 6                     | 2019.42          | 0  | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 235         | 2019             | 7                     | 2019.50          | 0  | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 236         | 2019             | 8                     | 2019.58          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 237         | 2019             | 9                     | 2019.67          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 238         | 2019             | 10                    | 2019.75          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 239         | 2019             | 11                    | 2019.83          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1 | 1                     | 1           | 0                | 0           | 0                          |   |                                 |                                      |                                      |
| 240         | 2019             | 12                    | 2019.92          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 0           | 0                          |   |                                 |                                      |                                      |
| 241         | 2020             | 1                     | 2020.00          | 1  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 0           | 0                          |   |                                 |                                      |                                      |
| 242         | 2020             | 2                     | 2020.08          | 0  | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 0           | 0                          |   |                                 |                                      |                                      |
| 243         | 2020             | 3                     | 2020.17          | 0  | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 0           | 0                          |   |                                 |                                      |                                      |
| 244         | 2020             | 4                     | 2020.25          | 0  | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 245         | 2020             | 5                     | 2020.33          | 0  | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 246         | 2020             | 6                     | 2020.42          | 0  | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 247         | 2020             | 7                     | 2020.50          | 0  | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 248         | 2020             | 8                     | 2020.58          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 249         | 2020             | 9                     | 2020.67          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 250         | 2020             | 10                    | 2020.75          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 251         | 2020             | 11                    | 2020.83          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1 | 1                     | 1           | 1                | 1           | 0                          |   |                                 |                                      |                                      |
| 252         | 2020             | 12                    | 2020.92          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 253         | 2021             | 1                     | 2021.00          | 1  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 254         | 2021             | 2                     | 2021.08          | 0  | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 255         | 2021             | 3                     | 2021.17          | 0  | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 256         | 2021             | 4                     | 2021.25          | 0  | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 257         | 2021             | 5                     | 2021.33          | 0  | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 258         | 2021             | 6                     | 2021.42          | 0  | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 259         | 2021             | 7                     | 2021.50          | 0  | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 260         | 2021             | 8                     | 2021.58          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 261         | 2021             | 9                     | 2021.67          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 262         | 2021             | 10                    | 2021.75          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 263         | 2021             | 11                    | 2021.83          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |
| 264         | 2021             | 12                    | 2021.92          | 0  | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1 | 1                     | 1           | 1                | 1           | 1                          |   |                                 |                                      |                                      |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 430 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d |   |   |   |   |   |   |   |   |   |   |   | a<br>u<br>g<br>u<br>s<br>t |   |   |   |   |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|---|
|             |                  |                       |                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 5                          | 7 | 6 | 9 | 0 | 0 |   |
| 265         | 2022             | 1                     | 2022.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 266         | 2022             | 2                     | 2022.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 267         | 2022             | 3                     | 2022.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 268         | 2022             | 4                     | 2022.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 269         | 2022             | 5                     | 2022.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 270         | 2022             | 6                     | 2022.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 271         | 2022             | 7                     | 2022.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 272         | 2022             | 8                     | 2022.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 273         | 2022             | 9                     | 2022.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 274         | 2022             | 10                    | 2022.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 275         | 2022             | 11                    | 2022.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 276         | 2022             | 12                    | 2022.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 277         | 2023             | 1                     | 2023.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 278         | 2023             | 2                     | 2023.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 279         | 2023             | 3                     | 2023.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 280         | 2023             | 4                     | 2023.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 281         | 2023             | 5                     | 2023.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 282         | 2023             | 6                     | 2023.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 283         | 2023             | 7                     | 2023.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 284         | 2023             | 8                     | 2023.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 285         | 2023             | 9                     | 2023.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 286         | 2023             | 10                    | 2023.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 287         | 2023             | 11                    | 2023.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 288         | 2023             | 12                    | 2023.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 289         | 2024             | 1                     | 2024.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 290         | 2024             | 2                     | 2024.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 291         | 2024             | 3                     | 2024.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 292         | 2024             | 4                     | 2024.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 293         | 2024             | 5                     | 2024.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 294         | 2024             | 6                     | 2024.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 295         | 2024             | 7                     | 2024.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 296         | 2024             | 8                     | 2024.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 297         | 2024             | 9                     | 2024.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 298         | 2024             | 10                    | 2024.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 299         | 2024             | 11                    | 2024.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 300         | 2024             | 12                    | 2024.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 301         | 2025             | 1                     | 2025.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 302         | 2025             | 2                     | 2025.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 303         | 2025             | 3                     | 2025.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 304         | 2025             | 4                     | 2025.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 305         | 2025             | 5                     | 2025.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 306         | 2025             | 6                     | 2025.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 307         | 2025             | 7                     | 2025.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |
| 308         | 2025             | 8                     | 2025.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0                          | 1 | 1 | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 431 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d<br>1 | d<br>2 | d<br>3 | d<br>4 | d<br>5 | d<br>6 | d<br>7 | d<br>8 | d<br>9 | d<br>10 | d<br>11 | a<br>u<br>g<br>1 | m<br>d<br>y<br>1 | d<br>e<br>c<br>1 | a<br>p<br>r<br>2 | d<br>e<br>c<br>2 |
|-------------|------------------|-----------------------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|------------------|------------------|------------------|------------------|------------------|
|             |                  |                       |                  |        |        |        |        |        |        |        |        |        |         |         | 5                | 7                | 6                | 9                | 0                |
| 309         | 2025             | 9                     | 2025.67          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 310         | 2025             | 10                    | 2025.75          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                | 1                | 1                | 1                | 1                |
| 311         | 2025             | 11                    | 2025.83          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1                | 1                | 1                | 1                | 1                |
| 312         | 2025             | 12                    | 2025.92          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 313         | 2026             | 1                     | 2026.00          | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 314         | 2026             | 2                     | 2026.08          | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 315         | 2026             | 3                     | 2026.17          | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 316         | 2026             | 4                     | 2026.25          | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 317         | 2026             | 5                     | 2026.33          | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 318         | 2026             | 6                     | 2026.42          | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 319         | 2026             | 7                     | 2026.50          | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 320         | 2026             | 8                     | 2026.58          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 321         | 2026             | 9                     | 2026.67          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 322         | 2026             | 10                    | 2026.75          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                | 1                | 1                | 1                | 1                |
| 323         | 2026             | 11                    | 2026.83          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1                | 1                | 1                | 1                | 1                |
| 324         | 2026             | 12                    | 2026.92          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 325         | 2027             | 1                     | 2027.00          | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 326         | 2027             | 2                     | 2027.08          | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 327         | 2027             | 3                     | 2027.17          | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 328         | 2027             | 4                     | 2027.25          | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 329         | 2027             | 5                     | 2027.33          | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 330         | 2027             | 6                     | 2027.42          | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 331         | 2027             | 7                     | 2027.50          | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 332         | 2027             | 8                     | 2027.58          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 333         | 2027             | 9                     | 2027.67          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 334         | 2027             | 10                    | 2027.75          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                | 1                | 1                | 1                | 1                |
| 335         | 2027             | 11                    | 2027.83          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1                | 1                | 1                | 1                | 1                |
| 336         | 2027             | 12                    | 2027.92          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 337         | 2028             | 1                     | 2028.00          | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 338         | 2028             | 2                     | 2028.08          | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 339         | 2028             | 3                     | 2028.17          | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 340         | 2028             | 4                     | 2028.25          | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 341         | 2028             | 5                     | 2028.33          | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 342         | 2028             | 6                     | 2028.42          | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 343         | 2028             | 7                     | 2028.50          | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 344         | 2028             | 8                     | 2028.58          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 345         | 2028             | 9                     | 2028.67          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 346         | 2028             | 10                    | 2028.75          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1       | 0       | 1                | 1                | 1                | 1                | 1                |
| 347         | 2028             | 11                    | 2028.83          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 1       | 1                | 1                | 1                | 1                | 1                |
| 348         | 2028             | 12                    | 2028.92          | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 349         | 2029             | 1                     | 2029.00          | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 350         | 2029             | 2                     | 2029.08          | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 351         | 2029             | 3                     | 2029.17          | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |
| 352         | 2029             | 4                     | 2029.25          | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0       | 1                | 1                | 1                | 1                | 1                |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 432 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | K<br>e<br>n<br>t<br>u<br>c<br>k<br>y<br>P<br>o<br>w<br>e<br>r<br>C<br>o<br>m<br>p<br>a<br>n<br>y<br>E<br>x<br>o<br>g<br>e<br>n<br>o<br>u<br>s<br>V<br>a<br>r<br>i<br>a<br>b<br>l<br>e<br>s |   |   |   |   |   |   |   |   |   |   |   | a | m | d | a | d |   |   |
|-------------|------------------|-----------------------|------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|             |                  |                       |                  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 353         | 2029             | 5                     | 2029.33          | 0  | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 354         | 2029             | 6                     | 2029.42          | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 355         | 2029             | 7                     | 2029.50          | 0  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 356         | 2029             | 8                     | 2029.58          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 357         | 2029             | 9                     | 2029.67          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 358         | 2029             | 10                    | 2029.75          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 359         | 2029             | 11                    | 2029.83          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 360         | 2029             | 12                    | 2029.92          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 361         | 2030             | 1                     | 2030.00          | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 362         | 2030             | 2                     | 2030.08          | 0  | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 363         | 2030             | 3                     | 2030.17          | 0  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 364         | 2030             | 4                     | 2030.25          | 0  | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 365         | 2030             | 5                     | 2030.33          | 0  | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 366         | 2030             | 6                     | 2030.42          | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 367         | 2030             | 7                     | 2030.50          | 0  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 368         | 2030             | 8                     | 2030.58          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 369         | 2030             | 9                     | 2030.67          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 370         | 2030             | 10                    | 2030.75          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 371         | 2030             | 11                    | 2030.83          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 372         | 2030             | 12                    | 2030.92          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 373         | 2031             | 1                     | 2031.00          | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 374         | 2031             | 2                     | 2031.08          | 0  | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 375         | 2031             | 3                     | 2031.17          | 0  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 376         | 2031             | 4                     | 2031.25          | 0  | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 377         | 2031             | 5                     | 2031.33          | 0  | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 378         | 2031             | 6                     | 2031.42          | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 379         | 2031             | 7                     | 2031.50          | 0  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 380         | 2031             | 8                     | 2031.58          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 381         | 2031             | 9                     | 2031.67          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 382         | 2031             | 10                    | 2031.75          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 383         | 2031             | 11                    | 2031.83          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 384         | 2031             | 12                    | 2031.92          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 385         | 2032             | 1                     | 2032.00          | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 386         | 2032             | 2                     | 2032.08          | 0  | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 387         | 2032             | 3                     | 2032.17          | 0  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 388         | 2032             | 4                     | 2032.25          | 0  | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 389         | 2032             | 5                     | 2032.33          | 0  | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 390         | 2032             | 6                     | 2032.42          | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 391         | 2032             | 7                     | 2032.50          | 0  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 392         | 2032             | 8                     | 2032.58          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 393         | 2032             | 9                     | 2032.67          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 394         | 2032             | 10                    | 2032.75          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 395         | 2032             | 11                    | 2032.83          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 396         | 2032             | 12                    | 2032.92          | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 433 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d |   |   |   |   |   |   |   |   |   |   |   | a<br>m<br>d<br>a<br>d<br>u<br>g<br>d<br>y<br>c<br>r<br>c |   |   |   |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|
|             |                  |                       |                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 5  | 7 | 6 | 9 | 0 | 0 |
| 397         | 2033             | 1                     | 2033.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 398         | 2033             | 2                     | 2033.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 399         | 2033             | 3                     | 2033.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 400         | 2033             | 4                     | 2033.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 401         | 2033             | 5                     | 2033.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 402         | 2033             | 6                     | 2033.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 403         | 2033             | 7                     | 2033.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 404         | 2033             | 8                     | 2033.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 405         | 2033             | 9                     | 2033.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 406         | 2033             | 10                    | 2033.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 407         | 2033             | 11                    | 2033.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 408         | 2033             | 12                    | 2033.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 409         | 2034             | 1                     | 2034.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 410         | 2034             | 2                     | 2034.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 411         | 2034             | 3                     | 2034.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 412         | 2034             | 4                     | 2034.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 413         | 2034             | 5                     | 2034.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 414         | 2034             | 6                     | 2034.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 415         | 2034             | 7                     | 2034.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 416         | 2034             | 8                     | 2034.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 417         | 2034             | 9                     | 2034.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 418         | 2034             | 10                    | 2034.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 419         | 2034             | 11                    | 2034.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 420         | 2034             | 12                    | 2034.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 421         | 2035             | 1                     | 2035.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 422         | 2035             | 2                     | 2035.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 423         | 2035             | 3                     | 2035.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 424         | 2035             | 4                     | 2035.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 425         | 2035             | 5                     | 2035.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 426         | 2035             | 6                     | 2035.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 427         | 2035             | 7                     | 2035.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 428         | 2035             | 8                     | 2035.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 429         | 2035             | 9                     | 2035.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 430         | 2035             | 10                    | 2035.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 431         | 2035             | 11                    | 2035.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 432         | 2035             | 12                    | 2035.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 433         | 2036             | 1                     | 2036.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 434         | 2036             | 2                     | 2036.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 435         | 2036             | 3                     | 2036.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 436         | 2036             | 4                     | 2036.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 437         | 2036             | 5                     | 2036.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 438         | 2036             | 6                     | 2036.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 439         | 2036             | 7                     | 2036.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |
| 440         | 2036             | 8                     | 2036.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1 | 1 | 1 | 1 | 1 |

**KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 434 of 1182

| O b s | Y E A R | M O N T H | t i m e | d 1 | d 2 | d 3 | d 4 | d 5 | d 6 | d 7 | d 8 | d 9 | d 10 | d 11 | a     | m     | d     | a     | d     |
|-------|---------|-----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-------|-------|-------|-------|-------|
|       |         |           |         |     |     |     |     |     |     |     |     |     |      |      | u g 1 | d y 1 | e c 1 | r p 2 | c r 2 |
| 441   | 2036    | 9         | 2036.67 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 442   | 2036    | 10        | 2036.75 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 0    | 1     | 1     | 1     | 1     | 1     |
| 443   | 2036    | 11        | 2036.83 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 1    | 1     | 1     | 1     | 1     | 1     |
| 444   | 2036    | 12        | 2036.92 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 445   | 2037    | 1         | 2037.00 | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 446   | 2037    | 2         | 2037.08 | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 447   | 2037    | 3         | 2037.17 | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 448   | 2037    | 4         | 2037.25 | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 449   | 2037    | 5         | 2037.33 | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 450   | 2037    | 6         | 2037.42 | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 451   | 2037    | 7         | 2037.50 | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 452   | 2037    | 8         | 2037.58 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 453   | 2037    | 9         | 2037.67 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 454   | 2037    | 10        | 2037.75 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 0    | 1     | 1     | 1     | 1     | 1     |
| 455   | 2037    | 11        | 2037.83 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 1    | 1     | 1     | 1     | 1     | 1     |
| 456   | 2037    | 12        | 2037.92 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 457   | 2038    | 1         | 2038.00 | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 458   | 2038    | 2         | 2038.08 | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 459   | 2038    | 3         | 2038.17 | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 460   | 2038    | 4         | 2038.25 | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 461   | 2038    | 5         | 2038.33 | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 462   | 2038    | 6         | 2038.42 | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 463   | 2038    | 7         | 2038.50 | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 464   | 2038    | 8         | 2038.58 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 465   | 2038    | 9         | 2038.67 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 466   | 2038    | 10        | 2038.75 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 0    | 1     | 1     | 1     | 1     | 1     |
| 467   | 2038    | 11        | 2038.83 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 1    | 1     | 1     | 1     | 1     | 1     |
| 468   | 2038    | 12        | 2038.92 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 469   | 2039    | 1         | 2039.00 | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 470   | 2039    | 2         | 2039.08 | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 471   | 2039    | 3         | 2039.17 | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 472   | 2039    | 4         | 2039.25 | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 473   | 2039    | 5         | 2039.33 | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 474   | 2039    | 6         | 2039.42 | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 475   | 2039    | 7         | 2039.50 | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 476   | 2039    | 8         | 2039.58 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 477   | 2039    | 9         | 2039.67 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 478   | 2039    | 10        | 2039.75 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1    | 0    | 1     | 1     | 1     | 1     | 1     |
| 479   | 2039    | 11        | 2039.83 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 1    | 1     | 1     | 1     | 1     | 1     |
| 480   | 2039    | 12        | 2039.92 | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 481   | 2040    | 1         | 2040.00 | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 482   | 2040    | 2         | 2040.08 | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 483   | 2040    | 3         | 2040.17 | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |
| 484   | 2040    | 4         | 2040.25 | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0    | 0    | 1     | 1     | 1     | 1     | 1     |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 435 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d |   |   |   |   |   |   |   |   |   |   |   | a<br>m<br>d<br>a<br>d<br>u<br>g<br>d<br>y<br>c<br>r<br>c |   |   |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|
|             |                  |                       |                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 5  | 7 | 6 | 9 | 0 |
| 485         | 2040             | 5                     | 2040.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 486         | 2040             | 6                     | 2040.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 487         | 2040             | 7                     | 2040.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 488         | 2040             | 8                     | 2040.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 489         | 2040             | 9                     | 2040.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 490         | 2040             | 10                    | 2040.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 491         | 2040             | 11                    | 2040.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1  | 1 | 1 | 1 | 1 |
| 492         | 2040             | 12                    | 2040.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 493         | 2041             | 1                     | 2041.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 494         | 2041             | 2                     | 2041.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 495         | 2041             | 3                     | 2041.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 496         | 2041             | 4                     | 2041.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 497         | 2041             | 5                     | 2041.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 498         | 2041             | 6                     | 2041.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 499         | 2041             | 7                     | 2041.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 500         | 2041             | 8                     | 2041.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 501         | 2041             | 9                     | 2041.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 502         | 2041             | 10                    | 2041.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 503         | 2041             | 11                    | 2041.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1  | 1 | 1 | 1 | 1 |
| 504         | 2041             | 12                    | 2041.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 505         | 2042             | 1                     | 2042.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 506         | 2042             | 2                     | 2042.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 507         | 2042             | 3                     | 2042.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 508         | 2042             | 4                     | 2042.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 509         | 2042             | 5                     | 2042.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 510         | 2042             | 6                     | 2042.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 511         | 2042             | 7                     | 2042.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 512         | 2042             | 8                     | 2042.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 513         | 2042             | 9                     | 2042.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 514         | 2042             | 10                    | 2042.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 515         | 2042             | 11                    | 2042.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1  | 1 | 1 | 1 | 1 |
| 516         | 2042             | 12                    | 2042.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 517         | 2043             | 1                     | 2043.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 518         | 2043             | 2                     | 2043.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 519         | 2043             | 3                     | 2043.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 520         | 2043             | 4                     | 2043.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 521         | 2043             | 5                     | 2043.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 522         | 2043             | 6                     | 2043.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 523         | 2043             | 7                     | 2043.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 524         | 2043             | 8                     | 2043.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 525         | 2043             | 9                     | 2043.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 526         | 2043             | 10                    | 2043.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |
| 527         | 2043             | 11                    | 2043.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1  | 1 | 1 | 1 | 1 |
| 528         | 2043             | 12                    | 2043.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 436 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d |   |   |   |   |   |   |   |   |   |   |   | a<br>u<br>g<br>u<br>s<br>t |   |   |   |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|
|             |                  |                       |                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 5                          | 7 | 6 | 9 | 0 | 0 |
| 529         | 2044             | 1                     | 2044.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 530         | 2044             | 2                     | 2044.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 531         | 2044             | 3                     | 2044.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 532         | 2044             | 4                     | 2044.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 533         | 2044             | 5                     | 2044.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 534         | 2044             | 6                     | 2044.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 535         | 2044             | 7                     | 2044.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 536         | 2044             | 8                     | 2044.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 537         | 2044             | 9                     | 2044.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 538         | 2044             | 10                    | 2044.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 539         | 2044             | 11                    | 2044.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 540         | 2044             | 12                    | 2044.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 541         | 2045             | 1                     | 2045.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 542         | 2045             | 2                     | 2045.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 543         | 2045             | 3                     | 2045.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 544         | 2045             | 4                     | 2045.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 545         | 2045             | 5                     | 2045.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 546         | 2045             | 6                     | 2045.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 547         | 2045             | 7                     | 2045.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 548         | 2045             | 8                     | 2045.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 549         | 2045             | 9                     | 2045.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 550         | 2045             | 10                    | 2045.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 551         | 2045             | 11                    | 2045.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 552         | 2045             | 12                    | 2045.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 553         | 2046             | 1                     | 2046.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 554         | 2046             | 2                     | 2046.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 555         | 2046             | 3                     | 2046.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 556         | 2046             | 4                     | 2046.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 557         | 2046             | 5                     | 2046.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 558         | 2046             | 6                     | 2046.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 559         | 2046             | 7                     | 2046.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 560         | 2046             | 8                     | 2046.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 561         | 2046             | 9                     | 2046.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 562         | 2046             | 10                    | 2046.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 563         | 2046             | 11                    | 2046.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 564         | 2046             | 12                    | 2046.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 565         | 2047             | 1                     | 2047.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 566         | 2047             | 2                     | 2047.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 567         | 2047             | 3                     | 2047.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 568         | 2047             | 4                     | 2047.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 569         | 2047             | 5                     | 2047.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 570         | 2047             | 6                     | 2047.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 571         | 2047             | 7                     | 2047.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 572         | 2047             | 8                     | 2047.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |



KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 438 of 1182

| O<br>b<br>s | Y<br>E<br>A<br>R | M<br>O<br>N<br>T<br>H | t<br>i<br>m<br>e | d |   |   |   |   |   |   |   |   |   |   |   | a<br>u<br>g<br>u<br>s<br>t |   |   |   |   |   |
|-------------|------------------|-----------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|----------------------------|---|---|---|---|---|
|             |                  |                       |                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 5                          | 7 | 6 | 9 | 0 | 0 |
| 617         | 2051             | 5                     | 2051.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 618         | 2051             | 6                     | 2051.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 619         | 2051             | 7                     | 2051.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 620         | 2051             | 8                     | 2051.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 621         | 2051             | 9                     | 2051.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 622         | 2051             | 10                    | 2051.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 623         | 2051             | 11                    | 2051.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 624         | 2051             | 12                    | 2051.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 625         | 2052             | 1                     | 2052.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 626         | 2052             | 2                     | 2052.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 627         | 2052             | 3                     | 2052.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 628         | 2052             | 4                     | 2052.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 629         | 2052             | 5                     | 2052.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 630         | 2052             | 6                     | 2052.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 631         | 2052             | 7                     | 2052.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 632         | 2052             | 8                     | 2052.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 633         | 2052             | 9                     | 2052.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 634         | 2052             | 10                    | 2052.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 635         | 2052             | 11                    | 2052.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 636         | 2052             | 12                    | 2052.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 637         | 2053             | 1                     | 2053.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 638         | 2053             | 2                     | 2053.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 639         | 2053             | 3                     | 2053.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 640         | 2053             | 4                     | 2053.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 641         | 2053             | 5                     | 2053.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 642         | 2053             | 6                     | 2053.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 643         | 2053             | 7                     | 2053.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 644         | 2053             | 8                     | 2053.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 645         | 2053             | 9                     | 2053.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 646         | 2053             | 10                    | 2053.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 647         | 2053             | 11                    | 2053.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 648         | 2053             | 12                    | 2053.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 649         | 2054             | 1                     | 2054.00          | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 650         | 2054             | 2                     | 2054.08          | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 651         | 2054             | 3                     | 2054.17          | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 652         | 2054             | 4                     | 2054.25          | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 653         | 2054             | 5                     | 2054.33          | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 654         | 2054             | 6                     | 2054.42          | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 655         | 2054             | 7                     | 2054.50          | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 656         | 2054             | 8                     | 2054.58          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 657         | 2054             | 9                     | 2054.67          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 658         | 2054             | 10                    | 2054.75          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 659         | 2054             | 11                    | 2054.83          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |
| 660         | 2054             | 12                    | 2054.92          | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1                          | 1 | 1 | 1 | 1 | 1 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 439 of 1182

|     |      | M  |         |   |   |   |   |   |   |   |   |   |   |   | a |   | m | d | a |   |
|-----|------|----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|     | Y    | O  | t       |   |   |   |   |   |   |   |   |   |   |   | u |   | a | e | p |   |
| 0   | E    | N  | i       |   |   |   |   |   |   |   |   |   |   |   | g | d | y | c | r |   |
| b   | A    | T  | m       | d | d | d | d | d | d | d | d | d | d | d | 1 | 1 | 5 | 7 | 6 | 9 |
| s   | R    | H  | e       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | n | n | n | n | n |   |
| 661 | 2055 | 1  | 2055.00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 662 | 2055 | 2  | 2055.08 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 663 | 2055 | 3  | 2055.17 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 664 | 2055 | 4  | 2055.25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 665 | 2055 | 5  | 2055.33 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 666 | 2055 | 6  | 2055.42 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 667 | 2055 | 7  | 2055.50 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 668 | 2055 | 8  | 2055.58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 669 | 2055 | 9  | 2055.67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 670 | 2055 | 10 | 2055.75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 671 | 2055 | 11 | 2055.83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |   |
| 672 | 2055 | 12 | 2055.92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 673 | 2056 | 1  | 2056.00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 674 | 2056 | 2  | 2056.08 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 675 | 2056 | 3  | 2056.17 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 676 | 2056 | 4  | 2056.25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 677 | 2056 | 5  | 2056.33 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 678 | 2056 | 6  | 2056.42 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 679 | 2056 | 7  | 2056.50 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 680 | 2056 | 8  | 2056.58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 681 | 2056 | 9  | 2056.67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 682 | 2056 | 10 | 2056.75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 683 | 2056 | 11 | 2056.83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |   |
| 684 | 2056 | 12 | 2056.92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 685 | 2057 | 1  | 2057.00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 686 | 2057 | 2  | 2057.08 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 687 | 2057 | 3  | 2057.17 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 688 | 2057 | 4  | 2057.25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 689 | 2057 | 5  | 2057.33 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 690 | 2057 | 6  | 2057.42 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 691 | 2057 | 7  | 2057.50 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 692 | 2057 | 8  | 2057.58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 693 | 2057 | 9  | 2057.67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 694 | 2057 | 10 | 2057.75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |   |
| 695 | 2057 | 11 | 2057.83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |   |
| 696 | 2057 | 12 | 2057.92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |   |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 440 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model lci\_kpc  
 Dependent Variable lci\_kpc  
 Label INDUSTRIAL CUSTOMERS, LOG

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 18  | 2.709971       | 0.150554    | 476.82  | <.0001 |
| Error           | 245 | 0.077357       | 0.000316    |         |        |
| Corrected Total | 263 | 2.787328       |             |         |        |

Root MSE 0.01777 R-Square 0.97225  
 Dependent Mean 7.20513 Adj R-Sq 0.97021  
 Coeff Var 0.24662

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                         |
|-----------|----|--------------------|----------------|---------|---------|--|
| Intercept | 1  | 165.0654           | 4.397541       | 37.54   | <.0001  | Intercept                              |
| ltime     | 1  | -20.7506           | 0.578256       | -35.88  | <.0001  | TREND, LOG                             |
| d1        | 1  | 0.002238           | 0.005373       | 0.42    | 0.6774  | January                                |
| d2        | 1  | -0.00365           | 0.005373       | -0.68   | 0.4971  | February                               |
| d3        | 1  | 0.003954           | 0.005372       | 0.74    | 0.4625  | March                                  |
| d4        | 1  | 0.000636           | 0.005396       | 0.12    | 0.9062  | April                                  |
| d5        | 1  | 0.001507           | 0.005396       | 0.28    | 0.7803  | May                                    |
| d6        | 1  | 0.001198           | 0.005395       | 0.22    | 0.8244  | June                                   |
| d7        | 1  | 0.000463           | 0.005395       | 0.09    | 0.9316  | July                                   |
| d8        | 1  | 0.004433           | 0.005388       | 0.82    | 0.4114  | August                                 |
| d9        | 1  | -0.00002           | 0.005388       | -0.00   | 0.9976  | September                              |
| d10       | 1  | -0.00051           | 0.005388       | -0.09   | 0.9249  | October                                |
| d11       | 1  | 0.001691           | 0.005388       | 0.31    | 0.7539  | November                               |
| aug15on   | 1  | -0.06467           | 0.006540       | -9.89   | <.0001  | BINARY<br>VARIABLE-AUGUST<br>2015 ON   |
| may16on   | 1  | -0.03570           | 0.008719       | -4.09   | <.0001  | BINARY VARIABLE-MAY<br>2016 ON         |
| d17on     | 1  | 0.040401           | 0.007031       | 5.75    | <.0001  | BINARY VARIABLE-2017<br>ON             |
| dec19on   | 1  | -0.03580           | 0.009533       | -3.75   | 0.0002  | Binary<br>Variable-December<br>2019 On |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 441 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                   |
|----------|----|--------------------|----------------|---------|---------|----------------------------------|
| apr20on  | 1  | -0.01667           | 0.011140       | -1.50   | 0.1359  | Binary Variable-April 2020 On    |
| dec20on  | 1  | -0.02492           | 0.008045       | -3.10   | 0.0022  | Binary Variable-December 2020 On |

Durbin-Watson 0.427221  
 Number of Observations 264  
 First-Order Autocorrelation 0.779859

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 442 of 1182

| TREND       |       | Residual Values |
|-------------|-------|-----------------|
|             |       | Sum             |
| 2000.000000 | ***** | 0.029530        |
| 2000.083333 |       | 0.000522        |
| 2000.166667 | ****  | -0.008825       |
| 2000.250000 | *     | -0.002039       |
| 2000.333333 | ***** | -0.011189       |
| 2000.416667 | ***** | -0.020571       |
| 2000.500000 | ***** | -0.013680       |
| 2000.583333 | ****  | 0.007327        |
| 2000.666667 | ***** | -0.027429       |
| 2000.750000 | ***   | -0.005509       |
| 2000.833333 | ***** | -0.022727       |
| 2000.916667 | ***** | -0.023513       |
| 2001.000000 | ***** | -0.012911       |
| 2001.083333 | ***** | -0.012125       |
| 2001.166667 | ***** | -0.022201       |
| 2001.250000 | ***** | -0.016019       |
| 2001.333333 | ****  | 0.007676        |
| 2001.416667 | ****  | 0.008197        |
| 2001.500000 |       | -0.000017       |
| 2001.583333 | *     | -0.002466       |
| 2001.666667 |       | 0.000875        |
| 2001.750000 | **    | 0.004860        |
| 2001.833333 | **    | 0.004181        |
| 2001.916667 | *     | -0.002493       |
| 2002.000000 | ***** | -0.018544       |
| 2002.083333 | *     | 0.002226        |
| 2002.166667 | *     | 0.002745        |
| 2002.250000 | ***   | -0.006319       |
| 2002.333333 | ***** | 0.036095        |
| 2002.416667 | ***   | -0.005154       |
| 2002.500000 | *     | -0.002889       |
| 2002.583333 | *     | 0.002628        |
| 2002.666667 | ***** | -0.016800       |
| 2002.750000 | ***** | -0.021557       |
| 2002.833333 | **    | -0.003999       |
| 2002.916667 | ***** | -0.014904       |
| 2003.000000 | ***** | -0.020352       |
| 2003.083333 | ***** | -0.015640       |
| 2003.166667 | **    | -0.004146       |
| 2003.250000 | ***   | 0.006040        |
| 2003.333333 | ***** | -0.023679       |
| 2003.416667 | ***** | -0.023879       |
| 2003.500000 | ***** | -0.027097       |
| 2003.583333 | ***** | -0.029515       |
| 2003.666667 | ***** | -0.030424       |
| 2003.750000 | ***** | -0.038825       |
| 2003.833333 | ***** | -0.026944       |
| 2003.916667 | *     | 0.002206        |
| 2004.000000 | **    | -0.003891       |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL RESIDUALS

|              |       |   |           |
|--------------|-------|---|-----------|
| 2004.0833333 |       | * | 0.001511  |
| 2004.1666667 | ***** |   | -0.009305 |
| 2004.2500000 | **    |   | -0.004445 |
| 2004.3333333 |       | * | 0.001643  |
| 2004.4166667 | ***** |   | -0.009415 |
| 2004.5000000 | ****  |   | -0.007817 |
| 2004.5833333 | ***** |   | -0.012292 |
| 2004.6666667 | ****  |   | -0.008350 |
| 2004.7500000 | ***** |   | -0.009054 |
| 2004.8333333 | ***** |   | -0.011765 |
| 2004.9166667 | ***** |   | -0.009211 |
| 2005.0000000 | ***   |   | -0.005784 |
| 2005.0833333 | **    |   | -0.003833 |
| 2005.1666667 |       | * | 0.002405  |
| 2005.2500000 | ***** |   | -0.011915 |
| 2005.3333333 | ***** |   | -0.016081 |
| 2005.4166667 |       |   | 0.000251  |
| 2005.5000000 | ***   |   | -0.005704 |
| 2005.5833333 |       | * | 0.002155  |
| 2005.6666667 |       | * | 0.002684  |
| 2005.7500000 | ***   |   | 0.006774  |
| 2005.8333333 | *     |   | -0.002794 |
| 2005.9166667 | **    |   | 0.003197  |
| 2006.0000000 | ***   |   | 0.005931  |
| 2006.0833333 | ***   |   | 0.005826  |
| 2006.1666667 | ***** |   | 0.012072  |
| 2006.2500000 | **    |   | 0.004635  |
| 2006.3333333 | *     |   | 0.001184  |
| 2006.4166667 | ***** |   | 0.011963  |
| 2006.5000000 | ***** |   | 0.012193  |
| 2006.5833333 | ***** |   | 0.009085  |
| 2006.6666667 | ***** |   | 0.013028  |
| 2006.7500000 | ***** |   | 0.016434  |
| 2006.8333333 | ***** |   | 0.014412  |
| 2006.9166667 | ***** |   | 0.014225  |
| 2007.0000000 | ***** |   | 0.014220  |
| 2007.0833333 | ***** |   | 0.012029  |
| 2007.1666667 | **    |   | 0.004592  |
| 2007.2500000 |       |   | 0.000437  |
| 2007.3333333 | ***   |   | -0.005166 |
| 2007.4166667 |       | * | 0.002992  |
| 2007.5000000 | ***** |   | 0.009451  |
| 2007.5833333 | ***   |   | 0.005649  |
| 2007.6666667 | ****  |   | 0.008183  |
| 2007.7500000 | *     |   | 0.001857  |
| 2007.8333333 | *     |   | -0.001586 |
| 2007.9166667 | **    |   | -0.003961 |
| 2008.0000000 | *     |   | -0.002519 |
| 2008.0833333 | ****  |   | 0.007746  |
| 2008.1666667 | ***   |   | 0.005199  |
| 2008.2500000 |       |   | 0.000961  |
| 2008.3333333 |       |   | 0.000952  |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
MODEL RESIDUALS

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 444 of 1182

|              |       |          |
|--------------|-------|----------|
| 2008.4166667 | ****  | 0.007039 |
| 2008.5000000 | ***** | 0.013528 |
| 2008.5833333 | *     | 0.002016 |
| 2008.6666667 | ***** | 0.020600 |
| 2008.7500000 | ***** | 0.029557 |
| 2008.8333333 | ***** | 0.024769 |
| 2008.9166667 | ***** | 0.028012 |
| 2009.0000000 | ***** | 0.024561 |
| 2009.0833333 | ***** | 0.034767 |
| 2009.1666667 | ***** | 0.028710 |
| 2009.2500000 | ***** | 0.028052 |
| 2009.3333333 | ***** | 0.021790 |
| 2009.4166667 | ***** | 0.031977 |
| 2009.5000000 | ***** | 0.021064 |
| 2009.5833333 | ***** | 0.022141 |
| 2009.6666667 | ***** | 0.035774 |
| 2009.7500000 | ***** | 0.017600 |
| 2009.8333333 | ***** | 0.020477 |
| 2009.9166667 | ***** | 0.020219 |
| 2010.0000000 | ***** | 0.024452 |
| 2010.0833333 | ***** | 0.024890 |
| 2010.1666667 | ***** | 0.031426 |
| 2010.2500000 | ***** | 0.028634 |
| 2010.3333333 | ***** | 0.027925 |
| 2010.4166667 | ***** | 0.040227 |
| 2010.5000000 | ***** | 0.034181 |
| 2010.5833333 | ***** | 0.028278 |
| 2010.6666667 | ***** | 0.025866 |
| 2010.7500000 | ***** | 0.020855 |
| 2010.8333333 | ***** | 0.025878 |
| 2010.9166667 | ****  | 0.010654 |
| 2011.0000000 | ***** | 0.025641 |
| 2011.0833333 | ***** | 0.028149 |
| 2011.1666667 | ***** | 0.029870 |
| 2011.2500000 | ***** | 0.029115 |
| 2011.3333333 | ***** | 0.028399 |
| 2011.4166667 | ***** | 0.026736 |
| 2011.5000000 | ***** | 0.018359 |
| 2011.5833333 | ***** | 0.017394 |
| 2011.6666667 | ***** | 0.024131 |
| 2011.7500000 | ***** | 0.021909 |
| 2011.8333333 | ***** | 0.020570 |
| 2011.9166667 | ***** | 0.018097 |
| 2012.0000000 | ****  | 0.009498 |
| 2012.0833333 | ***   | 0.008246 |
| 2012.1666667 | ***   | 0.008776 |
| 2012.2500000 | ***   | 0.007864 |
| 2012.3333333 | ***   | 0.007853 |
| 2012.4166667 | **    | 0.003905 |
| 2012.5000000 | **    | 0.006232 |
| 2012.5833333 | ***   | 0.008961 |
| 2012.6666667 | ****  | 0.010624 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 445 of 1182

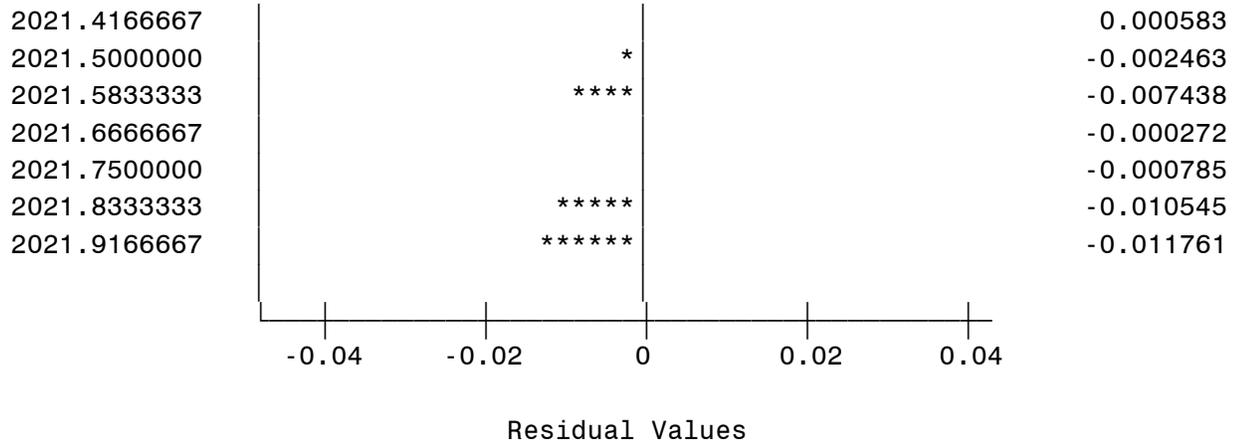
|              |       |       |           |
|--------------|-------|-------|-----------|
| 2012.7500000 |       | ***   | 0.006849  |
| 2012.8333333 |       | *     | -0.001121 |
| 2012.9166667 |       | **    | 0.003643  |
| 2013.0000000 |       |       | 0.000789  |
| 2013.0833333 |       | ***   | 0.006801  |
| 2013.1666667 | ***** |       | -0.013341 |
| 2013.2500000 | **    |       | -0.003935 |
| 2013.3333333 | ***** |       | -0.013681 |
| 2013.4166667 | ***** |       | -0.014774 |
| 2013.5000000 | ***** |       | -0.019990 |
| 2013.5833333 | ***** |       | -0.026905 |
| 2013.6666667 | ***** |       | -0.022359 |
| 2013.7500000 | ***** |       | -0.027129 |
| 2013.8333333 | ***** |       | -0.029238 |
| 2013.9166667 | ***** |       | -0.027456 |
| 2014.0000000 | ***** |       | -0.029605 |
| 2014.0833333 | ***** |       | -0.021317 |
| 2014.1666667 | ***** |       | -0.024998 |
| 2014.2500000 | ***** |       | -0.027738 |
| 2014.3333333 | ***** |       | -0.017013 |
| 2014.4166667 | ***** |       | -0.025042 |
| 2014.5000000 | ***** |       | -0.022679 |
| 2014.5833333 | ***** |       | -0.028872 |
| 2014.6666667 | ***** |       | -0.027430 |
| 2014.7500000 | ***** |       | -0.019902 |
| 2014.8333333 | ***** |       | -0.035197 |
| 2014.9166667 | ***** |       | -0.037342 |
| 2015.0000000 | ***** |       | -0.030132 |
| 2015.0833333 | ***** |       | -0.039056 |
| 2015.1666667 | ***** |       | -0.039506 |
| 2015.2500000 | ***** |       | -0.037688 |
| 2015.3333333 | ***** |       | -0.046393 |
| 2015.4166667 | ***** |       | -0.041266 |
| 2015.5000000 | ***** |       | -0.034941 |
| 2015.5833333 | ***** | ***** | 0.015539  |
| 2015.6666667 | ***** | ***** | 0.011255  |
| 2015.7500000 | ***** | ***   | 0.006966  |
| 2015.8333333 | ***** | **    | 0.003198  |
| 2015.9166667 | **    |       | -0.004017 |
| 2016.0000000 | ***** |       | -0.013607 |
| 2016.0833333 | ***** | ***   | 0.008684  |
| 2016.1666667 | ***** |       | -0.011138 |
| 2016.2500000 | ***** |       | -0.016880 |
| 2016.3333333 | ***** | ***** | 0.012976  |
| 2016.4166667 | ***** | ***** | 0.016645  |
| 2016.5000000 | ***** | ***   | 0.005658  |
| 2016.5833333 | ***   |       | -0.005078 |
| 2016.6666667 | **    |       | -0.004031 |
| 2016.7500000 | ***   |       | -0.007819 |
| 2016.8333333 | ***** |       | -0.010020 |
| 2016.9166667 | ***** |       | -0.008331 |
| 2017.0000000 | ***   |       | -0.006371 |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 446 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2017.0833333 | **    | -0.003745 |
| 2017.1666667 | **    | -0.003085 |
| 2017.2500000 | **    | -0.003021 |
| 2017.3333333 | ****  | -0.007161 |
| 2017.4166667 | **    | -0.004343 |
| 2017.5000000 | **    | 0.004654  |
| 2017.5833333 | **    | 0.003179  |
| 2017.6666667 | ****  | -0.008849 |
| 2017.7500000 |       | -0.000034 |
| 2017.8333333 | *     | -0.002203 |
| 2017.9166667 | *     | 0.001172  |
| 2018.0000000 | **    | -0.003520 |
| 2018.0833333 | ***** | 0.009840  |
| 2018.1666667 | *     | -0.001038 |
| 2018.2500000 | *     | -0.001839 |
| 2018.3333333 | **    | -0.004349 |
| 2018.4166667 | *     | -0.001519 |
| 2018.5000000 |       | 0.000904  |
| 2018.5833333 | **    | -0.003041 |
| 2018.6666667 |       | -0.000233 |
| 2018.7500000 | ***   | 0.006936  |
| 2018.8333333 | ***** | 0.042228  |
| 2018.9166667 | ***** | 0.009798  |
| 2019.0000000 |       | 0.000938  |
| 2019.0833333 | ***** | -0.026244 |
| 2019.1666667 | ***   | 0.005927  |
| 2019.2500000 | *     | 0.002604  |
| 2019.3333333 | *     | 0.001754  |
| 2019.4166667 | ****  | -0.007174 |
| 2019.5000000 | ***** | 0.009518  |
| 2019.5833333 | **    | -0.004479 |
| 2019.6666667 | **    | -0.003391 |
| 2019.7500000 | ***** | -0.009680 |
| 2019.8333333 | ***   | 0.005869  |
| 2019.9166667 | ***** | 0.021340  |
| 2020.0000000 | **    | 0.003543  |
| 2020.0833333 | ***** | -0.012618 |
| 2020.1666667 | ***** | -0.012265 |
| 2020.2500000 | ***** | 0.012109  |
| 2020.3333333 | **    | -0.004802 |
| 2020.4166667 | *     | 0.002621  |
| 2020.5000000 | *     | 0.001534  |
| 2020.5833333 | **    | -0.004265 |
| 2020.6666667 | **    | -0.003449 |
| 2020.7500000 |       | -0.000303 |
| 2020.8333333 | **    | -0.003445 |
| 2020.9166667 | ***** | 0.010429  |
| 2021.0000000 | ****  | 0.008134  |
| 2021.0833333 | ***** | -0.016661 |
| 2021.1666667 | ***** | 0.018125  |
| 2021.2500000 | ***** | 0.011388  |
| 2021.3333333 | *     | 0.001268  |

KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 MODEL RESIDUALS



KENTUCKY POWER COMPANY  
 MANUFACTURING CUSTOMERS  
 ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 448 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2000 | 1526.08   | .           |
| 2001 | 1517.17   | -0.6        |
| 2002 | 1501.17   | -1.1        |
| 2003 | 1462.83   | -2.6        |
| 2004 | 1465.83   | 0.2         |
| 2005 | 1457.25   | -0.6        |
| 2006 | 1460.33   | 0.2         |
| 2007 | 1436.67   | -1.6        |
| 2008 | 1432.50   | -0.3        |
| 2009 | 1437.92   | 0.4         |
| 2010 | 1425.08   | -0.9        |
| 2011 | 1406.33   | -1.3        |
| 2012 | 1368.08   | -2.7        |
| 2013 | 1323.75   | -3.2        |
| 2014 | 1296.42   | -2.1        |
| 2015 | 1257.58   | -3.0        |
| 2016 | 1190.50   | -5.3        |
| 2017 | 1212.50   | 1.8         |
| 2018 | 1208.58   | -0.3        |
| 2019 | 1187.00   | -1.8        |
| 2020 | 1119.75   | -5.7        |
| 2021 | 1078.83   | -3.7        |
| 2022 | 1068.67   | -0.9        |
| 2023 | 1057.77   | -1.0        |
| 2024 | 1046.98   | -1.0        |
| 2025 | 1036.30   | -1.0        |
| 2026 | 1025.74   | -1.0        |
| 2027 | 1015.30   | -1.0        |
| 2028 | 1004.96   | -1.0        |
| 2029 | 994.73    | -1.0        |
| 2030 | 984.62    | -1.0        |
| 2031 | 974.61    | -1.0        |
| 2032 | 964.71    | -1.0        |
| 2033 | 954.91    | -1.0        |
| 2034 | 945.22    | -1.0        |
| 2035 | 935.63    | -1.0        |
| 2036 | 926.14    | -1.0        |
| 2037 | 916.75    | -1.0        |
| 2038 | 907.47    | -1.0        |
| 2039 | 898.28    | -1.0        |
| 2040 | 889.19    | -1.0        |
| 2041 | 880.19    | -1.0        |
| 2042 | 871.29    | -1.0        |
| 2043 | 862.49    | -1.0        |
| 2044 | 853.78    | -1.0        |
| 2045 | 845.16    | -1.0        |
| 2046 | 836.63    | -1.0        |
| 2047 | 828.19    | -1.0        |
| 2048 | 819.84    | -1.0        |

KENTUCKY POWER COMPANY  
MANUFACTURING CUSTOMERS  
ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 449 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2049 | 811.580   | -1          |
| 2050 | 803.406   | -1          |
| 2051 | 795.319   | -1          |
| 2052 | 787.316   | -1          |
| 2053 | 779.398   | -1          |
| 2054 | 771.564   | -1          |
| 2055 | 763.812   | -1          |
| 2056 | 756.142   | -1          |
| 2057 | 748.552   | -1          |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 450 of 1182

The MEANS Procedure

| Variable | Label                  | Mean        |
|----------|------------------------|-------------|
| YEAR     | YEAR                   | 2028.50     |
| MONTH    | MONTH                  | 6.5000000   |
| cu_kpc   | OTHER RETAIL CUSTOMERS | 388.3636364 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE CUSTOMERS  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 451 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 1   | 2000 | 1     | 533    |
| 2   | 2000 | 2     | 530    |
| 3   | 2000 | 3     | 530    |
| 4   | 2000 | 4     | 532    |
| 5   | 2000 | 5     | 531    |
| 6   | 2000 | 6     | 534    |
| 7   | 2000 | 7     | 534    |
| 8   | 2000 | 8     | 532    |
| 9   | 2000 | 9     | 536    |
| 10  | 2000 | 10    | 532    |
| 11  | 2000 | 11    | 532    |
| 12  | 2000 | 12    | 471    |
| 13  | 2001 | 1     | 471    |
| 14  | 2001 | 2     | 446    |
| 15  | 2001 | 3     | 446    |
| 16  | 2001 | 4     | 445    |
| 17  | 2001 | 5     | 446    |
| 18  | 2001 | 6     | 445    |
| 19  | 2001 | 7     | 446    |
| 20  | 2001 | 8     | 445    |
| 21  | 2001 | 9     | 444    |
| 22  | 2001 | 10    | 444    |
| 23  | 2001 | 11    | 444    |
| 24  | 2001 | 12    | 443    |
| 25  | 2002 | 1     | 441    |
| 26  | 2002 | 2     | 438    |
| 27  | 2002 | 3     | 439    |
| 28  | 2002 | 4     | 439    |
| 29  | 2002 | 5     | 439    |
| 30  | 2002 | 6     | 439    |
| 31  | 2002 | 7     | 439    |
| 32  | 2002 | 8     | 438    |
| 33  | 2002 | 9     | 500    |
| 34  | 2002 | 10    | 440    |
| 35  | 2002 | 11    | 440    |
| 36  | 2002 | 12    | 448    |
| 37  | 2003 | 1     | 451    |
| 38  | 2003 | 2     | 454    |
| 39  | 2003 | 3     | 455    |
| 40  | 2003 | 4     | 447    |
| 41  | 2003 | 5     | 447    |
| 42  | 2003 | 6     | 446    |
| 43  | 2003 | 7     | 446    |
| 44  | 2003 | 8     | 447    |
| 45  | 2003 | 9     | 445    |
| 46  | 2003 | 10    | 445    |
| 47  | 2003 | 11    | 445    |
| 48  | 2003 | 12    | 444    |
| 49  | 2004 | 1     | 443    |
| 50  | 2004 | 2     | 442    |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE CUSTOMERS  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 452 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 51  | 2004 | 3     | 441    |
| 52  | 2004 | 4     | 439    |
| 53  | 2004 | 5     | 439    |
| 54  | 2004 | 6     | 439    |
| 55  | 2004 | 7     | 442    |
| 56  | 2004 | 8     | 444    |
| 57  | 2004 | 9     | 444    |
| 58  | 2004 | 10    | 444    |
| 59  | 2004 | 11    | 444    |
| 60  | 2004 | 12    | 442    |
| 61  | 2005 | 1     | 445    |
| 62  | 2005 | 2     | 441    |
| 63  | 2005 | 3     | 445    |
| 64  | 2005 | 4     | 451    |
| 65  | 2005 | 5     | 443    |
| 66  | 2005 | 6     | 444    |
| 67  | 2005 | 7     | 445    |
| 68  | 2005 | 8     | 385    |
| 69  | 2005 | 9     | 381    |
| 70  | 2005 | 10    | 381    |
| 71  | 2005 | 11    | 386    |
| 72  | 2005 | 12    | 382    |
| 73  | 2006 | 1     | 380    |
| 74  | 2006 | 2     | 381    |
| 75  | 2006 | 3     | 383    |
| 76  | 2006 | 4     | 381    |
| 77  | 2006 | 5     | 379    |
| 78  | 2006 | 6     | 380    |
| 79  | 2006 | 7     | 381    |
| 80  | 2006 | 8     | 381    |
| 81  | 2006 | 9     | 379    |
| 82  | 2006 | 10    | 379    |
| 83  | 2006 | 11    | 380    |
| 84  | 2006 | 12    | 380    |
| 85  | 2007 | 1     | 378    |
| 86  | 2007 | 2     | 376    |
| 87  | 2007 | 3     | 376    |
| 88  | 2007 | 4     | 374    |
| 89  | 2007 | 5     | 374    |
| 90  | 2007 | 6     | 373    |
| 91  | 2007 | 7     | 372    |
| 92  | 2007 | 8     | 365    |
| 93  | 2007 | 9     | 388    |
| 94  | 2007 | 10    | 377    |
| 95  | 2007 | 11    | 374    |
| 96  | 2007 | 12    | 373    |
| 97  | 2008 | 1     | 380    |
| 98  | 2008 | 2     | 379    |
| 99  | 2008 | 3     | 376    |
| 100 | 2008 | 4     | 383    |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 453 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 101 | 2008 | 5     | 374    |
| 102 | 2008 | 6     | 373    |
| 103 | 2008 | 7     | 386    |
| 104 | 2008 | 8     | 380    |
| 105 | 2008 | 9     | 376    |
| 106 | 2008 | 10    | 379    |
| 107 | 2008 | 11    | 373    |
| 108 | 2008 | 12    | 384    |
| 109 | 2009 | 1     | 375    |
| 110 | 2009 | 2     | 376    |
| 111 | 2009 | 3     | 380    |
| 112 | 2009 | 4     | 373    |
| 113 | 2009 | 5     | 372    |
| 114 | 2009 | 6     | 373    |
| 115 | 2009 | 7     | 370    |
| 116 | 2009 | 8     | 369    |
| 117 | 2009 | 9     | 379    |
| 118 | 2009 | 10    | 375    |
| 119 | 2009 | 11    | 366    |
| 120 | 2009 | 12    | 366    |
| 121 | 2010 | 1     | 362    |
| 122 | 2010 | 2     | 367    |
| 123 | 2010 | 3     | 363    |
| 124 | 2010 | 4     | 369    |
| 125 | 2010 | 5     | 372    |
| 126 | 2010 | 6     | 388    |
| 127 | 2010 | 7     | 406    |
| 128 | 2010 | 8     | 412    |
| 129 | 2010 | 9     | 411    |
| 130 | 2010 | 10    | 414    |
| 131 | 2010 | 11    | 417    |
| 132 | 2010 | 12    | 410    |
| 133 | 2011 | 1     | 407    |
| 134 | 2011 | 2     | 402    |
| 135 | 2011 | 3     | 411    |
| 136 | 2011 | 4     | 434    |
| 137 | 2011 | 5     | 413    |
| 138 | 2011 | 6     | 412    |
| 139 | 2011 | 7     | 411    |
| 140 | 2011 | 8     | 407    |
| 141 | 2011 | 9     | 407    |
| 142 | 2011 | 10    | 420    |
| 143 | 2011 | 11    | 407    |
| 144 | 2011 | 12    | 405    |
| 145 | 2012 | 1     | 405    |
| 146 | 2012 | 2     | 404    |
| 147 | 2012 | 3     | 404    |
| 148 | 2012 | 4     | 402    |
| 149 | 2012 | 5     | 401    |
| 150 | 2012 | 6     | 401    |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 454 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 151 | 2012 | 7     | 399    |
| 152 | 2012 | 8     | 399    |
| 153 | 2012 | 9     | 398    |
| 154 | 2012 | 10    | 399    |
| 155 | 2012 | 11    | 399    |
| 156 | 2012 | 12    | 395    |
| 157 | 2013 | 1     | 393    |
| 158 | 2013 | 2     | 392    |
| 159 | 2013 | 3     | 391    |
| 160 | 2013 | 4     | 389    |
| 161 | 2013 | 5     | 390    |
| 162 | 2013 | 6     | 388    |
| 163 | 2013 | 7     | 388    |
| 164 | 2013 | 8     | 387    |
| 165 | 2013 | 9     | 376    |
| 166 | 2013 | 10    | 376    |
| 167 | 2013 | 11    | 375    |
| 168 | 2013 | 12    | 373    |
| 169 | 2014 | 1     | 373    |
| 170 | 2014 | 2     | 374    |
| 171 | 2014 | 3     | 373    |
| 172 | 2014 | 4     | 372    |
| 173 | 2014 | 5     | 370    |
| 174 | 2014 | 6     | 370    |
| 175 | 2014 | 7     | 369    |
| 176 | 2014 | 8     | 369    |
| 177 | 2014 | 9     | 369    |
| 178 | 2014 | 10    | 365    |
| 179 | 2014 | 11    | 365    |
| 180 | 2014 | 12    | 365    |
| 181 | 2015 | 1     | 363    |
| 182 | 2015 | 2     | 364    |
| 183 | 2015 | 3     | 364    |
| 184 | 2015 | 4     | 364    |
| 185 | 2015 | 5     | 362    |
| 186 | 2015 | 6     | 310    |
| 187 | 2015 | 7     | 414    |
| 188 | 2015 | 8     | 359    |
| 189 | 2015 | 9     | 358    |
| 190 | 2015 | 10    | 357    |
| 191 | 2015 | 11    | 357    |
| 192 | 2015 | 12    | 352    |
| 193 | 2016 | 1     | 352    |
| 194 | 2016 | 2     | 351    |
| 195 | 2016 | 3     | 350    |
| 196 | 2016 | 4     | 352    |
| 197 | 2016 | 5     | 351    |
| 198 | 2016 | 6     | 350    |
| 199 | 2016 | 7     | 349    |
| 200 | 2016 | 8     | 347    |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 455 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 201 | 2016 | 9     | 372    |
| 202 | 2016 | 10    | 347    |
| 203 | 2016 | 11    | 347    |
| 204 | 2016 | 12    | 346    |
| 205 | 2017 | 1     | 348    |
| 206 | 2017 | 2     | 348    |
| 207 | 2017 | 3     | 349    |
| 208 | 2017 | 4     | 347    |
| 209 | 2017 | 5     | 346    |
| 210 | 2017 | 6     | 346    |
| 211 | 2017 | 7     | 346    |
| 212 | 2017 | 8     | 346    |
| 213 | 2017 | 9     | 342    |
| 214 | 2017 | 10    | 345    |
| 215 | 2017 | 11    | 345    |
| 216 | 2017 | 12    | 345    |
| 217 | 2018 | 1     | 344    |
| 218 | 2018 | 2     | 344    |
| 219 | 2018 | 3     | 344    |
| 220 | 2018 | 4     | 344    |
| 221 | 2018 | 5     | 343    |
| 222 | 2018 | 6     | 298    |
| 223 | 2018 | 7     | 380    |
| 224 | 2018 | 8     | 335    |
| 225 | 2018 | 9     | 334    |
| 226 | 2018 | 10    | 334    |
| 227 | 2018 | 11    | 333    |
| 228 | 2018 | 12    | 333    |
| 229 | 2019 | 1     | 332    |
| 230 | 2019 | 2     | 332    |
| 231 | 2019 | 3     | 331    |
| 232 | 2019 | 4     | 331    |
| 233 | 2019 | 5     | 332    |
| 234 | 2019 | 6     | 329    |
| 235 | 2019 | 7     | 329    |
| 236 | 2019 | 8     | 327    |
| 237 | 2019 | 9     | 327    |
| 238 | 2019 | 10    | 325    |
| 239 | 2019 | 11    | 330    |
| 240 | 2019 | 12    | 326    |
| 241 | 2020 | 1     | 326    |
| 242 | 2020 | 2     | 327    |
| 243 | 2020 | 3     | 324    |
| 244 | 2020 | 4     | 324    |
| 245 | 2020 | 5     | 323    |
| 246 | 2020 | 6     | 315    |
| 247 | 2020 | 7     | 311    |
| 248 | 2020 | 8     | 310    |
| 249 | 2020 | 9     | 309    |
| 250 | 2020 | 10    | 309    |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE CUSTOMERS  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 456 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 251 | 2020 | 11    | 310    |
| 252 | 2020 | 12    | 310    |
| 253 | 2021 | 1     | 310    |
| 254 | 2021 | 2     | 308    |
| 255 | 2021 | 3     | 312    |
| 256 | 2021 | 4     | 309    |
| 257 | 2021 | 5     | 309    |
| 258 | 2021 | 6     | 309    |
| 259 | 2021 | 7     | 310    |
| 260 | 2021 | 8     | 310    |
| 261 | 2021 | 9     | 311    |
| 262 | 2021 | 10    | 311    |
| 263 | 2021 | 11    | 311    |
| 264 | 2021 | 12    | 310    |
| 265 | 2022 | 1     | .      |
| 266 | 2022 | 2     | .      |
| 267 | 2022 | 3     | .      |
| 268 | 2022 | 4     | .      |
| 269 | 2022 | 5     | .      |
| 270 | 2022 | 6     | .      |
| 271 | 2022 | 7     | .      |
| 272 | 2022 | 8     | .      |
| 273 | 2022 | 9     | .      |
| 274 | 2022 | 10    | .      |
| 275 | 2022 | 11    | .      |
| 276 | 2022 | 12    | .      |
| 277 | 2023 | 1     | .      |
| 278 | 2023 | 2     | .      |
| 279 | 2023 | 3     | .      |
| 280 | 2023 | 4     | .      |
| 281 | 2023 | 5     | .      |
| 282 | 2023 | 6     | .      |
| 283 | 2023 | 7     | .      |
| 284 | 2023 | 8     | .      |
| 285 | 2023 | 9     | .      |
| 286 | 2023 | 10    | .      |
| 287 | 2023 | 11    | .      |
| 288 | 2023 | 12    | .      |
| 289 | 2024 | 1     | .      |
| 290 | 2024 | 2     | .      |
| 291 | 2024 | 3     | .      |
| 292 | 2024 | 4     | .      |
| 293 | 2024 | 5     | .      |
| 294 | 2024 | 6     | .      |
| 295 | 2024 | 7     | .      |
| 296 | 2024 | 8     | .      |
| 297 | 2024 | 9     | .      |
| 298 | 2024 | 10    | .      |
| 299 | 2024 | 11    | .      |
| 300 | 2024 | 12    | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 457 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 301 | 2025 | 1     | .      |
| 302 | 2025 | 2     | .      |
| 303 | 2025 | 3     | .      |
| 304 | 2025 | 4     | .      |
| 305 | 2025 | 5     | .      |
| 306 | 2025 | 6     | .      |
| 307 | 2025 | 7     | .      |
| 308 | 2025 | 8     | .      |
| 309 | 2025 | 9     | .      |
| 310 | 2025 | 10    | .      |
| 311 | 2025 | 11    | .      |
| 312 | 2025 | 12    | .      |
| 313 | 2026 | 1     | .      |
| 314 | 2026 | 2     | .      |
| 315 | 2026 | 3     | .      |
| 316 | 2026 | 4     | .      |
| 317 | 2026 | 5     | .      |
| 318 | 2026 | 6     | .      |
| 319 | 2026 | 7     | .      |
| 320 | 2026 | 8     | .      |
| 321 | 2026 | 9     | .      |
| 322 | 2026 | 10    | .      |
| 323 | 2026 | 11    | .      |
| 324 | 2026 | 12    | .      |
| 325 | 2027 | 1     | .      |
| 326 | 2027 | 2     | .      |
| 327 | 2027 | 3     | .      |
| 328 | 2027 | 4     | .      |
| 329 | 2027 | 5     | .      |
| 330 | 2027 | 6     | .      |
| 331 | 2027 | 7     | .      |
| 332 | 2027 | 8     | .      |
| 333 | 2027 | 9     | .      |
| 334 | 2027 | 10    | .      |
| 335 | 2027 | 11    | .      |
| 336 | 2027 | 12    | .      |
| 337 | 2028 | 1     | .      |
| 338 | 2028 | 2     | .      |
| 339 | 2028 | 3     | .      |
| 340 | 2028 | 4     | .      |
| 341 | 2028 | 5     | .      |
| 342 | 2028 | 6     | .      |
| 343 | 2028 | 7     | .      |
| 344 | 2028 | 8     | .      |
| 345 | 2028 | 9     | .      |
| 346 | 2028 | 10    | .      |
| 347 | 2028 | 11    | .      |
| 348 | 2028 | 12    | .      |
| 349 | 2029 | 1     | .      |
| 350 | 2029 | 2     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 458 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 351 | 2029 | 3     | .      |
| 352 | 2029 | 4     | .      |
| 353 | 2029 | 5     | .      |
| 354 | 2029 | 6     | .      |
| 355 | 2029 | 7     | .      |
| 356 | 2029 | 8     | .      |
| 357 | 2029 | 9     | .      |
| 358 | 2029 | 10    | .      |
| 359 | 2029 | 11    | .      |
| 360 | 2029 | 12    | .      |
| 361 | 2030 | 1     | .      |
| 362 | 2030 | 2     | .      |
| 363 | 2030 | 3     | .      |
| 364 | 2030 | 4     | .      |
| 365 | 2030 | 5     | .      |
| 366 | 2030 | 6     | .      |
| 367 | 2030 | 7     | .      |
| 368 | 2030 | 8     | .      |
| 369 | 2030 | 9     | .      |
| 370 | 2030 | 10    | .      |
| 371 | 2030 | 11    | .      |
| 372 | 2030 | 12    | .      |
| 373 | 2031 | 1     | .      |
| 374 | 2031 | 2     | .      |
| 375 | 2031 | 3     | .      |
| 376 | 2031 | 4     | .      |
| 377 | 2031 | 5     | .      |
| 378 | 2031 | 6     | .      |
| 379 | 2031 | 7     | .      |
| 380 | 2031 | 8     | .      |
| 381 | 2031 | 9     | .      |
| 382 | 2031 | 10    | .      |
| 383 | 2031 | 11    | .      |
| 384 | 2031 | 12    | .      |
| 385 | 2032 | 1     | .      |
| 386 | 2032 | 2     | .      |
| 387 | 2032 | 3     | .      |
| 388 | 2032 | 4     | .      |
| 389 | 2032 | 5     | .      |
| 390 | 2032 | 6     | .      |
| 391 | 2032 | 7     | .      |
| 392 | 2032 | 8     | .      |
| 393 | 2032 | 9     | .      |
| 394 | 2032 | 10    | .      |
| 395 | 2032 | 11    | .      |
| 396 | 2032 | 12    | .      |
| 397 | 2033 | 1     | .      |
| 398 | 2033 | 2     | .      |
| 399 | 2033 | 3     | .      |
| 400 | 2033 | 4     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 459 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 401 | 2033 | 5     | .      |
| 402 | 2033 | 6     | .      |
| 403 | 2033 | 7     | .      |
| 404 | 2033 | 8     | .      |
| 405 | 2033 | 9     | .      |
| 406 | 2033 | 10    | .      |
| 407 | 2033 | 11    | .      |
| 408 | 2033 | 12    | .      |
| 409 | 2034 | 1     | .      |
| 410 | 2034 | 2     | .      |
| 411 | 2034 | 3     | .      |
| 412 | 2034 | 4     | .      |
| 413 | 2034 | 5     | .      |
| 414 | 2034 | 6     | .      |
| 415 | 2034 | 7     | .      |
| 416 | 2034 | 8     | .      |
| 417 | 2034 | 9     | .      |
| 418 | 2034 | 10    | .      |
| 419 | 2034 | 11    | .      |
| 420 | 2034 | 12    | .      |
| 421 | 2035 | 1     | .      |
| 422 | 2035 | 2     | .      |
| 423 | 2035 | 3     | .      |
| 424 | 2035 | 4     | .      |
| 425 | 2035 | 5     | .      |
| 426 | 2035 | 6     | .      |
| 427 | 2035 | 7     | .      |
| 428 | 2035 | 8     | .      |
| 429 | 2035 | 9     | .      |
| 430 | 2035 | 10    | .      |
| 431 | 2035 | 11    | .      |
| 432 | 2035 | 12    | .      |
| 433 | 2036 | 1     | .      |
| 434 | 2036 | 2     | .      |
| 435 | 2036 | 3     | .      |
| 436 | 2036 | 4     | .      |
| 437 | 2036 | 5     | .      |
| 438 | 2036 | 6     | .      |
| 439 | 2036 | 7     | .      |
| 440 | 2036 | 8     | .      |
| 441 | 2036 | 9     | .      |
| 442 | 2036 | 10    | .      |
| 443 | 2036 | 11    | .      |
| 444 | 2036 | 12    | .      |
| 445 | 2037 | 1     | .      |
| 446 | 2037 | 2     | .      |
| 447 | 2037 | 3     | .      |
| 448 | 2037 | 4     | .      |
| 449 | 2037 | 5     | .      |
| 450 | 2037 | 6     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 460 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 451 | 2037 | 7     | .      |
| 452 | 2037 | 8     | .      |
| 453 | 2037 | 9     | .      |
| 454 | 2037 | 10    | .      |
| 455 | 2037 | 11    | .      |
| 456 | 2037 | 12    | .      |
| 457 | 2038 | 1     | .      |
| 458 | 2038 | 2     | .      |
| 459 | 2038 | 3     | .      |
| 460 | 2038 | 4     | .      |
| 461 | 2038 | 5     | .      |
| 462 | 2038 | 6     | .      |
| 463 | 2038 | 7     | .      |
| 464 | 2038 | 8     | .      |
| 465 | 2038 | 9     | .      |
| 466 | 2038 | 10    | .      |
| 467 | 2038 | 11    | .      |
| 468 | 2038 | 12    | .      |
| 469 | 2039 | 1     | .      |
| 470 | 2039 | 2     | .      |
| 471 | 2039 | 3     | .      |
| 472 | 2039 | 4     | .      |
| 473 | 2039 | 5     | .      |
| 474 | 2039 | 6     | .      |
| 475 | 2039 | 7     | .      |
| 476 | 2039 | 8     | .      |
| 477 | 2039 | 9     | .      |
| 478 | 2039 | 10    | .      |
| 479 | 2039 | 11    | .      |
| 480 | 2039 | 12    | .      |
| 481 | 2040 | 1     | .      |
| 482 | 2040 | 2     | .      |
| 483 | 2040 | 3     | .      |
| 484 | 2040 | 4     | .      |
| 485 | 2040 | 5     | .      |
| 486 | 2040 | 6     | .      |
| 487 | 2040 | 7     | .      |
| 488 | 2040 | 8     | .      |
| 489 | 2040 | 9     | .      |
| 490 | 2040 | 10    | .      |
| 491 | 2040 | 11    | .      |
| 492 | 2040 | 12    | .      |
| 493 | 2041 | 1     | .      |
| 494 | 2041 | 2     | .      |
| 495 | 2041 | 3     | .      |
| 496 | 2041 | 4     | .      |
| 497 | 2041 | 5     | .      |
| 498 | 2041 | 6     | .      |
| 499 | 2041 | 7     | .      |
| 500 | 2041 | 8     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 461 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 501 | 2041 | 9     | .      |
| 502 | 2041 | 10    | .      |
| 503 | 2041 | 11    | .      |
| 504 | 2041 | 12    | .      |
| 505 | 2042 | 1     | .      |
| 506 | 2042 | 2     | .      |
| 507 | 2042 | 3     | .      |
| 508 | 2042 | 4     | .      |
| 509 | 2042 | 5     | .      |
| 510 | 2042 | 6     | .      |
| 511 | 2042 | 7     | .      |
| 512 | 2042 | 8     | .      |
| 513 | 2042 | 9     | .      |
| 514 | 2042 | 10    | .      |
| 515 | 2042 | 11    | .      |
| 516 | 2042 | 12    | .      |
| 517 | 2043 | 1     | .      |
| 518 | 2043 | 2     | .      |
| 519 | 2043 | 3     | .      |
| 520 | 2043 | 4     | .      |
| 521 | 2043 | 5     | .      |
| 522 | 2043 | 6     | .      |
| 523 | 2043 | 7     | .      |
| 524 | 2043 | 8     | .      |
| 525 | 2043 | 9     | .      |
| 526 | 2043 | 10    | .      |
| 527 | 2043 | 11    | .      |
| 528 | 2043 | 12    | .      |
| 529 | 2044 | 1     | .      |
| 530 | 2044 | 2     | .      |
| 531 | 2044 | 3     | .      |
| 532 | 2044 | 4     | .      |
| 533 | 2044 | 5     | .      |
| 534 | 2044 | 6     | .      |
| 535 | 2044 | 7     | .      |
| 536 | 2044 | 8     | .      |
| 537 | 2044 | 9     | .      |
| 538 | 2044 | 10    | .      |
| 539 | 2044 | 11    | .      |
| 540 | 2044 | 12    | .      |
| 541 | 2045 | 1     | .      |
| 542 | 2045 | 2     | .      |
| 543 | 2045 | 3     | .      |
| 544 | 2045 | 4     | .      |
| 545 | 2045 | 5     | .      |
| 546 | 2045 | 6     | .      |
| 547 | 2045 | 7     | .      |
| 548 | 2045 | 8     | .      |
| 549 | 2045 | 9     | .      |
| 550 | 2045 | 10    | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 462 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 551 | 2045 | 11    | .      |
| 552 | 2045 | 12    | .      |
| 553 | 2046 | 1     | .      |
| 554 | 2046 | 2     | .      |
| 555 | 2046 | 3     | .      |
| 556 | 2046 | 4     | .      |
| 557 | 2046 | 5     | .      |
| 558 | 2046 | 6     | .      |
| 559 | 2046 | 7     | .      |
| 560 | 2046 | 8     | .      |
| 561 | 2046 | 9     | .      |
| 562 | 2046 | 10    | .      |
| 563 | 2046 | 11    | .      |
| 564 | 2046 | 12    | .      |
| 565 | 2047 | 1     | .      |
| 566 | 2047 | 2     | .      |
| 567 | 2047 | 3     | .      |
| 568 | 2047 | 4     | .      |
| 569 | 2047 | 5     | .      |
| 570 | 2047 | 6     | .      |
| 571 | 2047 | 7     | .      |
| 572 | 2047 | 8     | .      |
| 573 | 2047 | 9     | .      |
| 574 | 2047 | 10    | .      |
| 575 | 2047 | 11    | .      |
| 576 | 2047 | 12    | .      |
| 577 | 2048 | 1     | .      |
| 578 | 2048 | 2     | .      |
| 579 | 2048 | 3     | .      |
| 580 | 2048 | 4     | .      |
| 581 | 2048 | 5     | .      |
| 582 | 2048 | 6     | .      |
| 583 | 2048 | 7     | .      |
| 584 | 2048 | 8     | .      |
| 585 | 2048 | 9     | .      |
| 586 | 2048 | 10    | .      |
| 587 | 2048 | 11    | .      |
| 588 | 2048 | 12    | .      |
| 589 | 2049 | 1     | .      |
| 590 | 2049 | 2     | .      |
| 591 | 2049 | 3     | .      |
| 592 | 2049 | 4     | .      |
| 593 | 2049 | 5     | .      |
| 594 | 2049 | 6     | .      |
| 595 | 2049 | 7     | .      |
| 596 | 2049 | 8     | .      |
| 597 | 2049 | 9     | .      |
| 598 | 2049 | 10    | .      |
| 599 | 2049 | 11    | .      |
| 600 | 2049 | 12    | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 463 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 601 | 2050 | 1     | .      |
| 602 | 2050 | 2     | .      |
| 603 | 2050 | 3     | .      |
| 604 | 2050 | 4     | .      |
| 605 | 2050 | 5     | .      |
| 606 | 2050 | 6     | .      |
| 607 | 2050 | 7     | .      |
| 608 | 2050 | 8     | .      |
| 609 | 2050 | 9     | .      |
| 610 | 2050 | 10    | .      |
| 611 | 2050 | 11    | .      |
| 612 | 2050 | 12    | .      |
| 613 | 2051 | 1     | .      |
| 614 | 2051 | 2     | .      |
| 615 | 2051 | 3     | .      |
| 616 | 2051 | 4     | .      |
| 617 | 2051 | 5     | .      |
| 618 | 2051 | 6     | .      |
| 619 | 2051 | 7     | .      |
| 620 | 2051 | 8     | .      |
| 621 | 2051 | 9     | .      |
| 622 | 2051 | 10    | .      |
| 623 | 2051 | 11    | .      |
| 624 | 2051 | 12    | .      |
| 625 | 2052 | 1     | .      |
| 626 | 2052 | 2     | .      |
| 627 | 2052 | 3     | .      |
| 628 | 2052 | 4     | .      |
| 629 | 2052 | 5     | .      |
| 630 | 2052 | 6     | .      |
| 631 | 2052 | 7     | .      |
| 632 | 2052 | 8     | .      |
| 633 | 2052 | 9     | .      |
| 634 | 2052 | 10    | .      |
| 635 | 2052 | 11    | .      |
| 636 | 2052 | 12    | .      |
| 637 | 2053 | 1     | .      |
| 638 | 2053 | 2     | .      |
| 639 | 2053 | 3     | .      |
| 640 | 2053 | 4     | .      |
| 641 | 2053 | 5     | .      |
| 642 | 2053 | 6     | .      |
| 643 | 2053 | 7     | .      |
| 644 | 2053 | 8     | .      |
| 645 | 2053 | 9     | .      |
| 646 | 2053 | 10    | .      |
| 647 | 2053 | 11    | .      |
| 648 | 2053 | 12    | .      |
| 649 | 2054 | 1     | .      |
| 650 | 2054 | 2     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
KPSC Case No. 2023-00092  
Volume A - Public Version  
Page 464 of 1182

| Obs | YEAR | MONTH | cu_kpc |
|-----|------|-------|--------|
| 651 | 2054 | 3     | .      |
| 652 | 2054 | 4     | .      |
| 653 | 2054 | 5     | .      |
| 654 | 2054 | 6     | .      |
| 655 | 2054 | 7     | .      |
| 656 | 2054 | 8     | .      |
| 657 | 2054 | 9     | .      |
| 658 | 2054 | 10    | .      |
| 659 | 2054 | 11    | .      |
| 660 | 2054 | 12    | .      |
| 661 | 2055 | 1     | .      |
| 662 | 2055 | 2     | .      |
| 663 | 2055 | 3     | .      |
| 664 | 2055 | 4     | .      |
| 665 | 2055 | 5     | .      |
| 666 | 2055 | 6     | .      |
| 667 | 2055 | 7     | .      |
| 668 | 2055 | 8     | .      |
| 669 | 2055 | 9     | .      |
| 670 | 2055 | 10    | .      |
| 671 | 2055 | 11    | .      |
| 672 | 2055 | 12    | .      |
| 673 | 2056 | 1     | .      |
| 674 | 2056 | 2     | .      |
| 675 | 2056 | 3     | .      |
| 676 | 2056 | 4     | .      |
| 677 | 2056 | 5     | .      |
| 678 | 2056 | 6     | .      |
| 679 | 2056 | 7     | .      |
| 680 | 2056 | 8     | .      |
| 681 | 2056 | 9     | .      |
| 682 | 2056 | 10    | .      |
| 683 | 2056 | 11    | .      |
| 684 | 2056 | 12    | .      |
| 685 | 2057 | 1     | .      |
| 686 | 2057 | 2     | .      |
| 687 | 2057 | 3     | .      |
| 688 | 2057 | 4     | .      |
| 689 | 2057 | 5     | .      |
| 690 | 2057 | 6     | .      |
| 691 | 2057 | 7     | .      |
| 692 | 2057 | 8     | .      |
| 693 | 2057 | 9     | .      |
| 694 | 2057 | 10    | .      |
| 695 | 2057 | 11    | .      |
| 696 | 2057 | 12    | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE CUSTOMERS  
 ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 465 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2000 | 527.250   | .           |
| 2001 | 447.083   | -15.2       |
| 2002 | 445.000   | -0.5        |
| 2003 | 447.667   | 0.6         |
| 2004 | 441.917   | -1.3        |
| 2005 | 419.083   | -5.2        |
| 2006 | 380.333   | -9.2        |
| 2007 | 375.000   | -1.4        |
| 2008 | 378.583   | 1.0         |
| 2009 | 372.833   | -1.5        |
| 2010 | 390.917   | 4.9         |
| 2011 | 411.333   | 5.2         |
| 2012 | 400.500   | -2.6        |
| 2013 | 384.833   | -3.9        |
| 2014 | 369.500   | -4.0        |
| 2015 | 360.333   | -2.5        |
| 2016 | 351.167   | -2.5        |
| 2017 | 346.083   | -1.4        |
| 2018 | 338.833   | -2.1        |
| 2019 | 329.250   | -2.8        |
| 2020 | 316.500   | -3.9        |
| 2021 | 310.000   | -2.1        |
| 2022 | 310.000   | 0.0         |
| 2023 | 310.000   | 0.0         |
| 2024 | 310.000   | 0.0         |
| 2025 | 310.000   | 0.0         |
| 2026 | 310.000   | 0.0         |
| 2027 | 310.000   | 0.0         |
| 2028 | 310.000   | 0.0         |
| 2029 | 310.000   | 0.0         |
| 2030 | 310.000   | 0.0         |
| 2031 | 310.000   | 0.0         |
| 2032 | 310.000   | 0.0         |
| 2033 | 310.000   | 0.0         |
| 2034 | 310.000   | 0.0         |
| 2035 | 310.000   | 0.0         |
| 2036 | 310.000   | 0.0         |
| 2037 | 310.000   | 0.0         |
| 2038 | 310.000   | 0.0         |
| 2039 | 310.000   | 0.0         |
| 2040 | 310.000   | 0.0         |
| 2041 | 310.000   | 0.0         |
| 2042 | 310.000   | 0.0         |
| 2043 | 310.000   | 0.0         |
| 2044 | 310.000   | 0.0         |
| 2045 | 310.000   | 0.0         |
| 2046 | 310.000   | 0.0         |
| 2047 | 310.000   | 0.0         |
| 2048 | 310.000   | 0.0         |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE CUSTOMERS  
ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 466 of 1182

| YEAR | CUSTOMERS | GROWTH RATE |
|------|-----------|-------------|
| 2049 | 310       | 0           |
| 2050 | 310       | 0           |
| 2051 | 310       | 0           |
| 2052 | 310       | 0           |
| 2053 | 310       | 0           |
| 2054 | 310       | 0           |
| 2055 | 310       | 0           |
| 2056 | 310       | 0           |
| 2057 | 310       | 0           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 467 of 1182

**LONG-TERM RESIDENTIAL**









Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | SalesPerHH       | XHeat    | XCool  | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | 7-Feb | Sep-95 | Nov-95 |
|------|-------|------------------|----------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| 2006 | 1     | 2,207,723,455.09 | 1,115.90 | 0.00   | 869.41 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 2     | 1,804,836,407.67 | 949.71   | 0.00   | 761.70 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 3     | 1,626,827,484.43 | 1,085.02 | 1.66   | 729.68 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 4     | 1,262,415,619.81 | 554.15   | 19.72  | 696.99 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 5     | 940,154,584.15   | 45.14    | 33.02  | 704.57 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 6     | 1,057,778,073.83 | 8.66     | 124.27 | 697.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 7     | 1,271,276,787.08 | 0.00     | 306.59 | 659.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 8     | 1,424,173,576.06 | 0.00     | 489.80 | 634.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 9     | 1,255,081,860.97 | 2.08     | 311.13 | 685.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 10    | 971,237,941.14   | 85.96    | 43.69  | 700.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 11    | 1,232,087,453.73 | 473.96   | 3.02   | 711.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2006 | 12    | 1,774,977,717.67 | 746.68   | 3.15   | 815.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 1     | 1,894,406,857.02 | 804.87   | 0.34   | 852.54 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 2     | 2,214,653,079.54 | 1,623.71 | 0.00   | 746.25 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00  | 0.00   | 0.00   |
| 2007 | 3     | 1,845,838,373.91 | 1,367.54 | 2.62   | 726.79 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 4     | 1,270,902,877.67 | 471.58   | 34.10  | 739.24 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 5     | 1,045,100,110.54 | 178.97   | 59.46  | 702.77 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 6     | 1,145,911,905.28 | 7.33     | 209.43 | 693.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 7     | 1,271,357,530.66 | 0.00     | 341.94 | 652.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 8     | 1,344,388,712.93 | 0.00     | 402.04 | 639.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 9     | 1,445,614,073.19 | 0.00     | 444.26 | 681.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 10    | 1,068,750,060.73 | 15.14    | 206.45 | 692.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 11    | 1,140,305,733.77 | 296.60   | 35.11  | 733.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2007 | 12    | 1,690,170,524.83 | 835.72   | 0.00   | 819.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 1     | 2,114,912,301.05 | 1,160.73 | 0.00   | 857.27 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 2     | 2,006,611,403.69 | 1,413.59 | 0.00   | 749.02 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 3     | 1,805,065,064.25 | 1,208.12 | 0.00   | 730.57 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 4     | 1,341,179,216.32 | 545.08   | 1.67   | 738.90 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 5     | 961,256,323.06   | 121.15   | 21.82  | 687.77 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 6     | 1,065,972,952.47 | 8.21     | 128.54 | 697.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 7     | 1,245,205,919.79 | 0.00     | 266.26 | 656.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 8     | 1,302,137,681.46 | 0.00     | 325.05 | 643.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2008 | 9     | 1,237,861,165.76 | 0.00     | 304.03 | 680.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |







Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | SalesPerHH       | XHeat    | XCool  | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | 7-Feb | Sep-95 | Nov-95 |
|------|-------|------------------|----------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| 2017 | 1     | 1,795,642,938.61 | 974.40   | 0.00   | 791.81 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 2     | 1,430,614,715.25 | 812.35   | 0.00   | 700.71 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 3     | 1,279,129,104.83 | 636.08   | 0.61   | 679.52 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 4     | 1,041,332,789.00 | 393.53   | 14.30  | 664.57 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 5     | 823,765,775.39   | 53.60    | 75.46  | 643.95 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 6     | 945,257,057.31   | 12.94    | 142.13 | 668.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 7     | 1,174,286,650.43 | 0.00     | 285.82 | 649.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 8     | 1,200,944,640.43 | 0.00     | 305.23 | 618.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 9     | 1,027,802,706.75 | 0.00     | 181.47 | 650.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 10    | 876,430,135.15   | 7.08     | 133.87 | 653.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 11    | 965,003,787.40   | 286.43   | 24.31  | 666.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2017 | 12    | 1,547,238,073.85 | 775.30   | 0.91   | 765.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 1     | 2,273,147,316.93 | 1,517.64 | 1.86   | 784.32 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 2     | 1,818,927,613.84 | 1,220.91 | 3.12   | 694.31 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 3     | 1,272,775,156.54 | 677.14   | 6.25   | 672.06 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 4     | 1,297,139,566.21 | 651.93   | 7.21   | 690.66 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 5     | 938,924,000.12   | 158.53   | 77.74  | 642.02 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 6     | 1,120,107,712.08 | 2.15     | 262.95 | 678.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 7     | 1,279,232,620.62 | 0.00     | 352.67 | 637.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 8     | 1,198,444,361.91 | 0.00     | 322.32 | 613.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 9     | 1,197,741,605.73 | 0.00     | 325.61 | 642.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 10    | 989,739,593.48   | 40.58    | 203.63 | 639.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 11    | 1,058,749,784.63 | 391.68   | 29.68  | 664.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2018 | 12    | 1,607,197,614.97 | 909.13   | 0.16   | 743.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 1     | 1,758,299,443.33 | 907.80   | 0.00   | 772.36 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 2     | 1,727,538,541.61 | 1,138.33 | 0.00   | 682.70 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 3     | 1,430,111,575.11 | 889.66   | 0.85   | 661.83 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 4     | 1,109,539,385.45 | 447.34   | 9.90   | 652.87 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 5     | 857,774,022.56   | 40.04    | 62.39  | 661.29 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 6     | 999,339,125.88   | 0.62     | 173.84 | 659.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 7     | 1,205,831,829.29 | 0.00     | 303.00 | 631.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 8     | 1,275,655,592.78 | 0.00     | 352.66 | 609.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2019 | 9     | 1,191,835,424.58 | 0.00     | 295.06 | 637.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |







Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | SalesPerHH | XHeat    | XCool  | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | 7-Feb | Sep-95 | Nov-95 |
|------|-------|------------|----------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| 2028 | 1     |            | 1,000.34 | 0.22   | 762.77 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 2     |            | 1,130.37 | 0.18   | 674.25 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 3     |            | 834.88   | 1.10   | 658.31 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 4     |            | 392.42   | 11.98  | 651.94 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 5     |            | 94.15    | 40.44  | 634.33 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 6     |            | 12.69    | 126.91 | 651.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 7     |            | 0.04     | 259.08 | 624.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 8     |            | 0.00     | 292.75 | 596.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 9     |            | 0.18     | 235.05 | 624.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 10    |            | 30.37    | 84.23  | 627.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 11    |            | 254.17   | 11.19  | 634.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2028 | 12    |            | 685.91   | 0.82   | 735.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 1     |            | 992.29   | 0.22   | 764.96 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 2     |            | 1,121.13 | 0.17   | 676.15 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 3     |            | 827.93   | 1.10   | 660.13 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 4     |            | 389.11   | 11.91  | 653.76 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 5     |            | 93.35    | 40.19  | 636.06 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 6     |            | 12.58    | 126.10 | 652.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 7     |            | 0.04     | 257.42 | 626.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 8     |            | 0.00     | 290.85 | 597.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 9     |            | 0.18     | 233.51 | 626.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 10    |            | 30.09    | 83.67  | 628.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 11    |            | 251.85   | 11.12  | 636.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2029 | 12    |            | 679.59   | 0.81   | 736.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 1     |            | 981.67   | 0.22   | 765.64 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 2     |            | 1,109.02 | 0.17   | 676.75 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 3     |            | 818.87   | 1.09   | 660.71 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 4     |            | 384.84   | 11.82  | 654.41 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 5     |            | 92.31    | 39.88  | 636.69 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 6     |            | 12.44    | 125.11 | 653.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 7     |            | 0.04     | 255.36 | 627.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 8     |            | 0.00     | 288.51 | 598.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2030 | 9     |            | 0.18     | 231.63 | 627.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |







Kentucky Power Company  
Residential Energy Model Input Variables

| Year | Month | SalesPerHH | XHeat    | XCool  | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | 7-Feb | Sep-95 | Nov-95 |
|------|-------|------------|----------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| 2039 | 1     |            | 913.57   | 0.22   | 798.92 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 2     |            | 1,031.89 | 0.17   | 706.35 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 3     |            | 761.81   | 1.07   | 689.81 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 4     |            | 358.06   | 11.59  | 683.79 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 5     |            | 85.89    | 39.09  | 665.58 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 6     |            | 11.57    | 122.64 | 683.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 7     |            | 0.04     | 250.30 | 656.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 8     |            | 0.00     | 282.78 | 626.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 9     |            | 0.17     | 227.01 | 656.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 10    |            | 27.68    | 81.34  | 657.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 11    |            | 231.65   | 10.81  | 665.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2039 | 12    |            | 624.94   | 0.79   | 769.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 1     |            | 906.68   | 0.22   | 802.64 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 2     |            | 1,024.15 | 0.17   | 709.69 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 3     |            | 756.11   | 1.07   | 693.13 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 4     |            | 355.40   | 11.58  | 687.15 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 5     |            | 85.26    | 39.09  | 668.93 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 6     |            | 11.49    | 122.64 | 686.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 7     |            | 0.04     | 250.31 | 659.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 8     |            | 0.00     | 282.80 | 629.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 9     |            | 0.17     | 227.03 | 659.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 10    |            | 27.48    | 81.35  | 661.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 11    |            | 229.97   | 10.81  | 668.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2040 | 12    |            | 620.41   | 0.79   | 773.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 1     |            | 900.31   | 0.22   | 806.67 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 2     |            | 1,016.95 | 0.17   | 713.29 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 3     |            | 750.80   | 1.07   | 696.69 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 4     |            | 352.91   | 11.59  | 690.74 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 5     |            | 84.66    | 39.10  | 672.49 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 6     |            | 11.41    | 122.68 | 690.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 7     |            | 0.04     | 250.40 | 663.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 8     |            | 0.00     | 282.90 | 633.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2041 | 9     |            | 0.16     | 227.11 | 663.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |







Kentucky Power Company  
Residential Energy Model Input Variables

| Year | Month | SalesPerHH | XHeat  | XCool  | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | 7-Feb | Sep-95 | Nov-95 |
|------|-------|------------|--------|--------|--------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|
| 2050 | 1     |            | 858.06 | 0.22   | 854.52 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 2     |            | 969.29 | 0.17   | 755.94 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 3     |            | 715.67 | 1.09   | 738.71 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 4     |            | 336.44 | 11.79  | 733.05 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 5     |            | 80.72  | 39.79  | 714.15 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 6     |            | 10.88  | 124.84 | 733.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 7     |            | 0.04   | 254.83 | 705.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 8     |            | 0.00   | 287.91 | 673.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 9     |            | 0.16   | 231.14 | 705.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 10    |            | 26.02  | 82.83  | 706.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 11    |            | 217.77 | 11.00  | 713.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2050 | 12    |            | 587.49 | 0.80   | 823.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 1     |            | 854.33 | 0.22   | 860.72 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 2     |            | 965.10 | 0.17   | 761.48 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 3     |            | 712.60 | 1.09   | 744.16 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 4     |            | 335.00 | 11.83  | 738.54 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 5     |            | 80.38  | 39.91  | 719.55 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 6     |            | 10.83  | 125.21 | 739.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 7     |            | 0.04   | 255.59 | 711.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 8     |            | 0.00   | 288.77 | 678.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 9     |            | 0.16   | 231.84 | 710.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 10    |            | 25.91  | 83.08  | 711.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 11    |            | 216.87 | 11.04  | 718.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00  | 0.00   | 0.00   |
| 2051 | 12    |            | 585.07 | 0.80   | 830.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 1     |            | 850.87 | 0.22   | 867.12 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 2     |            | 961.22 | 0.17   | 767.18 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 3     |            | 709.74 | 1.09   | 749.78 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 4     |            | 333.68 | 11.86  | 744.19 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 5     |            | 80.06  | 40.04  | 725.12 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 6     |            | 10.79  | 125.63 | 745.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 7     |            | 0.04   | 256.43 | 716.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 8     |            | 0.00   | 289.73 | 684.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |
| 2052 | 9     |            | 0.16   | 232.61 | 716.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00  | 0.00   | 0.00   |













Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2006 | 1     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 2     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 3     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 4     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 5     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 6     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 7     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 8     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 9     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 10    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 11    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2006 | 12    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 1     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 2     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 3     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 4     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 5     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 6     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 7     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 8     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 9     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 10    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 11    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2007 | 12    | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 1     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 2     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 3     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 4     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 5     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 6     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 7     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 8     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |
| 2008 | 9     | 0.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 1.00  | 0.00    | 0.00  | 0.00     | 0        |







Kentucky Power Company  
Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2017 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2017 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2018 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2018 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 0.00    | 0.00  | 0        | 0        |
| 2018 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2018 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2019 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2019 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2020 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 0.00  | 0        | 0        |
| 2021 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2021 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2022 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 0        |
| 2022 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2022 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2022 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2023 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2024 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2025 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2025 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2026 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2027 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2028 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2028 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2029 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2030 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2030 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2031 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2032 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2033 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2033 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2034 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2035 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2036 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2036 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2037 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2038 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2039 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2039 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2040 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2041 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2041 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2042 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2043 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2044 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2044 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2045 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2046 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2047 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2047 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2048 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2049 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2050 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2050 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2051 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
 Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2052 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2052 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2053 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2054 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

Kentucky Power Company  
Residential Energy Model Input Variables

| Year | Month | Apr15on | Feb-95 | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on | D21on | XMissing | YMissing |
|------|-------|---------|--------|--------|--------|--------|-------|---------|-------|----------|----------|
| 2055 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2055 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2056 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 1     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 2     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 3     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 4     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 5     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 6     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 7     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 8     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 9     | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 10    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 11    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |
| 2057 | 12    | 1.00    | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  | 1.00    | 1.00  | 0        | 1        |

| Kentucky Power Company                |                |               |        |         |       |                                   |
|---------------------------------------|----------------|---------------|--------|---------|-------|-----------------------------------|
| Residential Energy Model Coefficients |                |               |        |         |       |                                   |
| Variable                              | Coefficient    | StdErr        | T-Stat | P-Value | Units | Definition                        |
| CONST                                 | 479347598.049  | 143570417.653 | 3.339  | 0.10%   |       | Constant term                     |
| ResidentialVars.XHeat                 | 678271.450     | 16765.485     | 40.456 | 0.00%   |       | Residential Heating Component     |
| ResidentialVars.XCool                 | 1053337.355    | 69411.414     | 15.175 | 0.00%   |       | Residential Cooling Component     |
| ResidentialVars.XOther                | 821920.544     | 183357.471    | 4.483  | 0.00%   |       | Residential Other Component       |
| BinaryVars.Jan                        | 111840473.441  | 13130783.175  | 8.517  | 0.00%   |       | January                           |
| BinaryVars.Feb                        | -91154618.904  | 18914170.415  | -4.819 | 0.00%   |       | February                          |
| BinaryVars.Mar                        | -139550190.611 | 20446663.838  | -6.825 | 0.00%   |       | March                             |
| BinaryVars.Apr                        | -165028720.836 | 21551561.523  | -7.657 | 0.00%   |       | April                             |
| BinaryVars.May                        | -206168618.572 | 27369944.511  | -7.533 | 0.00%   |       | May                               |
| BinaryVars.Jun                        | -161683827.710 | 29202380.152  | -5.537 | 0.00%   |       | June                              |
| BinaryVars.Jul                        | -71170817.560  | 38825733.527  | -1.833 | 6.78%   |       | July                              |
| BinaryVars.Aug                        | -63034600.479  | 44081026.031  | -1.430 | 15.38%  |       | August                            |
| BinaryVars.Sep                        | -109928309.504 | 36356403.701  | -3.024 | 0.27%   |       | September                         |
| BinaryVars.Oct                        | -202965416.453 | 28663395.094  | -7.081 | 0.00%   |       | October                           |
| BinaryVars.Nov                        | -175840688.962 | 22545711.676  | -7.799 | 0.00%   |       | November                          |
| BinaryVars.Feb07                      | 92200376.525   | 39643007.235  | 2.326  | 2.07%   |       | Binary Variable February 2007     |
| BinaryVars.Sep95                      | -397701376.844 | 39905172.537  | -9.966 | 0.00%   |       | Binary Variable September 1995    |
| BinaryVars.Nov95                      | 292986106.030  | 39286493.637  | 7.458  | 0.00%   |       | Binary Variable November 1995     |
| BinaryVars.Apr15on                    | -47149536.983  | 15846936.213  | -2.975 | 0.32%   |       | Binary Variable April 2015 On     |
| BinaryVars.feb95                      | -149902382.213 | 43966686.267  | -3.409 | 0.08%   |       | Binary Variable February 1995     |
| BinaryVars.mar95                      | -169901215.244 | 48244289.279  | -3.522 | 0.05%   |       | Binary Variable March 1995        |
| BinaryVars.jan96                      | -227441388.121 | 40605497.036  | -5.601 | 0.00%   |       | Binary Variable January 1996      |
| BinaryVars.apr95                      | -93837867.615  | 44096835.498  | -2.128 | 3.41%   |       | Binary Variable April 1995        |
| BinaryVars.d0610                      | 29640498.624   | 13502938.847  | 2.195  | 2.89%   |       | Binary Variable 2006 through 2010 |
| BinaryVars.Mar18on                    | -9328389.559   | 20029316.794  | -0.466 | 64.18%  |       | Binary Variable March 2018 On     |
| BinaryVars.D21on                      | 24301165.841   | 25806787.763  | 0.942  | 34.71%  |       | Binary Variable 2021 On           |
| AR(1)                                 | 0.515          | 0.053         | 9.646  | 0.00%   |       | Auto Regressive Variable          |

Kentucky Power Company  
 Residential Energy Model Statistics

| Model Statistics          | Forecast Statistics            |
|---------------------------|--------------------------------|
| Iterations                | Forecast Observations          |
| Adjusted Observations     | Mean Abs. Dev. (MAD)           |
| Deg. of Freedom for Error | Mean Abs. % Err. (MAPE)        |
| R-Squared                 | Avg. Forecast Error            |
| Adjusted R-Squared        | Mean % Error                   |
| AIC                       | Root Mean-Square Error         |
| BIC                       | Theil's Inequality Coefficient |
| F-Statistic               | -- Bias Proportion             |
| Prob (F-Statistic)        | -- Variance Proportion         |
| Log-Likelihood            | -- Covariance Proportion       |
| Model Sum of Squares      |                                |
| Sum of Squared Errors     |                                |
| Mean Squared Error        |                                |
| Std. Error of Regression  |                                |
| Mean Abs. Dev. (MAD)      |                                |
| Mean Abs. % Err. (MAPE)   |                                |
| Durbin-Watson Statistic   |                                |
| Durbin-H Statistic        |                                |
| Ljung-Box Statistic       |                                |
| Prob (Ljung-Box)          |                                |
| Skewness                  |                                |
| Kurtosis                  |                                |
| Jarque-Bera               |                                |
| Prob (Jarque-Bera)        |                                |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 516 of 1182

| Kentucky Power Company          |       |                   |                 |                 |                 |                 |                 |                 |       |
|---------------------------------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|
| Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |                 |       |
| Year                            | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             |       |
| 1995                            | 1     |                   | 479,347,598.049 | 581,384,513.707 | 0.000           | 629,722,698.028 | 111,840,473.441 | 0.000           | 0.000 |
| 1995                            | 2     | 1,593,844,674.559 | 479,347,598.049 | 781,878,195.847 | 0.000           | 551,989,797.221 | 0.000           | -91,154,618.904 | 0.000 |
| 1995                            | 3     | 1,249,877,029.626 | 479,347,598.049 | 534,573,786.546 | 0.000           | 532,946,332.697 | 0.000           | 0.000           | 0.000 |
| 1995                            | 4     | 958,711,081.314   | 479,347,598.049 | 196,611,570.739 | 6,509,234.001   | 526,185,324.279 | 0.000           | 0.000           | 0.000 |
| 1995                            | 5     | 887,198,837.076   | 479,347,598.049 | 70,375,056.108  | 26,410,426.774  | 507,773,228.581 | 0.000           | 0.000           | 0.000 |
| 1995                            | 6     | 970,269,061.362   | 479,347,598.049 | 4,503,998.789   | 118,872,673.888 | 514,911,039.510 | 0.000           | 0.000           | 0.000 |
| 1995                            | 7     | 1,180,760,926.904 | 479,347,598.049 | 0.000           | 282,613,264.502 | 487,659,139.481 | 0.000           | 0.000           | 0.000 |
| 1995                            | 8     | 1,425,582,913.345 | 479,347,598.049 | 0.000           | 440,781,274.113 | 464,711,120.205 | 0.000           | 0.000           | 0.000 |
| 1995                            | 9     | 923,564,374.503   | 479,347,598.049 | 560,397.967     | 346,553,002.280 | 495,534,950.767 | 0.000           | 0.000           | 0.000 |
| 1995                            | 10    | 910,591,004.440   | 479,347,598.049 | 14,860,922.927  | 64,016,988.870  | 502,993,914.233 | 0.000           | 0.000           | 0.000 |
| 1995                            | 11    | 1,368,248,291.848 | 479,347,598.049 | 224,588,745.966 | 5,948,057.324   | 521,849,626.809 | 0.000           | 0.000           | 0.000 |
| 1995                            | 12    | 1,714,282,417.669 | 479,347,598.049 | 552,952,945.911 | 405,447.638     | 604,312,634.462 | 0.000           | 0.000           | 0.000 |
| 1996                            | 1     | 2,061,696,112.467 | 479,347,598.049 | 896,016,570.621 | 0.000           | 631,501,374.636 | 111,840,473.441 | 0.000           | 0.000 |
| 1996                            | 2     | 1,931,909,035.624 | 479,347,598.049 | 893,159,221.728 | 0.000           | 554,991,698.722 | 0.000           | -91,154,618.904 | 0.000 |
| 1996                            | 3     | 1,550,545,211.177 | 479,347,598.049 | 612,907,873.957 | 0.000           | 533,513,567.819 | 0.000           | 0.000           | 0.000 |
| 1996                            | 4     | 1,302,724,545.908 | 479,347,598.049 | 423,486,888.455 | 7,867,310.893   | 528,951,327.704 | 0.000           | 0.000           | 0.000 |
| 1996                            | 5     | 993,364,969.354   | 479,347,598.049 | 92,457,636.699  | 78,528,904.962  | 509,187,872.497 | 0.000           | 0.000           | 0.000 |
| 1996                            | 6     | 1,019,255,076.897 | 479,347,598.049 | 12,715,914.858  | 169,029,361.402 | 516,297,742.435 | 0.000           | 0.000           | 0.000 |
| 1996                            | 7     | 1,206,256,954.764 | 479,347,598.049 | 0.000           | 323,966,841.959 | 487,884,367.625 | 0.000           | 0.000           | 0.000 |
| 1996                            | 8     | 1,164,230,369.880 | 479,347,598.049 | 0.000           | 297,708,746.810 | 465,311,712.409 | 0.000           | 0.000           | 0.000 |
| 1996                            | 9     | 1,105,034,000.458 | 479,347,598.049 | 0.000           | 257,676,772.071 | 496,971,627.027 | 0.000           | 0.000           | 0.000 |
| 1996                            | 10    | 852,837,927.585   | 479,347,598.049 | 28,230,659.274  | 47,222,806.076  | 506,825,814.315 | 0.000           | 0.000           | 0.000 |
| 1996                            | 11    | 1,075,741,585.442 | 479,347,598.049 | 230,208,956.710 | 6,693,611.949   | 524,768,833.699 | 0.000           | 0.000           | 0.000 |
| 1996                            | 12    | 1,676,204,859.562 | 479,347,598.049 | 580,280,310.339 | 1,599,192.821   | 607,093,447.539 | 0.000           | 0.000           | 0.000 |
| 1997                            | 1     | 1,866,616,676.490 | 479,347,598.049 | 651,180,153.638 | 853,602.966     | 638,043,911.908 | 111,840,473.441 | 0.000           | 0.000 |
| 1997                            | 2     | 1,735,263,575.380 | 479,347,598.049 | 789,988,988.562 | 707,595.164     | 560,702,567.558 | 0.000           | -91,154,618.904 | 0.000 |
| 1997                            | 3     | 1,296,235,950.223 | 479,347,598.049 | 434,442,048.193 | 3,011,486.327   | 540,657,926.380 | 0.000           | 0.000           | 0.000 |
| 1997                            | 4     | 1,130,294,810.927 | 479,347,598.049 | 277,307,947.739 | 6,879,224.208   | 535,363,088.057 | 0.000           | 0.000           | 0.000 |
| 1997                            | 5     | 949,129,998.162   | 479,347,598.049 | 127,470,170.665 | 7,910,884.908   | 516,089,534.544 | 0.000           | 0.000           | 0.000 |
| 1997                            | 6     | 942,002,032.835   | 479,347,598.049 | 19,240,957.272  | 58,309,825.729  | 522,437,991.154 | 0.000           | 0.000           | 0.000 |
| 1997                            | 7     | 1,167,551,956.384 | 479,347,598.049 | 0.000           | 274,845,470.481 | 494,551,133.383 | 0.000           | 0.000           | 0.000 |
| 1997                            | 8     | 1,224,031,567.088 | 479,347,598.049 | 0.000           | 338,400,065.982 | 471,464,078.506 | 0.000           | 0.000           | 0.000 |
| 1997                            | 9     | 1,049,943,376.904 | 479,347,598.049 | 0.000           | 183,401,970.842 | 503,760,951.813 | 0.000           | 0.000           | 0.000 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| 1997 | 10    | 867,554,308.031   | 479,347,598.049 | 20,470,153.893    | 57,629,491.782  | 513,791,081.281 | 0.000           | 0.000           |
| 1997 | 11    | 1,109,584,038.665 | 479,347,598.049 | 279,067,246.665   | 16,355,772.392  | 514,311,105.920 | 0.000           | 0.000           |
| 1997 | 12    | 1,661,648,933.570 | 479,347,598.049 | 558,983,812.371   | 0.000           | 624,475,413.787 | 0.000           | 0.000           |
| 1998 | 1     | 1,890,200,211.531 | 479,347,598.049 | 607,088,620.014   | 0.000           | 647,990,151.561 | 111,840,473.441 | 0.000           |
| 1998 | 2     | 1,581,491,782.958 | 479,347,598.049 | 641,553,915.135   | 0.000           | 567,317,619.158 | 0.000           | -91,154,618.904 |
| 1998 | 3     | 1,378,265,325.870 | 479,347,598.049 | 513,828,877.790   | 38,293.382      | 546,951,298.722 | 0.000           | 0.000           |
| 1998 | 4     | 1,200,138,855.497 | 479,347,598.049 | 299,941,181.630   | 48,568,416.660  | 541,063,810.041 | 0.000           | 0.000           |
| 1998 | 5     | 844,298,691.983   | 479,347,598.049 | 44,807,913.708    | 27,166,116.731  | 522,184,488.816 | 0.000           | 0.000           |
| 1998 | 6     | 1,033,852,520.772 | 479,347,598.049 | 992,931.073       | 156,014,694.767 | 528,439,206.343 | 0.000           | 0.000           |
| 1998 | 7     | 1,242,531,980.068 | 479,347,598.049 | 432,280.364       | 334,620,329.610 | 498,993,697.028 | 0.000           | 0.000           |
| 1998 | 8     | 1,240,836,912.428 | 479,347,598.049 | 0.000             | 346,497,666.426 | 477,269,341.080 | 0.000           | 0.000           |
| 1998 | 9     | 1,223,008,605.471 | 479,347,598.049 | 0.000             | 336,772,973.624 | 511,602,414.454 | 0.000           | 0.000           |
| 1998 | 10    | 1,010,537,861.968 | 479,347,598.049 | 8,337,669.136     | 205,435,351.907 | 519,575,586.708 | 0.000           | 0.000           |
| 1998 | 11    | 1,020,336,096.870 | 479,347,598.049 | 169,793,577.221   | 15,251,020.576  | 539,619,778.332 | 0.000           | 0.000           |
| 1998 | 12    | 1,449,116,848.857 | 479,347,598.049 | 321,986,798.397   | 3,209,574.122   | 618,270,397.954 | 0.000           | 0.000           |
| 1999 | 1     | 2,114,290,475.862 | 479,347,598.049 | 845,458,217.492   | 1,418,888.265   | 657,318,951.473 | 111,840,473.441 | 0.000           |
| 1999 | 2     | 1,501,333,498.963 | 479,347,598.049 | 588,656,665.095   | 0.000           | 575,530,021.063 | 0.000           | -91,154,618.904 |
| 1999 | 3     | 1,554,672,079.288 | 479,347,598.049 | 703,935,560.625   | 0.000           | 555,351,767.063 | 0.000           | 0.000           |
| 1999 | 4     | 1,219,144,541.058 | 479,347,598.049 | 364,166,209.082   | 11,358,879.981  | 549,325,781.847 | 0.000           | 0.000           |
| 1999 | 5     | 875,611,083.318   | 479,347,598.049 | 43,749,809.317    | 38,364,569.339  | 528,367,573.071 | 0.000           | 0.000           |
| 1999 | 6     | 1,022,013,924.816 | 479,347,598.049 | 0.000             | 178,524,170.461 | 534,641,979.143 | 0.000           | 0.000           |
| 1999 | 7     | 1,303,566,296.507 | 479,347,598.049 | 0.000             | 416,539,268.500 | 506,305,155.952 | 0.000           | 0.000           |
| 1999 | 8     | 1,385,067,607.247 | 479,347,598.049 | 0.000             | 517,687,702.535 | 483,626,674.499 | 0.000           | 0.000           |
| 1999 | 9     | 1,134,407,142.638 | 479,347,598.049 | 178,413.222       | 263,312,218.440 | 517,040,327.586 | 0.000           | 0.000           |
| 1999 | 10    | 865,564,564.588   | 479,347,598.049 | 19,832,849.247    | 54,699,607.005  | 526,585,164.340 | 0.000           | 0.000           |
| 1999 | 11    | 1,024,156,952.266 | 479,347,598.049 | 164,180,506.082   | 3,042,436.202   | 541,495,162.053 | 0.000           | 0.000           |
| 1999 | 12    | 1,539,695,759.556 | 479,347,598.049 | 409,424,198.897   | 0.000           | 632,115,477.394 | 0.000           | 0.000           |
| 2000 | 1     | 2,007,347,643.838 | 479,347,598.049 | 760,139,113.566   | 0.000           | 666,058,488.037 | 111,840,473.441 | 0.000           |
| 2000 | 2     | 1,933,695,999.275 | 479,347,598.049 | 1,009,910,006.808 | 0.000           | 584,497,214.053 | 0.000           | -91,154,618.904 |
| 2000 | 3     | 1,264,650,410.503 | 479,347,598.049 | 391,017,856.570   | 2,507,714.709   | 562,564,834.644 | 0.000           | 0.000           |
| 2000 | 4     | 1,103,328,861.061 | 479,347,598.049 | 215,774,900.986   | 5,822,344.902   | 557,099,580.148 | 0.000           | 0.000           |
| 2000 | 5     | 944,928,333.825   | 479,347,598.049 | 80,481,399.704    | 63,518,782.711  | 536,836,599.231 | 0.000           | 0.000           |
| 2000 | 6     | 1,057,998,553.894 | 479,347,598.049 | 182,628.306       | 176,608,166.752 | 540,876,265.527 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 518 of 1182

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| 2000 | 7     | 1,253,531,675.090 | 479,347,598.049 | 0.000             | 324,708,731.477 | 514,044,950.900 | 0.000           | 0.000           |
| 2000 | 8     | 1,180,611,890.533 | 479,347,598.049 | 0.000             | 285,938,672.103 | 491,759,981.287 | 0.000           | 0.000           |
| 2000 | 9     | 1,144,042,467.190 | 479,347,598.049 | 933,078.276       | 249,572,979.100 | 528,260,792.526 | 0.000           | 0.000           |
| 2000 | 10    | 954,479,360.485   | 479,347,598.049 | 51,759,004.962    | 86,613,322.299  | 540,395,732.245 | 0.000           | 0.000           |
| 2000 | 11    | 1,062,825,893.266 | 479,347,598.049 | 176,911,547.524   | 11,992,502.715  | 557,098,005.789 | 0.000           | 0.000           |
| 2000 | 12    | 1,894,210,509.872 | 479,347,598.049 | 781,332,855.791   | 0.000           | 641,250,503.529 | 0.000           | 0.000           |
| 2001 | 1     | 2,423,641,570.601 | 479,347,598.049 | 1,180,516,733.529 | 0.000           | 682,611,075.686 | 111,840,473.441 | 0.000           |
| 2001 | 2     | 1,905,114,488.910 | 479,347,598.049 | 921,946,906.911   | 0.000           | 601,269,735.917 | 0.000           | -91,154,618.904 |
| 2001 | 3     | 1,508,549,452.554 | 479,347,598.049 | 640,825,667.422   | 0.000           | 577,783,187.726 | 0.000           | 0.000           |
| 2001 | 4     | 1,351,722,616.934 | 479,347,598.049 | 438,170,674.042   | 48,248,978.260  | 570,742,720.722 | 0.000           | 0.000           |
| 2001 | 5     | 974,629,791.814   | 479,347,598.049 | 67,234,804.873    | 107,669,363.788 | 550,464,963.834 | 0.000           | 0.000           |
| 2001 | 6     | 986,502,822.075   | 479,347,598.049 | 3,988,936.882     | 116,152,709.415 | 558,374,104.398 | 0.000           | 0.000           |
| 2001 | 7     | 1,216,764,318.112 | 479,347,598.049 | 0.000             | 289,932,792.653 | 528,154,311.103 | 0.000           | 0.000           |
| 2001 | 8     | 1,322,616,700.128 | 479,347,598.049 | 0.000             | 420,770,739.107 | 502,523,581.476 | 0.000           | 0.000           |
| 2001 | 9     | 1,216,359,980.066 | 479,347,598.049 | 191,711.998       | 330,063,456.669 | 541,864,127.000 | 0.000           | 0.000           |
| 2001 | 10    | 935,214,960.262   | 479,347,598.049 | 39,464,857.993    | 80,202,651.563  | 549,982,091.212 | 0.000           | 0.000           |
| 2001 | 11    | 1,098,737,639.069 | 479,347,598.049 | 189,376,380.736   | 23,612,716.181  | 566,444,619.557 | 0.000           | 0.000           |
| 2001 | 12    | 1,414,101,316.855 | 479,347,598.049 | 246,061,631.112   | 745,738.632     | 652,753,169.262 | 0.000           | 0.000           |
| 2002 | 1     | 2,148,451,811.751 | 479,347,598.049 | 845,336,646.980   | 0.000           | 693,804,367.224 | 111,840,473.441 | 0.000           |
| 2002 | 2     | 1,663,555,610.889 | 479,347,598.049 | 696,866,038.684   | 0.000           | 607,938,350.840 | 0.000           | -91,154,618.904 |
| 2002 | 3     | 1,541,566,539.480 | 479,347,598.049 | 622,395,179.361   | 1,510,130.381   | 588,456,676.236 | 0.000           | 0.000           |
| 2002 | 4     | 1,278,588,182.245 | 479,347,598.049 | 332,435,026.571   | 22,976,701.242  | 581,705,512.757 | 0.000           | 0.000           |
| 2002 | 5     | 1,009,667,370.976 | 479,347,598.049 | 88,199,847.375    | 65,329,025.381  | 560,098,289.508 | 0.000           | 0.000           |
| 2002 | 6     | 1,088,111,542.562 | 479,347,598.049 | 51,071,091.955    | 172,352,315.897 | 567,988,247.027 | 0.000           | 0.000           |
| 2002 | 7     | 1,334,580,486.215 | 479,347,598.049 | 0.000             | 394,139,761.267 | 535,250,896.061 | 0.000           | 0.000           |
| 2002 | 8     | 1,441,065,837.572 | 479,347,598.049 | 0.000             | 502,542,855.527 | 512,606,512.773 | 0.000           | 0.000           |
| 2002 | 9     | 1,355,987,685.399 | 479,347,598.049 | 0.000             | 442,080,704.720 | 547,666,685.944 | 0.000           | 0.000           |
| 2002 | 10    | 1,002,184,441.481 | 479,347,598.049 | 19,061,242.052    | 178,534,893.383 | 557,719,349.907 | 0.000           | 0.000           |
| 2002 | 11    | 1,121,113,432.660 | 479,347,598.049 | 235,079,476.131   | 17,779,946.011  | 577,794,420.306 | 0.000           | 0.000           |
| 2002 | 12    | 1,849,745,078.805 | 479,347,598.049 | 706,869,930.326   | 2,354,127.392   | 668,553,923.786 | 0.000           | 0.000           |
| 2003 | 1     | 2,147,725,223.175 | 479,347,598.049 | 858,366,616.061   | 0.000           | 706,637,709.717 | 111,840,473.441 | 0.000           |
| 2003 | 2     | 2,215,641,961.661 | 479,347,598.049 | 1,191,275,574.244 | 0.000           | 616,494,546.968 | 0.000           | -91,154,618.904 |
| 2003 | 3     | 1,687,094,051.185 | 479,347,598.049 | 803,034,253.566   | 0.000           | 594,720,725.678 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 519 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                 |                 |                 |       |       |       |
|---|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|
| Year  | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             | Jan   | Feb   | Jan   |
| 2003  | 4     | 1,117,829,847.755 | 479,347,598.049 | 211,390,899.516   | 19,813,604.881  | 587,536,158.242 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 5     | 940,541,852.099   | 479,347,598.049 | 45,765,571.480    | 49,405,033.616  | 566,750,191.635 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 6     | 956,305,953.777   | 479,347,598.049 | 0.000             | 67,041,929.221  | 571,794,823.706 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 7     | 1,225,012,983.032 | 479,347,598.049 | 0.000             | 281,477,743.603 | 539,761,340.173 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 8     | 1,254,622,685.147 | 479,347,598.049 | 0.000             | 336,632,584.316 | 510,750,452.744 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 9     | 1,239,223,724.987 | 479,347,598.049 | 0.000             | 322,877,816.971 | 557,140,233.872 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 10    | 946,717,944.958   | 479,347,598.049 | 53,121,972.713    | 46,823,624.288  | 564,469,275.556 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 11    | 1,053,650,117.097 | 479,347,598.049 | 146,679,766.773   | 11,026,709.639  | 578,899,165.131 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2003  | 12    | 1,677,854,717.278 | 479,347,598.049 | 517,372,680.724   | 1,258,322.406   | 669,382,272.394 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 1     | 2,183,385,727.555 | 479,347,598.049 | 850,510,545.452   | 1,000,384.455   | 709,635,776.941 | 111,840,473.441 | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 2     | 2,155,814,773.282 | 479,347,598.049 | 1,103,596,519.120 | 335,418.868     | 624,249,779.893 | 0.000           | -91,154,618.904 | 0.000 | 0.000 | 0.000 |
| 2004  | 3     | 1,581,767,017.205 | 479,347,598.049 | 637,754,514.167   | 3,006,666.122   | 601,257,852.947 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 4     | 1,292,207,217.423 | 479,347,598.049 | 351,408,740.746   | 16,618,891.471  | 603,957,313.295 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 5     | 1,021,712,941.554 | 479,347,598.049 | 86,153,681.349    | 91,662,952.076  | 567,573,237.766 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 6     | 1,153,236,484.091 | 479,347,598.049 | 5,994,733.812     | 252,322,863.544 | 581,555,976.262 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 7     | 1,275,557,296.588 | 479,347,598.049 | 0.000             | 322,193,878.133 | 547,098,688.952 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 8     | 1,262,213,836.006 | 479,347,598.049 | 0.000             | 319,172,584.195 | 520,184,291.472 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 9     | 1,176,757,201.826 | 479,347,598.049 | 0.000             | 279,905,059.265 | 552,043,277.320 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 10    | 927,090,174.782   | 479,347,598.049 | 14,722,507.253    | 83,213,708.245  | 573,668,556.466 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 11    | 1,012,235,102.370 | 479,347,598.049 | 93,943,905.187    | 16,474,559.105  | 583,222,380.451 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2004  | 12    | 1,601,928,847.410 | 479,347,598.049 | 434,595,004.239   | 2,400,152.973   | 683,649,290.382 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 1     | 2,066,221,753.892 | 479,347,598.049 | 746,815,057.386   | 0.000           | 709,168,067.488 | 111,840,473.441 | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 2     | 1,943,875,801.026 | 479,347,598.049 | 912,849,572.002   | 0.000           | 631,036,980.579 | 0.000           | -91,154,618.904 | 0.000 | 0.000 | 0.000 |
| 2005  | 3     | 1,733,197,665.860 | 479,347,598.049 | 772,439,774.472   | 0.000           | 612,006,798.132 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 4     | 1,312,781,317.814 | 479,347,598.049 | 356,794,566.205   | 7,536,272.513   | 609,591,148.713 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 5     | 982,795,223.909   | 479,347,598.049 | 102,308,416.117   | 27,589,574.267  | 569,061,339.174 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 6     | 1,102,780,446.900 | 479,347,598.049 | 14,117,390.561    | 162,595,867.680 | 583,061,822.173 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 7     | 1,414,155,753.292 | 479,347,598.049 | 0.000             | 461,769,627.021 | 548,436,840.656 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 8     | 1,495,655,055.855 | 479,347,598.049 | 0.000             | 589,543,039.957 | 533,613,088.354 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 9     | 1,335,846,616.708 | 479,347,598.049 | 0.000             | 443,652,773.938 | 563,665,984.093 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 10    | 1,036,517,228.387 | 479,347,598.049 | 8,743,058.669     | 203,770,704.242 | 568,570,832.143 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 11    | 1,125,216,868.230 | 479,347,598.049 | 221,553,479.095   | 12,887,222.322  | 599,488,447.143 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2005  | 12    | 1,906,910,235.477 | 479,347,598.049 | 753,816,271.538   | 1,901,963.738   | 680,755,214.325 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 520 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                 |                 |                 |       |       |
|---|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|-------|-------|
| Year  | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             | Jan   | Feb   |
| 2006  | 1     | 2,084,373,151.919 | 479,347,598.049 | 756,881,782.575   | 0.000           | 714,585,685.064 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2006  | 2     | 1,747,502,247.845 | 479,347,598.049 | 644,158,163.123   | 0.000           | 626,056,073.129 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2006  | 3     | 1,767,023,825.235 | 479,347,598.049 | 735,940,590.273   | 1,747,137.147   | 599,742,489.606 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 4     | 1,272,238,466.756 | 479,347,598.049 | 375,867,139.936   | 20,768,314.371  | 572,871,093.384 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 5     | 921,032,004.504   | 479,347,598.049 | 30,618,918.195    | 34,786,277.698  | 579,102,400.426 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 6     | 1,053,529,795.409 | 479,347,598.049 | 5,877,126.519     | 130,895,625.133 | 573,147,192.249 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 7     | 1,303,433,030.052 | 479,347,598.049 | 0.000             | 322,947,686.489 | 542,382,780.883 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 8     | 1,467,177,870.552 | 479,347,598.049 | 0.000             | 515,923,582.598 | 521,716,935.150 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 9     | 1,261,015,105.193 | 479,347,598.049 | 1,414,185.181     | 327,726,517.654 | 563,420,986.841 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 10    | 967,197,943.832   | 479,347,598.049 | 58,301,536.901    | 46,020,133.997  | 575,674,474.947 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 11    | 1,235,273,431.028 | 479,347,598.049 | 321,476,208.399   | 3,176,690.096   | 585,086,486.041 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2006  | 12    | 1,683,654,605.333 | 479,347,598.049 | 506,449,660.194   | 3,317,162.162   | 670,462,226.398 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 1     | 1,912,000,700.454 | 479,347,598.049 | 545,920,386.122   | 359,923.142     | 700,718,132.008 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2007  | 2     | 2,238,403,287.913 | 479,347,598.049 | 1,101,318,069.614 | 0.000           | 613,360,575.733 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2007  | 3     | 1,891,948,034.791 | 479,347,598.049 | 927,565,846.320   | 2,761,289.652   | 597,364,414.523 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 4     | 1,280,910,738.869 | 479,347,598.049 | 319,859,650.673   | 35,914,709.640  | 607,596,093.421 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 5     | 1,045,694,214.257 | 479,347,598.049 | 121,390,075.088   | 62,628,954.529  | 577,618,557.635 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 6     | 1,132,522,226.641 | 479,347,598.049 | 4,970,289.986     | 220,604,293.863 | 569,613,784.250 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 7     | 1,336,047,381.166 | 479,347,598.049 | 0.000             | 360,181,345.758 | 536,287,554.301 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 8     | 1,362,259,783.307 | 479,347,598.049 | 0.000             | 423,486,416.867 | 525,233,256.493 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 9     | 1,400,914,258.676 | 479,347,598.049 | 0.000             | 467,950,927.077 | 559,804,140.636 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 10    | 1,112,996,777.982 | 479,347,598.049 | 10,269,935.453    | 217,465,081.596 | 569,555,950.079 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 11    | 1,156,622,261.798 | 479,347,598.049 | 201,172,321.599   | 36,982,508.622  | 603,123,089.873 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2007  | 12    | 1,731,435,755.488 | 479,347,598.049 | 566,843,428.602   | 0.000           | 673,178,603.831 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 1     | 2,082,416,413.099 | 479,347,598.049 | 787,289,740.542   | 0.000           | 704,605,297.418 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2008  | 2     | 1,993,387,100.232 | 479,347,598.049 | 958,795,326.124   | 0.000           | 615,630,940.952 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2008  | 3     | 1,796,732,274.500 | 479,347,598.049 | 819,433,410.897   | 0.000           | 600,468,682.759 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 4     | 1,330,851,124.582 | 479,347,598.049 | 369,713,101.339   | 1,762,211.134   | 607,316,745.553 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 5     | 982,759,851.264   | 479,347,598.049 | 82,174,065.559    | 22,985,667.861  | 565,288,828.864 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 6     | 1,055,601,220.421 | 479,347,598.049 | 5,570,858.242     | 135,396,552.376 | 573,516,554.898 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 7     | 1,259,955,901.286 | 479,347,598.049 | 0.000             | 280,456,588.506 | 539,526,562.607 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 8     | 1,311,047,821.866 | 479,347,598.049 | 0.000             | 342,384,540.046 | 529,196,985.673 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2008  | 9     | 1,270,867,118.366 | 479,347,598.049 | 0.000             | 320,244,008.234 | 559,494,209.054 | 0.000           | 0.000           | 0.000 | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 521 of 1182

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| 2008 | 10    | 980,709,153.332   | 479,347,598.049 | 13,343,970.730    | 122,224,950.753 | 560,203,362.239 | 0.000           | 0.000           |
| 2008 | 11    | 1,177,692,484.028 | 479,347,598.049 | 262,332,564.071   | 7,905,444.866   | 578,888,966.313 | 0.000           | 0.000           |
| 2008 | 12    | 2,031,965,211.117 | 479,347,598.049 | 851,244,408.401   | 0.000           | 660,118,499.333 | 0.000           | 0.000           |
| 2009 | 1     | 2,248,452,416.892 | 479,347,598.049 | 935,779,435.643   | 0.000           | 699,777,097.608 | 111,840,473.441 | 0.000           |
| 2009 | 2     | 2,175,027,533.152 | 479,347,598.049 | 1,143,791,582.702 | 0.000           | 619,546,588.810 | 0.000           | -91,154,618.904 |
| 2009 | 3     | 1,722,528,056.375 | 479,347,598.049 | 739,331,664.790   | 4,938,096.999   | 583,807,433.644 | 0.000           | 0.000           |
| 2009 | 4     | 1,221,074,565.255 | 479,347,598.049 | 283,092,573.137   | 3,728,415.440   | 588,883,137.400 | 0.000           | 0.000           |
| 2009 | 5     | 1,044,566,064.295 | 479,347,598.049 | 73,304,935.541    | 71,548,226.501  | 571,351,801.380 | 0.000           | 0.000           |
| 2009 | 6     | 1,056,998,126.376 | 479,347,598.049 | 7,067,606.225     | 143,364,825.271 | 565,625,816.219 | 0.000           | 0.000           |
| 2009 | 7     | 1,212,635,111.288 | 479,347,598.049 | 0.000             | 245,442,308.158 | 533,846,620.938 | 0.000           | 0.000           |
| 2009 | 8     | 1,216,442,253.166 | 479,347,598.049 | 0.000             | 254,509,017.200 | 517,685,569.508 | 0.000           | 0.000           |
| 2009 | 9     | 1,174,926,168.410 | 479,347,598.049 | 0.000             | 245,407,554.836 | 546,064,289.541 | 0.000           | 0.000           |
| 2009 | 10    | 1,009,664,389.870 | 479,347,598.049 | 51,517,038.999    | 87,793,210.482  | 569,008,148.417 | 0.000           | 0.000           |
| 2009 | 11    | 1,117,238,561.683 | 479,347,598.049 | 205,275,802.050   | 3,613,585.843   | 580,457,525.286 | 0.000           | 0.000           |
| 2009 | 12    | 1,737,311,497.297 | 479,347,598.049 | 541,841,294.044   | 234,190.030     | 672,472,729.760 | 0.000           | 0.000           |
| 2010 | 1     | 2,395,408,382.507 | 479,347,598.049 | 1,119,123,527.148 | 0.000           | 691,682,032.091 | 111,840,473.441 | 0.000           |
| 2010 | 2     | 2,119,544,023.870 | 479,347,598.049 | 1,106,127,609.807 | 0.000           | 592,061,996.198 | 0.000           | -91,154,618.904 |
| 2010 | 3     | 1,876,805,999.466 | 479,347,598.049 | 914,170,653.647   | 0.000           | 590,265,959.009 | 0.000           | 0.000           |
| 2010 | 4     | 1,213,414,423.602 | 479,347,598.049 | 213,198,338.248   | 28,699,376.954  | 590,616,944.269 | 0.000           | 0.000           |
| 2010 | 5     | 981,825,680.161   | 479,347,598.049 | 55,316,539.561    | 45,026,914.406  | 556,928,955.243 | 0.000           | 0.000           |
| 2010 | 6     | 1,132,192,070.341 | 479,347,598.049 | 8,944,145.664     | 219,048,998.419 | 564,464,681.421 | 0.000           | 0.000           |
| 2010 | 7     | 1,373,713,669.201 | 479,347,598.049 | 0.000             | 389,532,121.989 | 533,715,606.973 | 0.000           | 0.000           |
| 2010 | 8     | 1,451,302,623.624 | 479,347,598.049 | 0.000             | 454,611,547.235 | 515,354,641.397 | 0.000           | 0.000           |
| 2010 | 9     | 1,300,747,663.039 | 479,347,598.049 | 0.000             | 323,635,248.642 | 540,383,988.072 | 0.000           | 0.000           |
| 2010 | 10    | 1,014,363,854.645 | 479,347,598.049 | 17,343,637.279    | 120,716,113.748 | 557,029,107.532 | 0.000           | 0.000           |
| 2010 | 11    | 1,094,996,384.262 | 479,347,598.049 | 184,549,890.654   | 11,621,169.384  | 562,121,488.307 | 0.000           | 0.000           |
| 2010 | 12    | 1,916,852,586.118 | 479,347,598.049 | 752,185,469.261   | 0.000           | 660,912,131.308 | 0.000           | 0.000           |
| 2011 | 1     | 2,477,210,112.752 | 479,347,598.049 | 1,211,790,498.629 | 0.000           | 678,333,818.795 | 111,840,473.441 | 0.000           |
| 2011 | 2     | 2,135,149,306.354 | 479,347,598.049 | 1,103,542,852.166 | 0.000           | 590,942,887.954 | 0.000           | -91,154,618.904 |
| 2011 | 3     | 1,477,420,306.705 | 479,347,598.049 | 577,882,313.658   | 1,857,692.870   | 585,371,565.037 | 0.000           | 0.000           |
| 2011 | 4     | 1,267,918,127.479 | 479,347,598.049 | 369,222,507.081   | 17,826,851.274  | 570,431,111.690 | 0.000           | 0.000           |
| 2011 | 5     | 957,762,246.546   | 479,347,598.049 | 71,353,526.521    | 53,409,525.217  | 577,578,613.609 | 0.000           | 0.000           |
| 2011 | 6     | 1,092,768,725.994 | 479,347,598.049 | 22,899,517.023    | 199,445,142.440 | 558,576,768.622 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 522 of 1182

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| 2011 | 7     | 1,279,282,569.869 | 479,347,598.049 | 0.000             | 312,674,002.290 | 537,297,928.239 | 0.000           | 0.000           |
| 2011 | 8     | 1,407,656,154.978 | 479,347,598.049 | 0.000             | 463,568,496.639 | 519,947,056.860 | 0.000           | 0.000           |
| 2011 | 9     | 1,214,552,003.105 | 479,347,598.049 | 255,232.931       | 277,161,134.851 | 543,462,657.323 | 0.000           | 0.000           |
| 2011 | 10    | 932,094,279.267   | 479,347,598.049 | 44,845,375.855    | 49,354,291.010  | 558,929,974.281 | 0.000           | 0.000           |
| 2011 | 11    | 1,093,748,001.461 | 479,347,598.049 | 223,796,353.947   | 1,140,105.698   | 568,792,247.597 | 0.000           | 0.000           |
| 2011 | 12    | 1,556,562,764.742 | 479,347,598.049 | 408,938,639.357   | 1,710,969.231   | 654,106,508.303 | 0.000           | 0.000           |
| 2012 | 1     | 1,990,570,890.645 | 479,347,598.049 | 715,547,142.686   | 0.000           | 680,798,717.985 | 111,840,473.441 | 0.000           |
| 2012 | 2     | 1,723,190,556.228 | 479,347,598.049 | 747,660,487.875   | 0.000           | 613,645,835.669 | 0.000           | -91,154,618.904 |
| 2012 | 3     | 1,459,048,167.835 | 479,347,598.049 | 535,618,410.541   | 10,322,266.503  | 587,895,057.383 | 0.000           | 0.000           |
| 2012 | 4     | 1,025,120,359.800 | 479,347,598.049 | 112,920,392.952   | 43,081,480.239  | 587,873,100.959 | 0.000           | 0.000           |
| 2012 | 5     | 944,199,186.012   | 479,347,598.049 | 76,794,782.773    | 62,740,799.279  | 573,243,909.605 | 0.000           | 0.000           |
| 2012 | 6     | 1,069,542,744.709 | 479,347,598.049 | 387,550.190       | 185,085,218.494 | 574,305,235.631 | 0.000           | 0.000           |
| 2012 | 7     | 1,382,971,791.682 | 479,347,598.049 | 0.000             | 413,986,844.638 | 551,703,707.349 | 0.000           | 0.000           |
| 2012 | 8     | 1,338,307,986.695 | 479,347,598.049 | 0.000             | 406,150,755.475 | 515,701,498.021 | 0.000           | 0.000           |
| 2012 | 9     | 1,207,907,080.098 | 479,347,598.049 | 922,674.487       | 285,308,938.386 | 556,662,751.796 | 0.000           | 0.000           |
| 2012 | 10    | 954,546,668.546   | 479,347,598.049 | 60,933,071.877    | 68,317,975.509  | 555,631,201.275 | 0.000           | 0.000           |
| 2012 | 11    | 1,196,785,696.710 | 479,347,598.049 | 318,072,989.903   | 8,809,617.489   | 576,927,876.901 | 0.000           | 0.000           |
| 2012 | 12    | 1,642,071,804.199 | 479,347,598.049 | 519,723,613.933   | 0.000           | 655,422,640.628 | 0.000           | 0.000           |
| 2013 | 1     | 2,085,049,426.846 | 479,347,598.049 | 813,741,395.731   | 0.000           | 678,604,193.274 | 111,840,473.441 | 0.000           |
| 2013 | 2     | 1,870,800,892.626 | 479,347,598.049 | 941,088,426.083   | 0.000           | 589,971,016.324 | 0.000           | -91,154,618.904 |
| 2013 | 3     | 1,732,623,096.376 | 479,347,598.049 | 820,487,573.025   | 0.000           | 587,024,421.079 | 0.000           | 0.000           |
| 2013 | 4     | 1,464,108,113.384 | 479,347,598.049 | 531,373,380.942   | 20,230,697.652  | 588,478,818.128 | 0.000           | 0.000           |
| 2013 | 5     | 958,408,102.673   | 479,347,598.049 | 64,326,687.891    | 54,379,165.813  | 555,214,437.961 | 0.000           | 0.000           |
| 2013 | 6     | 1,081,392,317.202 | 479,347,598.049 | 11,254,213.933    | 199,402,514.609 | 564,149,358.674 | 0.000           | 0.000           |
| 2013 | 7     | 1,272,387,279.801 | 479,347,598.049 | 0.000             | 347,700,124.238 | 533,610,298.493 | 0.000           | 0.000           |
| 2013 | 8     | 1,239,932,658.282 | 479,347,598.049 | 0.000             | 325,683,298.891 | 516,079,854.951 | 0.000           | 0.000           |
| 2013 | 9     | 1,176,335,486.881 | 479,347,598.049 | 0.000             | 282,159,741.334 | 543,084,759.985 | 0.000           | 0.000           |
| 2013 | 10    | 940,268,575.471   | 479,347,598.049 | 15,672,848.369    | 111,282,610.479 | 556,395,163.042 | 0.000           | 0.000           |
| 2013 | 11    | 1,132,020,314.680 | 479,347,598.049 | 264,083,803.593   | 16,077,331.577  | 566,081,077.774 | 0.000           | 0.000           |
| 2013 | 12    | 1,830,429,962.648 | 479,347,598.049 | 713,255,114.125   | 477,663.100     | 651,832,591.787 | 0.000           | 0.000           |
| 2014 | 1     | 2,182,377,685.061 | 479,347,598.049 | 928,842,280.257   | 913,399.536     | 679,738,435.326 | 111,840,473.441 | 0.000           |
| 2014 | 2     | 2,263,738,749.946 | 479,347,598.049 | 1,235,581,815.087 | 0.000           | 584,293,521.252 | 0.000           | -91,154,618.904 |
| 2014 | 3     | 1,858,937,803.400 | 479,347,598.049 | 881,743,813.486   | 0.000           | 580,280,576.153 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 523 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                 |                 |       |       |                 |       |
|---|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb   | Jan   | Feb             | Jan   |
| 2014  | 4     | 1,314,384,355.234 | 479,347,598.049 | 423,355,509.658   | 7,122,469.878   | 554,755,600.019 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 5     | 919,037,760.297   | 479,347,598.049 | 52,435,888.364    | 38,752,834.396  | 570,799,752.097 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 6     | 1,043,168,162.524 | 479,347,598.049 | 14,458,841.942    | 149,467,059.039 | 555,647,063.167 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 7     | 1,261,150,940.112 | 479,347,598.049 | 0.000             | 316,158,501.380 | 524,935,599.047 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 8     | 1,148,914,165.977 | 479,347,598.049 | 0.000             | 223,749,804.996 | 514,570,052.053 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 9     | 1,148,812,476.702 | 479,347,598.049 | 0.000             | 260,518,001.191 | 540,770,544.434 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 10    | 908,609,279.074   | 479,347,598.049 | 26,295,712.901    | 66,175,514.826  | 542,351,266.804 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 11    | 1,149,530,642.743 | 479,347,598.049 | 295,010,151.180   | 6,198,285.547   | 560,059,987.620 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2014  | 12    | 1,810,595,706.728 | 479,347,598.049 | 713,893,704.331   | 18,987.338      | 642,720,632.302 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 1     | 2,081,052,102.075 | 479,347,598.049 | 873,985,955.724   | 0.000           | 667,851,641.811 | 111,840,473.441 | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 2     | 2,021,468,073.579 | 479,347,598.049 | 1,091,159,241.976 | 0.000           | 586,368,526.255 | 0.000           | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2015  | 3     | 2,071,648,304.651 | 479,347,598.049 | 1,140,802,710.741 | 0.000           | 574,724,999.302 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 4     | 1,165,256,709.433 | 479,347,598.049 | 322,071,906.647   | 5,480,622.610   | 577,595,819.972 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 5     | 896,005,620.615   | 479,347,598.049 | 78,266,817.045    | 59,179,545.740  | 542,071,040.379 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 6     | 1,052,416,802.773 | 479,347,598.049 | 2,706,174.880     | 220,084,304.873 | 555,607,681.254 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 7     | 1,228,448,319.492 | 479,347,598.049 | 0.000             | 313,013,087.704 | 533,933,310.673 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 8     | 1,202,868,558.424 | 479,347,598.049 | 0.000             | 327,038,644.488 | 495,301,734.518 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 9     | 1,127,681,780.688 | 479,347,598.049 | 0.000             | 249,367,349.576 | 529,628,576.787 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 10    | 890,477,210.812   | 479,347,598.049 | 25,851,034.107    | 78,529,651.745  | 540,705,644.729 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 11    | 969,953,151.667   | 479,347,598.049 | 149,470,124.025   | 5,430,070.913   | 544,393,895.950 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2015  | 12    | 1,413,695,379.212 | 479,347,598.049 | 366,623,442.566   | 1,120,555.099   | 627,527,070.131 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 1     | 1,765,360,171.126 | 479,347,598.049 | 595,535,418.450   | 0.000           | 656,587,807.413 | 111,840,473.441 | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 2     | 1,883,377,315.934 | 479,347,598.049 | 992,519,097.030   | 0.000           | 568,220,078.076 | 0.000           | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2016  | 3     | 1,436,270,905.203 | 479,347,598.049 | 559,097,473.221   | 1,372,952.535   | 563,796,969.287 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 4     | 1,065,422,046.665 | 479,347,598.049 | 199,701,403.589   | 10,162,733.649  | 569,032,497.315 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 5     | 880,264,091.580   | 479,347,598.049 | 66,142,556.006    | 53,458,509.978  | 532,690,920.841 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 6     | 995,188,325.755   | 479,347,598.049 | 15,423,043.020    | 180,459,925.569 | 544,818,428.973 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 7     | 1,227,241,663.471 | 479,347,598.049 | 0.000             | 336,989,855.102 | 525,787,212.807 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 8     | 1,334,209,914.136 | 479,347,598.049 | 0.000             | 451,362,465.403 | 503,199,340.085 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 9     | 1,283,480,639.447 | 479,347,598.049 | 0.000             | 415,915,485.584 | 531,009,699.902 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 10    | 978,035,634.976   | 479,347,598.049 | 2,573,637.401     | 198,212,983.473 | 536,335,331.479 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 11    | 918,607,793.768   | 479,347,598.049 | 84,473,253.449    | 47,570,489.322  | 535,547,641.897 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2016  | 12    | 1,531,674,139.561 | 479,347,598.049 | 497,292,598.742   | 1,967,946.299   | 623,508,914.592 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 524 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                 |                 |       |       |                 |       |
|---|-------|-------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat             | XCool           | XOther          | Jan             | Feb   |       |                 |       |
| 2017  | 1     | 1,833,419,582.058 | 479,347,598.049 | 660,909,403.107   | 0.000           | 650,805,871.799 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2017  | 2     | 1,436,998,623.547 | 479,347,598.049 | 550,991,520.504   | 0.000           | 575,925,661.798 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 3     | 1,263,993,182.598 | 479,347,598.049 | 431,436,224.084   | 637,289.540     | 558,507,987.578 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 4     | 1,093,268,702.754 | 479,347,598.049 | 266,920,703.192   | 15,066,743.125  | 546,223,888.027 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 5     | 843,306,322.371   | 479,347,598.049 | 36,355,145.505    | 79,481,373.877  | 529,279,429.545 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 6     | 953,722,539.361   | 479,347,598.049 | 8,777,933.144     | 149,708,456.343 | 549,126,282.910 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 7     | 1,178,927,661.372 | 479,347,598.049 | 0.000             | 301,063,799.645 | 533,767,270.929 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 8     | 1,188,273,766.784 | 479,347,598.049 | 0.000             | 321,506,551.231 | 508,714,921.063 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 9     | 1,048,654,735.103 | 479,347,598.049 | 0.000             | 191,152,247.856 | 534,429,359.092 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 10    | 902,109,724.757   | 479,347,598.049 | 4,803,694.152     | 141,005,321.572 | 537,394,755.183 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 11    | 1,005,324,862.166 | 479,347,598.049 | 194,279,905.442   | 25,608,979.435  | 547,624,776.138 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2017  | 12    | 1,558,228,822.457 | 479,347,598.049 | 525,863,706.464   | 962,550.344     | 629,525,937.155 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 1     | 2,198,737,874.495 | 479,347,598.049 | 1,029,371,751.745 | 1,958,418.468   | 644,648,312.376 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2018  | 2     | 1,770,468,414.654 | 479,347,598.049 | 828,107,547.543   | 3,284,396.289   | 570,666,591.106 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 3     | 1,340,617,476.234 | 479,347,598.049 | 459,283,163.681   | 6,579,224.246   | 552,379,220.388 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 4     | 1,260,458,780.598 | 479,347,598.049 | 442,185,797.260   | 7,595,038.326   | 567,664,097.359 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 5     | 945,064,523.361   | 479,347,598.049 | 107,528,435.901   | 81,888,033.336  | 527,690,572.338 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 6     | 1,099,769,584.654 | 479,347,598.049 | 1,457,288.328     | 276,974,944.595 | 557,516,399.309 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 7     | 1,258,956,271.096 | 479,347,598.049 | 0.000             | 371,481,978.674 | 523,942,348.283 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 8     | 1,220,353,040.157 | 479,347,598.049 | 0.000             | 339,514,070.328 | 504,464,918.603 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 9     | 1,181,302,553.648 | 479,347,598.049 | 0.000             | 342,977,444.609 | 528,149,579.468 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 10    | 994,739,923.984   | 479,347,598.049 | 27,526,607.232    | 214,487,965.310 | 525,778,273.122 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 11    | 1,091,057,493.472 | 479,347,598.049 | 265,664,176.446   | 31,261,415.359  | 546,050,868.771 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2018  | 12    | 1,634,960,904.385 | 479,347,598.049 | 616,638,207.116   | 173,707.251     | 611,378,531.747 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 1     | 1,762,671,751.303 | 479,347,598.049 | 615,734,674.576   | 0.000           | 634,819,697.935 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2019  | 2     | 1,651,042,185.488 | 479,347,598.049 | 772,094,066.731   | 0.000           | 561,122,278.517 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 3     | 1,463,863,403.768 | 479,347,598.049 | 603,429,608.463   | 891,215.533     | 543,975,313.797 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 4     | 1,107,520,684.786 | 479,347,598.049 | 303,420,637.269   | 10,424,501.664  | 536,609,300.292 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 5     | 853,744,641.167   | 479,347,598.049 | 27,160,664.186    | 65,716,917.699  | 543,525,247.180 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 6     | 989,504,319.233   | 479,347,598.049 | 419,523.309       | 183,112,855.022 | 542,380,593.833 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 7     | 1,196,496,547.505 | 479,347,598.049 | 0.000             | 319,162,595.972 | 519,330,339.695 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 8     | 1,240,371,259.196 | 479,347,598.049 | 0.000             | 371,473,133.739 | 501,007,158.442 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2019  | 9     | 1,170,222,934.405 | 479,347,598.049 | 0.000             | 310,799,439.188 | 524,158,380.290 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |       |                 |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-----------------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   | Jan   | Feb             |
| 2019  | 10    | 1,022,611.960.880 | 479,347,598.049 | 10,179,830.463  | 245,460,100.297 | 524,437,026.567 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2019  | 11    | 1,040,153,391.633 | 479,347,598.049 | 233,880,508.340 | 20,591,348.585  | 529,272,548.394 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2019  | 12    | 1,594,563,453.347 | 479,347,598.049 | 570,162,051.844 | 0.000           | 607,460,528.065 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 1     | 1,659,412,343.806 | 479,347,598.049 | 502,553,867.478 | 1,911,534.244   | 641,550,857.726 | 111,840,473.441 | 0.000 | 0.000 | 0.000           |
| 2020  | 2     | 1,503,135,118.913 | 479,347,598.049 | 623,856,217.258 | 1,922,434.954   | 555,384,635.083 | 0.000           | 0.000 | 0.000 | -91,154,618.904 |
| 2020  | 3     | 1,334,242,946.839 | 479,347,598.049 | 519,371,542.399 | 137,574.041     | 548,326,688.142 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 4     | 1,043,183,885.378 | 479,347,598.049 | 186,781,422.618 | 18,591,734.130  | 557,324,166.882 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 5     | 933,341,960.978   | 479,347,598.049 | 146,516,374.203 | 22,997,625.799  | 531,383,601.094 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 6     | 1,026,247,832.023 | 479,347,598.049 | 39,783,667.054  | 174,578,153.672 | 544,268,104.025 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 7     | 1,217,895,109.160 | 479,347,598.049 | 0.000           | 331,514,059.764 | 524,289,344.613 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 8     | 1,293,987,661.632 | 479,347,598.049 | 0.000           | 419,076,042.397 | 502,192,426.680 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 9     | 1,168,307,315.254 | 479,347,598.049 | 0.000           | 302,573,042.191 | 519,245,677.533 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 10    | 870,458,453.371   | 479,347,598.049 | 17,374,245.487  | 72,584,853.777  | 530,171,790.837 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 11    | 933,000,938.419   | 479,347,598.049 | 119,730,411.816 | 12,672,480.786  | 532,041,738.721 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2020  | 12    | 1,472,054,598.343 | 479,347,598.049 | 448,387,383.817 | 1,210,508.223   | 607,564,080.819 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 1     | 1,907,807,828.383 | 479,347,598.049 | 734,803,212.063 | 0.000           | 635,256,434.642 | 111,840,473.441 | 0.000 | 0.000 | 0.000           |
| 2021  | 2     | 1,829,959,367.783 | 479,347,598.049 | 903,100,202.863 | 0.000           | 575,750,830.691 | 0.000           | 0.000 | 0.000 | -91,154,618.904 |
| 2021  | 3     | 1,553,140,105.561 | 479,347,598.049 | 699,067,415.248 | 308,732.775     | 540,701,798.762 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 4     | 1,000,631,096.105 | 479,347,598.049 | 185,274,649.372 | 7,898,432.954   | 540,163,794.428 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 5     | 901,462,428.042   | 479,347,598.049 | 94,977,455.738  | 30,696,911.580  | 520,471,705.762 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 6     | 984,918,558.481   | 479,347,598.049 | 12,179,335.908  | 148,067,353.846 | 535,083,338.054 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 7     | 1,174,267,716.335 | 479,347,598.049 | 436,163.307     | 289,939,115.368 | 514,195,724.343 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 8     | 1,211,828,463.900 | 479,347,598.049 | 0.000           | 331,129,425.124 | 494,044,625.556 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 9     | 1,170,961,690.121 | 479,347,598.049 | 0.000           | 317,922,551.999 | 512,223,568.758 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 10    | 913,087,841.754   | 479,347,598.049 | 1,843,641.830   | 134,893,938.075 | 519,439,644.872 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 11    | 969,495,101.187   | 479,347,598.049 | 152,673,221.484 | 33,376,255.079  | 518,533,904.146 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2021  | 12    | 1,470,039,540.407 | 479,347,598.049 | 436,046,739.200 | 0.000           | 599,273,456.442 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2022  | 1     | 1,708,403,252.123 | 479,347,598.049 | 512,208,676.662 | 0.000           | 627,193,771.603 | 111,840,473.441 | 0.000 | 0.000 | 0.000           |
| 2022  | 2     | 1,708,242,990.709 | 479,347,598.049 | 819,536,348.080 | 198,142.156     | 553,605,541.650 | 0.000           | 0.000 | 0.000 | -91,154,618.904 |
| 2022  | 3     | 1,441,506,471.197 | 479,347,598.049 | 603,716,627.568 | 1,240,694.385   | 539,803,553.144 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2022  | 4     | 1,106,824,884.513 | 479,347,598.049 | 283,051,983.702 | 13,438,868.721  | 533,793,453.591 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2022  | 5     | 869,879,412.069   | 479,347,598.049 | 67,748,647.884  | 45,248,449.382  | 518,765,344.948 | 0.000           | 0.000 | 0.000 | 0.000           |
| 2022  | 6     | 966,945,957.476   | 479,347,598.049 | 9,114,821.385   | 141,723,716.073 | 532,106,548.886 | 0.000           | 0.000 | 0.000 | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 526 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |                 |       |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             | Jan   | Feb   |
| 2022  | 7     | 1,174,366,702.157 | 479,347,598.049 | 31,016.198      | 288,921,240.119 | 510,179,908.589 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2022  | 8     | 1,196,132,602.248 | 479,347,598.049 | 0.000           | 326,049,260.273 | 486,341,391.044 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2022  | 9     | 1,108,574,756.710 | 479,347,598.049 | 131,309.993     | 261,622,455.868 | 509,781,552.420 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2022  | 10    | 871,273,668.611   | 479,347,598.049 | 21,727,908.653  | 93,728,395.868  | 511,716,550.808 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2022  | 11    | 983,632,396.188   | 479,347,598.049 | 181,847,556.412 | 12,452,940.382  | 518,055,632.462 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2022  | 12    | 1,539,345,724.318 | 479,347,598.049 | 490,857,675.466 | 908,796.560     | 600,436,168.287 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 1     | 1,892,716,009.249 | 479,347,598.049 | 710,325,648.995 | 247,101.260     | 623,146,243.440 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2023  | 2     | 1,710,129,585.780 | 479,347,598.049 | 803,040,747.766 | 193,383.217     | 550,886,599.566 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2023  | 3     | 1,440,020,320.136 | 479,347,598.049 | 593,327,846.768 | 1,214,522.274   | 537,861,097.013 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 4     | 1,106,931,321.184 | 479,347,598.049 | 279,012,939.370 | 13,194,741.769  | 532,583,477.060 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 5     | 870,743,835.860   | 479,347,598.049 | 66,966,324.169  | 44,548,990.873  | 518,227,308.268 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 6     | 966,465,058.073   | 479,347,598.049 | 9,030,425.673   | 139,858,919.453 | 532,089,221.597 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 7     | 1,172,221,994.930 | 479,347,598.049 | 30,784.266      | 285,638,153.669 | 510,553,304.169 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 8     | 1,194,006,867.193 | 479,347,598.049 | 0.000           | 322,834,363.681 | 487,036,404.151 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 9     | 1,107,269,008.918 | 479,347,598.049 | 130,616.830     | 259,222,767.618 | 510,673,167.454 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 10    | 871,347,086.406   | 479,347,598.049 | 21,617,445.158  | 92,889,723.406  | 512,634,533.430 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 11    | 983,481,424.389   | 479,347,598.049 | 180,890,237.501 | 12,339,438.650  | 518,921,618.645 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2023  | 12    | 1,537,443,352.772 | 479,347,598.049 | 488,060,396.630 | 900,116.613     | 601,312,011.860 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 1     | 1,889,026,613.141 | 479,347,598.049 | 706,115,598.939 | 245,460.516     | 623,654,247.883 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2024  | 2     | 1,704,912,032.905 | 479,347,598.049 | 797,601,985.730 | 191,936.932     | 551,101,894.368 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2024  | 3     | 1,435,524,637.276 | 479,347,598.049 | 588,829,732.236 | 1,204,432.643   | 537,869,826.984 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 4     | 1,104,353,554.031 | 479,347,598.049 | 276,700,351.211 | 13,075,034.841  | 532,436,052.149 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 5     | 869,344,925.499   | 479,347,598.049 | 66,356,640.928  | 44,107,727.501  | 517,878,338.645 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 6     | 964,347,277.202   | 479,347,598.049 | 8,941,940.908   | 138,374,015.659 | 531,544,311.178 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 7     | 1,168,379,877.972 | 479,347,598.049 | 30,466.385      | 282,448,120.512 | 509,901,271.381 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 8     | 1,189,634,367.014 | 479,347,598.049 | 0.000           | 319,135,407.737 | 486,362,722.457 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 9     | 1,103,589,790.685 | 479,347,598.049 | 129,232.515     | 256,228,443.104 | 509,989,587.248 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 10    | 869,376,129.897   | 479,347,598.049 | 21,389,536.958  | 91,818,343.182  | 511,962,828.875 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 11    | 980,861,293.131   | 479,347,598.049 | 179,022,812.168 | 12,199,132.138  | 518,309,200.447 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2024  | 12    | 1,531,899,601.712 | 479,347,598.049 | 483,152,333.396 | 890,085.368     | 600,686,345.603 | 0.000           | 0.000           | 0.000 | 0.000 |
| 2025  | 1     | 1,880,307,424.345 | 479,347,598.049 | 698,039,965.817 | 242,628.192     | 623,013,519.550 | 111,840,473.441 | 0.000           | 0.000 | 0.000 |
| 2025  | 2     | 1,695,429,849.344 | 479,347,598.049 | 788,639,408.566 | 189,762.595     | 550,584,459.742 | 0.000           | -91,154,618.904 | 0.000 | 0.000 |
| 2025  | 3     | 1,428,620,575.370 | 479,347,598.049 | 582,371,120.812 | 1,191,113.674   | 537,437,694.148 | 0.000           | 0.000           | 0.000 | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 527 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   | Jan   | Feb             | Jan   |
| 2025  | 4     | 1,100,775,766.501 | 479,347,598.049 | 273,680,835.468 | 12,932,130.602  | 532,020,683.920 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 5     | 867,849,998.333   | 479,347,598.049 | 65,652,643.450  | 43,638,979.952  | 517,556,156.157 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 6     | 962,454,857.843   | 479,347,598.049 | 8,847,419.895   | 136,916,179.863 | 531,204,248.447 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 7     | 1,165,082,829.437 | 479,347,598.049 | 30,142.948      | 279,475,253.237 | 509,577,413.464 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 8     | 1,185,979,582.161 | 479,347,598.049 | 0.000           | 315,792,303.169 | 486,051,042.124 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 9     | 1,100,549,577.331 | 479,347,598.049 | 127,866.132     | 253,546,085.286 | 509,633,098.071 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 10    | 867,797,799.770   | 479,347,598.049 | 21,164,475.713  | 90,860,164.348  | 511,567,738.816 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 11    | 978,393,093.681   | 479,347,598.049 | 177,133,899.308 | 12,071,368.647  | 517,857,677.342 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2025  | 12    | 1,526,202,865.690 | 479,347,598.049 | 478,047,211.271 | 880,724.607     | 600,104,092.466 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 1     | 1,874,014,071.387 | 479,347,598.049 | 690,882,338.139 | 240,315.094     | 623,880,107.365 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2026  | 2     | 1,688,216,763.090 | 479,347,598.049 | 780,600,731.894 | 187,953.462     | 551,411,859.292 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 3     | 1,423,526,909.768 | 479,347,598.049 | 576,438,359.715 | 1,179,713.258   | 538,288,190.059 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 4     | 1,098,816,403.083 | 479,347,598.049 | 270,911,011.134 | 12,808,343.006  | 532,954,932.432 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 5     | 867,703,818.635   | 479,347,598.049 | 64,987,770.845  | 43,219,197.904  | 518,494,631.111 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 6     | 962,139,472.653   | 479,347,598.049 | 8,760,064.872   | 135,620,213.475 | 532,272,184.670 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 7     | 1,163,658,274.030 | 479,347,598.049 | 29,852.818      | 276,876,041.117 | 510,752,360.308 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 8     | 1,184,202,324.290 | 479,347,598.049 | 0.000           | 312,865,227.656 | 487,200,859.766 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 9     | 1,099,402,550.613 | 479,347,598.049 | 126,646.884     | 251,208,326.190 | 510,825,049.695 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 10    | 867,915,879.144   | 479,347,598.049 | 20,964,076.295  | 90,029,065.938  | 512,717,316.016 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 11    | 977,819,568.815   | 479,347,598.049 | 175,494,513.655 | 11,963,075.535  | 519,031,831.241 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2026  | 12    | 1,523,164,637.214 | 479,347,598.049 | 473,696,813.096 | 872,940.482     | 601,424,046.289 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 1     | 1,868,943,848.556 | 479,347,598.049 | 684,395,479.046 | 238,342.101     | 625,298,716.621 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2027  | 2     | 1,682,315,364.570 | 479,347,598.049 | 773,384,712.891 | 186,438.621     | 552,727,994.616 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 3     | 1,419,663,511.467 | 479,347,598.049 | 571,220,994.874 | 1,170,416.790   | 539,651,453.066 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 4     | 1,097,758,354.616 | 479,347,598.049 | 268,505,455.986 | 12,709,625.450  | 534,401,156.669 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 5     | 868,254,869.211   | 479,347,598.049 | 64,418,128.459  | 42,891,557.332  | 519,942,964.645 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 6     | 962,531,063.426   | 479,347,598.049 | 8,683,523.839   | 134,600,283.084 | 533,760,246.866 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 7     | 1,163,057,265.945 | 479,347,598.049 | 29,591.674      | 274,798,767.871 | 512,228,886.614 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 8     | 1,183,277,804.677 | 479,347,598.049 | 0.000           | 310,524,200.033 | 488,617,367.776 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 9     | 1,099,012,147.627 | 479,347,598.049 | 125,547.858     | 249,341,496.056 | 512,302,575.870 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 10    | 868,478,277.703   | 479,347,598.049 | 20,781,981.526  | 89,358,172.544  | 514,132,702.739 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 11    | 977,523,907.426   | 479,347,598.049 | 173,950,326.999 | 11,872,890.245  | 520,370,541.797 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2027  | 12    | 1,520,323,079.423 | 479,347,598.049 | 469,458,018.339 | 866,263.449     | 602,827,960.288 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 528 of 1182

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 2028 | 1     | 1,864,690,453.557 | 479,347,598.049 | 678,502,241.262 | 236,730.582     | 626,940,170.925 | 111,840,473.441 | 0.000           |
| 2028 | 2     | 1,677,072,388.410 | 479,347,598.049 | 766,695,124.746 | 185,171.106     | 554,175,874.115 | 0.000           | -91,154,618.904 |
| 2028 | 3     | 1,416,136,589.479 | 479,347,598.049 | 566,275,463.848 | 1,162,442.111   | 541,078,036.785 | 0.000           | 0.000           |
| 2028 | 4     | 1,096,773,828.628 | 479,347,598.049 | 266,169,363.584 | 12,622,349.371  | 535,839,999.162 | 0.000           | 0.000           |
| 2028 | 5     | 868,826,564.924   | 479,347,598.049 | 63,860,225.146  | 42,597,984.443  | 521,366,136.559 | 0.000           | 0.000           |
| 2028 | 6     | 962,982,444.791   | 479,347,598.049 | 8,608,124.695   | 133,675,559.138 | 535,211,751.319 | 0.000           | 0.000           |
| 2028 | 7     | 1,162,598,515.554 | 479,347,598.049 | 29,333.452      | 272,899,394.641 | 513,669,767.674 | 0.000           | 0.000           |
| 2028 | 8     | 1,182,487,000.559 | 479,347,598.049 | 0.000           | 308,359,960.430 | 489,990,803.260 | 0.000           | 0.000           |
| 2028 | 9     | 1,098,651,682.434 | 479,347,598.049 | 124,434.571     | 247,588,616.808 | 513,696,103.212 | 0.000           | 0.000           |
| 2028 | 10    | 868,989,635.421   | 479,347,598.049 | 20,596,747.161  | 88,726,218.830  | 515,461,248.535 | 0.000           | 0.000           |
| 2028 | 11    | 977,170,386.728   | 479,347,598.049 | 172,393,925.724 | 11,788,473.008  | 521,657,839.611 | 0.000           | 0.000           |
| 2028 | 12    | 1,517,485,163.937 | 479,347,598.049 | 465,234,872.695 | 860,064.774     | 604,219,389.121 | 0.000           | 0.000           |
| 2029 | 1     | 1,861,022,046.768 | 479,347,598.049 | 673,042,010.936 | 235,351.451     | 628,733,373.593 | 111,840,473.441 | 0.000           |
| 2029 | 2     | 1,672,366,427.831 | 479,347,598.049 | 760,428,237.784 | 184,072.759     | 555,737,898.845 | 0.000           | -91,154,618.904 |
| 2029 | 3     | 1,412,908,857.990 | 479,347,598.049 | 561,560,106.679 | 1,155,399.249   | 542,572,705.326 | 0.000           | 0.000           |
| 2029 | 4     | 1,095,949,406.752 | 479,347,598.049 | 263,925,275.872 | 12,544,888.911  | 537,337,125.458 | 0.000           | 0.000           |
| 2029 | 5     | 869,442,490.560   | 479,347,598.049 | 63,313,439.300  | 42,332,093.964  | 522,794,738.521 | 0.000           | 0.000           |
| 2029 | 6     | 963,491,601.502   | 479,347,598.049 | 8,533,449.896   | 132,828,010.899 | 536,643,131.071 | 0.000           | 0.000           |
| 2029 | 7     | 1,162,272,764.606 | 479,347,598.049 | 29,076.817      | 271,150,991.160 | 515,092,676.841 | 0.000           | 0.000           |
| 2029 | 8     | 1,181,853,035.131 | 479,347,598.049 | 0.000           | 306,363,829.214 | 491,352,969.050 | 0.000           | 0.000           |
| 2029 | 9     | 1,098,417,707.075 | 479,347,598.049 | 123,329.542     | 245,969,843.200 | 515,082,006.490 | 0.000           | 0.000           |
| 2029 | 10    | 869,508,705.185   | 479,347,598.049 | 20,411,032.452  | 88,135,731.151  | 516,756,520.688 | 0.000           | 0.000           |
| 2029 | 11    | 976,751,516.297   | 479,347,598.049 | 170,822,599.852 | 11,708,855.799  | 522,889,912.261 | 0.000           | 0.000           |
| 2029 | 12    | 1,514,491,973.069 | 479,347,598.049 | 460,945,674.302 | 854,172.467     | 605,521,288.953 | 0.000           | 0.000           |
| 2030 | 1     | 1,854,376,212.283 | 479,347,598.049 | 665,837,190.362 | 233,618.082     | 629,294,093.049 | 111,840,473.441 | 0.000           |
| 2030 | 2     | 1,664,652,999.793 | 479,347,598.049 | 752,215,948.942 | 182,700.678     | 556,238,131.729 | 0.000           | -91,154,618.904 |
| 2030 | 3     | 1,407,235,655.403 | 479,347,598.049 | 555,415,011.977 | 1,146,655.204   | 543,053,341.486 | 0.000           | 0.000           |
| 2030 | 4     | 1,093,494,896.142 | 479,347,598.049 | 261,026,811.510 | 12,449,364.589  | 537,876,603.533 | 0.000           | 0.000           |
| 2030 | 5     | 868,926,532.367   | 479,347,598.049 | 62,608,711.336  | 42,003,891.980  | 523,311,710.276 | 0.000           | 0.000           |
| 2030 | 6     | 962,877,172.117   | 479,347,598.049 | 8,437,339.792   | 131,782,296.426 | 537,170,526.261 | 0.000           | 0.000           |
| 2030 | 7     | 1,160,648,765.867 | 479,347,598.049 | 28,744.877      | 268,981,890.586 | 515,638,110.617 | 0.000           | 0.000           |
| 2030 | 8     | 1,179,893,140.332 | 479,347,598.049 | 0.000           | 303,894,286.910 | 491,862,616.554 | 0.000           | 0.000           |
| 2030 | 9     | 1,096,895,418.893 | 479,347,598.049 | 121,910.228     | 243,982,876.111 | 515,548,104.711 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 529 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |       |       |                 |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|-----------------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   | Jan   | Feb   | Jan             |
| 2030  | 10    | 868,979,725.817   | 479,347,598.049 | 20,178,408.313  | 87,430,448.503  | 517,165,448.107 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2030  | 11    | 975,064,888.135   | 479,347,598.049 | 168,883,836.666 | 11,615,736.182  | 523,235,166.903 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2030  | 12    | 1,509,598,906.854 | 479,347,598.049 | 455,749,504.717 | 847,430.026     | 605,831,134.764 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 1     | 1,849,345,472.049 | 479,347,598.049 | 659,407,454.509 | 232,224.168     | 630,694,482.583 | 111,840,473.441 | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 2     | 1,658,695,970.403 | 479,347,598.049 | 744,978,876.657 | 181,616.241     | 557,519,259.062 | 0.000           | 0.000 | 0.000 | 0.000 | -91,154,618.904 |
| 2031  | 3     | 1,403,225,884.392 | 479,347,598.049 | 550,106,351.352 | 1,139,908.308   | 544,358,977.996 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 4     | 1,092,478,710.712 | 479,347,598.049 | 258,612,736.927 | 12,379,045.638  | 539,344,811.636 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 5     | 869,707,350.265   | 479,347,598.049 | 62,048,712.063  | 41,776,419.874  | 524,879,999.554 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 6     | 963,840,681.369   | 479,347,598.049 | 8,363,987.428   | 131,093,443.959 | 538,896,240.344 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 7     | 1,161,109,559.768 | 479,347,598.049 | 28,502.512      | 267,626,436.390 | 517,454,601.079 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 8     | 1,180,222,411.792 | 479,347,598.049 | 0.000           | 302,409,155.628 | 493,677,019.297 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 9     | 1,097,637,711.646 | 479,347,598.049 | 120,923.521     | 242,809,648.683 | 517,464,611.599 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 10    | 870,315,116.977   | 479,347,598.049 | 20,017,798.421  | 87,018,415.311  | 519,073,482.351 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 11    | 975,612,280.514   | 479,347,598.049 | 167,561,169.273 | 11,561,856.938  | 525,159,105.919 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2031  | 12    | 1,508,233,472.328 | 479,347,598.049 | 452,207,659.700 | 843,518.647     | 608,011,456.634 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 1     | 1,846,845,687.093 | 479,347,598.049 | 654,439,156.667 | 231,342.250     | 633,163,877.388 | 111,840,473.441 | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 2     | 1,655,144,360.787 | 479,347,598.049 | 739,266,542.234 | 180,905.072     | 559,680,695.038 | 0.000           | 0.000 | 0.000 | 0.000 | -91,154,618.904 |
| 2032  | 3     | 1,401,022,914.598 | 479,347,598.049 | 545,816,039.681 | 1,135,312.722   | 546,450,915.459 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 4     | 1,092,449,736.469 | 479,347,598.049 | 256,559,461.840 | 12,327,651.766  | 541,420,506.352 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 5     | 871,033,462.391   | 479,347,598.049 | 61,547,900.159  | 41,598,329.993  | 526,885,013.465 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 6     | 965,209,577.331   | 479,347,598.049 | 8,294,933.531   | 130,515,287.835 | 540,912,346.328 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 7     | 1,161,830,878.502 | 479,347,598.049 | 28,262.439      | 266,411,060.738 | 519,391,535.539 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 8     | 1,180,665,983.658 | 479,347,598.049 | 0.000           | 301,015,971.238 | 495,513,775.552 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 9     | 1,098,386,365.553 | 479,347,598.049 | 119,885.733     | 241,677,488.819 | 519,346,463.158 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 10    | 871,542,757.102   | 479,347,598.049 | 19,844,686.178  | 86,608,484.144  | 520,884,165.886 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 11    | 975,859,343.948   | 479,347,598.049 | 166,101,986.231 | 11,506,878.210  | 526,920,331.122 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2032  | 12    | 1,506,046,115.793 | 479,347,598.049 | 448,158,406.131 | 839,356.231     | 609,877,516.083 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2033  | 1     | 1,843,891,871.140 | 479,347,598.049 | 649,023,869.906 | 230,486.301     | 635,626,204.145 | 111,840,473.441 | 0.000 | 0.000 | 0.000 | 0.000           |
| 2033  | 2     | 1,651,194,521.255 | 479,347,598.049 | 733,129,050.158 | 180,231.692     | 561,869,020.962 | 0.000           | 0.000 | 0.000 | 0.000 | -91,154,618.904 |
| 2033  | 3     | 1,398,630,888.660 | 479,347,598.049 | 541,273,169.424 | 1,131,066.635   | 548,606,005.865 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2033  | 4     | 1,092,424,790.238 | 479,347,598.049 | 254,415,878.661 | 12,281,211.804  | 543,585,583.263 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2033  | 5     | 872,478,519.085   | 479,347,598.049 | 61,032,068.101  | 41,440,521.836  | 529,003,710.374 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |
| 2033  | 6     | 966,821,286.905   | 479,347,598.049 | 8,225,239.991   | 130,016,464.057 | 543,092,573.219 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 530 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |                 |       |       |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             | Jan   | Feb   | Jan   |
| 2033  | 7     | 1,162,938,430.326 | 479,347,598.049 | 28,024.302      | 265,383,727.840 | 521,526,658.397 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2033  | 8     | 1,181,524,862.119 | 479,347,598.049 | 0.000           | 299,841,154.128 | 497,547,471.123 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2033  | 9     | 1,099,520,103.093 | 479,347,598.049 | 118,865.489     | 240,720,775.742 | 521,437,934.020 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2033  | 10    | 873,050,481.621   | 479,347,598.049 | 19,674,687.040  | 86,260,678.217  | 522,909,695.471 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2033  | 11    | 976,355,847.226   | 479,347,598.049 | 164,667,477.012 | 11,459,912.315  | 528,898,309.515 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2033  | 12    | 1,504,341,207.502 | 479,347,598.049 | 444,260,467.425 | 835,881.175     | 612,074,021.554 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 1     | 1,841,943,514.738 | 479,347,598.049 | 643,775,934.480 | 229,811.243     | 638,926,458.226 | 111,840,473.441 | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 2     | 1,648,167,042.444 | 479,347,598.049 | 727,171,162.743 | 179,697.160     | 564,799,964.099 | 0.000           | -91,154,618.904 | 0.000 | 0.000 | 0.000 |
| 2034  | 3     | 1,397,081,352.755 | 479,347,598.049 | 536,852,059.095 | 1,127,669.316   | 551,480,977.609 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 4     | 1,093,191,116.563 | 479,347,598.049 | 252,328,251.434 | 12,243,925.083  | 546,476,823.535 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 5     | 874,673,860.882   | 479,347,598.049 | 60,528,900.106  | 41,313,260.913  | 531,829,481.087 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 6     | 969,258,703.875   | 479,347,598.049 | 8,157,176.435   | 129,613,462.161 | 546,001,055.641 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 7     | 1,164,958,765.136 | 479,347,598.049 | 27,791.688      | 264,554,683.151 | 524,376,270.510 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 8     | 1,183,304,739.176 | 479,347,598.049 | 0.000           | 298,896,541.474 | 500,271,960.835 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 9     | 1,101,586,155.597 | 479,347,598.049 | 117,873.492     | 239,958,626.523 | 524,267,127.740 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 10    | 875,384,281.708   | 479,347,598.049 | 19,510,084.846  | 85,986,105.598  | 525,682,670.370 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 11    | 977,685,163.783   | 479,347,598.049 | 163,286,205.446 | 11,423,238.869  | 531,645,571.083 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2034  | 12    | 1,503,697,704.249 | 479,347,598.049 | 440,526,515.878 | 833,195.319     | 615,167,155.704 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 1     | 1,840,031,660.887 | 479,347,598.049 | 638,553,924.656 | 229,295.087     | 642,237,130.355 | 111,840,473.441 | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 2     | 1,645,228,142.790 | 479,347,598.049 | 721,279,575.456 | 179,295.150     | 567,753,053.742 | 0.000           | -91,154,618.904 | 0.000 | 0.000 | 0.000 |
| 2035  | 3     | 1,395,644,039.196 | 479,347,598.049 | 532,507,062.504 | 1,125,155.398   | 554,391,174.558 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 4     | 1,094,056,037.406 | 479,347,598.049 | 250,288,532.599 | 12,216,741.601  | 549,408,646.695 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 5     | 876,969,866.695   | 479,347,598.049 | 60,039,958.167  | 41,221,723.807  | 534,705,965.946 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 6     | 971,865,296.877   | 479,347,598.049 | 8,091,232.457   | 129,325,204.172 | 548,961,850.611 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 7     | 1,167,259,700.990 | 479,347,598.049 | 27,566.720      | 263,962,911.779 | 527,269,202.704 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 8     | 1,185,392,544.914 | 479,347,598.049 | 0.000           | 298,220,668.378 | 503,035,639.668 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 9     | 1,103,907,915.446 | 479,347,598.049 | 116,914.033     | 239,409,980.789 | 527,138,492.781 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 10    | 877,846,334.149   | 479,347,598.049 | 19,350,754.642  | 85,787,063.335  | 528,503,095.278 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 11    | 979,112,593.340   | 479,347,598.049 | 161,946,739.633 | 11,396,365.120  | 534,439,340.203 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2035  | 12    | 1,503,216,530.192 | 479,347,598.049 | 436,896,976.088 | 831,204.565     | 618,317,512.192 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |
| 2036  | 1     | 1,838,715,827.804 | 479,347,598.049 | 633,800,872.095 | 229,090.421     | 645,674,554.500 | 111,840,473.441 | 0.000           | 0.000 | 0.000 | 0.000 |
| 2036  | 2     | 1,642,882,447.002 | 479,347,598.049 | 715,889,408.977 | 179,129.701     | 570,797,689.882 | 0.000           | -91,154,618.904 | 0.000 | 0.000 | 0.000 |
| 2036  | 3     | 1,394,633,131.747 | 479,347,598.049 | 528,513,725.674 | 1,124,086.996   | 557,374,672.341 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 531 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   | Jan   | Feb             | Jan   |
| 2036  | 4     | 1,095,144,538.936 | 479,347,598.049 | 248,404,566.933 | 12,204,794.803  | 552,393,060.690 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 5     | 879,386,317.901   | 479,347,598.049 | 59,586,361.597  | 41,180,258.493  | 537,617,479.036 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 6     | 974,666,700.064   | 479,347,598.049 | 8,029,943.398   | 129,192,534.011 | 551,957,213.017 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 7     | 1,169,894,453.988 | 479,347,598.049 | 27,357,228      | 263,685,585.382 | 530,181,491.590 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 8     | 1,187,861,386.214 | 479,347,598.049 | 0.000           | 297,902,638.649 | 505,822,510.698 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 9     | 1,106,550,018.371 | 479,347,598.049 | 116,021.791     | 239,150,741.295 | 530,040,727.442 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 10    | 880,469,084.798   | 479,347,598.049 | 19,202,864.908  | 85,693,224.021  | 531,367,574.974 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 11    | 980,716,181.747   | 479,347,598.049 | 160,707,001.932 | 11,383,753.649  | 537,295,277.781 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2036  | 12    | 1,503,111,267.722 | 479,347,598.049 | 433,547,931.374 | 830,276.027     | 621,562,222.974 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 1     | 1,837,628,652.484 | 479,347,598.049 | 629,119,494.270 | 229,106.486     | 649,268,740.941 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2037  | 2     | 1,640,801,448.082 | 479,347,598.049 | 710,604,244.966 | 179,142.816     | 574,001,841.857 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 3     | 1,393,880,408.305 | 479,347,598.049 | 524,611,119.925 | 1,124,167.121   | 560,524,474.524 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 4     | 1,096,479,786.388 | 479,347,598.049 | 246,573,381.851 | 12,205,800.462  | 555,558,487.564 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 5     | 882,056,854.152   | 479,347,598.049 | 59,147,740.361  | 41,184,055.039  | 540,722,839.977 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 6     | 977,817,320.926   | 479,347,598.049 | 7,970,842.851   | 129,204,529.523 | 555,154,938.914 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 7     | 1,173,036,531.770 | 479,347,598.049 | 27,156.013      | 263,711,315.649 | 533,298,040.321 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 8     | 1,190,870,369.485 | 479,347,598.049 | 0.000           | 297,930,309.868 | 508,803,822.749 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 9     | 1,109,688,676.450 | 479,347,598.049 | 115,167.762     | 239,172,389.881 | 533,158,590.963 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 10    | 883,423,033.686   | 479,347,598.049 | 19,061,430.238  | 85,700,488.169  | 534,455,694.385 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 11    | 982,622,563.832   | 479,347,598.049 | 159,522,277.494 | 11,384,622.630  | 540,385,515.324 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2037  | 12    | 1,503,430,557.838 | 479,347,598.049 | 430,346,267.784 | 830,327.498     | 625,083,125.209 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 1     | 1,836,706,761.861 | 479,347,598.049 | 624,473,865.390 | 229,125.285     | 652,992,460.399 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2038  | 2     | 1,638,855,150.995 | 479,347,598.049 | 705,351,310.895 | 179,155.926     | 577,308,465.732 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 3     | 1,393,248,881.090 | 479,347,598.049 | 520,731,235.935 | 1,124,244.506   | 563,772,753.913 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 4     | 1,097,908,652.243 | 479,347,598.049 | 244,749,565.920 | 12,206,614.636  | 558,810,355.176 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 5     | 884,803,882.109   | 479,347,598.049 | 58,710,042.066  | 41,186,628.007  | 543,904,993.261 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 6     | 981,042,676.523   | 479,347,598.049 | 7,911,802.291   | 129,211,676.250 | 558,432,188.344 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 7     | 1,176,225,233.585 | 479,347,598.049 | 26,954.531      | 263,722,646.962 | 536,475,612.305 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 8     | 1,193,914,885.293 | 479,347,598.049 | 0.000           | 297,939,280.259 | 511,839,368.166 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 9     | 1,112,866,192.856 | 479,347,598.049 | 114,310.658     | 239,177,233.706 | 536,332,120.649 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 10    | 886,431,972.551   | 479,347,598.049 | 18,919,481.853  | 85,701,757.871  | 537,605,311.933 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 11    | 984,589,260.956   | 479,347,598.049 | 158,333,247.108 | 11,384,698.755  | 543,541,166.708 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2038  | 12    | 1,503,823,146.405 | 479,347,598.049 | 427,134,131.737 | 830,323.578     | 628,687,853.744 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 2039 | 1     | 1,835,542,063.381 | 479,347,598.049 | 619,650,898.927 | 229,055.363     | 656,650,798.302 | 111,840,473.441 | 0.000           |
| 2039 | 2     | 1,636,664,547.356 | 479,347,598.049 | 699,904,728.039 | 179,101.578     | 580,564,499.296 | 0.000           | -91,154,618.904 |
| 2039 | 3     | 1,392,427,629.886 | 479,347,598.049 | 516,711,011.757 | 1,123,905.945   | 566,972,065.448 | 0.000           | 0.000           |
| 2039 | 4     | 1,099,225,288.964 | 479,347,598.049 | 242,862,225.566 | 12,203,058.992  | 562,017,887.895 | 0.000           | 0.000           |
| 2039 | 5     | 887,486,211.954   | 479,347,598.049 | 58,257,915.994  | 41,175,117.731  | 547,050,959.453 | 0.000           | 0.000           |
| 2039 | 6     | 984,190,553.182   | 479,347,598.049 | 7,850,912.419   | 129,176,479.295 | 561,676,151.831 | 0.000           | 0.000           |
| 2039 | 7     | 1,179,309,605.182 | 479,347,598.049 | 26,747.291      | 263,653,456.608 | 539,629,381.495 | 0.000           | 0.000           |
| 2039 | 8     | 1,196,858,099.661 | 479,347,598.049 | 0.000           | 297,864,138.155 | 514,857,724.638 | 0.000           | 0.000           |
| 2039 | 9     | 1,115,968,558.858 | 479,347,598.049 | 113,434.187     | 239,120,755.101 | 539,491,841.727 | 0.000           | 0.000           |
| 2039 | 10    | 889,408,965.034   | 479,347,598.049 | 18,774,739.114  | 85,683,111.036  | 540,745,693.989 | 0.000           | 0.000           |
| 2039 | 11    | 986,520,473.116   | 479,347,598.049 | 157,123,255.196 | 11,382,325.058  | 546,684,744.477 | 0.000           | 0.000           |
| 2039 | 12    | 1,504,166,585.482 | 479,347,598.049 | 423,876,744.533 | 830,164.100     | 632,288,839.502 | 0.000           | 0.000           |
| 2040 | 1     | 1,833,923,083.616 | 479,347,598.049 | 614,976,695.887 | 229,019.331     | 659,706,057.610 | 111,840,473.441 | 0.000           |
| 2040 | 2     | 1,634,153,950.280 | 479,347,598.049 | 694,650,191.414 | 179,079.097     | 583,308,461.327 | 0.000           | -91,154,618.904 |
| 2040 | 3     | 1,391,291,427.233 | 479,347,598.049 | 512,851,095.741 | 1,123,802.447   | 569,695,882.310 | 0.000           | 0.000           |
| 2040 | 4     | 1,100,187,330.106 | 479,347,598.049 | 241,058,905.692 | 12,202,426.857  | 564,783,881.046 | 0.000           | 0.000           |
| 2040 | 5     | 889,811,370.440   | 479,347,598.049 | 57,827,686.156  | 41,174,467.199  | 549,806,998.310 | 0.000           | 0.000           |
| 2040 | 6     | 987,028,896.158   | 479,347,598.049 | 7,793,186.909   | 129,178,126.721 | 564,570,572.890 | 0.000           | 0.000           |
| 2040 | 7     | 1,182,145,062.831 | 479,347,598.049 | 26,551.276      | 263,662,323.950 | 542,456,167.818 | 0.000           | 0.000           |
| 2040 | 8     | 1,199,572,073.764 | 479,347,598.049 | 0.000           | 297,880,209.226 | 517,555,627.671 | 0.000           | 0.000           |
| 2040 | 9     | 1,118,782,455.513 | 479,347,598.049 | 112,607.747     | 239,137,316.652 | 542,290,003.271 | 0.000           | 0.000           |
| 2040 | 10    | 892,032,281.489   | 479,347,598.049 | 18,638,397.679  | 85,690,722.852  | 543,497,740.065 | 0.000           | 0.000           |
| 2040 | 11    | 988,112,880.186   | 479,347,598.049 | 155,985,088.818 | 11,383,493.837  | 549,414,149.146 | 0.000           | 0.000           |
| 2040 | 12    | 1,504,198,818.621 | 479,347,598.049 | 420,808,771.914 | 830,251.595     | 635,388,957.765 | 0.000           | 0.000           |
| 2041 | 1     | 1,832,913,855.616 | 479,347,598.049 | 610,653,883.756 | 229,092.716     | 663,019,568.356 | 111,840,473.441 | 0.000           |
| 2041 | 2     | 1,632,234,445.667 | 479,347,598.049 | 689,768,748.972 | 179,136.974     | 586,270,341.278 | 0.000           | -91,154,618.904 |
| 2041 | 3     | 1,390,614,830.555 | 479,347,598.049 | 509,248,519.758 | 1,124,169.599   | 572,621,494.463 | 0.000           | 0.000           |
| 2041 | 4     | 1,101,454,401.838 | 479,347,598.049 | 239,368,475.322 | 12,206,566.236  | 567,737,243.769 | 0.000           | 0.000           |
| 2041 | 5     | 892,345,045.079   | 479,347,598.049 | 57,422,729.813  | 41,188,869.313  | 552,731,227.178 | 0.000           | 0.000           |
| 2041 | 6     | 990,075,480.169   | 479,347,598.049 | 7,738,675.312   | 129,224,521.133 | 567,625,274.086 | 0.000           | 0.000           |
| 2041 | 7     | 1,185,219,347.528 | 479,347,598.049 | 26,365.729      | 263,759,138.740 | 545,433,823.272 | 0.000           | 0.000           |
| 2041 | 8     | 1,202,523,497.716 | 479,347,598.049 | 0.000           | 297,991,760.354 | 520,395,500.494 | 0.000           | 0.000           |
| 2041 | 9     | 1,121,816,964.295 | 479,347,598.049 | 111,822.051     | 239,228,412.812 | 545,234,201.589 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 533 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |                 |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             | Jan   | Feb             | Jan   |
| 2041  | 10    | 894,832,926.184   | 479,347,598.049 | 18,508,501.587  | 85,724,119.394  | 546,394,884.308 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2041  | 11    | 989,904,210.006   | 479,347,598.049 | 154,898,553.199 | 11,387,976.861  | 552,287,531.561 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2041  | 12    | 1,504,537,126.050 | 479,347,598.049 | 417,879,013.905 | 830,581.839     | 638,656,692.959 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 1     | 1,832,375,715.036 | 479,347,598.049 | 606,541,414.109 | 229,230.021     | 666,593,760.118 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 2     | 1,630,791,090.303 | 479,347,598.049 | 685,131,918.062 | 179,246.498     | 589,463,707.300 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2042  | 3     | 1,390,357,617.760 | 479,347,598.049 | 505,833,632.678 | 1,124,875.218   | 575,778,463.129 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 4     | 1,103,051,894.995 | 479,347,598.049 | 237,768,657.637 | 12,214,492.310  | 570,926,628.537 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 5     | 895,145,195.864   | 479,347,598.049 | 57,039,924.633  | 41,216,292.239  | 555,886,760.217 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 6     | 993,400,710.008   | 479,347,598.049 | 7,687,167.805   | 129,311,866.218 | 570,914,666.347 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 7     | 1,188,611,919.144 | 479,347,598.049 | 26,190.575      | 263,940,645.236 | 548,645,063.546 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 8     | 1,205,794,423.910 | 479,347,598.049 | 0.000           | 298,198,523.929 | 523,459,663.113 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 9     | 1,125,159,367.820 | 479,347,598.049 | 111,080.675     | 239,396,003.820 | 548,409,755.482 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 10    | 897,898,918.848   | 479,347,598.049 | 18,385,948.762  | 85,784,845.709  | 549,522,703.482 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 11    | 991,996,431.783   | 479,347,598.049 | 153,873,954.733 | 11,396,111.418  | 555,396,217.249 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2042  | 12    | 1,505,310,509.775 | 479,347,598.049 | 415,116,102.545 | 831,176.897     | 642,192,392.986 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 1     | 1,832,684,397.475 | 479,347,598.049 | 602,980,096.744 | 229,550.932     | 670,463,439.011 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 2     | 1,630,230,041.379 | 479,347,598.049 | 681,116,095.157 | 179,499.249     | 592,918,228.531 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2043  | 3     | 1,390,805,441.383 | 479,347,598.049 | 502,873,588.688 | 1,126,472.311   | 579,184,733.648 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 4     | 1,105,112,527.359 | 479,347,598.049 | 236,380,915.716 | 12,232,023.372  | 574,357,471.760 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 5     | 898,257,278.641   | 479,347,598.049 | 56,707,723.847  | 41,275,983.747  | 559,271,352.272 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 6     | 997,070,026.111   | 479,347,598.049 | 7,642,498.772   | 129,500,944.766 | 574,439,572.935 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 7     | 1,192,433,555.080 | 479,347,598.049 | 26,038.529      | 264,328,258.179 | 552,079,238.585 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 8     | 1,209,515,661.485 | 479,347,598.049 | 0.000           | 298,638,290.703 | 526,741,133.914 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 9     | 1,128,925,290.855 | 479,347,598.049 | 110,437.477     | 239,751,593.971 | 551,820,731.565 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 10    | 901,290,654.933   | 479,347,598.049 | 18,279,646.853  | 85,913,050.212  | 552,892,536.974 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 11    | 994,478,914.905   | 479,347,598.049 | 152,984,622.250 | 11,413,166.935  | 558,750,977.335 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2043  | 12    | 1,506,731,636.280 | 479,347,598.049 | 412,716,744.205 | 832,420.526     | 646,011,634.202 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2044  | 1     | 1,833,261,622.851 | 479,347,598.049 | 599,483,623.828 | 229,882.014     | 674,536,806.220 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2044  | 2     | 1,629,920,948.567 | 479,347,598.049 | 677,173,825.587 | 179,760.084     | 596,551,144.454 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2044  | 3     | 1,391,479,560.846 | 479,347,598.049 | 499,967,784.344 | 1,128,120.372   | 582,763,009.395 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2044  | 4     | 1,107,372,098.148 | 479,347,598.049 | 235,018,612.782 | 12,250,119.170  | 577,961,249.686 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2044  | 5     | 901,543,106.038   | 479,347,598.049 | 56,381,436.709  | 41,337,477.625  | 562,821,972.929 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2044  | 6     | 1,000,903,866.346 | 479,347,598.049 | 7,598,534.789   | 129,694,163.916 | 578,124,158.003 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 2044 | 7     | 1,196,413,745.274 | 479,347,598.049 | 25,888.633      | 264,721,754.733 | 555,666,082.121 | 0.000           | 0.000           |
| 2044 | 8     | 1,213,384,873.552 | 479,347,598.049 | 0.000           | 299,081,127.971 | 530,167,508.713 | 0.000           | 0.000           |
| 2044 | 9     | 1,132,836,287.129 | 479,347,598.049 | 109,800.403     | 240,106,037.156 | 555,377,921.726 | 0.000           | 0.000           |
| 2044 | 10    | 904,823,522.802   | 479,347,598.049 | 18,174,066.071  | 86,039,507.304  | 556,404,528.532 | 0.000           | 0.000           |
| 2044 | 11    | 997,105,935.684   | 479,347,598.049 | 152,099,135.415 | 11,429,834.797  | 562,246,817.087 | 0.000           | 0.000           |
| 2044 | 12    | 1,508,317,873.017 | 479,347,598.049 | 410,323,270.588 | 833,627.341     | 649,990,137.741 | 0.000           | 0.000           |
| 2045 | 1     | 1,833,857,516.632 | 479,347,598.049 | 596,030,675.944 | 230,234.296     | 678,585,295.604 | 111,840,473.441 | 0.000           |
| 2045 | 2     | 1,629,620,124.539 | 479,347,598.049 | 673,268,763.584 | 180,034.500     | 600,155,108.013 | 0.000           | -91,154,618.904 |
| 2045 | 3     | 1,392,146,042.621 | 479,347,598.049 | 497,083,254.012 | 1,129,840.415   | 586,312,301.459 | 0.000           | 0.000           |
| 2045 | 4     | 1,109,601,843.842 | 479,347,598.049 | 233,663,182.026 | 12,268,829.892  | 581,527,715.413 | 0.000           | 0.000           |
| 2045 | 5     | 904,791,692.081   | 479,347,598.049 | 56,056,503.798  | 41,400,814.473  | 566,332,155.034 | 0.000           | 0.000           |
| 2045 | 6     | 1,004,701,292.770 | 479,347,598.049 | 7,554,768.493   | 129,893,375.491 | 581,766,139.149 | 0.000           | 0.000           |
| 2045 | 7     | 1,200,371,689.165 | 479,347,598.049 | 25,739,623      | 265,129,596.069 | 559,216,333.686 | 0.000           | 0.000           |
| 2045 | 8     | 1,217,237,772.489 | 479,347,598.049 | 0.000           | 299,542,284.998 | 533,559,250.623 | 0.000           | 0.000           |
| 2045 | 9     | 1,136,727,865.572 | 479,347,598.049 | 109,169.033     | 240,477,617.328 | 558,898,551.368 | 0.000           | 0.000           |
| 2045 | 10    | 908,332,343.682   | 479,347,598.049 | 18,069,685.706  | 86,173,320.975  | 559,883,916.106 | 0.000           | 0.000           |
| 2045 | 11    | 999,719,019.924   | 479,347,598.049 | 151,226,110.895 | 11,447,663.281  | 565,715,097.364 | 0.000           | 0.000           |
| 2045 | 12    | 1,509,915,541.042 | 479,347,598.049 | 407,969,918.285 | 834,932.091     | 653,939,853.319 | 0.000           | 0.000           |
| 2046 | 1     | 1,834,500,141.819 | 479,347,598.049 | 592,556,958.612 | 230,566.658     | 682,701,305.760 | 111,840,473.441 | 0.000           |
| 2046 | 2     | 1,629,385,884.592 | 479,347,598.049 | 669,358,290.758 | 180,298.207     | 603,831,077.184 | 0.000           | -91,154,618.904 |
| 2046 | 3     | 1,392,888,011.169 | 479,347,598.049 | 494,202,918.362 | 1,131,512.220   | 589,932,933.851 | 0.000           | 0.000           |
| 2046 | 4     | 1,111,919,503.629 | 479,347,598.049 | 232,314,621.565 | 12,287,286.706  | 585,175,478.846 | 0.000           | 0.000           |
| 2046 | 5     | 908,125,911.452   | 479,347,598.049 | 55,734,056.912  | 41,463,956.777  | 569,925,678.988 | 0.000           | 0.000           |
| 2046 | 6     | 1,008,590,784.145 | 479,347,598.049 | 7,511,438.733   | 130,093,846.448 | 585,498,489.326 | 0.000           | 0.000           |
| 2046 | 7     | 1,204,427,552.845 | 479,347,598.049 | 25,592.352      | 265,542,824.283 | 562,859,116.424 | 0.000           | 0.000           |
| 2046 | 8     | 1,221,194,838.084 | 479,347,598.049 | 0.000           | 300,013,020.234 | 537,045,580.982 | 0.000           | 0.000           |
| 2046 | 9     | 1,140,722,812.729 | 479,347,598.049 | 108,546.448     | 240,857,584.068 | 562,514,154.370 | 0.000           | 0.000           |
| 2046 | 10    | 911,943,685.481   | 479,347,598.049 | 17,966,864.658  | 86,310,703.765  | 563,460,696.164 | 0.000           | 0.000           |
| 2046 | 11    | 1,002,439,443.542 | 479,347,598.049 | 150,365,811.519 | 11,465,946.632  | 569,277,537.007 | 0.000           | 0.000           |
| 2046 | 12    | 1,511,650,657.222 | 479,347,598.049 | 405,649,972.898 | 836,268.418     | 657,993,578.559 | 0.000           | 0.000           |
| 2047 | 1     | 1,836,025,121.019 | 479,347,598.049 | 589,611,627.302 | 231,092.649     | 687,171,090.279 | 111,840,473.441 | 0.000           |
| 2047 | 2     | 1,630,046,376.109 | 479,347,598.049 | 666,037,841.195 | 180,711.490     | 607,811,604.981 | 0.000           | -91,154,618.904 |
| 2047 | 3     | 1,394,369,516.966 | 479,347,598.049 | 491,758,621.080 | 1,134,123.838   | 593,856,125.313 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 535 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   | Jan   | Feb             | Jan   |
| 2047  | 4     | 1,114,751,819.244 | 479,347,598.049 | 231,169,687.644 | 12,315,880.507  | 589,124,134.582 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 5     | 911,836,542.607   | 479,347,598.049 | 55,460,210.446  | 41,561,128.891  | 573,812,984.495 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 6     | 1,012,889,507.284 | 479,347,598.049 | 7,474,579.014   | 130,399,722.658 | 589,528,195.974 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 7     | 1,208,981,988.849 | 479,347,598.049 | 25,466,825      | 266,168,115.638 | 566,788,386.599 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 8     | 1,225,659,991.419 | 479,347,598.049 | 0.000           | 300,720,121.529 | 540,803,633.021 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 9     | 1,145,189,759.019 | 479,347,598.049 | 108,014.393     | 241,426,166.866 | 566,413,049.916 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 10    | 915,910,634.243   | 479,347,598.049 | 17,878,808.408  | 86,514,619.156  | 567,311,785.786 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 11    | 1,005,563,137.329 | 479,347,598.049 | 149,627,872.731 | 11,492,974.783  | 573,112,141.431 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2047  | 12    | 1,514,019,160.999 | 479,347,598.049 | 403,656,874.416 | 838,235.845     | 662,353,213.391 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 1     | 1,837,833,409.919 | 479,347,598.049 | 586,684,524.869 | 231,611.787     | 691,905,962.475 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2048  | 2     | 1,630,967,804.257 | 479,347,598.049 | 662,738,482.340 | 181,119.465     | 612,031,984.009 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 3     | 1,396,096,251.978 | 479,347,598.049 | 489,327,191.463 | 1,136,695.297   | 598,011,718.482 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 4     | 1,117,822,335.627 | 479,347,598.049 | 230,029,512.478 | 12,343,967.331  | 593,306,739.308 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 5     | 915,780,015.368   | 479,347,598.049 | 55,187,478.580  | 41,656,557.603  | 577,933,760.410 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 6     | 1,017,428,226.433 | 479,347,598.049 | 7,437,873.644   | 130,700,137.998 | 593,803,205.153 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 7     | 1,213,771,881.010 | 479,347,598.049 | 25,341.867      | 266,782,564.737 | 570,963,954.619 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 8     | 1,230,351,461.480 | 479,347,598.049 | 0.000           | 301,414,940.150 | 544,800,284.462 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 9     | 1,149,891,969.495 | 479,347,598.049 | 107,484.724     | 241,984,614.870 | 570,557,342.058 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 10    | 920,116,623.499   | 479,347,598.049 | 17,791,172.493  | 86,714,991.251  | 571,405,038.862 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 11    | 1,008,938,016.335 | 479,347,598.049 | 148,894,417.949 | 11,519,600.179  | 577,193,849.823 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2048  | 12    | 1,516,680,731.601 | 479,347,598.049 | 401,676,288.832 | 840,174.177     | 666,993,431.245 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 1     | 1,840,535,385.386 | 479,347,598.049 | 584,310,150.716 | 232,322.613     | 696,981,601.269 | 111,840,473.441 | 0.000 | 0.000 | -91,154,618.904 | 0.000 |
| 2049  | 2     | 1,632,815,622.170 | 479,347,598.049 | 660,060,602.357 | 181,676.525     | 616,557,124.845 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 3     | 1,398,583,765.382 | 479,347,598.049 | 487,352,909.086 | 1,140,198.271   | 602,470,011.289 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 4     | 1,121,419,924.764 | 479,347,598.049 | 229,104,176.183 | 12,382,151.998  | 597,791,480.073 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 5     | 920,094,679.552   | 479,347,598.049 | 54,965,810.515  | 41,785,655.803  | 582,340,994.460 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 6     | 1,022,369,368.485 | 479,347,598.049 | 7,408,015.082   | 131,105,450.032 | 598,368,893.734 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 7     | 1,219,050,366.565 | 479,347,598.049 | 25,240.045      | 267,608,875.176 | 575,416,231.557 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 8     | 1,235,541,067.279 | 479,347,598.049 | 0.000           | 302,346,112.167 | 549,058,718.244 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 9     | 1,155,054,626.262 | 479,347,598.049 | 107,051.180     | 242,730,208.734 | 574,974,838.506 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 10    | 924,680,435.683   | 479,347,598.049 | 17,719,327.438  | 86,981,748.469  | 575,773,938.882 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 11    | 1,012,720,000.085 | 479,347,598.049 | 148,290,493.151 | 11,554,829.240  | 581,544,529.309 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |
| 2049  | 12    | 1,519,991,026.083 | 479,347,598.049 | 400,039,823.866 | 842,728.301     | 671,937,636.569 | 0.000           | 0.000 | 0.000 | 0.000           | 0.000 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 536 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb   |                 |       |
| 2050  | 1     | 1,843,584,948.084 | 479,347,598.049 | 581,995,208.207 | 233,024.073     | 702,345,405.015 | 111,840,473.441 | 0.000 | -91,154,618.904 | 0.000 |
| 2050  | 2     | 1,634,967,799.827 | 479,347,598.049 | 657,442,695.959 | 182,224.104     | 621,326,661.320 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 3     | 1,401,346,523.671 | 479,347,598.049 | 485,420,481.689 | 1,143,634.882   | 607,161,760.365 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 4     | 1,125,271,174.667 | 479,347,598.049 | 228,198,767.578 | 12,419,619.907  | 602,510,670.671 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 5     | 924,636,513.649   | 479,347,598.049 | 54,748,894.591  | 41,912,273.976  | 586,973,126.306 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 6     | 1,027,533,463.722 | 479,347,598.049 | 7,378,829.129   | 131,503,431.296 | 603,164,193.660 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 7     | 1,224,539,598.767 | 479,347,598.049 | 25,140.700      | 268,421,911.223 | 580,092,527.058 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 8     | 1,240,937,855.621 | 479,347,598.049 | 0.000           | 303,265,484.078 | 553,536,134.676 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 9     | 1,160,444,014.315 | 479,347,598.049 | 106,630.764     | 243,469,148.349 | 579,625,707.359 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 10    | 929,481,823.258   | 479,347,598.049 | 17,649,906.995  | 87,247,246.183  | 580,379,249.185 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 11    | 1,016,776,775.246 | 479,347,598.049 | 147,710,459.884 | 11,590,155.162  | 586,146,011.816 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2050  | 12    | 1,523,674,784.745 | 479,347,598.049 | 398,477,269.847 | 845,308.462     | 677,181,369.089 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 1     | 1,846,162,001.230 | 479,347,598.049 | 579,470,370.914 | 233,687.538     | 707,446,631.990 | 111,840,473.441 | 0.000 | 0.000           | 0.000 |
| 2051  | 2     | 1,636,675,644.743 | 479,347,598.049 | 654,602,580.092 | 182,746.133     | 625,874,100.074 | 0.000           | 0.000 | -91,154,618.904 | 0.000 |
| 2051  | 3     | 1,403,745,749.447 | 479,347,598.049 | 483,334,082.946 | 1,146,935.194   | 611,644,084.571 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 4     | 1,128,842,324.435 | 479,347,598.049 | 227,224,074.124 | 12,455,780.779  | 607,020,353.020 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 5     | 928,968,815.023   | 479,347,598.049 | 54,516,671.061  | 42,035,501.783  | 591,414,423.404 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 6     | 1,032,493,838.209 | 479,347,598.049 | 7,347,674.347   | 131,892,487.277 | 607,766,666.948 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 7     | 1,229,834,824.774 | 479,347,598.049 | 25,035.123      | 269,221,889.340 | 584,587,880.523 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 8     | 1,246,147,590.654 | 479,347,598.049 | 0.000           | 304,173,349.435 | 557,838,004.350 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 9     | 1,165,649,299.293 | 479,347,598.049 | 106,186.617     | 244,202,506.582 | 584,098,078.250 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 10    | 934,102,962.929   | 479,347,598.049 | 17,576,760.032  | 87,511,762.815  | 584,809,019.188 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 11    | 1,020,623,476.921 | 479,347,598.049 | 147,100,116.689 | 11,625,421.758  | 590,567,790.090 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2051  | 12    | 1,527,081,074.575 | 479,347,598.049 | 396,837,258.081 | 847,893.643     | 682,225,085.504 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 1     | 1,849,071,411.250 | 479,347,598.049 | 577,119,742.733 | 234,420.433     | 712,705,937.295 | 111,840,473.441 | 0.000 | 0.000           | 0.000 |
| 2052  | 2     | 1,638,729,731.116 | 479,347,598.049 | 651,966,379.676 | 183,324.443     | 630,563,808.554 | 0.000           | 0.000 | -91,154,618.904 | 0.000 |
| 2052  | 3     | 1,406,429,587.022 | 479,347,598.049 | 481,399,468.942 | 1,150,591.634   | 616,258,879.710 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 4     | 1,132,629,743.639 | 479,347,598.049 | 226,323,212.466 | 12,495,953.118  | 611,668,461.544 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 5     | 933,464,738.806   | 479,347,598.049 | 54,302,264.400  | 42,172,368.794  | 595,987,886.836 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 6     | 1,037,641,880.281 | 479,347,598.049 | 7,318,985.980   | 132,325,541.834 | 612,510,342.830 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 7     | 1,235,351,221.267 | 479,347,598.049 | 24,937.932      | 270,111,524.095 | 589,214,739.452 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 8     | 1,251,592,672.338 | 479,347,598.049 | 0.000           | 305,185,364.767 | 562,271,070.703 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 9     | 1,171,076,709.499 | 479,347,598.049 | 105,779.450     | 245,020,522.962 | 588,707,879.243 | 0.000           | 0.000 | 0.000           | 0.000 |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                 |                 |                 |                 |                 |       |                 |       |
|---|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-----------------|-------|
| Year  | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             | Jan   | Feb             | Jan   |
| 2052  | 10    | 938,897,996.528   | 479,347,598.049 | 17,509,801.918  | 87,806,989.427  | 589,375,784.289 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 11    | 1,024,671,167.974 | 479,347,598.049 | 146,542,942.601 | 11,664,881.341  | 595,133,195.647 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2052  | 12    | 1,530,788,347.737 | 479,347,598.049 | 395,339,971.818 | 850,783.428     | 687,426,755.143 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 1     | 1,852,088,359.250 | 479,347,598.049 | 574,804,211.740 | 235,167.265     | 718,037,669.456 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 2     | 1,640,885,977.533 | 479,347,598.049 | 649,368,530.862 | 183,913.463     | 635,317,314.765 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2053  | 3     | 1,409,202,807.622 | 479,347,598.049 | 479,492,189.832 | 1,154,314.016   | 620,935,657.039 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 4     | 1,136,491,439.885 | 479,347,598.049 | 225,434,563.939 | 12,536,822.774  | 616,377,936.661 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 5     | 938,025,011.788   | 479,347,598.049 | 54,090,634.439  | 42,311,522.661  | 600,620,635.913 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 6     | 1,042,857,661.417 | 479,347,598.049 | 7,290,652.797   | 132,765,581.010 | 617,314,417.973 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 7     | 1,240,939,576.127 | 479,347,598.049 | 24,841.888      | 271,015,020.931 | 593,899,693.521 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 8     | 1,257,107,872.292 | 479,347,598.049 | 0.000           | 306,212,545.628 | 566,759,089.796 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 9     | 1,176,572,335.050 | 479,347,598.049 | 105,376.565     | 245,850,320.343 | 593,374,110.299 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 10    | 943,752,806.268   | 479,347,598.049 | 17,443,501.684  | 88,106,285.208  | 593,997,598.481 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 11    | 1,028,778,541.015 | 479,347,598.049 | 145,990,847.298 | 11,704,860.258  | 599,752,685.075 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2053  | 12    | 1,534,569,050.834 | 479,347,598.049 | 393,855,524.619 | 853,709.920     | 692,688,978.948 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 1     | 1,855,185,818.984 | 479,347,598.049 | 572,507,892.981 | 235,923.717     | 723,430,691.497 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 2     | 1,643,117,776.361 | 479,347,598.049 | 646,791,795.836 | 184,509.931     | 640,125,252.151 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2054  | 3     | 1,412,044,589.224 | 479,347,598.049 | 477,600,091.904 | 1,158,082.606   | 625,665,767.978 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 4     | 1,140,414,014.989 | 479,347,598.049 | 224,552,774.606 | 12,578,186.848  | 621,140,937.023 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 5     | 942,640,831.816   | 479,347,598.049 | 53,880,592.963  | 42,452,317.895  | 605,305,702.183 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 6     | 1,048,132,631.696 | 479,347,598.049 | 7,262,527.898   | 133,210,691.252 | 622,172,402.908 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 7     | 1,246,590,708.397 | 479,347,598.049 | 24,746.537      | 271,928,694.699 | 598,637,247.374 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 8     | 1,262,684,651.997 | 479,347,598.049 | 0.000           | 307,251,000.866 | 571,297,414.263 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 9     | 1,182,128,808.671 | 479,347,598.049 | 104,976.448     | 246,688,992.356 | 598,092,312.024 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 10    | 948,662,215.807   | 479,347,598.049 | 17,377,640.914  | 88,408,693.503  | 598,670,460.495 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 11    | 1,032,940,317.445 | 479,347,598.049 | 145,442,248.358 | 11,745,242.743  | 604,422,677.959 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2054  | 12    | 1,538,415,649.224 | 479,347,598.049 | 392,380,155.083 | 856,665.303     | 698,007,991.491 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2055  | 1     | 1,858,356,981.233 | 479,347,598.049 | 570,226,726.724 | 236,688.102     | 728,882,255.618 | 111,840,473.441 | 0.000           | 0.000 | 0.000           | 0.000 |
| 2055  | 2     | 1,645,420,808.881 | 479,347,598.049 | 644,233,175.445 | 185,112.899     | 644,986,302.094 | 0.000           | -91,154,618.904 | 0.000 | -91,154,618.904 | 0.000 |
| 2055  | 3     | 1,414,953,741.426 | 479,347,598.049 | 475,722,161.753 | 1,161,893.912   | 630,449,039.026 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2055  | 4     | 1,144,399,043.432 | 479,347,598.049 | 223,678,131.176 | 12,620,042.639  | 625,958,753.105 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2055  | 5     | 947,315,134.561   | 479,347,598.049 | 53,672,378.340  | 42,594,863.332  | 610,045,674.114 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |
| 2055  | 6     | 1,053,471,323.132 | 479,347,598.049 | 7,234,661.955   | 133,661,547.572 | 627,088,103.967 | 0.000           | 0.000           | 0.000 | 0.000           | 0.000 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Pred              | CONST           | XHeat           | XCool           | XOther          | Jan             | Feb             |
|------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 2055 | 7     | 1,252,311,305.562 | 479,347,598.049 | 24,652.109      | 272,854,585.831 | 603,432,047.835 | 0.000           | 0.000           |
| 2055 | 8     | 1,268,331,631.422 | 479,347,598.049 | 0.000           | 308,303,858.398 | 575,891,536.156 | 0.000           | 0.000           |
| 2055 | 9     | 1,187,756,307.406 | 479,347,598.049 | 104,580,639     | 247,539,710.111 | 602,869,488.813 | 0.000           | 0.000           |
| 2055 | 10    | 953,636,380.398   | 479,347,598.049 | 17,312,531.594  | 88,715,607.072  | 603,402,820.837 | 0.000           | 0.000           |
| 2055 | 11    | 1,037,169,915.915 | 479,347,598.049 | 144,900,269.645 | 11,786,247.831  | 609,153,250.055 | 0.000           | 0.000           |
| 2055 | 12    | 1,542,350,737.516 | 479,347,598.049 | 390,923,328.306 | 859,667.422     | 703,396,904.441 | 0.000           | 0.000           |
| 2056 | 1     | 1,861,628,551.318 | 479,347,598.049 | 567,974,034.718 | 237,465.207     | 734,405,740.605 | 111,840,473.441 | 0.000           |
| 2056 | 2     | 1,647,821,081.974 | 479,347,598.049 | 641,707,223.559 | 185,725.998     | 649,911,913.975 | 0.000           | -91,154,618.904 |
| 2056 | 3     | 1,417,951,421.021 | 479,347,598.049 | 473,868,752.021 | 1,165,769.950   | 635,296,252.313 | 0.000           | 0.000           |
| 2056 | 4     | 1,148,461,529.948 | 479,347,598.049 | 222,815,260.775 | 12,662,618.653  | 630,841,534.009 | 0.000           | 0.000           |
| 2056 | 5     | 952,059,137.375   | 479,347,598.049 | 53,467,047.505  | 42,739,894.898  | 614,849,976.197 | 0.000           | 0.000           |
| 2056 | 6     | 1,058,885,332.956 | 479,347,598.049 | 7,207,191.412   | 134,120,357.562 | 632,070,774.344 | 0.000           | 0.000           |
| 2056 | 7     | 1,258,114,073.068 | 479,347,598.049 | 24,559.050      | 273,796,992.265 | 608,292,501.966 | 0.000           | 0.000           |
| 2056 | 8     | 1,274,061,016.518 | 479,347,598.049 | 0.000           | 309,375,707.978 | 580,549,071.673 | 0.000           | 0.000           |
| 2056 | 9     | 1,193,466,005.131 | 479,347,598.049 | 104,190.829     | 248,405,939.874 | 607,713,346.585 | 0.000           | 0.000           |
| 2056 | 10    | 958,684,057.102   | 479,347,598.049 | 17,248,433.304  | 89,028,181.775  | 608,202,021.129 | 0.000           | 0.000           |
| 2056 | 11    | 1,041,476,463.314 | 479,347,598.049 | 144,366,899.720 | 11,828,017.347  | 613,951,397.863 | 0.000           | 0.000           |
| 2056 | 12    | 1,546,387,049.269 | 479,347,598.049 | 389,490,026.095 | 862,725.958     | 708,863,459.869 | 0.000           | 0.000           |
| 2057 | 1     | 1,865,014,132.307 | 479,347,598.049 | 565,756,122.074 | 238,257.407     | 740,008,442.038 | 111,840,473.441 | 0.000           |
| 2057 | 2     | 1,650,330,524.657 | 479,347,598.049 | 639,220,093.325 | 186,350.875     | 654,907,862.014 | 0.000           | -91,154,618.904 |
| 2057 | 3     | 1,421,046,424.288 | 479,347,598.049 | 472,043,678.077 | 1,169,719.704   | 640,212,379.772 | 0.000           | 0.000           |
| 2057 | 4     | 1,152,606,944.513 | 479,347,598.049 | 221,965,498.541 | 12,705,992.850  | 635,793,336.611 | 0.000           | 0.000           |
| 2057 | 5     | 956,876,379.456   | 479,347,598.049 | 53,264,812.287  | 42,887,609.341  | 619,721,739.053 | 0.000           | 0.000           |
| 2057 | 6     | 1,064,377,580.014 | 479,347,598.049 | 7,180,131.939   | 134,587,550.478 | 637,122,887.960 | 0.000           | 0.000           |
| 2057 | 7     | 1,264,001,231.446 | 479,347,598.049 | 24,467.372      | 274,756,419.262 | 613,220,325.026 | 0.000           | 0.000           |
| 2057 | 8     | 1,279,873,886.690 | 479,347,598.049 | 0.000           | 310,466,666.653 | 585,270,983.169 | 0.000           | 0.000           |
| 2057 | 9     | 1,199,257,902.614 | 479,347,598.049 | 103,806.683     | 249,287,416.484 | 612,624,151.603 | 0.000           | 0.000           |
| 2057 | 10    | 963,804,361.604   | 479,347,598.049 | 17,185,255.852  | 89,346,185.007  | 613,067,499.850 | 0.000           | 0.000           |
| 2057 | 11    | 1,045,857,430.975 | 479,347,598.049 | 143,841,090.503 | 11,870,502.269  | 618,815,689.819 | 0.000           | 0.000           |
| 2057 | 12    | 1,550,518,677.537 | 479,347,598.049 | 388,076,827.588 | 865,836.341     | 714,405,176.261 | 0.000           | 0.000           |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 539 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |                  |                  |                 |                 |       |       |       |                  |            |
|---|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|-------|-------|-------|------------------|------------|
| Year  | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep   | Oct   | Nov   | Dec              | Year Total |
| 1995  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 1995  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1995  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 1996  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1996  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 1997  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |



Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2000 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2000 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2000 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2000 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2000 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2000 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2001 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2001 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2001 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2001 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2001 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2002 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2002 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2002 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2002 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2002 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2003 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2003 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2003 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 543 of 1182

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2006 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2006 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2006 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2006 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2006 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2006 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2007 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2007 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2007 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2007 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2007 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2008 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2008 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2008 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2008 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |



Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2011 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2011 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2011 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2011 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2011 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2011 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2012 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2012 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2012 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2012 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2012 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2013 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2013 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2013 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2013 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2013 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2014 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2014 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2014 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 547 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |                  |                  |                 |                 |       |       |       |                  |            |
|---|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|-------|-------|-------|------------------|------------|
| Year  | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep   | Oct   | Nov   | Dec              | Year Total |
| 2017  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 2017  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2017  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 2018  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2018  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2019  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 548 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |                  |                  |                 |                 |                  |       |       |                  |                  |                  |                  |                 |                  |       |
|---|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|-------|-------|------------------|------------------|------------------|------------------|-----------------|------------------|-------|
| Year  | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              | Year  | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug              | Sep   |
| 2019  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2019  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2019  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            | 0.000 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000            | 0.000 |
| 2020  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            | 0.000 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000            | 0.000 |
| 2020  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            | 0.000 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | -63,034,600.479 | 0.000            | 0.000 |
| 2020  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 | 0.000 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -109,928,309.504 | 0.000 |
| 2020  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2020  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            | 0.000 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000            | 0.000 |
| 2021  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            | 0.000 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000            | 0.000 |
| 2021  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            | 0.000 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | -63,034,600.479 | 0.000            | 0.000 |
| 2021  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 | 0.000 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -109,928,309.504 | 0.000 |
| 2021  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2021  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            | 0.000 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000            | 0.000 |
| 2022  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            | 0.000 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000            | 0.000 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2022 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2022 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2022 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2022 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2022 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2022 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2023 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2023 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2023 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2023 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2023 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2024 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2024 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2024 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2024 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2024 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2025 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2025 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2025 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 551 of 1182

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2028 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2028 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2028 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2028 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2028 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2028 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2029 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2029 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2029 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2029 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2029 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2030 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2030 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2030 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2030 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |



Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2033 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2033 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2033 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2033 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2033 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2033 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2034 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2034 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2034 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2034 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2034 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2035 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2035 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2035 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2035 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2035 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2036 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2036 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2036 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |







Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep              |
|------|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|
| 2044 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2044 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2044 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2044 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2044 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2044 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2045 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2045 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2045 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2045 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2045 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000            |
| 2046 | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000            |
| 2046 | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000            |
| 2046 | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | -109,928,309.504 |
| 2046 | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2046 | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2047 | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2047 | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |
| 2047 | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000            |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 559 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |                  |                  |                 |                 |       |       |       |                  |            |
|---|-------|------------------|------------------|------------------|------------------|-----------------|-----------------|-------|-------|-------|------------------|------------|
| Year  | Month | Mar              | Apr              | May              | Jun              | Jul             | Aug             | Sep   | Oct   | Nov   | Dec              | Year Total |
| 2050  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 2050  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2050  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |
| 2051  | 10    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 11    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2051  | 12    | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 1     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 2     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 3     | -139,550,190.611 | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 4     | 0.000            | -165,028,720.836 | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 5     | 0.000            | 0.000            | -206,168,618.572 | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 6     | 0.000            | 0.000            | 0.000            | -161,683,827.710 | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 7     | 0.000            | 0.000            | 0.000            | 0.000            | -71,170,817.560 | 0.000           | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 8     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | -63,034,600.479 | 0.000 | 0.000 | 0.000 | 0.000            | 0.000      |
| 2052  | 9     | 0.000            | 0.000            | 0.000            | 0.000            | 0.000           | 0.000           | 0.000 | 0.000 | 0.000 | -109,928,309.504 | 0.000      |



















Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2014 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2014 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2015 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2015 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2015 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | 0.000           | 0.000  |
| 2015 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2015 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2016 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2017 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2017 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2018 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2019 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |       |        |        |                 |        |       |       |       |       |
|---|-------|------------------|------------------|-------|--------|--------|-----------------|--------|-------|-------|-------|-------|
| Year  | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |       |       |       |       |
| 2019  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2019  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2019  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2020  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2021  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
| 2022  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2022 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2022 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2022 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2022 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2022 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2022 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2023 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2024 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2025 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2025 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2026 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2027 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2028 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2028 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2029 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2030 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |       |        |        |                 |        |       |       |       |
|---|-------|------------------|------------------|-------|--------|--------|-----------------|--------|-------|-------|-------|
| Year  | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |       |       |       |
| 2030  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2030  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2030  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2031  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2032  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2033  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2033 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2033 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2033 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2033 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2033 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2033 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2034 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2035 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2036 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2036 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2037 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2038 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2039 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2039 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2040 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2041 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |       |        |        |                 |        |       |       |       |
|---|-------|------------------|------------------|-------|--------|--------|-----------------|--------|-------|-------|-------|
| Year  | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |       |       |       |
| 2041  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2041  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2041  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2042  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2043  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2044  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2044 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2044 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2044 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2044 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2044 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2044 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2045 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2046 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2047 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2047 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2048 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2049 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |
|------|-------|------------------|------------------|-------|--------|--------|-----------------|--------|
| 2050 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2050 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2051 | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |
| 2052 | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |       |        |        |                 |        |       |       |       |
|---|-------|------------------|------------------|-------|--------|--------|-----------------|--------|-------|-------|-------|
| Year  | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |       |       |       |
| 2052  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2052  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2052  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2053  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2054  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |
| 2055  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  | 0.000 | 0.000 | 0.000 |

| Kentucky Power Company<br>Residential Energy Model Output |       |                  |                  |       |        |        |                 |        |  |  |  |  |
|---|-------|------------------|------------------|-------|--------|--------|-----------------|--------|--|--|--|--|
| Year  | Month | Oct              | Nov              | 7-Feb | Sep-95 | Nov-95 | Apr15on         | Feb-95 |  |  |  |  |
| 2055  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2055  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2055  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2055  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2055  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2055  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2056  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 1     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 2     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 3     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 4     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 5     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 6     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 7     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 8     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 9     | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 10    | -202,965,416.453 | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 11    | 0.000            | -175,840,688.962 | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |
| 2057  | 12    | 0.000            | 0.000            | 0.000 | 0.000  | 0.000  | -47,149,536.983 | 0.000  |  |  |  |  |









Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610          | Mar18on | D21on | ARMA            |
|------|-------|--------|--------|--------|----------------|---------|-------|-----------------|
| 2006 | 1     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -7,922,885.833  |
| 2006 | 2     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 59,454,533.825  |
| 2006 | 3     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 60,155,702.147  |
| 2006 | 4     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -41,227,456.771 |
| 2006 | 5     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -26,295,069.916 |
| 2006 | 6     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -3,694,417.456  |
| 2006 | 7     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 285,283.567     |
| 2006 | 8     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -16,416,143.391 |
| 2006 | 9     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -30,606,371.652 |
| 2006 | 10    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -18,820,882.233 |
| 2006 | 11    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -7,613,361.218  |
| 2006 | 12    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -5,562,540.094  |
| 2007 | 1     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 44,173,689.068  |
| 2007 | 2     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 13,690,788.273  |
| 2007 | 3     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -5,181,421.766  |
| 2007 | 4     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -26,419,090.702 |
| 2007 | 5     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -18,762,851.095 |
| 2007 | 6     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -9,970,410.422  |
| 2007 | 7     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 1,761,201.994   |
| 2007 | 8     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -32,413,386.246 |
| 2007 | 9     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -25,900,596.205 |
| 2007 | 10    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 9,683,130.634   |
| 2007 | 11    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -17,803,066.008 |
| 2007 | 12    | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -17,574,373.618 |
| 2008 | 1     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -30,307,194.976 |
| 2008 | 2     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 1,127,355.387   |
| 2008 | 3     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 7,392,274.782   |
| 2008 | 4     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 8,099,690.719   |
| 2008 | 5     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 9,491,810.880   |
| 2008 | 6     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -6,187,014.059  |
| 2008 | 7     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | 2,155,471.059   |
| 2008 | 8     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -6,487,200.046  |
| 2008 | 9     | 0.000  | 0.000  | 0.000  | 29,640,498.624 | 0.000   | 0.000 | -7,930,886.091  |







| Kentucky Power Company<br>Residential Energy Model Output |       |        |        |        |       |                |       |                 |  |  |  |  |
|---|-------|--------|--------|--------|-------|----------------|-------|-----------------|--|--|--|--|
| Year  | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on | ARMA            |  |  |  |  |
| 2017  | 1     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -22,334,227.354 |  |  |  |  |
| 2017  | 2     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -30,962,000.916 |  |  |  |  |
| 2017  | 3     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -19,236,189.058 |  |  |  |  |
| 2017  | 4     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -2,111,971.819  |  |  |  |  |
| 2017  | 5     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -27,839,069.048 |  |  |  |  |
| 2017  | 6     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -24,404,366.391 |  |  |  |  |
| 2017  | 7     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -16,930,652.707 |  |  |  |  |
| 2017  | 8     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -11,111,166.096 |  |  |  |  |
| 2017  | 9     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | 803,376.594     |  |  |  |  |
| 2017  | 10    | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -10,326,690.763 |  |  |  |  |
| 2017  | 11    | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -18,546,170.952 |  |  |  |  |
| 2017  | 12    | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -30,321,432.570 |  |  |  |  |
| 2018  | 1     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | -21,279,142.600 |  |  |  |  |
| 2018  | 2     | 0.000  | 0.000  | 0.000  | 0.000 | 0.000          | 0.000 | 27,366,437.556  |  |  |  |  |
| 2018  | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 39,056,387.024  |  |  |  |  |
| 2018  | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -14,827,103.017 |  |  |  |  |
| 2018  | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 11,256,428.852  |  |  |  |  |
| 2018  | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 2,635,108.626   |  |  |  |  |
| 2018  | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 11,833,090.194  |  |  |  |  |
| 2018  | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 16,538,980.199  |  |  |  |  |
| 2018  | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -2,765,832.432  |  |  |  |  |
| 2018  | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 7,042,823.265   |  |  |  |  |
| 2018  | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 1,052,050.353   |  |  |  |  |
| 2018  | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -16,099,213.235 |  |  |  |  |
| 2019  | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -22,592,766.155 |  |  |  |  |
| 2019  | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -13,889,212.363 |  |  |  |  |
| 2019  | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 32,247,785.080  |  |  |  |  |
| 2019  | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | -774,705.109    |  |  |  |  |
| 2019  | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 640,759.167     |  |  |  |  |
| 2019  | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 2,405,503.271   |  |  |  |  |
| 2019  | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 6,304,757.891   |  |  |  |  |
| 2019  | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 8,055,895.988   |  |  |  |  |
| 2019  | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000 | 22,323,752.925  |  |  |  |  |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA            |
|------|-------|--------|--------|--------|-------|----------------|----------------|-----------------|
| 2019 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 22,630,748.499  |
| 2019 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 9,380,003.771   |
| 2019 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | -5,928,798.068  |
| 2020 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | -21,314,060.589 |
| 2020 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | -9,743,220.984  |
| 2020 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | -16,912,338.637 |
| 2020 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 22,645,611.078  |
| 2020 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 15,743,306.949  |
| 2020 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 6,432,063.475   |
| 2020 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 10,392,850.837  |
| 2020 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 12,884,121.528  |
| 2020 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 33,547,233.529  |
| 2020 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 30,423,308.217  |
| 2020 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | 21,527,324.553  |
| 2020 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 0.000          | -7,977,046.022  |
| 2021 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -21,263,129.110 |
| 2021 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -4,907,884.213  |
| 2021 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 5,441,512.040   |
| 2021 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -14,847,897.160 |
| 2021 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 14,314,136.188  |
| 2021 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 4,101,521.035   |
| 2021 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -6,303,306.471  |
| 2021 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 2,518,176.351   |
| 2021 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 3,573,041.521   |
| 2021 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 12,705,196.083  |
| 2021 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -6,418,427.907  |
| 2021 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -12,451,492.582 |
| 2022 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 9,989,493.071   |
| 2022 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -21,113,259.620 |
| 2022 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -10,875,050.636 |
| 2022 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -5,601,538.012  |
| 2022 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -2,885,248.920  |
| 2022 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -1,486,138.506  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA         |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------------|
| 2022 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -765,482.535 |
| 2022 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -394,285.936 |
| 2022 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -203,089.414 |
| 2022 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -104,607.611 |
| 2022 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -53,881.451  |
| 2022 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -27,753.342  |
| 2023 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -14,295.235  |
| 2023 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -7,363.212   |
| 2023 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -3,792.655   |
| 2023 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -1,953.526   |
| 2023 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -1,006.225   |
| 2023 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -518.288     |
| 2023 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -266.961     |
| 2023 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -137.507     |
| 2023 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -70.827      |
| 2023 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -36.482      |
| 2023 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -18.791      |
| 2023 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -9.679       |
| 2024 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -4.985       |
| 2024 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -2.568       |
| 2024 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -1.323       |
| 2024 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.681       |
| 2024 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.351       |
| 2024 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.181       |
| 2024 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.093       |
| 2024 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.048       |
| 2024 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.025       |
| 2024 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.013       |
| 2024 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.007       |
| 2024 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.003       |
| 2025 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.002       |
| 2025 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.001       |
| 2025 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000       |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2025 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2025 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2026 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2026 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2026 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2026 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2027 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2027 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2027 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2028 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2028 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2028 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2029 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2029 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2029 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2029 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2030 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2030 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2030 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2031 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2031 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2031 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2032 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2032 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2032 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2033 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2033 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2033 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2034 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2034 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2035 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2036 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2036 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2036 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2037 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2037 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2037 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2038 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2038 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2039 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2039 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2040 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2040 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2040 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2041 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2041 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA  |
|------|-------|--------|--------|--------|-------|----------------|----------------|-------|
| 2041 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2041 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2041 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2042 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2043 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |
| 2044 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2044 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2044 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2044 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2044 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2044 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2044 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2045 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2045 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2046 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2046 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2047 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2047 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2047 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2048 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2048 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2049 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2049 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2049 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2050 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2050 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2050 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2051 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2051 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2052 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2052 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2053 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2053 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2053 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2054 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2055 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Mar-95 | Jan-96 | Apr-95 | d0610 | Mar18on        | D21on          | ARMA   |
|------|-------|--------|--------|--------|-------|----------------|----------------|--------|
| 2055 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2055 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2055 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | -0.000 |
| 2056 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2056 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 1     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 2     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 3     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 4     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 5     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 6     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 7     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 8     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 9     | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 10    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 11    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |
| 2057 | 12    | 0.000  | 0.000  | 0.000  | 0.000 | -9,328,389.559 | 24,301,165.841 | 0.000  |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | X-Missing | Lighting Share | Lighting      | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage       |
|------|-------|-----------|----------------|---------------|-----------------|-----------------|----------------|-------------------|
| 1995 | 1     | 0.000     |                |               |                 |                 |                |                   |
| 1995 | 2     | 0.000     | 0.204461346    | 166,015,759.1 | 781,878,195.847 | 0.000           | 166,015,759.1  | 645,950,719.57384 |
| 1995 | 3     | 0.000     | 0.204461346    | 146,251,863.9 | 534,573,786.546 | 0.000           | 146,251,863.9  | 569,051,379.20659 |
| 1995 | 4     | 0.000     | 0.204461346    | 154,489,005.0 | 196,611,570.739 | 6,509,234.001   | 154,489,005.0  | 601,101,271.60594 |
| 1995 | 5     | 0.000     | 0.204461346    | 161,608,978.3 | 70,375,056.108  | 26,410,426.774  | 161,608,978.3  | 628,804,375.90582 |
| 1995 | 6     | 0.000     | 0.204461346    | 173,156,757.7 | 4,503,998.789   | 118,872,673.888 | 173,156,757.7  | 673,735,630.98394 |
| 1995 | 7     | 0.000     | 0.204461346    | 183,636,480.0 | 0.000           | 282,613,264.502 | 183,636,480.0  | 714,511,182.44706 |
| 1995 | 8     | 0.000     | 0.204461346    | 201,353,868.7 | 0.000           | 440,781,274.113 | 201,353,868.7  | 783,447,770.53871 |
| 1995 | 9     | 0.000     | 0.204461346    | 117,861,942.1 | 560,397.967     | 346,553,002.280 | 117,861,942.1  | 458,589,032.16050 |
| 1995 | 10    | 0.000     | 0.204461346    | 170,053,178.4 | 14,860,922.927  | 64,016,988.870  | 170,053,178.4  | 661,659,914.24142 |
| 1995 | 11    | 0.000     | 0.204461346    | 232,618,022.3 | 224,588,745.966 | 5,948,057.324   | 232,618,022.3  | 905,093,466.25597 |
| 1995 | 12    | 0.000     | 0.204461346    | 237,364,088.6 | 552,952,945.911 | 405,447.638     | 237,364,088.6  | 923,559,935.55295 |
| 1996 | 1     | 0.000     | 0.20822429     | 242,722,795.2 | 896,016,570.621 | 0.000           | 242,722,795.2  | 922,956,746.62414 |
| 1996 | 2     | 0.000     | 0.20822429     | 216,292,942.7 | 893,159,221.728 | 0.000           | 216,292,942.7  | 822,456,871.18419 |
| 1996 | 3     | 0.000     | 0.20822429     | 195,238,869.0 | 612,907,873.957 | 0.000           | 195,238,869.0  | 742,398,468.19548 |
| 1996 | 4     | 0.000     | 0.20822429     | 181,440,471.9 | 423,486,888.455 | 7,867,310.893   | 181,440,471.9  | 689,929,874.63076 |
| 1996 | 5     | 0.000     | 0.20822429     | 171,239,164.4 | 92,457,636.699  | 78,528,904.962  | 171,239,164.4  | 651,139,263.29703 |
| 1996 | 6     | 0.000     | 0.20822429     | 174,389,883.8 | 12,715,914.858  | 169,029,361.402 | 174,389,883.8  | 663,119,916.84869 |
| 1996 | 7     | 0.000     | 0.20822429     | 183,714,232.5 | 0.000           | 323,966,841.959 | 183,714,232.5  | 698,575,880.30043 |
| 1996 | 8     | 0.000     | 0.20822429     | 180,430,849.9 | 0.000           | 297,708,746.810 | 180,430,849.9  | 686,090,773.14844 |
| 1996 | 9     | 0.000     | 0.20822429     | 176,440,357.4 | 0.000           | 257,676,772.071 | 176,440,357.4  | 670,916,870.94515 |
| 1996 | 10    | 0.000     | 0.20822429     | 161,870,327.9 | 28,230,659.274  | 47,222,806.076  | 161,870,327.9  | 615,514,134.36041 |
| 1996 | 11    | 0.000     | 0.20822429     | 174,666,658.9 | 230,208,956.710 | 6,693,611.949   | 174,666,658.9  | 664,172,357.90659 |
| 1996 | 12    | 0.000     | 0.20822429     | 227,865,120.6 | 580,280,310.339 | 1,599,192.821   | 227,865,120.6  | 866,460,235.79794 |
| 1997 | 1     | 0.000     | 0.211074109    | 256,367,007.6 | 651,180,153.638 | 853,602.966     | 256,367,007.6  | 958,215,912.28111 |
| 1997 | 2     | 0.000     | 0.211074109    | 199,373,636.1 | 789,988,988.562 | 707,595.164     | 199,373,636.1  | 745,193,355.51363 |
| 1997 | 3     | 0.000     | 0.211074109    | 181,266,733.2 | 434,442,048.193 | 3,011,486.327   | 181,266,733.2  | 677,515,682.49616 |
| 1997 | 4     | 0.000     | 0.211074109    | 178,591,416.0 | 277,307,947.739 | 6,879,224.208   | 178,591,416.0  | 667,516,222.97592 |
| 1997 | 5     | 0.000     | 0.211074109    | 171,761,333.0 | 127,470,170.665 | 7,910,884.908   | 171,761,333.0  | 641,987,609.59452 |
| 1997 | 6     | 0.000     | 0.211074109    | 182,463,277.3 | 19,240,957.272  | 58,309,825.729  | 182,463,277.3  | 681,987,972.51308 |
| 1997 | 7     | 0.000     | 0.211074109    | 188,427,226.1 | 0.000           | 274,845,470.481 | 188,427,226.1  | 704,279,259.80501 |
| 1997 | 8     | 0.000     | 0.211074109    | 186,933,880.0 | 0.000           | 338,400,065.982 | 186,933,880.0  | 698,697,621.11969 |
| 1997 | 9     | 0.000     | 0.211074109    | 182,904,455.2 | 0.000           | 183,401,970.842 | 182,904,455.2  | 683,636,950.87816 |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |  |  |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 1997  | 10    | 0.000     | 0.211074109    | 166,633,439.4 | 20,470,153.893    | 57,629,491.782  | 166,633,439.4  | 622,821,222.91471   |  |  |
| 1997  | 11    | 0.000     | 0.211074109    | 171,848,311.8 | 279,067,246.665   | 16,355,772.392  | 171,848,311.8  | 642,312,707.82313   |  |  |
| 1997  | 12    | 0.000     | 0.211074109    | 232,744,058.0 | 558,983,812.371   | 0.000           | 232,744,058.0  | 869,921,063.23221   |  |  |
| 1998  | 1     | 0.000     | 0.2135391      | 273,994,494.9 | 607,088,620.014   | 0.000           | 273,994,494.9  | 1,009,117,096.66590 |  |  |
| 1998  | 2     | 0.000     | 0.2135391      | 200,713,486.6 | 641,553,915.135   | 0.000           | 200,713,486.6  | 739,224,381.17997   |  |  |
| 1998  | 3     | 0.000     | 0.2135391      | 184,582,804.3 | 513,828,877.790   | 38,293.382      | 184,582,804.3  | 679,815,350.43327   |  |  |
| 1998  | 4     | 0.000     | 0.2135391      | 181,856,145.4 | 299,941,181.630   | 48,568,416.660  | 181,856,145.4  | 669,773,111.82407   |  |  |
| 1998  | 5     | 0.000     | 0.2135391      | 164,921,513.4 | 44,807,913.708    | 27,166,116.731  | 164,921,513.4  | 607,403,148.16971   |  |  |
| 1998  | 6     | 0.000     | 0.2135391      | 187,240,670.0 | 992,931.073       | 156,014,694.767 | 187,240,670.0  | 689,604,224.95548   |  |  |
| 1998  | 7     | 0.000     | 0.2135391      | 193,782,328.2 | 432,280.364       | 334,620,329.610 | 193,782,328.2  | 713,697,041.85353   |  |  |
| 1998  | 8     | 0.000     | 0.2135391      | 190,976,398.0 | 0.000             | 346,497,666.426 | 190,976,398.0  | 703,362,848.03782   |  |  |
| 1998  | 9     | 0.000     | 0.2135391      | 189,245,959.5 | 0.000             | 336,772,973.624 | 189,245,959.5  | 696,989,672.35882   |  |  |
| 1998  | 10    | 0.000     | 0.2135391      | 170,140,447.3 | 8,337,669.136     | 205,435,351.907 | 170,140,447.3  | 626,624,393.63474   |  |  |
| 1998  | 11    | 0.000     | 0.2135391      | 178,367,395.2 | 169,793,577.221   | 15,251,020.576  | 178,367,395.2  | 656,924,103.86422   |  |  |
| 1998  | 12    | 0.000     | 0.2135391      | 240,000,967.3 | 321,986,798.397   | 3,209,574.122   | 240,000,967.3  | 883,919,508.99968   |  |  |
| 1999  | 1     | 0.000     | 0.215005028    | 272,500,247.0 | 845,458,217.492   | 1,418,888.265   | 272,500,247.0  | 994,913,123.13568   |  |  |
| 1999  | 2     | 0.000     | 0.215005028    | 196,230,108.1 | 588,656,665.095   | 0.000           | 196,230,108.1  | 716,446,725.76078   |  |  |
| 1999  | 3     | 0.000     | 0.215005028    | 182,912,628.9 | 703,935,560.625   | 0.000           | 182,912,628.9  | 667,823,889.75303   |  |  |
| 1999  | 4     | 0.000     | 0.215005028    | 181,382,423.8 | 364,166,209.082   | 11,358,879.981  | 181,382,423.8  | 662,237,028.20336   |  |  |
| 1999  | 5     | 0.000     | 0.215005028    | 170,605,781.1 | 43,749,809.317    | 38,364,569.339  | 170,605,781.1  | 622,890,923.55697   |  |  |
| 1999  | 6     | 0.000     | 0.215005028    | 181,354,538.1 | 0.000             | 178,524,170.461 | 181,354,538.1  | 662,135,216.20743   |  |  |
| 1999  | 7     | 0.000     | 0.215005028    | 190,715,270.9 | 0.000             | 416,539,268.500 | 190,715,270.9  | 696,311,757.12382   |  |  |
| 1999  | 8     | 0.000     | 0.215005028    | 186,491,040.6 | 0.000             | 517,687,702.535 | 186,491,040.6  | 680,888,864.12056   |  |  |
| 1999  | 9     | 0.000     | 0.215005028    | 187,251,428.7 | 178,413.222       | 263,312,218.440 | 187,251,428.7  | 683,665,082.25660   |  |  |
| 1999  | 10    | 0.000     | 0.215005028    | 170,075,880.5 | 19,832,849.247    | 54,699,607.005  | 170,075,880.5  | 620,956,227.83244   |  |  |
| 1999  | 11    | 0.000     | 0.215005028    | 184,245,120.7 | 164,180,506.082   | 3,042,436.202   | 184,245,120.7  | 672,688,889.27853   |  |  |
| 1999  | 12    | 0.000     | 0.215005028    | 243,014,068.4 | 409,424,198.897   | 0.000           | 243,014,068.4  | 887,257,492.25290   |  |  |
| 2000  | 1     | 0.000     | 0.216695275    | 270,264,195.5 | 760,139,113.566   | 0.000           | 270,264,195.5  | 976,944,334.77557   |  |  |
| 2000  | 2     | 0.000     | 0.216695275    | 200,180,059.7 | 1,009,910,006.808 | 0.000           | 200,180,059.7  | 723,605,932.75396   |  |  |
| 2000  | 3     | 0.000     | 0.216695275    | 188,768,636.6 | 391,017,856.570   | 2,507,714.709   | 188,768,636.6  | 682,356,202.59639   |  |  |
| 2000  | 4     | 0.000     | 0.216695275    | 191,067,074.9 | 215,774,900.986   | 5,822,344.902   | 191,067,074.9  | 690,664,540.31410   |  |  |
| 2000  | 5     | 0.000     | 0.216695275    | 173,557,346.1 | 80,481,399.704    | 63,518,782.711  | 173,557,346.1  | 627,370,805.35536   |  |  |
| 2000  | 6     | 0.000     | 0.216695275    | 190,953,557.7 | 182,628.306       | 176,608,166.752 | 190,953,557.7  | 690,254,201.16980   |  |  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 610 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |  |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2000  | 7     | 0.000     | 0.216695275    | 201,271,543.2 | 0.000             | 324,708,731.477 | 201,271,543.2  | 727,551,400.38599   |  |
| 2000  | 8     | 0.000     | 0.216695275    | 193,871,459.1 | 0.000             | 285,938,672.103 | 193,871,459.1  | 700,801,759.29359   |  |
| 2000  | 9     | 0.000     | 0.216695275    | 193,625,118.1 | 933,078.276       | 249,572,979.100 | 193,625,118.1  | 699,911,291.73347   |  |
| 2000  | 10    | 0.000     | 0.216695275    | 176,846,538.0 | 51,759,004.962    | 86,613,322.299  | 176,846,538.0  | 639,260,495.20000   |  |
| 2000  | 11    | 0.000     | 0.216695275    | 189,374,734.1 | 176,911,547.524   | 11,992,502.715  | 189,374,734.1  | 684,547,108.89129   |  |
| 2000  | 12    | 0.000     | 0.216695275    | 241,155,329.3 | 781,332,855.791   | 0.000           | 241,155,329.3  | 871,722,324.74657   |  |
| 2001  | 1     | 0.000     | 0.217700026    | 270,628,309.5 | 1,180,516,733.529 | 0.000           | 270,628,309.5  | 972,496,527.58238   |  |
| 2001  | 2     | 0.000     | 0.217700026    | 214,035,608.3 | 921,946,906.911   | 0.000           | 214,035,608.3  | 769,131,973.72686   |  |
| 2001  | 3     | 0.000     | 0.217700026    | 188,903,490.7 | 640,825,667.422   | 0.000           | 188,903,490.7  | 678,820,294.45231   |  |
| 2001  | 4     | 0.000     | 0.217700026    | 188,376,478.0 | 438,170,674.042   | 48,248,978.260  | 188,376,478.0  | 676,926,486.63848   |  |
| 2001  | 5     | 0.000     | 0.217700026    | 174,100,289.0 | 67,234,804.873    | 107,669,363.788 | 174,100,289.0  | 625,625,334.11149   |  |
| 2001  | 6     | 0.000     | 0.217700026    | 188,606,850.6 | 3,988,936.882     | 116,152,709.415 | 188,606,850.6  | 677,754,325.19040   |  |
| 2001  | 7     | 0.000     | 0.217700026    | 201,771,247.3 | 0.000             | 289,932,792.653 | 201,771,247.3  | 725,060,278.16674   |  |
| 2001  | 8     | 0.000     | 0.217700026    | 196,331,889.3 | 0.000             | 420,770,739.107 | 196,331,889.3  | 705,514,071.75932   |  |
| 2001  | 9     | 0.000     | 0.217700026    | 192,905,040.6 | 191,711.998       | 330,063,456.669 | 192,905,040.6  | 693,199,770.82090   |  |
| 2001  | 10    | 0.000     | 0.217700026    | 177,544,701.3 | 39,464,857.993    | 80,202,651.563  | 177,544,701.3  | 638,002,749.39255   |  |
| 2001  | 11    | 0.000     | 0.217700026    | 192,827,480.8 | 189,376,380.736   | 23,612,716.181  | 192,827,480.8  | 692,921,061.39872   |  |
| 2001  | 12    | 0.000     | 0.217700026    | 254,119,922.8 | 246,061,631.112   | 745,738.632     | 254,119,922.8  | 913,174,024.34598   |  |
| 2002  | 1     | 0.000     | 0.219249625    | 285,707,511.5 | 845,336,646.980   | 0.000           | 285,707,511.5  | 1,017,407,653.24303 |  |
| 2002  | 2     | 0.000     | 0.219249625    | 211,946,326.4 | 696,866,038.684   | 0.000           | 211,946,326.4  | 754,743,245.77049   |  |
| 2002  | 3     | 0.000     | 0.219249625    | 201,196,880.7 | 622,395,179.361   | 1,510,130.381   | 201,196,880.7  | 716,464,349.01639   |  |
| 2002  | 4     | 0.000     | 0.219249625    | 202,406,091.7 | 332,435,026.571   | 22,976,701.242  | 202,406,091.7  | 720,770,362.76256   |  |
| 2002  | 5     | 0.000     | 0.219249625    | 187,708,044.9 | 88,199,847.375    | 65,329,025.381  | 187,708,044.9  | 668,430,453.32698   |  |
| 2002  | 6     | 0.000     | 0.219249625    | 189,582,549.5 | 51,071,091.955    | 172,352,315.897 | 189,582,549.5  | 675,105,585.22060   |  |
| 2002  | 7     | 0.000     | 0.219249625    | 206,191,276.5 | 0.000             | 394,139,761.267 | 206,191,276.5  | 734,249,448.43744   |  |
| 2002  | 8     | 0.000     | 0.219249625    | 205,770,812.1 | 0.000             | 502,542,855.527 | 205,770,812.1  | 732,752,169.94702   |  |
| 2002  | 9     | 0.000     | 0.219249625    | 200,373,763.0 | 0.000             | 442,080,704.720 | 200,373,763.0  | 713,533,217.65605   |  |
| 2002  | 10    | 0.000     | 0.219249625    | 176,405,684.6 | 19,061,242.052    | 178,534,893.383 | 176,405,684.6  | 628,182,621.46893   |  |
| 2002  | 11    | 0.000     | 0.219249625    | 190,364,366.4 | 235,079,476.131   | 17,779,946.011  | 190,364,366.4  | 677,889,644.09415   |  |
| 2002  | 12    | 0.000     | 0.219249625    | 250,058,806.5 | 706,869,930.326   | 2,354,127.392   | 250,058,806.5  | 890,462,214.62892   |  |
| 2003  | 1     | 0.000     | 0.217325381    | 280,210,350.9 | 858,366,616.061   | 0.000           | 280,210,350.9  | 1,009,148,256.25099 |  |
| 2003  | 2     | 0.000     | 0.217325381    | 222,620,815.7 | 1,191,275,574.244 | 0.000           | 222,620,815.7  | 801,745,571.72853   |  |
| 2003  | 3     | 0.000     | 0.217325381    | 192,128,632.6 | 803,034,253.566   | 0.000           | 192,128,632.6  | 691,931,165.05061   |  |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|
| 2003 | 4     | 0.000     | 0.217325381    | 192,686,190.8 | 211,390,899.516   | 19,813,604.881  | 192,686,190.8  | 693,939,152.58400   |
| 2003 | 5     | 0.000     | 0.217325381    | 183,720,628.6 | 45,765,571.480    | 49,405,033.616  | 183,720,628.6  | 661,650,618.44733   |
| 2003 | 6     | 0.000     | 0.217325381    | 193,259,643.2 | 0.000             | 67,041,929.221  | 193,259,643.2  | 696,004,381.38452   |
| 2003 | 7     | 0.000     | 0.217325381    | 205,054,155.6 | 0.000             | 281,477,743.603 | 205,054,155.6  | 738,481,083.79405   |
| 2003 | 8     | 0.000     | 0.217325381    | 199,502,548.6 | 0.000             | 336,632,584.316 | 199,502,548.6  | 718,487,552.18126   |
| 2003 | 9     | 0.000     | 0.217325381    | 199,145,223.8 | 0.000             | 322,877,816.971 | 199,145,223.8  | 717,200,684.19689   |
| 2003 | 10    | 0.000     | 0.217325381    | 184,025,123.4 | 53,121,972.713    | 46,823,624.288  | 184,025,123.4  | 662,747,224.60230   |
| 2003 | 11    | 0.000     | 0.217325381    | 194,711,293.3 | 146,679,766.773   | 11,026,709.639  | 194,711,293.3  | 701,232,347.39192   |
| 2003 | 12    | 0.000     | 0.217325381    | 251,928,735.6 | 517,372,680.724   | 1,258,322.406   | 251,928,735.6  | 907,294,978.51385   |
| 2004 | 1     | 0.000     | 0.215381953    | 286,861,794.8 | 850,510,545.452   | 1,000,384.455   | 286,861,794.8  | 1,045,013,002.83115 |
| 2004 | 2     | 0.000     | 0.215381953    | 226,556,579.2 | 1,103,596,519.120 | 335,418.868     | 226,556,579.2  | 825,326,256.10045   |
| 2004 | 3     | 0.000     | 0.215381953    | 202,675,674.8 | 637,754,514.167   | 3,006,666.122   | 202,675,674.8  | 738,330,162.15477   |
| 2004 | 4     | 0.000     | 0.215381953    | 199,051,603.8 | 351,408,740.746   | 16,618,891.471  | 199,051,603.8  | 725,127,981.39666   |
| 2004 | 5     | 0.000     | 0.215381953    | 181,760,034.8 | 86,153,681.349    | 91,662,952.076  | 181,760,034.8  | 662,136,273.31490   |
| 2004 | 6     | 0.000     | 0.215381953    | 192,749,377.4 | 5,994,733.812     | 252,322,863.544 | 192,749,377.4  | 702,169,509.30391   |
| 2004 | 7     | 0.000     | 0.215381953    | 205,337,274.8 | 0.000             | 322,193,878.133 | 205,337,274.8  | 748,026,143.64978   |
| 2004 | 8     | 0.000     | 0.215381953    | 203,114,066.4 | 0.000             | 319,172,584.195 | 203,114,066.4  | 739,927,185.41520   |
| 2004 | 9     | 0.000     | 0.215381953    | 193,165,765.8 | 0.000             | 279,905,059.265 | 193,165,765.8  | 703,686,376.71383   |
| 2004 | 10    | 0.000     | 0.215381953    | 178,584,798.9 | 14,722,507.253    | 83,213,708.245  | 178,584,798.9  | 650,569,160.35315   |
| 2004 | 11    | 0.000     | 0.215381953    | 194,235,028.6 | 93,943,905.187    | 16,474,559.105  | 194,235,028.6  | 707,581,609.49223   |
| 2004 | 12    | 0.000     | 0.215381953    | 250,905,693.1 | 434,595,004.239   | 2,400,152.973   | 250,905,693.1  | 914,027,997.10854   |
| 2005 | 1     | 0.000     | 0.213541203    | 281,747,693.8 | 746,815,057.386   | 0.000           | 281,747,693.8  | 1,037,659,002.68604 |
| 2005 | 2     | 0.000     | 0.213541203    | 220,166,581.7 | 912,849,572.002   | 0.000           | 220,166,581.7  | 810,859,647.28372   |
| 2005 | 3     | 0.000     | 0.213541203    | 205,161,396.4 | 772,439,774.472   | 0.000           | 205,161,396.4  | 755,596,495.03107   |
| 2005 | 4     | 0.000     | 0.213541203    | 202,533,256.7 | 356,794,566.205   | 7,536,272.513   | 202,533,256.7  | 745,917,222.37175   |
| 2005 | 5     | 0.000     | 0.213541203    | 182,128,701.7 | 102,308,416.117   | 27,589,574.267  | 182,128,701.7  | 670,768,531.85422   |
| 2005 | 6     | 0.000     | 0.213541203    | 197,753,501.9 | 14,117,390.561    | 162,595,867.680 | 197,753,501.9  | 728,313,686.71147   |
| 2005 | 7     | 0.000     | 0.213541203    | 203,373,679.6 | 0.000             | 461,769,627.021 | 203,373,679.6  | 749,012,446.71170   |
| 2005 | 8     | 0.000     | 0.213541203    | 193,492,250.3 | 0.000             | 589,543,039.957 | 193,492,250.3  | 712,619,765.55757   |
| 2005 | 9     | 0.000     | 0.213541203    | 190,520,146.9 | 0.000             | 443,652,773.938 | 190,520,146.9  | 701,673,695.86869   |
| 2005 | 10    | 0.000     | 0.213541203    | 175,958,691.7 | 8,743,058.669     | 203,770,704.242 | 175,958,691.7  | 648,044,773.80610   |
| 2005 | 11    | 0.000     | 0.213541203    | 190,217,414.7 | 221,553,479.095   | 12,887,222.322  | 190,217,414.7  | 700,558,752.14198   |
| 2005 | 12    | 0.000     | 0.213541203    | 245,826,925.1 | 753,816,271.538   | 1,901,963.738   | 245,826,925.1  | 905,365,075.06955   |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |  |  |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2006  | 1     | 0.000     | 0.206467337    | 274,083,608.5 | 756,881,782.575   | 0.000           | 274,083,608.5  | 1,053,407,760.84598 |  |  |
| 2006  | 2     | 0.000     | 0.206467337    | 227,804,515.4 | 644,158,163.123   | 0.000           | 227,804,515.4  | 875,539,569.27321   |  |  |
| 2006  | 3     | 0.000     | 0.206467337    | 212,524,283.4 | 735,940,590.273   | 1,747,137.147   | 212,524,283.4  | 816,811,814.37183   |  |  |
| 2006  | 4     | 0.000     | 0.206467337    | 180,783,422.6 | 375,867,139.936   | 20,768,314.371  | 180,783,422.6  | 694,819,589.81764   |  |  |
| 2006  | 5     | 0.000     | 0.206467337    | 176,658,989.0 | 30,618,918.195    | 34,786,277.698  | 176,658,989.0  | 678,967,819.59754   |  |  |
| 2006  | 6     | 0.000     | 0.206467337    | 189,280,385.9 | 5,877,126.519     | 130,895,625.133 | 189,280,385.9  | 727,476,657.85596   |  |  |
| 2006  | 7     | 0.000     | 0.206467337    | 202,438,198.3 | 0.000             | 322,947,686.489 | 202,438,198.3  | 778,047,145.28192   |  |  |
| 2006  | 8     | 0.000     | 0.206467337    | 196,402,940.1 | 0.000             | 515,923,582.598 | 196,402,940.1  | 754,851,347.89468   |  |  |
| 2006  | 9     | 0.000     | 0.206467337    | 192,401,626.7 | 1,414,185.181     | 327,726,517.654 | 192,401,626.7  | 739,472,775.67725   |  |  |
| 2006  | 10    | 0.000     | 0.206467337    | 178,155,766.6 | 58,301,536.901    | 46,020,133.997  | 178,155,766.6  | 684,720,506.32435   |  |  |
| 2006  | 11    | 0.000     | 0.206467337    | 188,013,396.8 | 321,476,208.399   | 3,176,690.096   | 188,013,396.8  | 722,607,135.76606   |  |  |
| 2006  | 12    | 0.000     | 0.206467337    | 242,369,485.0 | 506,449,660.194   | 3,317,162.162   | 242,369,485.0  | 931,518,297.97675   |  |  |
| 2007  | 1     | 0.000     | 0.199528296    | 272,499,862.5 | 545,920,386.122   | 359,923.142     | 272,499,862.5  | 1,093,220,528.67677 |  |  |
| 2007  | 2     | 0.000     | 0.199528296    | 226,880,676.1 | 1,101,318,069.614 | 0.000           | 226,880,676.1  | 910,204,542.24626   |  |  |
| 2007  | 3     | 0.000     | 0.199528296    | 191,870,579.4 | 927,565,846.320   | 2,761,289.652   | 191,870,579.4  | 769,750,319.44686   |  |  |
| 2007  | 4     | 0.000     | 0.199528296    | 184,590,885.2 | 319,859,650.673   | 35,914,709.640  | 184,590,885.2  | 740,545,493.34346   |  |  |
| 2007  | 5     | 0.000     | 0.199528296    | 171,928,581.3 | 121,390,075.088   | 62,628,954.529  | 171,928,581.3  | 689,746,603.31387   |  |  |
| 2007  | 6     | 0.000     | 0.199528296    | 180,961,717.8 | 4,970,289.986     | 220,604,293.863 | 180,961,717.8  | 725,985,925.03306   |  |  |
| 2007  | 7     | 0.000     | 0.199528296    | 194,712,887.2 | 0.000             | 360,181,345.758 | 194,712,887.2  | 781,153,148.20570   |  |  |
| 2007  | 8     | 0.000     | 0.199528296    | 187,311,850.2 | 0.000             | 423,486,416.867 | 187,311,850.2  | 751,461,516.27230   |  |  |
| 2007  | 9     | 0.000     | 0.199528296    | 186,152,583.8 | 0.000             | 467,950,927.077 | 186,152,583.8  | 746,810,747.78309   |  |  |
| 2007  | 10    | 0.000     | 0.199528296    | 176,634,770.7 | 10,269,935.453    | 217,465,081.596 | 176,634,770.7  | 708,626,990.22996   |  |  |
| 2007  | 11    | 0.000     | 0.199528296    | 183,260,241.6 | 201,172,321.599   | 36,982,508.622  | 183,260,241.6  | 735,207,189.99088   |  |  |
| 2007  | 12    | 0.000     | 0.199528296    | 232,369,122.6 | 566,843,428.602   | 0.000           | 232,369,122.6  | 932,223,204.32823   |  |  |
| 2008  | 1     | 0.000     | 0.193038968    | 250,009,916.1 | 787,289,740.542   | 0.000           | 250,009,916.1  | 1,045,116,756.43928 |  |  |
| 2008  | 2     | 0.000     | 0.193038968    | 199,716,528.2 | 958,795,326.124   | 0.000           | 199,716,528.2  | 834,875,245.87872   |  |  |
| 2008  | 3     | 0.000     | 0.193038968    | 188,656,763.9 | 819,433,410.897   | 0.000           | 188,656,763.9  | 788,642,099.68288   |  |  |
| 2008  | 4     | 0.000     | 0.193038968    | 185,196,916.6 | 369,713,101.339   | 1,762,211.134   | 185,196,916.6  | 774,178,895.55056   |  |  |
| 2008  | 5     | 0.000     | 0.193038968    | 169,411,020.9 | 82,174,065.559    | 22,985,667.861  | 169,411,020.9  | 708,189,096.90271   |  |  |
| 2008  | 6     | 0.000     | 0.193038968    | 176,559,966.6 | 5,570,858.242     | 135,396,552.376 | 176,559,966.6  | 738,073,843.18913   |  |  |
| 2008  | 7     | 0.000     | 0.193038968    | 189,081,536.4 | 0.000             | 280,456,588.506 | 189,081,536.4  | 790,417,776.42182   |  |  |
| 2008  | 8     | 0.000     | 0.193038968    | 186,989,760.1 | 0.000             | 342,384,540.046 | 186,989,760.1  | 781,673,521.69508   |  |  |
| 2008  | 9     | 0.000     | 0.193038968    | 183,507,304.0 | 0.000             | 320,244,008.234 | 183,507,304.0  | 767,115,806.12892   |  |  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 613 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |  |  |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2008  | 10    | 0.000     | 0.193038968    | 163,144,998.1 | 13,343,970.730    | 122,224,950.753 | 163,144,998.1  | 681,995,233.79644   |  |  |
| 2008  | 11    | 0.000     | 0.193038968    | 175,174,075.3 | 262,332,564.071   | 7,905,444.866   | 175,174,075.3  | 732,280,399.84088   |  |  |
| 2008  | 12    | 0.000     | 0.193038968    | 227,925,125.1 | 851,244,408.401   | 0.000           | 227,925,125.1  | 952,795,677.63014   |  |  |
| 2009  | 1     | 0.000     | 0.18803217     | 246,824,749.7 | 935,779,435.643   | 0.000           | 246,824,749.7  | 1,065,848,231.58769 |  |  |
| 2009  | 2     | 0.000     | 0.18803217     | 193,905,533.9 | 1,143,791,582.702 | 0.000           | 193,905,533.9  | 837,330,416.51428   |  |  |
| 2009  | 3     | 0.000     | 0.18803217     | 183,944,030.3 | 739,331,664.790   | 4,938,096.999   | 183,944,030.3  | 794,314,264.26433   |  |  |
| 2009  | 4     | 0.000     | 0.18803217     | 175,669,727.7 | 283,092,573.137   | 3,728,415.440   | 175,669,727.7  | 758,583,848.97179   |  |  |
| 2009  | 5     | 0.000     | 0.18803217     | 169,174,969.7 | 73,304,935.541    | 71,548,226.501  | 169,174,969.7  | 730,537,932.52480   |  |  |
| 2009  | 6     | 0.000     | 0.18803217     | 170,463,515.2 | 7,067,606.225     | 143,364,825.271 | 170,463,515.2  | 736,102,179.68114   |  |  |
| 2009  | 7     | 0.000     | 0.18803217     | 181,863,361.9 | 0.000             | 245,442,308.158 | 181,863,361.9  | 785,329,441.18278   |  |  |
| 2009  | 8     | 0.000     | 0.18803217     | 180,874,394.1 | 0.000             | 254,509,017.200 | 180,874,394.1  | 781,058,841.84896   |  |  |
| 2009  | 9     | 0.000     | 0.18803217     | 174,779,402.3 | 0.000             | 245,407,554.836 | 174,779,402.3  | 754,739,211.25696   |  |  |
| 2009  | 10    | 0.000     | 0.18803217     | 163,654,578.0 | 51,517,038.999    | 87,793,210.482  | 163,654,578.0  | 706,699,562.37333   |  |  |
| 2009  | 11    | 0.000     | 0.18803217     | 170,798,866.6 | 205,275,802.050   | 3,613,585.843   | 170,798,866.6  | 737,550,307.18106   |  |  |
| 2009  | 12    | 0.000     | 0.18803217     | 224,742,821.7 | 541,841,294.044   | 234,190.030     | 224,742,821.7  | 970,493,191.54320   |  |  |
| 2010  | 1     | 0.000     | 0.164289955    | 209,680,781.7 | 1,119,123,527.148 | 0.000           | 209,680,781.7  | 1,066,604,073.65976 |  |  |
| 2010  | 2     | 0.000     | 0.164289955    | 166,494,137.3 | 1,106,127,609.807 | 0.000           | 166,494,137.3  | 846,922,276.80584   |  |  |
| 2010  | 3     | 0.000     | 0.164289955    | 158,151,317.8 | 914,170,653.647   | 0.000           | 158,151,317.8  | 804,484,027.98863   |  |  |
| 2010  | 4     | 0.000     | 0.164289955    | 159,610,436.5 | 213,198,338.248   | 28,699,376.954  | 159,610,436.5  | 811,906,271.90958   |  |  |
| 2010  | 5     | 0.000     | 0.164289955    | 144,818,675.4 | 55,316,539.561    | 45,026,914.406  | 144,818,675.4  | 736,663,550.74957   |  |  |
| 2010  | 6     | 0.000     | 0.164289955    | 148,550,801.1 | 8,944,145.664     | 219,048,998.419 | 148,550,801.1  | 755,648,125.17914   |  |  |
| 2010  | 7     | 0.000     | 0.164289955    | 161,691,142.3 | 0.000             | 389,532,121.989 | 161,691,142.3  | 822,490,404.91939   |  |  |
| 2010  | 8     | 0.000     | 0.164289955    | 163,746,332.3 | 0.000             | 454,611,547.235 | 163,746,332.3  | 832,944,744.10859   |  |  |
| 2010  | 9     | 0.000     | 0.164289955    | 160,529,754.8 | 0.000             | 323,635,248.642 | 160,529,754.8  | 816,582,659.61844   |  |  |
| 2010  | 10    | 0.000     | 0.164289955    | 143,967,961.9 | 17,343,637.279    | 120,716,113.748 | 143,967,961.9  | 732,336,141.70028   |  |  |
| 2010  | 11    | 0.000     | 0.164289955    | 147,667,972.2 | 184,549,890.654   | 11,621,169.384  | 147,667,972.2  | 751,157,351.98162   |  |  |
| 2010  | 12    | 0.000     | 0.164289955    | 191,343,108.4 | 752,185,469.261   | 0.000           | 191,343,108.4  | 973,324,008.41530   |  |  |
| 2011  | 1     | 0.000     | 0.155915303    | 197,298,282.5 | 1,211,790,498.629 | 0.000           | 197,298,282.5  | 1,068,121,331.59537 |  |  |
| 2011  | 2     | 0.000     | 0.155915303    | 160,843,232.9 | 1,103,542,852.166 | 0.000           | 160,843,232.9  | 870,763,221.33121   |  |  |
| 2011  | 3     | 0.000     | 0.155915303    | 139,962,096.0 | 577,882,313.658   | 1,857,692.870   | 139,962,096.0  | 757,718,204.19898   |  |  |
| 2011  | 4     | 0.000     | 0.155915303    | 137,340,921.0 | 369,222,507.081   | 17,826,851.274  | 137,340,921.0  | 743,527,848.10345   |  |  |
| 2011  | 5     | 0.000     | 0.155915303    | 129,877,321.8 | 71,353,526.521    | 53,409,525.217  | 129,877,321.8  | 703,121,872.97049   |  |  |
| 2011  | 6     | 0.000     | 0.155915303    | 135,712,432.1 | 22,899,517.023    | 199,445,142.440 | 135,712,432.1  | 734,711,634.48088   |  |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |                |                     |                |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|----------------|---------------------|----------------|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Other Usage         | Lighting Usage |
| 2011  | 7     | 0.000     | 0.155915303    | 150,709,067.7 | 0.000             | 312,674,002.290 | 150,709,067.7  | 815,899,499.90597   | 150,709,067.7  | 815,899,499.90597   | 150,709,067.7  |
| 2011  | 8     | 0.000     | 0.155915303    | 147,197,713.3 | 0.000             | 463,568,496.639 | 147,197,713.3  | 796,889,945.05285   | 147,197,713.3  | 796,889,945.05285   | 147,197,713.3  |
| 2011  | 9     | 0.000     | 0.155915303    | 146,113,786.5 | 255,232.931       | 277,161,134.851 | 146,113,786.5  | 791,021,848.81269   | 146,113,786.5  | 791,021,848.81269   | 146,113,786.5  |
| 2011  | 10    | 0.000     | 0.155915303    | 130,640,592.4 | 44,845,375.855    | 49,354,291.010  | 130,640,592.4  | 707,254,020.04794   | 130,640,592.4  | 707,254,020.04794   | 130,640,592.4  |
| 2011  | 11    | 0.000     | 0.155915303    | 135,461,014.8 | 223,796,353.947   | 1,140,105.698   | 135,461,014.8  | 733,350,527.04471   | 135,461,014.8  | 733,350,527.04471   | 135,461,014.8  |
| 2011  | 12    | 0.000     | 0.155915303    | 178,665,396.9 | 408,938,639.357   | 1,710,969.231   | 178,665,396.9  | 967,247,759.22812   | 178,665,396.9  | 967,247,759.22812   | 178,665,396.9  |
| 2012  | 1     | 0.000     | 0.152324671    | 194,217,572.8 | 715,547,142.686   | 0.000           | 194,217,572.8  | 1,080,806,175.12424 | 194,217,572.8  | 1,080,806,175.12424 | 194,217,572.8  |
| 2012  | 2     | 0.000     | 0.152324671    | 148,597,296.6 | 747,660,487.875   | 0.000           | 148,597,296.6  | 826,932,771.70990   | 148,597,296.6  | 826,932,771.70990   | 148,597,296.6  |
| 2012  | 3     | 0.000     | 0.152324671    | 139,088,798.1 | 535,618,410.541   | 10,322,266.503  | 139,088,798.1  | 774,018,692.73341   | 139,088,798.1  | 774,018,692.73341   | 139,088,798.1  |
| 2012  | 4     | 0.000     | 0.152324671    | 132,388,187.5 | 112,920,392.952   | 43,081,480.239  | 132,388,187.5  | 736,730,299.13766   | 132,388,187.5  | 736,730,299.13766   | 132,388,187.5  |
| 2012  | 5     | 0.000     | 0.152324671    | 122,570,118.7 | 76,794,782.773    | 62,740,799.279  | 122,570,118.7  | 682,093,485.27835   | 122,570,118.7  | 682,093,485.27835   | 122,570,118.7  |
| 2012  | 6     | 0.000     | 0.152324671    | 134,665,668.2 | 387,550.190       | 185,085,218.494 | 134,665,668.2  | 749,404,307.84913   | 134,665,668.2  | 749,404,307.84913   | 134,665,668.2  |
| 2012  | 7     | 0.000     | 0.152324671    | 147,600,313.2 | 0.000             | 413,986,844.638 | 147,600,313.2  | 821,384,633.85027   | 147,600,313.2  | 821,384,633.85027   | 147,600,313.2  |
| 2012  | 8     | 0.000     | 0.152324671    | 141,990,543.5 | 0.000             | 406,150,755.475 | 141,990,543.5  | 790,166,687.72082   | 141,990,543.5  | 790,166,687.72082   | 141,990,543.5  |
| 2012  | 9     | 0.000     | 0.152324671    | 140,393,912.2 | 922,674.487       | 285,308,938.386 | 140,393,912.2  | 781,281,554.97594   | 140,393,912.2  | 781,281,554.97594   | 140,393,912.2  |
| 2012  | 10    | 0.000     | 0.152324671    | 125,712,883.9 | 60,933,071.877    | 68,317,975.509  | 125,712,883.9  | 699,582,737.24744   | 125,712,883.9  | 699,582,737.24744   | 125,712,883.9  |
| 2012  | 11    | 0.000     | 0.152324671    | 132,507,701.8 | 318,072,989.903   | 8,809,617.489   | 132,507,701.8  | 737,395,387.49712   | 132,507,701.8  | 737,395,387.49712   | 132,507,701.8  |
| 2012  | 12    | 0.000     | 0.152324671    | 170,961,318.8 | 519,723,613.933   | 0.000           | 170,961,318.8  | 951,386,871.51563   | 170,961,318.8  | 951,386,871.51563   | 170,961,318.8  |
| 2013  | 1     | 0.000     | 0.138150358    | 175,631,659.6 | 813,741,395.731   | 0.000           | 175,631,659.6  | 1,095,676,371.54816 | 175,631,659.6  | 1,095,676,371.54816 | 175,631,659.6  |
| 2013  | 2     | 0.000     | 0.138150358    | 128,440,110.0 | 941,088,426.083   | 0.000           | 128,440,110.0  | 801,272,356.49678   | 128,440,110.0  | 801,272,356.49678   | 128,440,110.0  |
| 2013  | 3     | 0.000     | 0.138150358    | 126,011,849.1 | 820,487,573.025   | 0.000           | 126,011,849.1  | 786,123,674.29826   | 126,011,849.1  | 786,123,674.29826   | 126,011,849.1  |
| 2013  | 4     | 0.000     | 0.138150358    | 126,062,759.0 | 531,373,380.942   | 20,230,697.652  | 126,062,759.0  | 786,441,275.75072   | 126,062,759.0  | 786,441,275.75072   | 126,062,759.0  |
| 2013  | 5     | 0.000     | 0.138150358    | 116,005,166.3 | 64,326,687.891    | 54,379,165.813  | 116,005,166.3  | 723,697,082.69987   | 116,005,166.3  | 723,697,082.69987   | 116,005,166.3  |
| 2013  | 6     | 0.000     | 0.138150358    | 120,292,433.3 | 11,254,213.933    | 199,402,514.609 | 120,292,433.3  | 750,443,155.40413   | 120,292,433.3  | 750,443,155.40413   | 120,292,433.3  |
| 2013  | 7     | 0.000     | 0.138150358    | 127,745,861.5 | 0.000             | 347,700,124.238 | 127,745,861.5  | 796,941,294.02779   | 127,745,861.5  | 796,941,294.02779   | 127,745,861.5  |
| 2013  | 8     | 0.000     | 0.138150358    | 126,303,876.3 | 0.000             | 325,683,298.891 | 126,303,876.3  | 787,945,483.13272   | 126,303,876.3  | 787,945,483.13272   | 126,303,876.3  |
| 2013  | 9     | 0.000     | 0.138150358    | 123,530,699.3 | 0.000             | 282,159,741.334 | 123,530,699.3  | 770,645,046.22684   | 123,530,699.3  | 770,645,046.22684   | 123,530,699.3  |
| 2013  | 10    | 0.000     | 0.138150358    | 112,359,498.2 | 15,672,848.369    | 111,282,610.479 | 112,359,498.2  | 700,953,618.43299   | 112,359,498.2  | 700,953,618.43299   | 112,359,498.2  |
| 2013  | 11    | 0.000     | 0.138150358    | 117,684,650.6 | 264,083,803.593   | 16,077,331.577  | 117,684,650.6  | 734,174,528.93465   | 117,684,650.6  | 734,174,528.93465   | 117,684,650.6  |
| 2013  | 12    | 0.000     | 0.138150358    | 154,272,115.9 | 713,255,114.125   | 477,663.100     | 154,272,115.9  | 962,425,069.53224   | 154,272,115.9  | 962,425,069.53224   | 154,272,115.9  |
| 2014  | 1     | 0.000     | 0.133107427    | 166,733,291.7 | 928,842,280.257   | 913,399.536     | 166,733,291.7  | 1,085,888,713.56415 | 166,733,291.7  | 1,085,888,713.56415 | 166,733,291.7  |
| 2014  | 2     | 0.000     | 0.133107427    | 136,855,323.8 | 1,235,581,815.087 | 0.000           | 136,855,323.8  | 891,301,611.05301   | 136,855,323.8  | 891,301,611.05301   | 136,855,323.8  |
| 2014  | 3     | 0.000     | 0.133107427    | 130,071,777.3 | 881,743,813.486   | 0.000           | 130,071,777.3  | 847,122,212.56496   | 130,071,777.3  | 847,122,212.56496   | 130,071,777.3  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |               |                   |                 |                |                     |                |                   |                 |                |                     |
|---|-------|-----------|----------------|---------------|-------------------|-----------------|----------------|---------------------|----------------|-------------------|-----------------|----------------|---------------------|
| Year  | Month | X-Missing | Lighting Share | Lighting      | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2014  | 4     | 0.000     | 0.133107427    | 117,654,503.1 | 423,355,509.658   | 7,122,469.878   | 117,654,503.1  | 766,251,872.61696   | 117,654,503.1  | 423,355,509.658   | 7,122,469.878   | 117,654,503.1  | 766,251,872.61696   |
| 2014  | 5     | 0.000     | 0.133107427    | 110,192,855.1 | 52,435,888.364    | 38,752,834.396  | 110,192,855.1  | 717,656,182.48421   | 110,192,855.1  | 52,435,888.364    | 38,752,834.396  | 110,192,855.1  | 717,656,182.48421   |
| 2014  | 6     | 0.000     | 0.133107427    | 117,033,674.8 | 14,458,841.942    | 149,467,059.039 | 117,033,674.8  | 762,208,586.69441   | 117,033,674.8  | 14,458,841.942    | 149,467,059.039 | 117,033,674.8  | 762,208,586.69441   |
| 2014  | 7     | 0.000     | 0.133107427    | 125,785,511.7 | 0.000             | 316,158,501.380 | 125,785,511.7  | 819,206,926.99541   | 125,785,511.7  | 0.000             | 316,158,501.380 | 125,785,511.7  | 819,206,926.99541   |
| 2014  | 8     | 0.000     | 0.133107427    | 123,146,247.3 | 0.000             | 223,749,804.996 | 123,146,247.3  | 802,018,113.64932   | 123,146,247.3  | 0.000             | 223,749,804.996 | 123,146,247.3  | 802,018,113.64932   |
| 2014  | 9     | 0.000     | 0.133107427    | 118,238,591.8 | 0.000             | 260,518,001.191 | 118,238,591.8  | 770,055,883.75618   | 118,238,591.8  | 0.000             | 260,518,001.191 | 118,238,591.8  | 770,055,883.75618   |
| 2014  | 10    | 0.000     | 0.133107427    | 108,634,035.8 | 26,295,712.901    | 66,175,514.826  | 108,634,035.8  | 707,504,015.52963   | 108,634,035.8  | 26,295,712.901    | 66,175,514.826  | 108,634,035.8  | 707,504,015.52963   |
| 2014  | 11    | 0.000     | 0.133107427    | 112,917,985.8 | 295,010,151.180   | 6,198,285.547   | 112,917,985.8  | 735,404,220.19133   | 112,917,985.8  | 295,010,151.180   | 6,198,285.547   | 112,917,985.8  | 735,404,220.19133   |
| 2014  | 12    | 0.000     | 0.133107427    | 145,976,654.0 | 713,893,704.331   | 18,987.338      | 145,976,654.0  | 950,706,361.05843   | 145,976,654.0  | 713,893,704.331   | 18,987.338      | 145,976,654.0  | 950,706,361.05843   |
| 2015  | 1     | 0.000     | 0.124148361    | 149,855,283.1 | 873,985,955.724   | 0.000           | 149,855,283.1  | 1,057,210,863.20193 | 149,855,283.1  | 873,985,955.724   | 0.000           | 149,855,283.1  | 1,057,210,863.20193 |
| 2015  | 2     | 0.000     | 0.124148361    | 115,496,316.3 | 1,091,159,241.976 | 0.000           | 115,496,316.3  | 814,812,515.35164   | 115,496,316.3  | 1,091,159,241.976 | 0.000           | 115,496,316.3  | 814,812,515.35164   |
| 2015  | 3     | 0.000     | 0.124148361    | 115,562,954.4 | 1,140,802,710.741 | 0.000           | 115,562,954.4  | 815,282,639.49791   | 115,562,954.4  | 1,140,802,710.741 | 0.000           | 115,562,954.4  | 815,282,639.49791   |
| 2015  | 4     | 0.000     | 0.124148361    | 103,999,600.6 | 322,071,906.647   | 5,480,622.610   | 103,999,600.6  | 733,704,579.57833   | 103,999,600.6  | 322,071,906.647   | 5,480,622.610   | 103,999,600.6  | 733,704,579.57833   |
| 2015  | 5     | 0.000     | 0.124148361    | 94,173,888.2  | 78,266,817.045    | 59,179,545.740  | 94,173,888.2   | 664,385,369.58859   | 94,173,888.2   | 78,266,817.045    | 59,179,545.740  | 94,173,888.2   | 664,385,369.58859   |
| 2015  | 6     | 0.000     | 0.124148361    | 102,996,747.9 | 2,706,174.880     | 220,084,304.873 | 102,996,747.9  | 726,629,575.14411   | 102,996,747.9  | 2,706,174.880     | 220,084,304.873 | 102,996,747.9  | 726,629,575.14411   |
| 2015  | 7     | 0.000     | 0.124148361    | 113,649,783.2 | 0.000             | 313,013,087.704 | 113,649,783.2  | 801,785,448.56834   | 113,649,783.2  | 0.000             | 313,013,087.704 | 113,649,783.2  | 801,785,448.56834   |
| 2015  | 8     | 0.000     | 0.124148361    | 108,732,847.9 | 0.000             | 327,038,644.488 | 108,732,847.9  | 767,097,065.99804   | 108,732,847.9  | 0.000             | 327,038,644.488 | 108,732,847.9  | 767,097,065.99804   |
| 2015  | 9     | 0.000     | 0.124148361    | 109,041,296.7 | 0.000             | 249,367,349.576 | 109,041,296.7  | 769,273,134.43867   | 109,041,296.7  | 0.000             | 249,367,349.576 | 109,041,296.7  | 769,273,134.43867   |
| 2015  | 10    | 0.000     | 0.124148361    | 97,592,594.8  | 25,851,034.107    | 78,529,651.745  | 97,592,594.8   | 688,503,930.14968   | 97,592,594.8   | 25,851,034.107    | 78,529,651.745  | 97,592,594.8   | 688,503,930.14968   |
| 2015  | 11    | 0.000     | 0.124148361    | 101,187,488.3 | 149,470,124.025   | 5,430,070.913   | 101,187,488.3  | 713,865,468.38641   | 101,187,488.3  | 149,470,124.025   | 5,430,070.913   | 101,187,488.3  | 713,865,468.38641   |
| 2015  | 12    | 0.000     | 0.124148361    | 129,853,149.2 | 366,623,442.566   | 1,120,555.099   | 129,853,149.2  | 916,098,232.30902   | 129,853,149.2  | 366,623,442.566   | 1,120,555.099   | 129,853,149.2  | 916,098,232.30902   |
| 2016  | 1     | 0.000     | 0.093041221    | 108,841,923.9 | 595,535,418.450   | 0.000           | 108,841,923.9  | 1,060,982,828.75651 | 108,841,923.9  | 595,535,418.450   | 0.000           | 108,841,923.9  | 1,060,982,828.75651 |
| 2016  | 2     | 0.000     | 0.093041221    | 82,886,536.9  | 992,519,097.030   | 0.000           | 82,886,536.9   | 807,971,682.04120   | 82,886,536.9   | 992,519,097.030   | 0.000           | 82,886,536.9   | 807,971,682.04120   |
| 2016  | 3     | 0.000     | 0.093041221    | 81,485,546.4  | 559,097,473.221   | 1,372,952.535   | 81,485,546.4   | 794,314,933.05742   | 81,485,546.4   | 559,097,473.221   | 1,372,952.535   | 81,485,546.4   | 794,314,933.05742   |
| 2016  | 4     | 0.000     | 0.093041221    | 79,602,152.9  | 199,701,403.589   | 10,162,733.649  | 79,602,152.9   | 775,955,756.47799   | 79,602,152.9   | 199,701,403.589   | 10,162,733.649  | 79,602,152.9   | 775,955,756.47799   |
| 2016  | 5     | 0.000     | 0.093041221    | 70,773,017.0  | 66,142,556.006    | 53,458,509.978  | 70,773,017.0   | 689,890,008.55107   | 70,773,017.0   | 66,142,556.006    | 53,458,509.978  | 70,773,017.0   | 689,890,008.55107   |
| 2016  | 6     | 0.000     | 0.093041221    | 74,368,346.8  | 15,423,043.020    | 180,459,925.569 | 74,368,346.8   | 724,937,010.39067   | 74,368,346.8   | 15,423,043.020    | 180,459,925.569 | 74,368,346.8   | 724,937,010.39067   |
| 2016  | 7     | 0.000     | 0.093041221    | 82,830,115.7  | 0.000             | 336,989,855.102 | 82,830,115.7   | 807,421,692.68347   | 82,830,115.7   | 0.000             | 336,989,855.102 | 82,830,115.7   | 807,421,692.68347   |
| 2016  | 8     | 0.000     | 0.093041221    | 82,141,205.0  | 0.000             | 451,362,465.403 | 82,141,205.0   | 800,706,243.71269   | 82,141,205.0   | 0.000             | 451,362,465.403 | 82,141,205.0   | 800,706,243.71269   |
| 2016  | 9     | 0.000     | 0.093041221    | 80,719,321.6  | 0.000             | 415,915,485.584 | 80,719,321.6   | 786,845,832.22410   | 80,719,321.6   | 0.000             | 415,915,485.584 | 80,719,321.6   | 786,845,832.22410   |
| 2016  | 10    | 0.000     | 0.093041221    | 72,316,197.7  | 2,573,637.401     | 198,212,983.473 | 72,316,197.7   | 704,932,816.42696   | 72,316,197.7   | 2,573,637.401     | 198,212,983.473 | 72,316,197.7   | 704,932,816.42696   |
| 2016  | 11    | 0.000     | 0.093041221    | 73,182,880.1  | 84,473,253.449    | 47,570,489.322  | 73,182,880.1   | 713,381,170.91084   | 73,182,880.1   | 84,473,253.449    | 47,570,489.322  | 73,182,880.1   | 713,381,170.91084   |
| 2016  | 12    | 0.000     | 0.093041221    | 96,057,021.9  | 497,292,598.742   | 1,967,946.299   | 96,057,021.9   | 936,356,572.60165   | 96,057,021.9   | 497,292,598.742   | 1,967,946.299   | 96,057,021.9   | 936,356,572.60165   |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                   |                 |                |                     |  |  |
|---|-------|-----------|----------------|--------------|-------------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2017  | 1     | 0.000     | 0.079021201    | 92,653,162.4 | 660,909,403.107   | 0.000           | 92,653,162.4   | 1,079,857,016.56670 |  |  |
| 2017  | 2     | 0.000     | 0.079021201    | 70,013,345.3 | 550,991,520.504   | 0.000           | 70,013,345.3   | 815,993,757.77299   |  |  |
| 2017  | 3     | 0.000     | 0.079021201    | 65,739,291.3 | 431,436,224.084   | 637,289.540     | 65,739,291.3   | 766,180,377.69610   |  |  |
| 2017  | 4     | 0.000     | 0.079021201    | 64,108,419.1 | 266,920,703.192   | 15,066,743.125  | 64,108,419.1   | 747,172,837.30232   |  |  |
| 2017  | 5     | 0.000     | 0.079021201    | 57,485,537.4 | 36,355,145.505    | 79,481,373.877  | 57,485,537.4   | 669,984,265.55337   |  |  |
| 2017  | 6     | 0.000     | 0.079021201    | 62,840,515.5 | 8,777,933.144     | 149,708,456.343 | 62,840,515.5   | 732,395,634.32876   |  |  |
| 2017  | 7     | 0.000     | 0.079021201    | 69,369,856.6 | 0.000             | 301,063,799.645 | 69,369,856.6   | 808,494,005.16439   |  |  |
| 2017  | 8     | 0.000     | 0.079021201    | 68,492,986.3 | 0.000             | 321,506,551.231 | 68,492,986.3   | 798,274,229.29679   |  |  |
| 2017  | 9     | 0.000     | 0.079021201    | 67,760,876.3 | 0.000             | 191,152,247.856 | 67,760,876.3   | 789,741,610.94754   |  |  |
| 2017  | 10    | 0.000     | 0.079021201    | 59,763,790.3 | 4,803,694.152     | 141,005,321.572 | 59,763,790.3   | 696,536,918.77882   |  |  |
| 2017  | 11    | 0.000     | 0.079021201    | 62,066,094.1 | 194,279,905.442   | 25,608,979.435  | 62,066,094.1   | 723,369,883.14964   |  |  |
| 2017  | 12    | 0.000     | 0.079021201    | 81,502,669.3 | 525,863,706.464   | 962,550.344     | 81,502,669.3   | 949,899,896.32160   |  |  |
| 2018  | 1     | 0.000     | 0.067311804    | 78,580,318.2 | 1,029,371,751.745 | 1,958,418.468   | 78,580,318.2   | 1,088,827,386.04111 |  |  |
| 2018  | 2     | 0.000     | 0.067311804    | 63,210,931.1 | 828,107,547.543   | 3,284,396.289   | 63,210,931.1   | 875,865,539.74927   |  |  |
| 2018  | 3     | 0.000     | 0.067311804    | 58,881,342.8 | 459,283,163.681   | 6,579,224.246   | 58,881,342.8   | 815,873,745.50758   |  |  |
| 2018  | 4     | 0.000     | 0.067311804    | 54,568,194.7 | 442,185,797.260   | 7,595,038.326   | 54,568,194.7   | 756,109,750.30498   |  |  |
| 2018  | 5     | 0.000     | 0.067311804    | 50,864,033.5 | 107,528,435.901   | 81,888,033.336  | 50,864,033.5   | 704,784,020.63061   |  |  |
| 2018  | 6     | 0.000     | 0.067311804    | 55,285,698.6 | 1,457,288.328     | 276,974,944.595 | 55,285,698.6   | 766,051,653.13125   |  |  |
| 2018  | 7     | 0.000     | 0.067311804    | 59,737,495.4 | 0.000             | 371,481,978.674 | 59,737,495.4   | 827,736,797.05286   |  |  |
| 2018  | 8     | 0.000     | 0.067311804    | 59,290,859.8 | 0.000             | 339,514,070.328 | 59,290,859.8   | 821,548,109.99072   |  |  |
| 2018  | 9     | 0.000     | 0.067311804    | 56,429,175.2 | 0.000             | 342,977,444.609 | 56,429,175.2   | 781,895,933.85339   |  |  |
| 2018  | 10    | 0.000     | 0.067311804    | 50,667,301.1 | 27,526,607.232    | 214,487,965.310 | 50,667,301.1   | 702,058,050.33691   |  |  |
| 2018  | 11    | 0.000     | 0.067311804    | 53,454,450.7 | 265,664,176.446   | 31,261,415.359  | 53,454,450.7   | 740,677,450.98144   |  |  |
| 2018  | 12    | 0.000     | 0.067311804    | 68,533,445.0 | 616,638,207.116   | 173,707.251     | 68,533,445.0   | 949,615,545.05336   |  |  |
| 2019  | 1     | 0.000     | 0.06059262     | 69,495,922.4 | 615,734,674.576   | 0.000           | 69,495,922.4   | 1,077,441,154.32627 |  |  |
| 2019  | 2     | 0.000     | 0.06059262     | 53,257,769.3 | 772,094,066.731   | 0.000           | 53,257,769.3   | 825,690,349.43782   |  |  |
| 2019  | 3     | 0.000     | 0.06059262     | 52,081,936.9 | 603,429,608.463   | 891,215.533     | 52,081,936.9   | 807,460,642.90155   |  |  |
| 2019  | 4     | 0.000     | 0.06059262     | 48,090,880.7 | 303,420,637.269   | 10,424,501.664  | 48,090,880.7   | 745,584,665.13669   |  |  |
| 2019  | 5     | 0.000     | 0.06059262     | 46,102,928.6 | 27,160,664.186    | 65,716,917.699  | 46,102,928.6   | 714,764,130.72317   |  |  |
| 2019  | 6     | 0.000     | 0.06059262     | 48,835,951.5 | 419,523.309       | 183,112,855.022 | 48,835,951.5   | 757,135,989.39276   |  |  |
| 2019  | 7     | 0.000     | 0.06059262     | 53,159,962.7 | 0.000             | 319,162,595.972 | 53,159,962.7   | 824,173,988.83468   |  |  |
| 2019  | 8     | 0.000     | 0.06059262     | 52,648,813.9 | 0.000             | 371,473,133.739 | 52,648,813.9   | 816,249,311.56262   |  |  |
| 2019  | 9     | 0.000     | 0.06059262     | 52,074,721.2 | 0.000             | 310,799,439.188 | 52,074,721.2   | 807,348,773.99190   |  |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2019  | 10    | 0.000     | 0.06059262     | 46,472,844.7 | 10,179,830.463  | 245,460,100.297 | 46,472,844.7   | 720,499,185.38360   |  |
| 2019  | 11    | 0.000     | 0.06059262     | 47,606,502.6 | 233,880,508.340 | 20,591,348.585  | 47,606,502.6   | 738,075,032.07126   |  |
| 2019  | 12    | 0.000     | 0.06059262     | 62,071,164.8 | 570,162,051.844 | 0.000           | 62,071,164.8   | 962,330,236.70162   |  |
| 2020  | 1     | 0.000     | 0.056678098    | 65,460,195.8 | 502,553,867.478 | 1,911,534.244   | 65,460,195.8   | 1,089,486,746.30241 |  |
| 2020  | 2     | 0.000     | 0.056678098    | 49,726,895.7 | 623,856,217.258 | 1,922,434.954   | 49,726,895.7   | 827,629,571.04241   |  |
| 2020  | 3     | 0.000     | 0.056678098    | 46,177,563.8 | 519,371,542.399 | 137,574.041     | 46,177,563.8   | 768,556,266.64704   |  |
| 2020  | 4     | 0.000     | 0.056678098    | 47,485,518.4 | 186,781,422.618 | 18,591,734.130  | 47,485,518.4   | 790,325,210.18253   |  |
| 2020  | 5     | 0.000     | 0.056678098    | 43,292,315.9 | 146,516,374.203 | 22,997,625.799  | 43,292,315.9   | 720,535,645.07256   |  |
| 2020  | 6     | 0.000     | 0.056678098    | 46,016,154.8 | 39,783,667.054  | 174,578,153.672 | 46,016,154.8   | 765,869,856.51510   |  |
| 2020  | 7     | 0.000     | 0.056678098    | 50,238,391.8 | 0.000           | 331,514,059.764 | 50,238,391.8   | 836,142,657.55555   |  |
| 2020  | 8     | 0.000     | 0.056678098    | 49,588,326.4 | 0.000           | 419,076,042.397 | 49,588,326.4   | 825,323,292.87983   |  |
| 2020  | 9     | 0.000     | 0.056678098    | 49,068,171.8 | 0.000           | 302,573,042.191 | 49,068,171.8   | 816,666,101.23249   |  |
| 2020  | 10    | 0.000     | 0.056678098    | 44,237,218.8 | 17,374,245.487  | 72,584,853.777  | 44,237,218.8   | 736,262,135.35223   |  |
| 2020  | 11    | 0.000     | 0.056678098    | 45,376,374.4 | 119,730,411.816 | 12,672,480.786  | 45,376,374.4   | 755,221,671.44705   |  |
| 2020  | 12    | 0.000     | 0.056678098    | 57,950,901.2 | 448,387,383.817 | 1,210,508.223   | 57,950,901.2   | 964,505,805.06742   |  |
| 2021  | 1     | 0.000     | 0.054867813    | 64,360,198.4 | 734,803,212.063 | 0.000           | 64,360,198.4   | 1,108,644,417.91932 |  |
| 2021  | 2     | 0.000     | 0.054867813    | 50,854,735.7 | 903,100,202.863 | 0.000           | 50,854,735.7   | 876,004,429.21508   |  |
| 2021  | 3     | 0.000     | 0.054867813    | 46,844,161.5 | 699,067,415.248 | 308,732.775     | 46,844,161.5   | 806,919,796.03121   |  |
| 2021  | 4     | 0.000     | 0.054867813    | 44,303,455.6 | 185,274,649.372 | 7,898,432.954   | 44,303,455.6   | 763,154,558.15360   |  |
| 2021  | 5     | 0.000     | 0.054867813    | 42,565,794.6 | 94,977,455.738  | 30,696,911.580  | 42,565,794.6   | 733,222,266.17383   |  |
| 2021  | 6     | 0.000     | 0.054867813    | 45,247,942.2 | 12,179,335.908  | 148,067,353.846 | 45,247,942.2   | 779,423,926.52088   |  |
| 2021  | 7     | 0.000     | 0.054867813    | 48,497,245.3 | 436,163.307     | 289,939,115.368 | 48,497,245.3   | 835,395,192.32774   |  |
| 2021  | 8     | 0.000     | 0.054867813    | 48,322,030.5 | 0.000           | 331,129,425.124 | 48,322,030.5   | 832,377,008.25795   |  |
| 2021  | 9     | 0.000     | 0.054867813    | 46,804,392.3 | 0.000           | 317,922,551.999 | 46,804,392.3   | 806,234,745.87195   |  |
| 2021  | 10    | 0.000     | 0.054867813    | 42,596,641.3 | 1,843,641.830   | 134,893,938.075 | 42,596,641.3   | 733,753,620.55222   |  |
| 2021  | 11    | 0.000     | 0.054867813    | 42,985,948.3 | 152,673,221.484 | 33,376,255.079  | 42,985,948.3   | 740,459,676.28603   |  |
| 2021  | 12    | 0.000     | 0.054867813    | 56,732,924.1 | 436,046,739.200 | 0.000           | 56,732,924.1   | 977,259,877.13754   |  |
| 2022  | 1     | 0.000     | 0.053829799    | 64,390,913.8 | 512,208,676.662 | 0.000           | 64,390,913.8   | 1,131,803,661.66937 |  |
| 2022  | 2     | 0.000     | 0.053829799    | 47,828,234.2 | 819,536,348.080 | 198,142.156     | 47,828,234.2   | 840,680,266.31161   |  |
| 2022  | 3     | 0.000     | 0.053829799    | 45,031,272.7 | 603,716,627.568 | 1,240,694.385   | 45,031,272.7   | 791,517,876.52528   |  |
| 2022  | 4     | 0.000     | 0.053829799    | 43,620,118.2 | 283,051,983.702 | 13,438,868.721  | 43,620,118.2   | 766,713,913.86338   |  |
| 2022  | 5     | 0.000     | 0.053829799    | 40,742,823.0 | 67,748,647.884  | 45,248,449.382  | 40,742,823.0   | 716,139,491.78442   |  |
| 2022  | 6     | 0.000     | 0.053829799    | 43,930,898.5 | 9,114,821.385   | 141,723,716.073 | 43,930,898.5   | 772,176,521.47876   |  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 618 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2022  | 7     | 0.000     | 0.053829799    | 47,661,681.8 | 31,016.198      | 288,921,240.119 | 47,661,681.8   | 837,752,764.01898   |  |
| 2022  | 8     | 0.000     | 0.053829799    | 46,836,411.6 | 0.000           | 326,049,260.273 | 46,836,411.6   | 823,246,930.39632   |  |
| 2022  | 9     | 0.000     | 0.053829799    | 45,584,203.9 | 131,309.993     | 261,622,455.868 | 45,584,203.9   | 801,236,786.95950   |  |
| 2022  | 10    | 0.000     | 0.053829799    | 40,685,496.9 | 21,727,908.653  | 93,728,395.868  | 40,685,496.9   | 715,131,867.15560   |  |
| 2022  | 11    | 0.000     | 0.053829799    | 42,489,577.6 | 181,847,556.412 | 12,452,940.382  | 42,489,577.6   | 746,842,321.75412   |  |
| 2022  | 12    | 0.000     | 0.053829799    | 56,390,980.8 | 490,857,675.466 | 908,796.560     | 56,390,980.8   | 991,188,271.50294   |  |
| 2023  | 1     | 0.000     | 0.053345206    | 63,061,676.1 | 710,325,648.995 | 247,101.260     | 63,061,676.1   | 1,119,081,582.85264 |  |
| 2023  | 2     | 0.000     | 0.053345206    | 48,378,525.2 | 803,040,747.766 | 193,383.217     | 48,378,525.2   | 858,516,929.58121   |  |
| 2023  | 3     | 0.000     | 0.053345206    | 45,102,195.8 | 593,327,846.768 | 1,214,522.274   | 45,102,195.8   | 800,375,755.28897   |  |
| 2023  | 4     | 0.000     | 0.053345206    | 43,461,600.7 | 279,012,939.370 | 13,194,741.769  | 43,461,600.7   | 771,262,039.31052   |  |
| 2023  | 5     | 0.000     | 0.053345206    | 40,501,202.1 | 66,966,324.169  | 44,548,990.873  | 40,501,202.1   | 718,727,318.67217   |  |
| 2023  | 6     | 0.000     | 0.053345206    | 43,613,745.2 | 9,030,425.673   | 139,858,919.453 | 43,613,745.2   | 773,961,967.79464   |  |
| 2023  | 7     | 0.000     | 0.053345206    | 47,293,355.8 | 30,784.266      | 285,638,153.669 | 47,293,355.8   | 839,259,701.18879   |  |
| 2023  | 8     | 0.000     | 0.053345206    | 46,472,877.0 | 0.000           | 322,834,363.681 | 46,472,877.0   | 824,699,626.50580   |  |
| 2023  | 9     | 0.000     | 0.053345206    | 45,232,234.0 | 130,616.830     | 259,222,767.618 | 45,232,234.0   | 802,683,390.47612   |  |
| 2023  | 10    | 0.000     | 0.053345206    | 40,373,781.6 | 21,617,445.158  | 92,889,723.406  | 40,373,781.6   | 716,466,136.21643   |  |
| 2023  | 11    | 0.000     | 0.053345206    | 42,156,142.6 | 180,890,237.501 | 12,339,438.650  | 42,156,142.6   | 748,095,605.62350   |  |
| 2023  | 12    | 0.000     | 0.053345206    | 55,931,533.5 | 488,060,396.630 | 900,116.613     | 55,931,533.5   | 992,551,306.05034   |  |
| 2024  | 1     | 0.000     | 0.053139125    | 62,845,812.6 | 706,115,598.939 | 245,460.516     | 62,845,812.6   | 1,119,819,741.12694 |  |
| 2024  | 2     | 0.000     | 0.053139125    | 48,203,462.5 | 797,601,985.730 | 191,936.932     | 48,203,462.5   | 858,914,647.69374   |  |
| 2024  | 3     | 0.000     | 0.053139125    | 44,928,623.8 | 588,829,732.236 | 1,204,432.643   | 44,928,623.8   | 800,561,848.59169   |  |
| 2024  | 4     | 0.000     | 0.053139125    | 43,285,971.0 | 276,700,351.211 | 13,075,034.841  | 43,285,971.0   | 771,292,196.97885   |  |
| 2024  | 5     | 0.000     | 0.053139125    | 40,326,248.7 | 66,356,640.928  | 44,107,727.501  | 40,326,248.7   | 718,554,308.37164   |  |
| 2024  | 6     | 0.000     | 0.053139125    | 43,416,329.4 | 8,941,940.908   | 138,374,015.659 | 43,416,329.4   | 773,614,991.24973   |  |
| 2024  | 7     | 0.000     | 0.053139125    | 47,076,019.3 | 30,466.385      | 282,448,120.512 | 47,076,019.3   | 838,825,271.72916   |  |
| 2024  | 8     | 0.000     | 0.053139125    | 46,257,552.9 | 0.000           | 319,135,407.737 | 46,257,552.9   | 824,241,406.36455   |  |
| 2024  | 9     | 0.000     | 0.053139125    | 45,021,173.2 | 129,232.515     | 256,228,443.104 | 45,021,173.2   | 802,210,941.89354   |  |
| 2024  | 10    | 0.000     | 0.053139125    | 40,182,119.1 | 21,389,536.958  | 91,818,343.182  | 40,182,119.1   | 715,986,130.69606   |  |
| 2024  | 11    | 0.000     | 0.053139125    | 41,960,744.0 | 179,022,812.168 | 12,199,132.138  | 41,960,744.0   | 747,678,604.85042   |  |
| 2024  | 12    | 0.000     | 0.053139125    | 55,682,213.7 | 483,152,333.396 | 890,085.368     | 55,682,213.7   | 992,174,969.23670   |  |
| 2025  | 1     | 0.000     | 0.052634808    | 62,215,650.1 | 698,039,965.817 | 242,628.192     | 62,215,650.1   | 1,119,809,180.18814 |  |
| 2025  | 2     | 0.000     | 0.052634808    | 47,718,752.7 | 788,639,408.566 | 189,762.595     | 47,718,752.7   | 858,881,925.43804   |  |
| 2025  | 3     | 0.000     | 0.052634808    | 44,479,483.6 | 582,371,120.812 | 1,191,113.674   | 44,479,483.6   | 800,578,857.25372   |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |                |                |             |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|----------------|----------------|-------------|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Lighting Usage | Other Usage |
| 2025  | 4     | 0.000     | 0.052634808    | 42,853,302.8 | 273,680,835.468 | 12,932,130.602  | 42,853,302.8   | 771,309,497.64461   |                |                |             |
| 2025  | 5     | 0.000     | 0.052634808    | 39,926,574.5 | 65,652,643.450  | 43,638,979.952  | 39,926,574.5   | 718,631,800.41256   |                |                |             |
| 2025  | 6     | 0.000     | 0.052634808    | 42,986,387.7 | 8,847,419.895   | 136,916,179.863 | 42,986,387.7   | 773,704,870.41448   |                |                |             |
| 2025  | 7     | 0.000     | 0.052634808    | 46,612,198.3 | 30,142.948      | 279,475,253.237 | 46,612,198.3   | 838,965,234.96871   |                |                |             |
| 2025  | 8     | 0.000     | 0.052634808    | 45,802,140.5 | 0.000           | 315,792,303.169 | 45,802,140.5   | 824,385,138.52584   |                |                |             |
| 2025  | 9     | 0.000     | 0.052634808    | 44,575,136.1 | 127,866.132     | 253,546,085.286 | 44,575,136.1   | 802,300,489.83499   |                |                |             |
| 2025  | 10    | 0.000     | 0.052634808    | 39,779,975.3 | 21,164,475.713  | 90,860,164.348  | 39,779,975.3   | 715,993,184.45992   |                |                |             |
| 2025  | 11    | 0.000     | 0.052634808    | 41,538,749.8 | 177,133,899.308 | 12,071,368.647  | 41,538,749.8   | 747,649,075.94202   |                |                |             |
| 2025  | 12    | 0.000     | 0.052634808    | 55,123,115.0 | 478,047,211.271 | 880,724.607     | 55,123,115.0   | 992,151,814.82407   |                |                |             |
| 2026  | 1     | 0.000     | 0.052144467    | 61,681,242.9 | 690,882,338.139 | 240,315.094     | 61,681,242.9   | 1,121,210,175.28437 |                |                |             |
| 2026  | 2     | 0.000     | 0.052144467    | 47,317,353.7 | 780,600,731.894 | 187,953.462     | 47,317,353.7   | 860,110,724.01110   |                |                |             |
| 2026  | 3     | 0.000     | 0.052144467    | 44,109,465.7 | 576,438,359.715 | 1,179,713.258   | 44,109,465.7   | 801,799,371.11899   |                |                |             |
| 2026  | 4     | 0.000     | 0.052144467    | 42,502,801.4 | 270,911,011.134 | 12,808,343.006  | 42,502,801.4   | 772,594,247.53070   |                |                |             |
| 2026  | 5     | 0.000     | 0.052144467    | 39,603,558.7 | 64,987,770.845  | 43,219,197.904  | 39,603,558.7   | 719,893,291.23496   |                |                |             |
| 2026  | 6     | 0.000     | 0.052144467    | 42,641,617.6 | 8,760,064.872   | 135,620,213.475 | 42,641,617.6   | 775,117,576.74310   |                |                |             |
| 2026  | 7     | 0.000     | 0.052144467    | 46,239,230.5 | 29,852.818      | 276,876,041.117 | 46,239,230.5   | 840,513,149.61117   |                |                |             |
| 2026  | 8     | 0.000     | 0.052144467    | 45,435,408.7 | 0.000           | 312,865,227.656 | 45,435,408.7   | 825,901,687.89371   |                |                |             |
| 2026  | 9     | 0.000     | 0.052144467    | 44,222,032.1 | 126,646.884     | 251,208,326.190 | 44,222,032.1   | 803,845,545.47603   |                |                |             |
| 2026  | 10    | 0.000     | 0.052144467    | 39,469,332.9 | 20,964,076.295  | 90,029,065.938  | 39,469,332.9   | 717,453,404.00954   |                |                |             |
| 2026  | 11    | 0.000     | 0.052144467    | 41,213,004.4 | 175,494,513.655 | 11,963,075.535  | 41,213,004.4   | 749,148,975.22658   |                |                |             |
| 2026  | 12    | 0.000     | 0.052144467    | 54,678,421.6 | 473,696,813.096 | 872,940.482     | 54,678,421.6   | 993,916,462.01861   |                |                |             |
| 2027  | 1     | 0.000     | 0.051805005    | 61,353,186.3 | 684,395,479.046 | 238,342.101     | 61,353,186.3   | 1,122,956,841.08280 |                |                |             |
| 2027  | 2     | 0.000     | 0.051805005    | 47,077,498.1 | 773,384,712.891 | 186,438.621     | 47,077,498.1   | 861,666,714.99139   |                |                |             |
| 2027  | 3     | 0.000     | 0.051805005    | 43,892,935.0 | 571,220,994.874 | 1,170,416.790   | 43,892,935.0   | 803,379,164.83985   |                |                |             |
| 2027  | 4     | 0.000     | 0.051805005    | 42,301,028.0 | 268,505,455.986 | 12,709,625.450  | 42,301,028.0   | 774,242,245.21964   |                |                |             |
| 2027  | 5     | 0.000     | 0.051805005    | 39,420,768.7 | 64,418,128.459  | 42,891,557.332  | 39,420,768.7   | 721,524,414.75095   |                |                |             |
| 2027  | 6     | 0.000     | 0.051805005    | 42,441,107.8 | 8,683,523.839   | 134,600,283.084 | 42,441,107.8   | 776,806,148.67520   |                |                |             |
| 2027  | 7     | 0.000     | 0.051805005    | 46,014,702.5 | 29,591.674      | 274,798,767.871 | 46,014,702.5   | 842,214,203.88723   |                |                |             |
| 2027  | 8     | 0.000     | 0.051805005    | 45,213,004.4 | 0.000           | 310,524,200.033 | 45,213,004.4   | 827,540,600.20793   |                |                |             |
| 2027  | 9     | 0.000     | 0.051805005    | 44,010,687.9 | 125,547.858     | 249,341,496.056 | 44,010,687.9   | 805,534,415.77329   |                |                |             |
| 2027  | 10    | 0.000     | 0.051805005    | 39,285,709.9 | 20,781,981.526  | 89,358,172.544  | 39,285,709.9   | 719,052,413.70860   |                |                |             |
| 2027  | 11    | 0.000     | 0.051805005    | 41,014,057.8 | 173,950,326.999 | 11,872,890.245  | 41,014,057.8   | 750,686,632.34620   |                |                |             |
| 2027  | 12    | 0.000     | 0.051805005    | 54,395,192.5 | 469,458,018.339 | 866,263.449     | 54,395,192.5   | 995,603,605.17451   |                |                |             |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 620 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2028  | 1     | 0.000     | 0.051592288    | 61,185,950.6 | 678,502,241.262 | 236,730.582     | 61,185,950.6   | 1,124,765,531.09211 |  |  |
| 2028  | 2     | 0.000     | 0.051592288    | 46,958,892.7 | 766,695,124.746 | 185,171.106     | 46,958,892.7   | 863,233,199.81216   |  |  |
| 2028  | 3     | 0.000     | 0.051592288    | 43,786,307.1 | 566,275,463.848 | 1,162,442.111   | 43,786,307.1   | 804,912,376.45659   |  |  |
| 2028  | 4     | 0.000     | 0.051592288    | 42,201,569.0 | 266,169,363.584 | 12,622,349.371  | 42,201,569.0   | 775,780,546.62924   |  |  |
| 2028  | 5     | 0.000     | 0.051592288    | 39,332,327.9 | 63,860,225.146  | 42,597,984.443  | 39,332,327.9   | 723,036,027.44053   |  |  |
| 2028  | 6     | 0.000     | 0.051592288    | 42,341,727.0 | 8,608,124.695   | 133,675,559.138 | 42,341,727.0   | 778,357,033.96655   |  |  |
| 2028  | 7     | 0.000     | 0.051592288    | 45,900,100.1 | 29,333.452      | 272,899,394.641 | 45,900,100.1   | 843,769,687.39441   |  |  |
| 2028  | 8     | 0.000     | 0.051592288    | 45,098,214.2 | 0.000           | 308,359,960.430 | 45,098,214.2   | 829,028,825.96150   |  |  |
| 2028  | 9     | 0.000     | 0.051592288    | 43,901,871.1 | 124,434.571     | 247,588,616.808 | 43,901,871.1   | 807,036,759.97186   |  |  |
| 2028  | 10    | 0.000     | 0.051592288    | 39,192,941.7 | 20,596,747.161  | 88,726,218.830  | 39,192,941.7   | 720,473,727.69363   |  |  |
| 2028  | 11    | 0.000     | 0.051592288    | 40,912,064.8 | 172,393,925.724 | 11,788,473.008  | 40,912,064.8   | 752,075,923.19013   |  |  |
| 2028  | 12    | 0.000     | 0.051592288    | 54,243,627.6 | 465,234,872.695 | 860,064.774     | 54,243,627.6   | 997,146,598.90696   |  |  |
| 2029  | 1     | 0.000     | 0.051399629    | 61,049,636.4 | 673,042,010.936 | 235,351.451     | 61,049,636.4   | 1,126,695,048.01018 |  |  |
| 2029  | 2     | 0.000     | 0.051399629    | 46,863,823.6 | 760,428,237.784 | 184,072.759     | 46,863,823.6   | 864,890,293.73085   |  |  |
| 2029  | 3     | 0.000     | 0.051399629    | 43,699,623.1 | 561,560,106.679 | 1,155,399.249   | 43,699,623.1   | 806,493,729.01109   |  |  |
| 2029  | 4     | 0.000     | 0.051399629    | 42,120,929.2 | 263,925,275.872 | 12,544,888.911  | 42,120,929.2   | 777,358,312.78841   |  |  |
| 2029  | 5     | 0.000     | 0.051399629    | 39,258,880.4 | 63,313,439.300  | 42,332,093.964  | 39,258,880.4   | 724,538,076.90090   |  |  |
| 2029  | 6     | 0.000     | 0.051399629    | 42,257,184.4 | 8,533,449.896   | 132,828,010.899 | 42,257,184.4   | 779,872,956.31510   |  |  |
| 2029  | 7     | 0.000     | 0.051399629    | 45,801,834.2 | 29,076.817      | 271,150,991.160 | 45,801,834.2   | 845,290,862.43170   |  |  |
| 2029  | 8     | 0.000     | 0.051399629    | 44,999,820.6 | 0.000           | 306,363,829.214 | 44,999,820.6   | 830,489,385.35788   |  |  |
| 2029  | 9     | 0.000     | 0.051399629    | 43,809,165.0 | 123,329.542     | 245,969,843.200 | 43,809,165.0   | 808,515,369.30383   |  |  |
| 2029  | 10    | 0.000     | 0.051399629    | 39,113,161.6 | 20,411,032.452  | 88,135,731.151  | 39,113,161.6   | 721,848,779.94364   |  |  |
| 2029  | 11    | 0.000     | 0.051399629    | 40,822,616.6 | 170,822,599.852 | 11,708,855.799  | 40,822,616.6   | 753,397,444.01914   |  |  |
| 2029  | 12    | 0.000     | 0.051399629    | 54,107,985.0 | 460,945,674.302 | 854,172.467     | 54,107,985.0   | 998,584,141.33849   |  |  |
| 2030  | 1     | 0.000     | 0.050598208    | 60,126,123.8 | 665,837,190.362 | 233,618.082     | 60,126,123.8   | 1,128,179,280.01306 |  |  |
| 2030  | 2     | 0.000     | 0.050598208    | 46,158,435.2 | 752,215,948.942 | 182,700.678     | 46,158,435.2   | 866,095,914.94076   |  |  |
| 2030  | 3     | 0.000     | 0.050598208    | 43,042,579.3 | 555,415,011.977 | 1,146,655.204   | 43,042,579.3   | 807,631,408.94500   |  |  |
| 2030  | 4     | 0.000     | 0.050598208    | 41,491,477.6 | 261,026,811.510 | 12,449,364.589  | 41,491,477.6   | 778,527,242.39755   |  |  |
| 2030  | 5     | 0.000     | 0.050598208    | 38,672,915.1 | 62,608,711.336  | 42,003,891.980  | 38,672,915.1   | 725,641,013.99827   |  |  |
| 2030  | 6     | 0.000     | 0.050598208    | 41,624,997.0 | 8,437,339.792   | 131,782,296.426 | 41,624,997.0   | 781,032,538.89959   |  |  |
| 2030  | 7     | 0.000     | 0.050598208    | 45,115,291.5 | 28,744.877      | 268,981,890.586 | 45,115,291.5   | 846,522,838.94567   |  |  |
| 2030  | 8     | 0.000     | 0.050598208    | 44,323,972.1 | 0.000           | 303,894,286.910 | 44,323,972.1   | 831,674,881.35154   |  |  |
| 2030  | 9     | 0.000     | 0.050598208    | 43,149,677.7 | 121,910.228     | 243,982,876.111 | 43,149,677.7   | 809,640,954.86708   |  |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2030  | 10    | 0.000     | 0.050598208    | 38,524,001.5 | 20,178,408.313  | 87,430,448.503  | 38,524,001.5   | 722,846,867.51274   |  |
| 2030  | 11    | 0.000     | 0.050598208    | 40,203,581.0 | 168,883,836.666 | 11,615,736.182  | 40,203,581.0   | 754,361,734.30606   |  |
| 2030  | 12    | 0.000     | 0.050598208    | 53,280,012.7 | 455,749,504.717 | 847,430.026     | 53,280,012.7   | 999,721,959.44914   |  |
| 2031  | 1     | 0.000     | 0.049954984    | 59,431,734.0 | 659,407,454.509 | 232,224.168     | 59,431,734.0   | 1,130,274,059.41082 |  |
| 2031  | 2     | 0.000     | 0.049954984    | 45,635,650.2 | 744,978,876.657 | 181,616.241     | 45,635,650.2   | 867,899,827.27504   |  |
| 2031  | 3     | 0.000     | 0.049954984    | 42,560,628.6 | 550,106,351.352 | 1,139,908.308   | 42,560,628.6   | 809,418,996.14682   |  |
| 2031  | 4     | 0.000     | 0.049954984    | 41,037,366.4 | 258,612,736.927 | 12,379,045.638  | 41,037,366.4   | 780,449,561.73474   |  |
| 2031  | 5     | 0.000     | 0.049954984    | 38,259,634.0 | 62,048,712.063  | 41,776,419.874  | 38,259,634.0   | 727,622,584.30950   |  |
| 2031  | 6     | 0.000     | 0.049954984    | 41,182,052.1 | 8,363,987.428   | 131,093,443.959 | 41,182,052.1   | 783,201,197.85770   |  |
| 2031  | 7     | 0.000     | 0.049954984    | 44,632,511.4 | 28,502.512      | 267,626,436.390 | 44,632,511.4   | 848,822,109.50940   |  |
| 2031  | 8     | 0.000     | 0.049954984    | 43,851,147.2 | 0.000           | 302,409,155.628 | 43,851,147.2   | 833,962,108.93299   |  |
| 2031  | 9     | 0.000     | 0.049954984    | 42,696,881.5 | 120,923.521     | 242,809,648.683 | 42,696,881.5   | 812,010,257.90334   |  |
| 2031  | 10    | 0.000     | 0.049954984    | 38,129,585.5 | 20,017,798.421  | 87,018,415.311  | 38,129,585.5   | 725,149,317.78925   |  |
| 2031  | 11    | 0.000     | 0.049954984    | 39,788,608.0 | 167,561,169.273 | 11,561,856.938  | 39,788,608.0   | 756,700,646.28971   |  |
| 2031  | 12    | 0.000     | 0.049954984    | 52,711,614.7 | 452,207,659.700 | 843,518.647     | 52,711,614.7   | 1,002,470,679.28998 |  |
| 2032  | 1     | 0.000     | 0.049391972    | 58,883,883.0 | 654,439,156.667 | 231,342.250     | 58,883,883.0   | 1,133,291,305.21513 |  |
| 2032  | 2     | 0.000     | 0.049391972    | 45,228,075.9 | 739,266,542.234 | 180,905.072     | 45,228,075.9   | 870,468,837.59425   |  |
| 2032  | 3     | 0.000     | 0.049391972    | 42,184,278.3 | 545,816,039.681 | 1,135,312.722   | 42,184,278.3   | 811,887,283.90401   |  |
| 2032  | 4     | 0.000     | 0.049391972    | 40,677,381.6 | 256,559,461.840 | 12,327,651.766  | 40,677,381.6   | 782,885,241.23593   |  |
| 2032  | 5     | 0.000     | 0.049391972    | 37,927,464.3 | 61,547,900.159  | 41,598,329.993  | 37,927,464.3   | 729,959,767.92186   |  |
| 2032  | 6     | 0.000     | 0.049391972    | 40,817,493.5 | 8,294,933.531   | 130,515,287.835 | 40,817,493.5   | 785,581,862.49751   |  |
| 2032  | 7     | 0.000     | 0.049391972    | 44,225,154.2 | 28,262.439      | 266,411,060.738 | 44,225,154.2   | 851,166,401.11082   |  |
| 2032  | 8     | 0.000     | 0.049391972    | 43,447,648.4 | 0.000           | 301,015,971.238 | 43,447,648.4   | 836,202,364.04398   |  |
| 2032  | 9     | 0.000     | 0.049391972    | 42,308,619.1 | 119,885.733     | 241,677,488.819 | 42,308,619.1   | 814,280,371.93854   |  |
| 2032  | 10    | 0.000     | 0.049391972    | 37,789,283.1 | 19,844,686.178  | 86,608,484.144  | 37,789,283.1   | 727,300,303.68667   |  |
| 2032  | 11    | 0.000     | 0.049391972    | 39,427,165.0 | 166,101,986.231 | 11,506,878.210  | 39,427,165.0   | 758,823,314.54329   |  |
| 2032  | 12    | 0.000     | 0.049391972    | 52,209,702.2 | 448,158,406.131 | 839,356.231     | 52,209,702.2   | 1,004,838,651.24447 |  |
| 2033  | 1     | 0.000     | 0.048892167    | 58,408,417.4 | 649,023,869.906 | 230,486.301     | 58,408,417.4   | 1,136,229,097.52759 |  |
| 2033  | 2     | 0.000     | 0.048892167    | 44,877,398.8 | 733,129,050.158 | 180,231.692     | 44,877,398.8   | 873,007,840.59238   |  |
| 2033  | 3     | 0.000     | 0.048892167    | 41,862,776.9 | 541,273,169.424 | 1,131,066.635   | 41,862,776.9   | 814,363,875.73882   |  |
| 2033  | 4     | 0.000     | 0.048892167    | 40,371,617.0 | 254,415,878.661 | 12,281,211.804  | 40,371,617.0   | 785,356,082.81994   |  |
| 2033  | 5     | 0.000     | 0.048892167    | 37,647,258.8 | 61,032,068.101  | 41,440,521.836  | 37,647,258.8   | 732,358,670.33407   |  |
| 2033  | 6     | 0.000     | 0.048892167    | 40,511,051.7 | 8,225,239.991   | 130,016,464.057 | 40,511,051.7   | 788,068,531.15781   |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2033  | 7     | 0.000     | 0.048892167    | 43,882,024.6 | 28,024.302      | 265,383,727.840 | 43,882,024.6   | 853,644,653.55559   |  |
| 2033  | 8     | 0.000     | 0.048892167    | 43,107,427.5 | 0.000           | 299,841,154.128 | 43,107,427.5   | 838,576,280.51460   |  |
| 2033  | 9     | 0.000     | 0.048892167    | 41,982,748.9 | 118,865.489     | 240,720,775.742 | 41,982,748.9   | 816,697,712.94738   |  |
| 2033  | 10    | 0.000     | 0.048892167    | 37,505,920.7 | 19,674,687.040  | 86,260,678.217  | 37,505,920.7   | 729,609,195.65288   |  |
| 2033  | 11    | 0.000     | 0.048892167    | 39,124,903.8 | 164,667,477.012 | 11,459,912.315  | 39,124,903.8   | 761,103,554.14867   |  |
| 2033  | 12    | 0.000     | 0.048892167    | 51,788,777.0 | 444,260,467.425 | 835,881.175     | 51,788,777.0   | 1,007,456,081.90424 |  |
| 2034  | 1     | 0.000     | 0.048420772    | 58,005,072.1 | 643,775,934.480 | 229,811.243     | 58,005,072.1   | 1,139,932,696.92502 |  |
| 2034  | 2     | 0.000     | 0.048420772    | 44,586,630.8 | 727,171,162.743 | 179,697.160     | 44,586,630.8   | 876,229,551.72370   |  |
| 2034  | 3     | 0.000     | 0.048420772    | 41,598,364.2 | 536,852,059.095 | 1,127,669.316   | 41,598,364.2   | 817,503,260.10416   |  |
| 2034  | 4     | 0.000     | 0.048420772    | 40,122,369.1 | 252,328,251.434 | 12,243,925.083  | 40,122,369.1   | 788,496,570.92486   |  |
| 2034  | 5     | 0.000     | 0.048420772    | 37,421,107.9 | 60,528,900.106  | 41,313,260.913  | 37,421,107.9   | 735,410,592.00236   |  |
| 2034  | 6     | 0.000     | 0.048420772    | 40,261,294.4 | 8,157,176.435   | 129,613,462.161 | 40,261,294.4   | 791,226,770.89788   |  |
| 2034  | 7     | 0.000     | 0.048420772    | 43,596,915.4 | 27,791.688      | 264,554,683.151 | 43,596,915.4   | 856,779,374.85023   |  |
| 2034  | 8     | 0.000     | 0.048420772    | 42,823,728.1 | 0.000           | 298,896,541.474 | 42,823,728.1   | 841,584,469.63325   |  |
| 2034  | 9     | 0.000     | 0.048420772    | 41,714,963.0 | 117,873.492     | 239,958,626.523 | 41,714,963.0   | 819,794,692.61034   |  |
| 2034  | 10    | 0.000     | 0.048420772    | 37,278,576.1 | 19,510,084.846  | 85,986,105.598  | 37,278,576.1   | 732,609,515.20611   |  |
| 2034  | 11    | 0.000     | 0.048420772    | 38,880,704.6 | 163,286,205.446 | 11,423,238.869  | 38,880,704.6   | 764,095,014.89471   |  |
| 2034  | 12    | 0.000     | 0.048420772    | 51,439,226.2 | 440,526,515.878 | 833,195.319     | 51,439,226.2   | 1,010,898,766.85431 |  |
| 2035  | 1     | 0.000     | 0.048021964    | 57,686,309.7 | 638,553,924.656 | 229,295.087     | 57,686,309.7   | 1,143,562,131.46442 |  |
| 2035  | 2     | 0.000     | 0.048021964    | 44,361,215.0 | 721,279,575.456 | 179,295.150     | 44,361,215.0   | 879,408,057.23333   |  |
| 2035  | 3     | 0.000     | 0.048021964    | 41,395,500.9 | 532,507,062.504 | 1,125,155.398   | 41,395,500.9   | 820,616,320.44031   |  |
| 2035  | 4     | 0.000     | 0.048021964    | 39,932,701.0 | 250,288,532.599 | 12,216,741.601  | 39,932,701.0   | 791,618,062.19483   |  |
| 2035  | 5     | 0.000     | 0.048021964    | 37,251,030.7 | 60,039,958.167  | 41,221,723.807  | 37,251,030.7   | 738,457,154.01711   |  |
| 2035  | 6     | 0.000     | 0.048021964    | 40,071,873.3 | 8,091,232.457   | 129,325,204.172 | 40,071,873.3   | 794,376,986.92471   |  |
| 2035  | 7     | 0.000     | 0.048021964    | 43,376,762.3 | 27,566.720      | 263,962,911.779 | 43,376,762.3   | 859,892,460.19313   |  |
| 2035  | 8     | 0.000     | 0.048021964    | 42,603,736.1 | 0.000           | 298,220,668.378 | 42,603,736.1   | 844,568,140.40988   |  |
| 2035  | 9     | 0.000     | 0.048021964    | 41,509,274.5 | 116,914.033     | 239,409,980.789 | 41,509,274.5   | 822,871,746.16558   |  |
| 2035  | 10    | 0.000     | 0.048021964    | 37,106,980.7 | 19,350,754.642  | 85,787,063.335  | 37,106,980.7   | 735,601,535.44413   |  |
| 2035  | 11    | 0.000     | 0.048021964    | 38,694,633.6 | 161,946,739.633 | 11,396,365.120  | 38,694,633.6   | 767,074,855.02382   |  |
| 2035  | 12    | 0.000     | 0.048021964    | 51,166,843.4 | 436,896,976.088 | 831,204.565     | 51,166,843.4   | 1,014,321,506.12380 |  |
| 2036  | 1     | 0.000     | 0.047649367    | 57,402,519.4 | 633,800,872.095 | 229,090.421     | 57,402,519.4   | 1,147,283,345.84153 |  |
| 2036  | 2     | 0.000     | 0.047649367    | 44,162,096.5 | 715,889,408.977 | 179,129.701     | 44,162,096.5   | 882,651,811.85642   |  |
| 2036  | 3     | 0.000     | 0.047649367    | 41,216,479.8 | 528,513,725.674 | 1,124,086.996   | 41,216,479.8   | 823,778,839.28221   |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |                |                     |                |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|----------------|---------------------|----------------|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Other Usage         | Lighting Usage |
| 2036  | 4     | 0.000     | 0.047649367    | 39,765,073.3 | 248,404,566.933 | 12,204,794.803  | 39,765,073.3   | 794,770,103.89931   | 39,765,073.3   | 794,770,103.89931   | 39,765,073.3   |
| 2036  | 5     | 0.000     | 0.047649367    | 37,100,736.1 | 59,586,361.597  | 41,180,258.493  | 37,100,736.1   | 741,518,961.73225   | 37,100,736.1   | 741,518,961.73225   | 37,100,736.1   |
| 2036  | 6     | 0.000     | 0.047649367    | 39,903,687.5 | 8,029,943.398   | 129,192,534.011 | 39,903,687.5   | 797,540,535.17744   | 39,903,687.5   | 797,540,535.17744   | 39,903,687.5   |
| 2036  | 7     | 0.000     | 0.047649367    | 43,178,975.8 | 27,357.228      | 263,685,585.382 | 43,178,975.8   | 863,002,535.57281   | 43,178,975.8   | 863,002,535.57281   | 43,178,975.8   |
| 2036  | 8     | 0.000     | 0.047649367    | 42,405,971.4 | 0.000           | 297,902,638.649 | 42,405,971.4   | 847,552,776.19475   | 42,405,971.4   | 847,552,776.19475   | 42,405,971.4   |
| 2036  | 9     | 0.000     | 0.047649367    | 41,325,498.5 | 116,021.791     | 239,150,741.295 | 41,325,498.5   | 825,957,756.77752   | 41,325,498.5   | 825,957,756.77752   | 41,325,498.5   |
| 2036  | 10    | 0.000     | 0.047649367    | 36,955,562.7 | 19,202,864.908  | 85,693,224.021  | 36,955,562.7   | 738,617,433.21022   | 36,955,562.7   | 738,617,433.21022   | 36,955,562.7   |
| 2036  | 11    | 0.000     | 0.047649367    | 38,530,490.1 | 160,707,001.932 | 11,383,753.649  | 38,530,490.1   | 770,094,936.11153   | 38,530,490.1   | 770,094,936.11153   | 38,530,490.1   |
| 2036  | 12    | 0.000     | 0.047649367    | 50,924,454.3 | 433,547,931.374 | 830,276.027     | 50,924,454.3   | 1,017,808,606.03309 | 50,924,454.3   | 1,017,808,606.03309 | 50,924,454.3   |
| 2037  | 1     | 0.000     | 0.047290646    | 57,140,344.4 | 629,119,494.270 | 229,106.486     | 57,140,344.4   | 1,151,139,707.37786 | 57,140,344.4   | 1,151,139,707.37786 | 57,140,344.4   |
| 2037  | 2     | 0.000     | 0.047290646    | 43,981,155.0 | 710,604,244.966 | 179,142.816     | 43,981,155.0   | 886,036,905.31613   | 43,981,155.0   | 886,036,905.31613   | 43,981,155.0   |
| 2037  | 3     | 0.000     | 0.047290646    | 41,055,143.7 | 524,611,119.925 | 1,124,167.121   | 41,055,143.7   | 827,089,977.54164   | 41,055,143.7   | 827,089,977.54164   | 41,055,143.7   |
| 2037  | 4     | 0.000     | 0.047290646    | 39,615,402.8 | 246,573,381.851 | 12,205,800.462  | 39,615,402.8   | 798,085,201.24569   | 39,615,402.8   | 798,085,201.24569   | 39,615,402.8   |
| 2037  | 5     | 0.000     | 0.047290646    | 36,968,283.1 | 59,147,740.361  | 41,184,055.039  | 36,968,283.1   | 744,756,775.62825   | 36,968,283.1   | 744,756,775.62825   | 36,968,283.1   |
| 2037  | 6     | 0.000     | 0.047290646    | 39,754,500.9 | 7,970,842.851   | 129,204,529.523 | 39,754,500.9   | 800,887,447.64123   | 39,754,500.9   | 800,887,447.64123   | 39,754,500.9   |
| 2037  | 7     | 0.000     | 0.047290646    | 43,001,292.8 | 27,156.013      | 263,711,315.649 | 43,001,292.8   | 866,296,767.32162   | 43,001,292.8   | 866,296,767.32162   | 43,001,292.8   |
| 2037  | 8     | 0.000     | 0.047290646    | 42,227,712.4 | 0.000           | 297,930,309.868 | 42,227,712.4   | 850,712,347.24314   | 42,227,712.4   | 850,712,347.24314   | 42,227,712.4   |
| 2037  | 9     | 0.000     | 0.047290646    | 41,161,831.3 | 115,167.762     | 239,172,389.881 | 41,161,831.3   | 829,239,287.50651   | 41,161,831.3   | 829,239,287.50651   | 41,161,831.3   |
| 2037  | 10    | 0.000     | 0.047290646    | 36,823,387.3 | 19,061,430.238  | 85,700,488.169  | 36,823,387.3   | 741,837,728.02172   | 36,823,387.3   | 741,837,728.02172   | 36,823,387.3   |
| 2037  | 11    | 0.000     | 0.047290646    | 38,386,558.2 | 159,522,277.494 | 11,384,622.630  | 38,386,558.2   | 773,329,105.49838   | 38,386,558.2   | 773,329,105.49838   | 38,386,558.2   |
| 2037  | 12    | 0.000     | 0.047290646    | 50,707,582.7 | 430,346,267.784 | 830,327.498     | 50,707,582.7   | 1,021,546,379.85214 | 50,707,582.7   | 1,021,546,379.85214 | 50,707,582.7   |
| 2038  | 1     | 0.000     | 0.046930076    | 56,879,429.3 | 624,473,865.390 | 229,125.285     | 56,879,429.3   | 1,155,124,341.83927 | 56,879,429.3   | 1,155,124,341.83927 | 56,879,429.3   |
| 2038  | 2     | 0.000     | 0.046930076    | 43,800,998.6 | 705,351,310.895 | 179,155.926     | 43,800,998.6   | 889,523,685.61810   | 43,800,998.6   | 889,523,685.61810   | 43,800,998.6   |
| 2038  | 3     | 0.000     | 0.046930076    | 40,894,558.7 | 520,731,235.935 | 1,124,244.506   | 40,894,558.7   | 830,498,841.94774   | 40,894,558.7   | 830,498,841.94774   | 40,894,558.7   |
| 2038  | 4     | 0.000     | 0.046930076    | 39,465,963.6 | 244,749,565.920 | 12,206,614.636  | 39,465,963.6   | 801,486,508.10220   | 39,465,963.6   | 801,486,508.10220   | 39,465,963.6   |
| 2038  | 5     | 0.000     | 0.046930076    | 36,835,755.3 | 58,710,042.066  | 41,186,628.007  | 36,835,755.3   | 748,071,456.75771   | 36,835,755.3   | 748,071,456.75771   | 36,835,755.3   |
| 2038  | 6     | 0.000     | 0.046930076    | 39,605,192.3 | 7,911,802.291   | 129,211,676.250 | 39,605,192.3   | 804,314,005.70587   | 39,605,192.3   | 804,314,005.70587   | 39,605,192.3   |
| 2038  | 7     | 0.000     | 0.046930076    | 42,822,551.0 | 26,954.531      | 263,722,646.962 | 42,822,551.0   | 869,653,081.13892   | 42,822,551.0   | 869,653,081.13892   | 42,822,551.0   |
| 2038  | 8     | 0.000     | 0.046930076    | 42,048,203.4 | 0.000           | 297,939,280.259 | 42,048,203.4   | 853,927,401.60779   | 42,048,203.4   | 853,927,401.60779   | 42,048,203.4   |
| 2038  | 9     | 0.000     | 0.046930076    | 40,996,924.8 | 114,310.658     | 239,177,233.706 | 40,996,924.8   | 832,577,723.66381   | 40,996,924.8   | 832,577,723.66381   | 40,996,924.8   |
| 2038  | 10    | 0.000     | 0.046930076    | 36,690,437.3 | 18,919,481.853  | 85,701,757.871  | 36,690,437.3   | 745,120,295.55455   | 36,690,437.3   | 745,120,295.55455   | 36,690,437.3   |
| 2038  | 11    | 0.000     | 0.046930076    | 38,241,972.9 | 158,333,247.108 | 11,384,698.755  | 38,241,972.9   | 776,629,342.17412   | 38,241,972.9   | 776,629,342.17412   | 38,241,972.9   |
| 2038  | 12    | 0.000     | 0.046930076    | 50,490,130.4 | 427,134,131.737 | 830,323.578     | 50,490,130.4   | 1,025,368,560.72723 | 50,490,130.4   | 1,025,368,560.72723 | 50,490,130.4   |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |                |                     |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|----------------|---------------------|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Other Usage         |
| 2039  | 1     | 0.000     | 0.04657867     | 56,623,923.8 | 619,650,898.927 | 229,055.363     | 56,623,923.8   | 1,159,038,185.26245 | 56,623,923.8   | 1,159,038,185.26245 |
| 2039  | 2     | 0.000     | 0.04657867     | 43,624,683.9 | 699,904,728.039 | 179,101.578     | 43,624,683.9   | 892,956,033.85356   | 43,624,683.9   | 892,956,033.85356   |
| 2039  | 3     | 0.000     | 0.04657867     | 40,737,365.0 | 516,711,011.757 | 1,123,905.945   | 40,737,365.0   | 833,855,347.13359   | 40,737,365.0   | 833,855,347.13359   |
| 2039  | 4     | 0.000     | 0.04657867     | 39,319,850.0 | 242,862,225.566 | 12,203,058.992  | 39,319,850.0   | 804,840,154.39882   | 39,319,850.0   | 804,840,154.39882   |
| 2039  | 5     | 0.000     | 0.04657867     | 36,706,468.7 | 58,257,915.994  | 41,175,117.731  | 36,706,468.7   | 751,346,709.54524   | 36,706,468.7   | 751,346,709.54524   |
| 2039  | 6     | 0.000     | 0.04657867     | 39,459,733.1 | 7,850,912.419   | 129,176,479.295 | 39,459,733.1   | 807,703,428.40105   | 39,459,733.1   | 807,703,428.40105   |
| 2039  | 7     | 0.000     | 0.04657867     | 42,648,799.4 | 26,747.291      | 263,653,456.608 | 42,648,799.4   | 872,980,601.84567   | 42,648,799.4   | 872,980,601.84567   |
| 2039  | 8     | 0.000     | 0.04657867     | 41,873,942.8 | 0.000           | 297,864,138.155 | 41,873,942.8   | 857,120,018.72346   | 41,873,942.8   | 857,120,018.72346   |
| 2039  | 9     | 0.000     | 0.04657867     | 40,837,120.6 | 113,434.187     | 239,120,755.101 | 40,837,120.6   | 835,897,248.96829   | 40,837,120.6   | 835,897,248.96829   |
| 2039  | 10    | 0.000     | 0.04657867     | 36,561,978.7 | 18,774,739.114  | 85,683,111.036  | 36,561,978.7   | 748,389,136.18375   | 36,561,978.7   | 748,389,136.18375   |
| 2039  | 11    | 0.000     | 0.04657867     | 38,102,045.5 | 157,123,255.196 | 11,382,325.058  | 38,102,045.5   | 779,912,847.36963   | 38,102,045.5   | 779,912,847.36963   |
| 2039  | 12    | 0.000     | 0.04657867     | 50,279,795.7 | 423,876,744.533 | 830,164.100     | 50,279,795.7   | 1,029,179,881.12281 | 50,279,795.7   | 1,029,179,881.12281 |
| 2040  | 1     | 0.000     | 0.045532588    | 55,491,355.3 | 614,976,695.887 | 229,019.331     | 55,491,355.3   | 1,163,226,013.11948 | 55,491,355.3   | 1,163,226,013.11948 |
| 2040  | 2     | 0.000     | 0.045532588    | 42,769,883.2 | 694,650,191.414 | 179,079.097     | 42,769,883.2   | 896,554,796.54818   | 42,769,883.2   | 896,554,796.54818   |
| 2040  | 3     | 0.000     | 0.045532588    | 39,946,491.7 | 512,851,095.741 | 1,123,802.447   | 39,946,491.7   | 837,370,037.37554   | 39,946,491.7   | 837,370,037.37554   |
| 2040  | 4     | 0.000     | 0.045532588    | 38,562,732.1 | 241,058,905.692 | 12,202,426.857  | 38,562,732.1   | 808,363,265.42271   | 38,562,732.1   | 808,363,265.42271   |
| 2040  | 5     | 0.000     | 0.045532588    | 36,007,589.9 | 57,827,686.156  | 41,174,467.199  | 36,007,589.9   | 754,801,627.17080   | 36,007,589.9   | 754,801,627.17080   |
| 2040  | 6     | 0.000     | 0.045532588    | 38,705,321.3 | 7,793,186.909   | 129,178,126.721 | 38,705,321.3   | 811,352,261.22638   | 38,705,321.3   | 811,352,261.22638   |
| 2040  | 7     | 0.000     | 0.045532588    | 41,819,686.8 | 26,551.276      | 263,662,323.950 | 41,819,686.8   | 876,636,500.83019   | 41,819,686.8   | 876,636,500.83019   |
| 2040  | 8     | 0.000     | 0.045532588    | 41,056,363.8 | 0.000           | 297,880,209.226 | 41,056,363.8   | 860,635,500.77102   | 41,056,363.8   | 860,635,500.77102   |
| 2040  | 9     | 0.000     | 0.045532588    | 40,047,392.0 | 112,607.747     | 239,137,316.652 | 40,047,392.0   | 839,485,139.13537   | 40,047,392.0   | 839,485,139.13537   |
| 2040  | 10    | 0.000     | 0.045532588    | 35,866,163.1 | 18,638,397.679  | 85,690,722.852  | 35,866,163.1   | 751,836,997.81715   | 35,866,163.1   | 751,836,997.81715   |
| 2040  | 11    | 0.000     | 0.045532588    | 37,370,611.6 | 155,985,088.818 | 11,383,493.837  | 37,370,611.6   | 783,373,685.94515   | 37,370,611.6   | 783,373,685.94515   |
| 2040  | 12    | 0.000     | 0.045532588    | 49,291,748.7 | 420,808,771.914 | 830,251.595     | 49,291,748.7   | 1,033,268,046.46005 | 49,291,748.7   | 1,033,268,046.46005 |
| 2041  | 1     | 0.000     | 0.044640734    | 54,552,355.3 | 610,653,883.756 | 229,092.716     | 54,552,355.3   | 1,167,478,523.79587 | 54,552,355.3   | 1,167,478,523.79587 |
| 2041  | 2     | 0.000     | 0.044640734    | 42,064,363.6 | 689,768,748.972 | 179,136.974     | 42,064,363.6   | 900,222,196.10833   | 42,064,363.6   | 900,222,196.10833   |
| 2041  | 3     | 0.000     | 0.044640734    | 39,294,655.2 | 509,248,519.758 | 1,124,169.599   | 39,294,655.2   | 840,947,485.96648   | 39,294,655.2   | 840,947,485.96648   |
| 2041  | 4     | 0.000     | 0.044640734    | 37,939,238.4 | 239,368,475.322 | 12,206,566.236  | 37,939,238.4   | 811,940,121.87242   | 37,939,238.4   | 811,940,121.87242   |
| 2041  | 5     | 0.000     | 0.044640734    | 35,432,843.6 | 57,422,729.813  | 41,188,869.313  | 35,432,843.6   | 758,300,602.36919   | 35,432,843.6   | 758,300,602.36919   |
| 2041  | 6     | 0.000     | 0.044640734    | 38,083,558.5 | 7,738,675.312   | 129,224,521.133 | 38,083,558.5   | 815,028,725.24094   | 38,083,558.5   | 815,028,725.24094   |
| 2041  | 7     | 0.000     | 0.044640734    | 41,133,483.0 | 26,365.729      | 263,759,138.740 | 41,133,483.0   | 880,300,360.02347   | 41,133,483.0   | 880,300,360.02347   |
| 2041  | 8     | 0.000     | 0.044640734    | 40,378,960.6 | 0.000           | 297,991,760.354 | 40,378,960.6   | 864,152,776.72960   | 40,378,960.6   | 864,152,776.72960   |
| 2041  | 9     | 0.000     | 0.044640734    | 39,394,408.9 | 111,822.051     | 239,228,412.812 | 39,394,408.9   | 843,082,320.54058   | 39,394,408.9   | 843,082,320.54058   |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2041  | 10    | 0.000     | 0.044640734    | 35,292,977.9 | 18,508,501.587  | 85,724,119.394  | 35,292,977.9   | 755,307,327.32109   |  |  |
| 2041  | 11    | 0.000     | 0.044640734    | 36,766,897.7 | 154,898,553.199 | 11,387,976.861  | 36,766,897.7   | 786,850,782.22310   |  |  |
| 2041  | 12    | 0.000     | 0.044640734    | 48,472,137.9 | 417,879,013.905 | 830,581.839     | 48,472,137.9   | 1,037,355,392.41597 |  |  |
| 2042  | 1     | 0.000     | 0.043848943    | 53,741,486.6 | 606,541,414.109 | 229,230.021     | 53,741,486.6   | 1,171,863,584.29836 |  |  |
| 2042  | 2     | 0.000     | 0.043848943    | 41,458,295.2 | 685,131,918.062 | 179,246.498     | 41,458,295.2   | 904,021,630.59264   |  |  |
| 2042  | 3     | 0.000     | 0.043848943    | 38,736,117.0 | 505,833,632.678 | 1,124,875.218   | 38,736,117.0   | 844,662,992.85643   |  |  |
| 2042  | 4     | 0.000     | 0.043848943    | 37,406,162.6 | 237,768,657.637 | 12,214,492.310  | 37,406,162.6   | 815,662,582.47125   |  |  |
| 2042  | 5     | 0.000     | 0.043848943    | 34,942,739.2 | 57,039,924.633  | 41,216,292.239  | 34,942,739.2   | 761,946,239.76181   |  |  |
| 2042  | 6     | 0.000     | 0.043848943    | 37,552,308.1 | 7,687,167.805   | 129,311,866.218 | 37,552,308.1   | 818,849,367.90964   |  |  |
| 2042  | 7     | 0.000     | 0.043848943    | 40,544,709.3 | 26,190.575      | 263,940,645.236 | 40,544,709.3   | 884,100,373.99509   |  |  |
| 2042  | 8     | 0.000     | 0.043848943    | 39,797,120.7 | 0.000           | 298,198,523.929 | 39,797,120.7   | 867,798,779.30822   |  |  |
| 2042  | 9     | 0.000     | 0.043848943    | 38,834,916.3 | 111,080.675     | 239,396,003.820 | 38,834,916.3   | 846,817,367.04343   |  |  |
| 2042  | 10    | 0.000     | 0.043848943    | 34,804,139.1 | 18,385,948.762  | 85,784,845.709  | 34,804,139.1   | 758,923,985.27921   |  |  |
| 2042  | 11    | 0.000     | 0.043848943    | 36,251,077.1 | 153,873,954.733 | 11,396,111.418  | 36,251,077.1   | 790,475,288.54345   |  |  |
| 2042  | 12    | 0.000     | 0.043848943    | 47,767,425.9 | 415,116,102.545 | 831,176.897     | 47,767,425.9   | 1,041,595,804.39519 |  |  |
| 2043  | 1     | 0.000     | 0.043170502    | 53,077,042.7 | 602,980,096.744 | 229,550.932     | 53,077,042.7   | 1,176,397,707.07196 |  |  |
| 2043  | 2     | 0.000     | 0.043170502    | 40,965,976.9 | 681,116,095.157 | 179,499.249     | 40,965,976.9   | 907,968,470.08317   |  |  |
| 2043  | 3     | 0.000     | 0.043170502    | 38,283,833.9 | 502,873,588.688 | 1,126,472.311   | 38,283,833.9   | 848,521,546.51664   |  |  |
| 2043  | 4     | 0.000     | 0.043170502    | 36,975,517.6 | 236,380,915.716 | 12,232,023.372  | 36,975,517.6   | 819,524,070.67664   |  |  |
| 2043  | 5     | 0.000     | 0.043170502    | 34,548,212.2 | 56,707,723.847  | 41,275,983.747  | 34,548,212.2   | 765,725,358.86845   |  |  |
| 2043  | 6     | 0.000     | 0.043170502    | 37,123,462.7 | 7,642,498.772   | 129,500,944.766 | 37,123,462.7   | 822,803,119.91268   |  |  |
| 2043  | 7     | 0.000     | 0.043170502    | 40,065,647.9 | 26,038.529      | 264,328,258.179 | 40,065,647.9   | 888,013,610.45278   |  |  |
| 2043  | 8     | 0.000     | 0.043170502    | 39,323,033.8 | 0.000           | 298,638,290.703 | 39,323,033.8   | 871,554,336.99365   |  |  |
| 2043  | 9     | 0.000     | 0.043170502    | 38,381,307.6 | 110,437.477     | 239,751,593.971 | 38,381,307.6   | 850,681,951.76831   |  |  |
| 2043  | 10    | 0.000     | 0.043170502    | 34,411,119.4 | 18,279,646.853  | 85,913,050.212  | 34,411,119.4   | 762,686,838.50622   |  |  |
| 2043  | 11    | 0.000     | 0.043170502    | 35,835,019.3 | 152,984,622.250 | 11,413,166.935  | 35,835,019.3   | 794,246,106.42819   |  |  |
| 2043  | 12    | 0.000     | 0.043170502    | 47,193,236.6 | 412,716,744.205 | 832,420.526     | 47,193,236.6   | 1,045,989,234.95719 |  |  |
| 2044  | 1     | 0.000     | 0.042590598    | 52,537,551.8 | 599,483,623.828 | 229,882.014     | 52,537,551.8   | 1,181,010,565.25152 |  |  |
| 2044  | 2     | 0.000     | 0.042590598    | 40,570,413.5 | 677,173,825.587 | 179,760.084     | 40,570,413.5   | 911,996,949.43676   |  |  |
| 2044  | 3     | 0.000     | 0.042590598    | 37,921,972.2 | 499,967,784.344 | 1,128,120.372   | 37,921,972.2   | 852,461,683.91730   |  |  |
| 2044  | 4     | 0.000     | 0.042590598    | 36,632,316.6 | 235,018,612.782 | 12,250,119.170  | 36,632,316.6   | 823,471,049.63399   |  |  |
| 2044  | 5     | 0.000     | 0.042590598    | 34,235,352.9 | 56,381,436.709  | 41,337,477.625  | 34,235,352.9   | 769,588,838.82847   |  |  |
| 2044  | 6     | 0.000     | 0.042590598    | 36,781,715.9 | 7,598,534.789   | 129,694,163.916 | 36,781,715.9   | 826,829,451.71733   |  |  |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2044  | 7     | 0.000     | 0.042590598    | 39,680,216.3 | 25,888.633      | 264,721,754.733 | 39,680,216.3   | 891,985,885.64925   |  |  |
| 2044  | 8     | 0.000     | 0.042590598    | 38,940,743.1 | 0.000           | 299,081,127.971 | 38,940,743.1   | 875,363,002.45752   |  |  |
| 2044  | 9     | 0.000     | 0.042590598    | 38,017,238.6 | 109,800.403     | 240,106,037.156 | 38,017,238.6   | 854,603,210.98584   |  |  |
| 2044  | 10    | 0.000     | 0.042590598    | 34,098,456.4 | 18,174,066.071  | 86,039,507.304  | 34,098,456.4   | 766,511,493.05132   |  |  |
| 2044  | 11    | 0.000     | 0.042590598    | 35,502,541.3 | 152,099,135.415 | 11,429,834.797  | 35,502,541.3   | 798,074,424.17409   |  |  |
| 2044  | 12    | 0.000     | 0.042590598    | 46,728,741.8 | 410,323,270.588 | 833,627.341     | 46,728,741.8   | 1,050,432,233.24289 |  |  |
| 2045  | 1     | 0.000     | 0.042065777    | 52,060,463.1 | 596,030,675.944 | 230,234.296     | 52,060,463.1   | 1,185,536,143.25661 |  |  |
| 2045  | 2     | 0.000     | 0.042065777    | 40,222,090.0 | 673,268,763.584 | 180,034.500     | 40,222,090.0   | 915,949,236.45077   |  |  |
| 2045  | 3     | 0.000     | 0.042065777    | 37,603,984.3 | 497,083,254.012 | 1,129,840.415   | 37,603,984.3   | 856,328,963.94415   |  |  |
| 2045  | 4     | 0.000     | 0.042065777    | 36,330,942.7 | 233,663,182.026 | 12,268,829.892  | 36,330,942.7   | 827,338,889.18014   |  |  |
| 2045  | 5     | 0.000     | 0.042065777    | 33,961,147.9 | 56,056,503.798  | 41,400,814.473  | 33,961,147.9   | 773,373,225.89682   |  |  |
| 2045  | 6     | 0.000     | 0.042065777    | 36,481,677.8 | 7,554,768.493   | 129,893,375.491 | 36,481,677.8   | 830,771,471.03402   |  |  |
| 2045  | 7     | 0.000     | 0.042065777    | 39,340,602.8 | 25,739.623      | 265,129,596.069 | 39,340,602.8   | 895,875,750.69355   |  |  |
| 2045  | 8     | 0.000     | 0.042065777    | 38,603,573.9 | 0.000           | 299,542,284.998 | 38,603,573.9   | 879,091,913.55582   |  |  |
| 2045  | 9     | 0.000     | 0.042065777    | 37,696,871.0 | 109,169.033     | 240,477,617.328 | 37,696,871.0   | 858,444,208.21281   |  |  |
| 2045  | 10    | 0.000     | 0.042065777    | 33,824,642.9 | 18,069,685.706  | 86,173,320.975  | 33,824,642.9   | 770,264,694.08306   |  |  |
| 2045  | 11    | 0.000     | 0.042065777    | 35,210,958.8 | 151,226,110.895 | 11,447,663.281  | 35,210,958.8   | 801,834,286.91543   |  |  |
| 2045  | 12    | 0.000     | 0.042065777    | 46,319,077.0 | 407,969,918.285 | 834,932.091     | 46,319,077.0   | 1,054,791,613.65539 |  |  |
| 2046  | 1     | 0.000     | 0.041559639    | 51,605,128.1 | 592,556,958.612 | 230,566.658     | 51,605,128.1   | 1,190,107,488.42345 |  |  |
| 2046  | 2     | 0.000     | 0.041559639    | 39,890,907.1 | 669,358,290.758 | 180,298.207     | 39,890,907.1   | 919,956,388.49520   |  |  |
| 2046  | 3     | 0.000     | 0.041559639    | 37,302,002.8 | 494,202,918.362 | 1,131,512.220   | 37,302,002.8   | 860,251,577.76600   |  |  |
| 2046  | 4     | 0.000     | 0.041559639    | 36,045,406.2 | 232,314,621.565 | 12,287,286.706  | 36,045,406.2   | 831,272,189.16786   |  |  |
| 2046  | 5     | 0.000     | 0.041559639    | 33,701,870.7 | 55,734,056.912  | 41,463,956.777  | 33,701,870.7   | 777,226,027.05117   |  |  |
| 2046  | 6     | 0.000     | 0.041559639    | 36,197,842.9 | 7,511,438.733   | 130,093,846.448 | 36,197,842.9   | 834,787,656.02497   |  |  |
| 2046  | 7     | 0.000     | 0.041559639    | 39,018,646.8 | 25,592.352      | 265,542,824.283 | 39,018,646.8   | 899,840,489.40815   |  |  |
| 2046  | 8     | 0.000     | 0.041559639    | 38,283,983.8 | 0.000           | 300,013,020.234 | 38,283,983.8   | 882,897,834.01750   |  |  |
| 2046  | 9     | 0.000     | 0.041559639    | 37,393,562.9 | 108,546.448     | 240,857,584.068 | 37,393,562.9   | 862,363,119.28404   |  |  |
| 2046  | 10    | 0.000     | 0.041559639    | 33,566,312.3 | 17,966,864.658  | 86,310,703.765  | 33,566,312.3   | 774,099,804.77522   |  |  |
| 2046  | 11    | 0.000     | 0.041559639    | 34,935,352.0 | 150,365,811.519 | 11,465,946.632  | 34,935,352.0   | 805,672,333.41923   |  |  |
| 2046  | 12    | 0.000     | 0.041559639    | 45,930,234.2 | 405,649,972.898 | 836,268.418     | 45,930,234.2   | 1,059,234,181.71035 |  |  |
| 2047  | 1     | 0.000     | 0.041058824    | 51,166,783.8 | 589,611,627.302 | 231,092.649     | 51,166,783.8   | 1,195,015,617.28919 |  |  |
| 2047  | 2     | 0.000     | 0.041058824    | 39,573,636.9 | 666,037,841.195 | 180,711.490     | 39,573,636.9   | 924,254,186.53246   |  |  |
| 2047  | 3     | 0.000     | 0.041058824    | 37,013,576.1 | 491,758,621.080 | 1,134,123.838   | 37,013,576.1   | 864,463,195.99654   |  |  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 627 of 1182

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |                |                     |                |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|----------------|---------------------|----------------|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         | Lighting Usage | Other Usage         | Lighting Usage |
| 2047  | 4     | 0.000     | 0.041058824    | 35,773,167.6 | 231,169,687.644 | 12,315,880.507  | 35,773,167.6   | 835,493,083.50141   | 35,773,167.6   | 835,493,083.50141   | 35,773,167.6   |
| 2047  | 5     | 0.000     | 0.041058824    | 33,455,354.0 | 55,460,210.446  | 41,561,128.891  | 33,455,354.0   | 781,359,849.31144   | 33,455,354.0   | 781,359,849.31144   | 33,455,354.0   |
| 2047  | 6     | 0.000     | 0.041058824    | 35,927,095.3 | 7,474,579.014   | 130,399,722.658 | 35,927,095.3   | 839,088,110.35633   | 35,927,095.3   | 839,088,110.35633   | 35,927,095.3   |
| 2047  | 7     | 0.000     | 0.041058824    | 38,709,783.2 | 25,466.825      | 266,168,115.638 | 38,709,783.2   | 904,078,623.21405   | 38,709,783.2   | 904,078,623.21405   | 38,709,783.2   |
| 2047  | 8     | 0.000     | 0.041058824    | 37,976,943.3 | 0.000           | 300,720,121.529 | 37,976,943.3   | 886,962,926.63421   | 37,976,943.3   | 886,962,926.63421   | 37,976,943.3   |
| 2047  | 9     | 0.000     | 0.041058824    | 37,103,035.3 | 108,014.393     | 241,426,166.866 | 37,103,035.3   | 866,552,542.50740   | 37,103,035.3   | 866,552,542.50740   | 37,103,035.3   |
| 2047  | 10    | 0.000     | 0.041058824    | 33,319,942.1 | 17,878,808.408  | 86,514,619.156  | 33,319,942.1   | 778,197,264.58226   | 33,319,942.1   | 778,197,264.58226   | 33,319,942.1   |
| 2047  | 11    | 0.000     | 0.041058824    | 34,671,807.3 | 149,627,872.731 | 11,492,974.783  | 34,671,807.3   | 809,770,482.52684   | 34,671,807.3   | 809,770,482.52684   | 34,671,807.3   |
| 2047  | 12    | 0.000     | 0.041058824    | 45,555,752.6 | 403,656,874.416 | 838,235.845     | 45,555,752.6   | 1,063,968,298.10297 | 45,555,752.6   | 1,063,968,298.10297 | 45,555,752.6   |
| 2048  | 1     | 0.000     | 0.040561717    | 50,739,352.2 | 586,684,524.869 | 231,611.787     | 50,739,352.2   | 1,200,177,921.03217 | 50,739,352.2   | 1,200,177,921.03217 | 50,739,352.2   |
| 2048  | 2     | 0.000     | 0.040561717    | 39,265,697.1 | 662,738,482.340 | 181,119.465     | 39,265,697.1   | 928,782,505.37416   | 39,265,697.1   | 928,782,505.37416   | 39,265,697.1   |
| 2048  | 3     | 0.000     | 0.040561717    | 36,734,003.6 | 489,327,191.463 | 1,136,695.297   | 36,734,003.6   | 868,898,361.65614   | 36,734,003.6   | 868,898,361.65614   | 36,734,003.6   |
| 2048  | 4     | 0.000     | 0.040561717    | 35,509,708.6 | 230,029,512.478 | 12,343,967.331  | 35,509,708.6   | 839,939,147.21871   | 35,509,708.6   | 839,939,147.21871   | 35,509,708.6   |
| 2048  | 5     | 0.000     | 0.040561717    | 33,217,449.3 | 55,187,478.580  | 41,656,557.603  | 33,217,449.3   | 785,718,529.88480   | 33,217,449.3   | 785,718,529.88480   | 33,217,449.3   |
| 2048  | 6     | 0.000     | 0.040561717    | 35,665,520.7 | 7,437,873.644   | 130,700,137.998 | 35,665,520.7   | 843,624,694.07618   | 35,665,520.7   | 843,624,694.07618   | 35,665,520.7   |
| 2048  | 7     | 0.000     | 0.040561717    | 38,410,484.6 | 25,341.867      | 266,782,564.737 | 38,410,484.6   | 908,553,489.81657   | 38,410,484.6   | 908,553,489.81657   | 38,410,484.6   |
| 2048  | 8     | 0.000     | 0.040561717    | 37,679,260.1 | 0.000           | 301,414,940.150 | 37,679,260.1   | 891,257,261.18689   | 37,679,260.1   | 891,257,261.18689   | 37,679,260.1   |
| 2048  | 9     | 0.000     | 0.040561717    | 36,821,921.3 | 107,484.724     | 241,984,614.870 | 36,821,921.3   | 870,977,948.62831   | 36,821,921.3   | 870,977,948.62831   | 36,821,921.3   |
| 2048  | 10    | 0.000     | 0.040561717    | 33,082,560.5 | 17,791,172.493  | 86,714,991.251  | 33,082,560.5   | 782,527,899.23353   | 33,082,560.5   | 782,527,899.23353   | 33,082,560.5   |
| 2048  | 11    | 0.000     | 0.040561717    | 34,417,590.1 | 148,894,417.949 | 11,519,600.179  | 34,417,590.1   | 814,106,408.05789   | 34,417,590.1   | 814,106,408.05789   | 34,417,590.1   |
| 2048  | 12    | 0.000     | 0.040561717    | 45,192,415.6 | 401,676,288.832 | 840,174.177     | 45,192,415.6   | 1,068,971,853.01366 | 45,192,415.6   | 1,068,971,853.01366 | 45,192,415.6   |
| 2049  | 1     | 0.000     | 0.040089555    | 50,352,197.2 | 584,310,150.716 | 232,322.613     | 50,352,197.2   | 1,205,640,714.86256 | 50,352,197.2   | 1,205,640,714.86256 | 50,352,197.2   |
| 2049  | 2     | 0.000     | 0.040089555    | 38,990,032.7 | 660,060,602.357 | 181,676.525     | 38,990,032.7   | 933,583,310.54395   | 38,990,032.7   | 933,583,310.54395   | 38,990,032.7   |
| 2049  | 3     | 0.000     | 0.040089555    | 36,485,129.7 | 487,352,909.086 | 1,140,198.271   | 36,485,129.7   | 873,605,528.34153   | 36,485,129.7   | 873,605,528.34153   | 36,485,129.7   |
| 2049  | 4     | 0.000     | 0.040089555    | 35,276,146.5 | 229,104,176.183 | 12,382,151.998  | 35,276,146.5   | 844,657,450.07962   | 35,276,146.5   | 844,657,450.07962   | 35,276,146.5   |
| 2049  | 5     | 0.000     | 0.040089555    | 33,007,463.2 | 54,965,810.515  | 41,785,655.803  | 33,007,463.2   | 790,335,750.02860   | 33,007,463.2   | 790,335,750.02860   | 33,007,463.2   |
| 2049  | 6     | 0.000     | 0.040089555    | 35,433,390.0 | 7,408,015.082   | 131,105,450.032 | 35,433,390.0   | 848,422,513.33277   | 35,433,390.0   | 848,422,513.33277   | 35,433,390.0   |
| 2049  | 7     | 0.000     | 0.040089555    | 38,141,854.3 | 25,240.045      | 267,608,875.176 | 38,141,854.3   | 913,274,397.00531   | 38,141,854.3   | 913,274,397.00531   | 38,141,854.3   |
| 2049  | 8     | 0.000     | 0.040089555    | 37,411,370.7 | 0.000           | 302,346,112.167 | 37,411,370.7   | 895,783,584.43488   | 37,411,370.7   | 895,783,584.43488   | 37,411,370.7   |
| 2049  | 9     | 0.000     | 0.040089555    | 36,570,388.5 | 107,051.180     | 242,730,208.734 | 36,570,388.5   | 875,646,977.87442   | 36,570,388.5   | 875,646,977.87442   | 36,570,388.5   |
| 2049  | 10    | 0.000     | 0.040089555    | 32,872,607.8 | 17,719,327.438  | 86,981,748.469  | 32,872,607.8   | 787,106,751.95875   | 32,872,607.8   | 787,106,751.95875   | 32,872,607.8   |
| 2049  | 11    | 0.000     | 0.040089555    | 34,191,366.5 | 148,290,493.151 | 11,554,829.240  | 34,191,366.5   | 818,683,311.21220   | 34,191,366.5   | 818,683,311.21220   | 34,191,366.5   |
| 2049  | 12    | 0.000     | 0.040089555    | 44,864,561.0 | 400,039,823.866 | 842,728.301     | 44,864,561.0   | 1,074,243,912.96201 | 44,864,561.0   | 1,074,243,912.96201 | 44,864,561.0   |

| Kentucky Power Company<br>Residential Energy Model Output |       |           |                |              |                 |                 |                |                     |  |
|---|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|--|
| Year  | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2050  | 1     | 0.000     | 0.039682965    | 50,054,374.6 | 581,995,208.207 | 233,024.073     | 50,054,374.6   | 1,211,302,341.23351 |  |
| 2050  | 2     | 0.000     | 0.039682965    | 38,783,863.4 | 657,442,695.959 | 182,224.104     | 38,783,863.4   | 938,559,016.34498   |  |
| 2050  | 3     | 0.000     | 0.039682965    | 36,301,278.4 | 485,420,481.689 | 1,143,634.882   | 36,301,278.4   | 878,481,128.73770   |  |
| 2050  | 4     | 0.000     | 0.039682965    | 35,105,645.7 | 228,198,767.578 | 12,419,619.907  | 35,105,645.7   | 849,547,141.47603   |  |
| 2050  | 5     | 0.000     | 0.039682965    | 32,856,516.7 | 54,748,894.591  | 41,912,273.976  | 32,856,516.7   | 795,118,828.33339   |  |
| 2050  | 6     | 0.000     | 0.039682965    | 35,264,314.7 | 7,378,829.129   | 131,503,431.296 | 35,264,314.7   | 853,386,888.58420   |  |
| 2050  | 7     | 0.000     | 0.039682965    | 37,940,587.2 | 25,140.700      | 268,421,911.223 | 37,940,587.2   | 918,151,959.64714   |  |
| 2050  | 8     | 0.000     | 0.039682965    | 37,209,620.0 | 0.000           | 303,265,484.078 | 37,209,620.0   | 900,462,751.52007   |  |
| 2050  | 9     | 0.000     | 0.039682965    | 36,384,050.2 | 106,630.764     | 243,469,148.349 | 36,384,050.2   | 880,484,184.99534   |  |
| 2050  | 10    | 0.000     | 0.039682965    | 32,721,964.7 | 17,649,906.995  | 87,247,246.183  | 32,721,964.7   | 791,862,705.36999   |  |
| 2050  | 11    | 0.000     | 0.039682965    | 34,027,196.6 | 147,710,459.884 | 11,590,155.162  | 34,027,196.6   | 823,448,963.63521   |  |
| 2050  | 12    | 0.000     | 0.039682965    | 44,617,629.4 | 398,477,269.847 | 845,308.462     | 44,617,629.4   | 1,079,734,577.03439 |  |
| 2051  | 1     | 0.000     | 0.039220511    | 49,671,128.1 | 579,470,370.914 | 233,687.538     | 49,671,128.1   | 1,216,786,814.64320 |  |
| 2051  | 2     | 0.000     | 0.039220511    | 38,510,240.4 | 654,602,580.092 | 182,746.133     | 38,510,240.4   | 943,380,078.12240   |  |
| 2051  | 3     | 0.000     | 0.039220511    | 36,054,032.8 | 483,334,082.946 | 1,146,935.194   | 36,054,032.8   | 883,210,698.46733   |  |
| 2051  | 4     | 0.000     | 0.039220511    | 34,873,406.7 | 227,224,074.124 | 12,455,780.779  | 34,873,406.7   | 854,289,062.79154   |  |
| 2051  | 5     | 0.000     | 0.039220511    | 32,647,806.4 | 54,516,671.061  | 42,035,501.783  | 32,647,806.4   | 799,768,835.80578   |  |
| 2051  | 6     | 0.000     | 0.039220511    | 35,033,866.0 | 7,347,674.347   | 131,892,487.277 | 35,033,866.0   | 858,219,810.61316   |  |
| 2051  | 7     | 0.000     | 0.039220511    | 37,674,748.7 | 25,035.123      | 269,221,889.340 | 37,674,748.7   | 922,913,151.65121   |  |
| 2051  | 8     | 0.000     | 0.039220511    | 36,944,711.4 | 0.000           | 304,173,349.435 | 36,944,711.4   | 905,029,529.78694   |  |
| 2051  | 9     | 0.000     | 0.039220511    | 36,135,449.7 | 106,186.617     | 244,202,506.582 | 36,135,449.7   | 885,205,156.38250   |  |
| 2051  | 10    | 0.000     | 0.039220511    | 32,514,370.3 | 17,576,760.032  | 87,511,762.815  | 32,514,370.3   | 796,500,069.81540   |  |
| 2051  | 11    | 0.000     | 0.039220511    | 33,804,077.9 | 147,100,116.689 | 11,625,421.758  | 33,804,077.9   | 828,093,860.58491   |  |
| 2051  | 12    | 0.000     | 0.039220511    | 44,295,485.6 | 396,837,258.081 | 847,893.643     | 44,295,485.6   | 1,085,100,437.22573 |  |
| 2052  | 1     | 0.000     | 0.038762681    | 49,295,170.3 | 577,119,742.733 | 234,420.433     | 49,295,170.3   | 1,222,422,077.73807 |  |
| 2052  | 2     | 0.000     | 0.038762681    | 38,242,487.1 | 651,966,379.676 | 183,324.443     | 38,242,487.1   | 948,337,539.86932   |  |
| 2052  | 3     | 0.000     | 0.038762681    | 35,812,047.6 | 481,399,468.942 | 1,150,591.634   | 35,812,047.6   | 888,067,478.83621   |  |
| 2052  | 4     | 0.000     | 0.038762681    | 34,646,494.5 | 226,323,212.466 | 12,495,953.118  | 34,646,494.5   | 859,164,083.50778   |  |
| 2052  | 5     | 0.000     | 0.038762681    | 32,443,980.7 | 54,302,264.400  | 42,172,368.794  | 32,443,980.7   | 804,546,124.92628   |  |
| 2052  | 6     | 0.000     | 0.038762681    | 34,808,785.1 | 7,318,985.980   | 132,325,541.834 | 34,808,785.1   | 863,188,567.31787   |  |
| 2052  | 7     | 0.000     | 0.038762681    | 37,414,312.1 | 24,937.932      | 270,111,524.095 | 37,414,312.1   | 927,800,447.17545   |  |
| 2052  | 8     | 0.000     | 0.038762681    | 36,685,284.8 | 0.000           | 305,185,364.767 | 36,685,284.8   | 909,722,022.76147   |  |
| 2052  | 9     | 0.000     | 0.038762681    | 35,892,320.5 | 105,779.450     | 245,020,522.962 | 35,892,320.5   | 890,058,086.59031   |  |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2052 | 10    | 0.000     | 0.038762681    | 32,311,842.6 | 17,509,801.918  | 87,806,989.427  | 32,311,842.6   | 801,269,362.61915   |
| 2052 | 11    | 0.000     | 0.038762681    | 33,586,442.4 | 146,542,942.601 | 11,664,881.341  | 33,586,442.4   | 832,876,901.59965   |
| 2052 | 12    | 0.000     | 0.038762681    | 43,980,044.8 | 395,339,971.818 | 850,783.428     | 43,980,044.8   | 1,090,617,547.64984 |
| 2053 | 1     | 0.000     | 0.038309441    | 48,923,032.5 | 574,804,211.740 | 235,167.265     | 48,923,032.5   | 1,228,125,947.70679 |
| 2053 | 2     | 0.000     | 0.038309441    | 37,977,433.5 | 649,368,530.862 | 183,913.463     | 37,977,433.5   | 953,356,099.72536   |
| 2053 | 3     | 0.000     | 0.038309441    | 35,572,472.9 | 479,492,189.832 | 1,154,314.016   | 35,572,472.9   | 892,983,830.85895   |
| 2053 | 4     | 0.000     | 0.038309441    | 34,421,800.9 | 225,434,563.939 | 12,536,822.774  | 34,421,800.9   | 864,098,252.22589   |
| 2053 | 5     | 0.000     | 0.038309441    | 32,242,101.1 | 54,090,634.439  | 42,311,522.661  | 32,242,101.1   | 809,380,753.60911   |
| 2053 | 6     | 0.000     | 0.038309441    | 34,585,818.0 | 7,290,652.797   | 132,765,581.010 | 34,585,818.0   | 868,215,609.60254   |
| 2053 | 7     | 0.000     | 0.038309441    | 37,156,315.8 | 24,841.888      | 271,015,020.931 | 37,156,315.8   | 932,743,397.48490   |
| 2053 | 8     | 0.000     | 0.038309441    | 36,428,268.4 | 0.000           | 306,212,545.628 | 36,428,268.4   | 914,467,058.26833   |
| 2053 | 9     | 0.000     | 0.038309441    | 35,651,403.2 | 105,376.565     | 245,850,320.343 | 35,651,403.2   | 894,965,234.96813   |
| 2053 | 10    | 0.000     | 0.038309441    | 32,111,089.1 | 17,443,501.684  | 88,106,285.208  | 32,111,089.1   | 806,091,930.27527   |
| 2053 | 11    | 0.000     | 0.038309441    | 33,370,696.4 | 145,990,847.298 | 11,704,860.258  | 33,370,696.4   | 837,712,137.06243   |
| 2053 | 12    | 0.000     | 0.038309441    | 43,667,392.4 | 393,855,524.619 | 853,709.920     | 43,667,392.4   | 1,096,192,423.93712 |
| 2054 | 1     | 0.000     | 0.037860757    | 48,554,224.6 | 572,507,892.981 | 235,923.717     | 48,554,224.6   | 1,233,887,777.63952 |
| 2054 | 2     | 0.000     | 0.037860757    | 37,714,669.9 | 646,791,795.836 | 184,509.931     | 37,714,669.9   | 958,426,800.72427   |
| 2054 | 3     | 0.000     | 0.037860757    | 35,334,929.9 | 477,600,091.904 | 1,158,082.606   | 35,334,929.9   | 897,951,484.82323   |
| 2054 | 4     | 0.000     | 0.037860757    | 34,198,979.9 | 224,552,774.606 | 12,578,186.848  | 34,198,979.9   | 869,084,073.60204   |
| 2054 | 5     | 0.000     | 0.037860757    | 32,041,858.3 | 53,880,592.963  | 42,452,317.895  | 32,041,858.3   | 814,266,062.65864   |
| 2054 | 6     | 0.000     | 0.037860757    | 34,364,672.2 | 7,262,527.898   | 133,210,691.252 | 34,364,672.2   | 873,294,740.34961   |
| 2054 | 7     | 0.000     | 0.037860757    | 36,900,504.5 | 24,746.537      | 271,928,694.699 | 36,900,504.5   | 937,736,762.70662   |
| 2054 | 8     | 0.000     | 0.037860757    | 36,173,441.0 | 0.000           | 307,251,000.866 | 36,173,441.0   | 919,260,210.11044   |
| 2054 | 9     | 0.000     | 0.037860757    | 35,412,484.8 | 104,976.448     | 246,688,992.356 | 35,412,484.8   | 899,922,355.04976   |
| 2054 | 10    | 0.000     | 0.037860757    | 31,911,918.7 | 17,377,640.914  | 88,408,693.503  | 31,911,918.7   | 810,963,962.70543   |
| 2054 | 11    | 0.000     | 0.037860757    | 33,156,664.7 | 145,442,248.358 | 11,745,242.743  | 33,156,664.7   | 842,596,161.64479   |
| 2054 | 12    | 0.000     | 0.037860757    | 43,357,337.0 | 392,380,155.083 | 856,665.303     | 43,357,337.0   | 1,101,821,491.80763 |
| 2055 | 1     | 0.000     | 0.037416595    | 48,188,591.6 | 570,226,726.724 | 236,688.102     | 48,188,591.6   | 1,239,704,974.79074 |
| 2055 | 2     | 0.000     | 0.037416595    | 37,454,105.6 | 644,233,175.445 | 185,112.899     | 37,454,105.6   | 963,548,414.91275   |
| 2055 | 3     | 0.000     | 0.037416595    | 35,099,373.3 | 475,722,161.753 | 1,161,893.912   | 35,099,373.3   | 902,970,312.51050   |
| 2055 | 4     | 0.000     | 0.037416595    | 33,978,042.2 | 223,678,131.176 | 12,620,042.639  | 33,978,042.2   | 874,122,827.41341   |
| 2055 | 5     | 0.000     | 0.037416595    | 31,843,314.1 | 53,672,378.340  | 42,594,863.332  | 31,843,314.1   | 819,204,578.79373   |
| 2055 | 6     | 0.000     | 0.037416595    | 34,145,453.2 | 7,234,661.955   | 133,661,547.572 | 34,145,453.2   | 878,429,660.42778   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | X-Missing | Lighting Share | Lighting     | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-----------|----------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2055 | 7     | 0.000     | 0.037416595    | 36,647,012.7 | 24,652.109      | 272,854,585.831 | 36,647,012.7   | 942,785,054.89237   |
| 2055 | 8     | 0.000     | 0.037416595    | 35,920,970.1 | 0.000           | 308,303,858.398 | 35,920,970.1   | 924,106,802.92112   |
| 2055 | 9     | 0.000     | 0.037416595    | 35,175,790.3 | 104,580.639     | 247,539,710.111 | 35,175,790.3   | 904,936,226.33757   |
| 2055 | 10    | 0.000     | 0.037416595    | 31,714,614.1 | 17,312,531.594  | 88,715,607.072  | 31,714,614.1   | 815,893,627.66973   |
| 2055 | 11    | 0.000     | 0.037416595    | 32,944,690.5 | 144,900,269.645 | 11,786,247.831  | 32,944,690.5   | 847,538,707.96304   |
| 2055 | 12    | 0.000     | 0.037416595    | 43,050,326.9 | 390,923,328.306 | 859,667.422     | 43,050,326.9   | 1,107,517,414.89607 |
| 2056 | 1     | 0.000     | 0.036976921    | 47,826,580.5 | 567,974,034.718 | 237,465.207     | 47,826,580.5   | 1,245,590,470.84912 |
| 2056 | 2     | 0.000     | 0.036976921    | 37,196,125.4 | 641,707,223.559 | 185,725.998     | 37,196,125.4   | 968,732,007.01102   |
| 2056 | 3     | 0.000     | 0.036976921    | 34,866,164.0 | 473,868,752.021 | 1,165,769.950   | 34,866,164.0   | 908,050,735.06116   |
| 2056 | 4     | 0.000     | 0.036976921    | 33,759,324.6 | 222,815,260.775 | 12,662,618.653  | 33,759,324.6   | 879,224,325.90777   |
| 2056 | 5     | 0.000     | 0.036976921    | 31,646,779.3 | 53,467,047.505  | 42,739,894.898  | 31,646,779.3   | 824,205,415.69643   |
| 2056 | 6     | 0.000     | 0.036976921    | 33,928,462.0 | 7,207,191.412   | 134,120,357.562 | 33,928,462.0   | 883,629,321.99624   |
| 2056 | 7     | 0.000     | 0.036976921    | 36,396,107.1 | 24,559.050      | 273,796,992.265 | 36,396,107.1   | 947,896,414.61984   |
| 2056 | 8     | 0.000     | 0.036976921    | 35,671,092.8 | 0.000           | 309,375,707.978 | 35,671,092.8   | 929,014,215.78742   |
| 2056 | 9     | 0.000     | 0.036976921    | 34,941,559.0 | 104,190.829     | 248,405,939.874 | 34,941,559.0   | 910,014,315.40732   |
| 2056 | 10    | 0.000     | 0.036976921    | 31,519,402.9 | 17,248,433.304  | 89,028,181.775  | 31,519,402.9   | 820,888,039.10631   |
| 2056 | 11    | 0.000     | 0.036976921    | 32,734,986.1 | 144,366,899.720 | 11,828,017.347  | 32,734,986.1   | 852,546,560.16555   |
| 2056 | 12    | 0.000     | 0.036976921    | 42,746,589.3 | 389,490,026.095 | 862,725.958     | 42,746,589.3   | 1,113,287,707.96427 |
| 2057 | 1     | 0.000     | 0.036541703    | 47,468,393.9 | 565,756,122.074 | 238,257.407     | 47,468,393.9   | 1,251,551,358.95854 |
| 2057 | 2     | 0.000     | 0.036541703    | 36,940,887.4 | 639,220,093.325 | 186,350.875     | 36,940,887.4   | 973,983,193.05521   |
| 2057 | 3     | 0.000     | 0.036541703    | 34,635,432.9 | 472,043,678.077 | 1,169,719.704   | 34,635,432.9   | 913,197,593.65489   |
| 2057 | 4     | 0.000     | 0.036541703    | 33,542,924.6 | 221,965,498.541 | 12,705,992.850  | 33,542,924.6   | 884,392,528.51352   |
| 2057 | 5     | 0.000     | 0.036541703    | 31,452,319.1 | 53,264,812.287  | 42,887,609.341  | 31,452,319.1   | 829,271,638.68255   |
| 2057 | 6     | 0.000     | 0.036541703    | 33,713,736.8 | 7,180,131.939   | 134,587,550.478 | 33,713,736.8   | 888,896,160.82783   |
| 2057 | 7     | 0.000     | 0.036541703    | 36,147,795.9 | 24,467.372      | 274,756,419.262 | 36,147,795.9   | 953,072,548.87058   |
| 2057 | 8     | 0.000     | 0.036541703    | 35,423,790.6 | 0.000           | 310,466,666.653 | 35,423,790.6   | 933,983,429.41441   |
| 2057 | 9     | 0.000     | 0.036541703    | 34,709,746.0 | 103,806.683     | 249,287,416.484 | 34,709,746.0   | 915,156,933.45231   |
| 2057 | 10    | 0.000     | 0.036541703    | 31,326,212.4 | 17,185,255.852  | 89,346,185.007  | 31,326,212.4   | 825,946,708.37098   |
| 2057 | 11    | 0.000     | 0.036541703    | 32,527,444.8 | 143,841,090.503 | 11,870,502.269  | 32,527,444.8   | 857,618,393.44669   |
| 2057 | 12    | 0.000     | 0.036541703    | 42,445,965.6 | 388,076,827.588 | 865,836.341     | 42,445,965.6   | 1,119,130,048.02402 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage    | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|-----------------|-----------------|-----------------|----------------|---------------------|
| 1995 | 1     |                   |                 |                 |                 |                |                     |
| 1995 | 2     | 1,593,844,674.559 | 1,596,350,328.2 | 781,878,195.847 | 0.000           | 166,015,759.1  | 648,456,373.24063   |
| 1995 | 3     | 1,249,877,029.626 | 1,254,741,611.8 | 534,573,786.546 | 0.000           | 146,251,863.9  | 573,915,961.40519   |
| 1995 | 4     | 958,711,081.314   | 968,155,387.3   | 196,611,570.739 | 6,509,234.001   | 154,489,005.0  | 610,545,577.60907   |
| 1995 | 5     | 887,198,837.076   | 905,534,412.9   | 70,375,056.108  | 26,410,426.774  | 161,608,978.3  | 647,139,951.75572   |
| 1995 | 6     | 970,269,061.362   | 960,439,592.0   | 4,503,998.789   | 118,872,673.888 | 173,156,757.7  | 663,906,161.65490   |
| 1995 | 7     | 1,180,760,926.904 | 1,379,927,028.3 | 0.000           | 282,613,264.502 | 183,636,480.0  | 913,677,283.81266   |
| 1995 | 8     | 1,425,582,913.345 | 1,533,806,987.2 | 0.000           | 440,781,274.113 | 201,353,868.7  | 891,671,844.42507   |
| 1995 | 9     | 923,564,374.503   | 915,975,408.1   | 560,397.967     | 346,553,002.280 | 117,861,942.1  | 451,000,065.79261   |
| 1995 | 10    | 910,591,004.440   | 895,857,463.6   | 14,860,922.927  | 64,016,988.870  | 170,053,178.4  | 646,926,373.37409   |
| 1995 | 11    | 1,368,248,291.848 | 1,498,882,470.1 | 224,588,745.966 | 5,948,057.324   | 232,618,022.3  | 1,035,727,644.54194 |
| 1995 | 12    | 1,714,282,417.669 | 1,967,901,146.6 | 552,952,945.911 | 405,447.638     | 237,364,088.6  | 1,177,178,664.52609 |
| 1996 | 1     | 2,061,696,112.467 | 2,076,798,617.9 | 896,016,570.621 | 0.000           | 242,722,795.2  | 938,059,252.02537   |
| 1996 | 2     | 1,931,909,035.624 | 1,961,229,679.5 | 893,159,221.728 | 0.000           | 216,292,942.7  | 851,777,515.09548   |
| 1996 | 3     | 1,550,545,211.177 | 1,540,773,591.6 | 612,907,873.957 | 0.000           | 195,238,869.0  | 732,626,848.62053   |
| 1996 | 4     | 1,302,724,545.908 | 1,352,304,482.7 | 423,486,888.455 | 7,867,310.893   | 181,440,471.9  | 739,509,811.38862   |
| 1996 | 5     | 993,364,969.354   | 960,242,182.1   | 92,457,636.699  | 78,528,904.962  | 171,239,164.4  | 618,016,475.99375   |
| 1996 | 6     | 1,019,255,076.897 | 988,971,148.6   | 12,715,914.858  | 169,029,361.402 | 174,389,883.8  | 632,835,988.53266   |
| 1996 | 7     | 1,206,256,954.764 | 1,190,706,251.2 | 0.000           | 323,966,841.959 | 183,714,232.5  | 683,025,176.73637   |
| 1996 | 8     | 1,164,230,369.880 | 1,142,380,692.8 | 0.000           | 297,708,746.810 | 180,430,849.9  | 664,241,096.10889   |
| 1996 | 9     | 1,105,034,000.458 | 1,112,761,645.7 | 0.000           | 257,676,772.071 | 176,440,357.4  | 678,644,516.20771   |
| 1996 | 10    | 852,837,927.585   | 879,169,425.2   | 28,230,659.274  | 47,222,806.076  | 161,870,327.9  | 641,845,631.98304   |
| 1996 | 11    | 1,075,741,585.442 | 1,080,485,228.8 | 230,208,956.710 | 6,693,611.949   | 174,666,658.9  | 668,916,001.24902   |
| 1996 | 12    | 1,676,204,859.562 | 1,639,880,269.1 | 580,280,310.339 | 1,599,192.821   | 227,865,120.6  | 830,135,645.34847   |
| 1997 | 1     | 1,866,616,676.490 | 1,872,862,109.6 | 651,180,153.638 | 853,602.966     | 256,367,007.6  | 964,461,345.35922   |
| 1997 | 2     | 1,735,263,575.380 | 1,697,515,457.7 | 789,988,988.562 | 707,595.164     | 199,373,636.1  | 707,445,237.80014   |
| 1997 | 3     | 1,296,235,950.223 | 1,310,969,527.9 | 434,442,048.193 | 3,011,486.327   | 181,266,733.2  | 692,249,260.14545   |
| 1997 | 4     | 1,130,294,810.927 | 1,181,396,423.4 | 277,307,947.739 | 6,879,224.208   | 178,591,416.0  | 718,617,835.46652   |
| 1997 | 5     | 949,129,998.162   | 971,922,643.2   | 127,470,170.665 | 7,910,884.908   | 171,761,333.0  | 664,780,254.61018   |
| 1997 | 6     | 942,002,032.835   | 898,196,542.2   | 19,240,957.272  | 58,309,825.729  | 182,463,277.3  | 638,182,481.84781   |
| 1997 | 7     | 1,167,551,956.384 | 1,173,407,879.0 | 0.000           | 274,845,470.481 | 188,427,226.1  | 710,135,182.44417   |
| 1997 | 8     | 1,224,031,567.088 | 1,213,288,242.8 | 0.000           | 338,400,065.982 | 186,933,880.0  | 687,954,296.83377   |
| 1997 | 9     | 1,049,943,376.904 | 1,055,187,091.3 | 0.000           | 183,401,970.842 | 182,904,455.2  | 688,880,665.29298   |

| Kentucky Power Company |       | Residential Energy Model Output |                 |                   |                 |                |                   |
|------------------------|-------|---------------------------------|-----------------|-------------------|-----------------|----------------|-------------------|
| Year                   | Month | Total Usage                     | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage       |
| 1997                   | 10    | 867,554,308.031                 | 861,173,071.0   | 20,470,153.893    | 57,629,491.782  | 166,633,439.4  | 616,439,985.84713 |
| 1997                   | 11    | 1,109,584,038.665               | 1,110,993,058.7 | 279,067,246.665   | 16,355,772.392  | 171,848,311.8  | 643,721,727.88474 |
| 1997                   | 12    | 1,661,648,933.570               | 1,748,100,828.4 | 558,983,812.371   | 0.000           | 232,744,058.0  | 956,372,958.05271 |
| 1998                   | 1     | 1,890,200,211.531               | 1,816,033,319.3 | 607,088,620.014   | 0.000           | 273,994,494.9  | 934,950,204.45630 |
| 1998                   | 2     | 1,581,491,782.958               | 1,553,672,256.1 | 641,553,915.135   | 0.000           | 200,713,486.6  | 711,404,854.33040 |
| 1998                   | 3     | 1,378,265,325.870               | 1,393,328,817.6 | 513,828,877.790   | 38,293.382      | 184,582,804.3  | 694,878,842.21058 |
| 1998                   | 4     | 1,200,138,855.497               | 1,159,163,821.8 | 299,941,181.630   | 48,568,416.660  | 181,856,145.4  | 628,798,078.11191 |
| 1998                   | 5     | 844,298,691.983                 | 927,021,092.2   | 44,807,913.708    | 27,166,116.731  | 164,921,513.4  | 690,125,548.39906 |
| 1998                   | 6     | 1,033,852,520.772               | 1,003,710,299.0 | 992,931.073       | 156,014,694.767 | 187,240,670.0  | 659,462,003.14952 |
| 1998                   | 7     | 1,242,531,980.068               | 1,243,692,577.8 | 432,280.364       | 334,620,329.610 | 193,782,328.2  | 714,857,639.57837 |
| 1998                   | 8     | 1,240,836,912.428               | 1,250,202,535.7 | 0.000             | 346,497,666.426 | 190,976,398.0  | 712,728,471.33867 |
| 1998                   | 9     | 1,223,008,605.471               | 1,219,361,559.8 | 0.000             | 336,772,973.624 | 189,245,959.5  | 693,342,626.67826 |
| 1998                   | 10    | 1,010,537,861.968               | 994,519,240.3   | 8,337,669.136     | 205,435,351.907 | 170,140,447.3  | 610,605,772.00763 |
| 1998                   | 11    | 1,020,336,096.870               | 1,079,235,975.8 | 169,793,577.221   | 15,251,020.576  | 178,367,395.2  | 715,823,982.80857 |
| 1998                   | 12    | 1,449,116,848.857               | 1,459,519,909.4 | 321,986,798.397   | 3,209,574.122   | 240,000,967.3  | 894,322,569.54418 |
| 1999                   | 1     | 2,114,290,475.862               | 1,996,281,053.4 | 845,458,217.492   | 1,418,888.265   | 272,500,247.0  | 876,903,700.64773 |
| 1999                   | 2     | 1,501,333,498.963               | 1,466,155,153.4 | 588,656,665.095   | 0.000           | 196,230,108.1  | 681,268,380.18408 |
| 1999                   | 3     | 1,554,672,079.288               | 1,560,206,994.7 | 703,935,560.625   | 0.000           | 182,912,628.9  | 673,358,805.17001 |
| 1999                   | 4     | 1,219,144,541.058               | 1,223,541,450.5 | 364,166,209.082   | 11,358,879.981  | 181,382,423.8  | 666,633,937.61468 |
| 1999                   | 5     | 875,611,083.318                 | 866,545,204.6   | 43,749,809.317    | 38,364,569.339  | 170,605,781.1  | 613,825,044.79831 |
| 1999                   | 6     | 1,022,013,924.816               | 977,527,859.2   | 0.000             | 178,524,170.461 | 181,354,538.1  | 617,649,150.58747 |
| 1999                   | 7     | 1,303,566,296.507               | 1,267,808,366.3 | 0.000             | 416,539,268.500 | 190,715,270.9  | 660,553,826.88621 |
| 1999                   | 8     | 1,385,067,607.247               | 1,387,451,366.7 | 0.000             | 517,687,702.535 | 186,491,040.6  | 683,272,623.52838 |
| 1999                   | 9     | 1,134,407,142.638               | 1,126,778,698.7 | 178,413.222       | 263,312,218.440 | 187,251,428.7  | 676,036,638.28144 |
| 1999                   | 10    | 865,564,564.588                 | 900,664,947.0   | 19,832,849.247    | 54,699,607.005  | 170,075,880.5  | 656,056,610.22298 |
| 1999                   | 11    | 1,024,156,952.266               | 1,048,740,561.2 | 164,180,506.082   | 3,042,436.202   | 184,245,120.7  | 697,272,498.24810 |
| 1999                   | 12    | 1,539,695,759.556               | 1,501,399,041.6 | 409,424,198.897   | 0.000           | 243,014,068.4  | 848,960,774.30606 |
| 2000                   | 1     | 2,007,347,643.838               | 1,922,441,095.7 | 760,139,113.566   | 0.000           | 270,264,195.5  | 892,037,786.65630 |
| 2000                   | 2     | 1,933,695,999.275               | 1,921,954,652.8 | 1,009,910,006.808 | 0.000           | 200,180,059.7  | 711,864,586.30550 |
| 2000                   | 3     | 1,264,650,410.503               | 1,315,910,191.7 | 391,017,856.570   | 2,507,714.709   | 188,768,636.6  | 733,615,983.80443 |
| 2000                   | 4     | 1,103,328,861.061               | 1,075,373,007.3 | 215,774,900.986   | 5,822,344.902   | 191,067,074.9  | 662,708,686.55174 |
| 2000                   | 5     | 944,928,333.825                 | 998,023,787.9   | 80,481,399.704    | 63,518,782.711  | 173,557,346.1  | 680,466,259.47421 |
| 2000                   | 6     | 1,057,998,553.894               | 1,048,146,689.2 | 182,628.306       | 176,608,166.752 | 190,953,557.7  | 680,402,336.45860 |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                |                     |
|---|-------|-------------------|-----------------|-------------------|-----------------|----------------|---------------------|
| Year  | Month | Total Usage       | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2000  | 7     | 1,253,531,675.090 | 1,220,915,630.4 | 0.000             | 324,708,731.477 | 201,271,543.2  | 694,935,355.66030   |
| 2000  | 8     | 1,180,611,890.533 | 1,185,966,961.3 | 0.000             | 285,938,672.103 | 193,871,459.1  | 706,156,830.09588   |
| 2000  | 9     | 1,144,042,467.190 | 1,146,883,663.9 | 933,078.276       | 249,572,979.100 | 193,625,118.1  | 702,752,488.44464   |
| 2000  | 10    | 954,479,360.485   | 981,004,259.7   | 51,759,004.962    | 86,613,322.299  | 176,846,538.0  | 665,785,394.41729   |
| 2000  | 11    | 1,062,825,893.266 | 1,034,520,178.6 | 176,911,547.524   | 11,992,502.715  | 189,374,734.1  | 656,241,394.21760   |
| 2000  | 12    | 1,894,210,509.872 | 1,842,378,621.1 | 781,332,855.791   | 0.000           | 241,155,329.3  | 819,890,435.92792   |
| 2001  | 1     | 2,423,641,570.601 | 2,442,094,256.8 | 1,180,516,733.529 | 0.000           | 270,628,309.5  | 990,949,213.79243   |
| 2001  | 2     | 1,905,114,488.910 | 1,814,615,610.7 | 921,946,906.911   | 0.000           | 214,035,608.3  | 678,633,095.49952   |
| 2001  | 3     | 1,508,549,452.554 | 1,520,046,059.2 | 640,825,667.422   | 0.000           | 188,903,490.7  | 690,316,901.05736   |
| 2001  | 4     | 1,351,722,616.934 | 1,325,045,263.9 | 438,170,674.042   | 48,248,978.260  | 188,376,478.0  | 650,249,133.56464   |
| 2001  | 5     | 974,629,791.814   | 979,761,380.4   | 67,234,804.873    | 107,669,363.788 | 174,100,289.0  | 630,756,922.67204   |
| 2001  | 6     | 986,502,822.075   | 977,736,682.2   | 3,988,936.882     | 116,152,709.415 | 188,606,850.6  | 668,988,185.33047   |
| 2001  | 7     | 1,216,764,318.112 | 1,193,277,616.7 | 0.000             | 289,932,792.653 | 201,771,247.3  | 701,573,576.78812   |
| 2001  | 8     | 1,322,616,700.128 | 1,290,724,565.9 | 0.000             | 420,770,739.107 | 196,331,889.3  | 673,621,937.50890   |
| 2001  | 9     | 1,216,359,980.066 | 1,220,538,371.8 | 191,711.998       | 330,063,456.669 | 192,905,040.6  | 697,378,162.55704   |
| 2001  | 10    | 935,214,960.262   | 976,700,738.2   | 39,464,857.993    | 80,202,651.563  | 177,544,701.3  | 679,488,527.31230   |
| 2001  | 11    | 1,098,737,639.069 | 1,151,266,076.8 | 189,376,380.736   | 23,612,716.181  | 192,827,480.8  | 745,449,499.13249   |
| 2001  | 12    | 1,414,101,316.855 | 1,414,092,324.5 | 246,061,631.112   | 745,738.632     | 254,119,922.8  | 913,165,032.01187   |
| 2002  | 1     | 2,148,451,811.751 | 2,073,169,675.9 | 845,336,646.980   | 0.000           | 285,707,511.5  | 942,125,517.40559   |
| 2002  | 2     | 1,663,555,610.889 | 1,672,431,977.0 | 696,866,038.684   | 0.000           | 211,946,326.4  | 763,619,611.92753   |
| 2002  | 3     | 1,541,566,539.480 | 1,604,873,500.7 | 622,395,179.361   | 1,510,130.381   | 201,196,880.7  | 779,771,310.26225   |
| 2002  | 4     | 1,278,588,182.245 | 1,295,819,825.4 | 332,435,026.571   | 22,976,701.242  | 202,406,091.7  | 738,002,005.94917   |
| 2002  | 5     | 1,009,667,370.976 | 946,106,018.9   | 88,199,847.375    | 65,329,025.381  | 187,708,044.9  | 604,869,101.21356   |
| 2002  | 6     | 1,088,111,542.562 | 1,103,276,437.5 | 51,071,091.955    | 172,352,315.897 | 189,582,549.5  | 690,270,480.19777   |
| 2002  | 7     | 1,334,580,486.215 | 1,356,212,003.1 | 0.000             | 394,139,761.267 | 206,191,276.5  | 755,880,965.30212   |
| 2002  | 8     | 1,441,065,837.572 | 1,425,290,539.7 | 0.000             | 502,542,855.527 | 205,770,812.1  | 716,976,872.11926   |
| 2002  | 9     | 1,355,987,685.399 | 1,301,868,519.2 | 0.000             | 442,080,704.720 | 200,373,763.0  | 659,414,051.46918   |
| 2002  | 10    | 1,002,184,441.481 | 1,006,367,078.6 | 19,061,242.052    | 178,534,893.383 | 176,405,684.6  | 632,365,258.59354   |
| 2002  | 11    | 1,121,113,432.660 | 1,119,831,951.3 | 235,079,476.131   | 17,779,946.011  | 190,364,366.4  | 676,608,162.70421   |
| 2002  | 12    | 1,849,745,078.805 | 1,840,687,068.1 | 706,869,930.326   | 2,354,127.392   | 250,058,806.5  | 881,404,203.88374   |
| 2003  | 1     | 2,147,725,223.175 | 2,194,397,728.1 | 858,366,616.061   | 0.000           | 280,210,350.9  | 1,055,820,761.21139 |
| 2003  | 2     | 2,215,641,961.661 | 2,098,001,263.4 | 1,191,275,574.244 | 0.000           | 222,620,815.7  | 684,104,873.46082   |
| 2003  | 3     | 1,687,094,051.185 | 1,707,984,851.4 | 803,034,253.566   | 0.000           | 192,128,632.6  | 712,821,965.28232   |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                |                     |                   |                 |                |                     |
|---|-------|-------------------|-----------------|-------------------|-----------------|----------------|---------------------|-------------------|-----------------|----------------|---------------------|
| Year  | Month | Total Usage       | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2003  | 4     | 1,117,829,847.755 | 1,143,625,004.3 | 211,390,899.516   | 19,813,604.881  | 192,686,190.8  | 719,734,309.15672   | 45,765,571.480    | 49,405,033.616  | 183,720,628.6  | 655,830,797.54416   |
| 2003  | 5     | 940,541,852.099   | 934,722,031.2   | 0.000             | 67,041,929.221  | 193,259,643.2  | 687,651,020.60132   | 0.000             | 281,477,743.603 | 205,054,155.6  | 725,268,600.31105   |
| 2003  | 6     | 956,305,953.777   | 947,952,593.0   | 0.000             | 336,632,584.316 | 199,502,548.6  | 707,731,780.88846   | 0.000             | 322,877,816.971 | 199,145,223.8  | 738,909,353.55677   |
| 2003  | 7     | 1,225,012,983.032 | 1,211,800,499.5 | 0.000             | 46,823,624.288  | 184,025,123.4  | 683,108,708.47703   | 53,121,972.713    | 11,026,709.639  | 194,711,293.3  | 708,067,950.11798   |
| 2003  | 8     | 1,254,622,685.147 | 1,243,866,913.9 | 0.000             | 1,258,322.406   | 251,928,735.6  | 957,084,693.40660   | 146,679,766.773   | 1,000,384.455   | 286,861,794.8  | 1,090,532,600.02711 |
| 2003  | 9     | 1,239,223,724.987 | 1,260,932,394.3 | 0.000             | 850,510,545.452 | 226,556,579.2  | 785,790,227.14018   | 517,372,680.724   | 335,418.868     | 226,556,579.2  | 785,790,227.14018   |
| 2003  | 10    | 946,717,944.958   | 967,079,428.8   | 1,103,596,519.120 | 3,006,666.122   | 202,675,674.8  | 749,840,672.93917   | 850,510,545.452   | 3,006,666.122   | 202,675,674.8  | 749,840,672.93917   |
| 2003  | 11    | 1,053,650,117.097 | 1,060,485,719.8 | 637,754,514.167   | 16,618,891.471  | 199,051,603.8  | 725,328,650.88921   | 146,679,766.773   | 16,618,891.471  | 199,051,603.8  | 725,328,650.88921   |
| 2003  | 12    | 1,677,854,717.278 | 1,727,644,432.2 | 351,408,740.746   | 91,662,952.076  | 181,760,034.8  | 650,642,320.53175   | 517,372,680.724   | 91,662,952.076  | 181,760,034.8  | 650,642,320.53175   |
| 2004  | 1     | 2,183,385,727.555 | 2,228,905,324.8 | 86,153,681.349    | 252,322,863.544 | 192,749,377.4  | 702,758,236.67261   | 86,153,681.349    | 252,322,863.544 | 192,749,377.4  | 702,758,236.67261   |
| 2004  | 2     | 2,155,814,773.282 | 2,116,278,744.3 | 1,103,596,519.120 | 322,193,878.133 | 205,337,274.8  | 762,642,906.50517   | 1,103,596,519.120 | 322,193,878.133 | 205,337,274.8  | 762,642,906.50517   |
| 2004  | 3     | 1,581,767,017.205 | 1,593,277,528.0 | 637,754,514.167   | 319,172,584.195 | 203,114,066.4  | 685,603,559.45228   | 637,754,514.167   | 319,172,584.195 | 203,114,066.4  | 685,603,559.45228   |
| 2004  | 4     | 1,292,207,217.423 | 1,292,407,886.9 | 351,408,740.746   | 279,905,059.265 | 193,165,765.8  | 687,726,955.30304   | 351,408,740.746   | 279,905,059.265 | 193,165,765.8  | 687,726,955.30304   |
| 2004  | 5     | 1,021,712,941.554 | 1,010,218,988.8 | 86,153,681.349    | 83,213,708.245  | 178,584,798.9  | 700,757,122.90539   | 86,153,681.349    | 83,213,708.245  | 178,584,798.9  | 700,757,122.90539   |
| 2004  | 6     | 1,153,236,484.091 | 1,153,825,211.5 | 5,994,733.812     | 16,474,559.105  | 194,235,028.6  | 696,254,445.60916   | 5,994,733.812     | 16,474,559.105  | 194,235,028.6  | 696,254,445.60916   |
| 2004  | 7     | 1,275,557,296.588 | 1,290,174,059.4 | 0.000             | 2,400,152.973   | 250,905,693.1  | 949,076,712.05018   | 0.000             | 2,400,152.973   | 250,905,693.1  | 949,076,712.05018   |
| 2004  | 8     | 1,262,213,836.006 | 1,207,890,210.0 | 0.000             | 0.000           | 281,747,693.8  | 1,041,510,195.65420 | 0.000             | 0.000           | 281,747,693.8  | 1,041,510,195.65420 |
| 2004  | 9     | 1,176,757,201.826 | 1,160,797,780.4 | 0.000             | 912,849,572.002 | 220,166,581.7  | 816,446,422.85983   | 0.000             | 912,849,572.002 | 220,166,581.7  | 816,446,422.85983   |
| 2004  | 10    | 927,090,174.782   | 977,278,137.3   | 14,722,507.253    | 772,439,774.472 | 205,161,396.4  | 794,286,629.58316   | 14,722,507.253    | 772,439,774.472 | 205,161,396.4  | 794,286,629.58316   |
| 2004  | 11    | 1,012,235,102.370 | 1,000,907,938.5 | 93,943,905.187    | 356,794,566.205 | 193,492,250.3  | 677,045,573.03954   | 93,943,905.187    | 356,794,566.205 | 193,492,250.3  | 677,045,573.03954   |
| 2004  | 12    | 1,601,928,847.410 | 1,636,977,562.4 | 434,595,004.239   | 102,308,416.117 | 190,520,146.9  | 701,892,832.22423   | 434,595,004.239   | 102,308,416.117 | 190,520,146.9  | 701,892,832.22423   |
| 2005  | 1     | 2,066,221,753.892 | 2,070,072,946.9 | 746,815,057.386   | 162,595,867.680 | 175,958,691.7  | 645,271,497.49335   | 746,815,057.386   | 162,595,867.680 | 175,958,691.7  | 645,271,497.49335   |
| 2005  | 2     | 1,943,875,801.026 | 1,949,462,576.6 | 912,849,572.002   | 461,769,627.021 | 190,217,414.7  | 695,478,133.29710   | 912,849,572.002   | 461,769,627.021 | 190,217,414.7  | 695,478,133.29710   |
| 2005  | 3     | 1,733,197,665.860 | 1,771,887,800.4 | 772,439,774.472   | 589,543,039.957 | 245,826,925.1  | 898,894,078.81253   | 772,439,774.472   | 589,543,039.957 | 245,826,925.1  | 898,894,078.81253   |
| 2005  | 4     | 1,312,781,317.814 | 1,308,930,626.7 | 356,794,566.205   | 443,652,773.938 | 175,958,691.7  | 645,271,497.49335   | 356,794,566.205   | 443,652,773.938 | 175,958,691.7  | 645,271,497.49335   |
| 2005  | 5     | 982,795,223.909   | 1,021,337,500.5 | 102,308,416.117   | 203,770,704.242 | 190,217,414.7  | 695,478,133.29710   | 102,308,416.117   | 203,770,704.242 | 190,217,414.7  | 695,478,133.29710   |
| 2005  | 6     | 1,102,780,446.900 | 1,069,231,422.6 | 14,117,390.561    | 162,595,867.680 | 197,753,501.9  | 694,764,662.40552   | 14,117,390.561    | 162,595,867.680 | 197,753,501.9  | 694,764,662.40552   |
| 2005  | 7     | 1,414,155,753.292 | 1,333,320,854.8 | 0.000             | 461,769,627.021 | 203,373,679.6  | 668,177,548.18264   | 0.000             | 461,769,627.021 | 203,373,679.6  | 668,177,548.18264   |
| 2005  | 8     | 1,495,655,055.855 | 1,460,080,863.3 | 0.000             | 589,543,039.957 | 193,492,250.3  | 677,045,573.03954   | 0.000             | 589,543,039.957 | 193,492,250.3  | 677,045,573.03954   |
| 2005  | 9     | 1,335,846,616.708 | 1,336,065,753.1 | 0.000             | 443,652,773.938 | 190,520,146.9  | 701,892,832.22423   | 0.000             | 443,652,773.938 | 190,520,146.9  | 701,892,832.22423   |
| 2005  | 10    | 1,036,517,228.387 | 1,033,743,952.1 | 8,743,058.669     | 203,770,704.242 | 175,958,691.7  | 645,271,497.49335   | 8,743,058.669     | 203,770,704.242 | 175,958,691.7  | 645,271,497.49335   |
| 2005  | 11    | 1,125,216,868.230 | 1,120,136,249.4 | 221,553,479.095   | 12,887,222.322  | 190,217,414.7  | 695,478,133.29710   | 221,553,479.095   | 12,887,222.322  | 190,217,414.7  | 695,478,133.29710   |
| 2005  | 12    | 1,906,910,235.477 | 1,900,439,239.2 | 753,816,271.538   | 1,901,963.738   | 245,826,925.1  | 898,894,078.81253   | 753,816,271.538   | 1,901,963.738   | 245,826,925.1  | 898,894,078.81253   |

|      |       | Kentucky Power Company<br>Residential Energy Model Output |                 |                   |                 |                |                     |  |
|------|-------|---|-----------------|-------------------|-----------------|----------------|---------------------|--|
| Year | Month | Total Usage   | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |
| 2006 | 1     | 2,084,373,151.919   | 2,207,723,455.1 | 756,881,782.575   | 0.000           | 274,083,608.5  | 1,176,758,064.01195 |  |
| 2006 | 2     | 1,747,502,247.845   | 1,804,836,407.7 | 644,158,163.123   | 0.000           | 227,804,515.4  | 932,873,729.09434   |  |
| 2006 | 3     | 1,767,023,825.235   | 1,626,827,484.4 | 735,940,590.273   | 1,747,137.147   | 212,524,283.4  | 676,615,473.56926   |  |
| 2006 | 4     | 1,272,238,466.756   | 1,262,415,619.8 | 375,867,139.936   | 20,768,314.371  | 180,783,422.6  | 684,996,742.87313   |  |
| 2006 | 5     | 921,032,004.504   | 940,154,584.1   | 30,618,918.195    | 34,786,277.698  | 176,658,989.0  | 698,090,399.24170   |  |
| 2006 | 6     | 1,053,529,795.409   | 1,057,778,073.8 | 5,877,126.519     | 130,895,625.133 | 189,280,385.9  | 731,724,936.27474   |  |
| 2006 | 7     | 1,303,433,030.052   | 1,271,276,787.1 | 0.000             | 322,947,686.489 | 202,438,198.3  | 745,890,902.30702   |  |
| 2006 | 8     | 1,467,177,870.552   | 1,424,173,576.1 | 0.000             | 515,923,582.598 | 196,402,940.1  | 711,847,053.40623   |  |
| 2006 | 9     | 1,261,015,105.193   | 1,255,081,861.0 | 1,414,185.181     | 327,726,517.654 | 192,401,626.7  | 733,539,531.45269   |  |
| 2006 | 10    | 967,197,943.832   | 971,237,941.1   | 58,301,536.901    | 46,020,133.997  | 178,155,766.6  | 688,760,503.63385   |  |
| 2006 | 11    | 1,235,273,431.028   | 1,232,087,453.7 | 321,476,208.399   | 3,176,690.096   | 188,013,396.8  | 719,421,158.47208   |  |
| 2006 | 12    | 1,683,654,605.333   | 1,774,977,717.7 | 506,449,660.194   | 3,317,162.162   | 242,369,485.0  | 1,022,841,410.31296 |  |
| 2007 | 1     | 1,912,000,700.454   | 1,894,406,857.0 | 545,920,386.122   | 359,923.142     | 272,499,862.5  | 1,075,626,685.24714 |  |
| 2007 | 2     | 2,238,403,287.913   | 2,214,653,079.5 | 1,101,318,069.614 | 0.000           | 226,880,676.1  | 886,454,333.87475   |  |
| 2007 | 3     | 1,891,948,034.791   | 1,845,838,373.9 | 927,565,846.320   | 2,761,289.652   | 191,870,579.4  | 723,640,658.56739   |  |
| 2007 | 4     | 1,280,910,738.869   | 1,270,902,877.7 | 319,859,650.673   | 35,914,709.640  | 184,590,885.2  | 730,537,632.14757   |  |
| 2007 | 5     | 1,045,694,214.257   | 1,045,100,110.5 | 121,390,075.088   | 62,628,954.529  | 171,928,581.3  | 689,152,499.59522   |  |
| 2007 | 6     | 1,132,522,226.641   | 1,145,911,905.3 | 4,970,289.986     | 220,604,293.863 | 180,961,717.8  | 739,375,603.66786   |  |
| 2007 | 7     | 1,336,047,381.166   | 1,271,357,530.7 | 0.000             | 360,181,345.758 | 194,712,887.2  | 716,463,297.70117   |  |
| 2007 | 8     | 1,362,259,783.307   | 1,344,388,712.9 | 0.000             | 423,486,416.867 | 187,311,850.2  | 733,590,445.89145   |  |
| 2007 | 9     | 1,400,914,258.676   | 1,445,614,073.2 | 0.000             | 467,950,927.077 | 186,152,583.8  | 791,510,562.29678   |  |
| 2007 | 10    | 1,112,996,777.982   | 1,068,750,060.7 | 10,269,935.453    | 217,465,081.596 | 176,634,770.7  | 664,380,272.97485   |  |
| 2007 | 11    | 1,156,622,261.798   | 1,140,305,733.8 | 201,172,321.599   | 36,982,508.622  | 183,260,241.6  | 718,890,661.95818   |  |
| 2007 | 12    | 1,731,435,755.488   | 1,690,170,524.8 | 566,843,428.602   | 0.000           | 232,369,122.6  | 890,957,973.67026   |  |
| 2008 | 1     | 2,082,416,413.099   | 2,114,912,301.1 | 787,289,740.542   | 0.000           | 250,009,916.1  | 1,077,612,644.39367 |  |
| 2008 | 2     | 1,993,387,100.232   | 2,006,611,403.7 | 958,795,326.124   | 0.000           | 199,716,528.2  | 848,099,549.33754   |  |
| 2008 | 3     | 1,796,732,274.500   | 1,805,065,064.2 | 819,433,410.897   | 0.000           | 188,656,763.9  | 796,974,889.43017   |  |
| 2008 | 4     | 1,330,851,124.582   | 1,341,179,216.3 | 369,713,101.339   | 1,762,211.134   | 185,196,916.6  | 784,506,987.29243   |  |
| 2008 | 5     | 982,759,851.264   | 961,256,323.1   | 82,174,065.559    | 22,985,667.861  | 169,411,020.9  | 686,685,568.70033   |  |
| 2008 | 6     | 1,055,601,220.421   | 1,065,972,952.5 | 5,570,858.242     | 135,396,552.376 | 176,559,966.6  | 748,445,575.24204   |  |
| 2008 | 7     | 1,259,955,901.286   | 1,245,205,919.8 | 0.000             | 280,456,588.506 | 189,081,536.4  | 775,667,794.92147   |  |
| 2008 | 8     | 1,311,047,821.866   | 1,302,137,681.5 | 0.000             | 342,384,540.046 | 186,989,760.1  | 772,763,381.29041   |  |
| 2008 | 9     | 1,270,867,118.366   | 1,237,861,165.8 | 0.000             | 320,244,008.234 | 183,507,304.0  | 734,109,853.52032   |  |

|      |       | Kentucky Power Company<br>Residential Energy Model Output |                 |                   |                 |                |                     |
|------|-------|---|-----------------|-------------------|-----------------|----------------|---------------------|
| Year | Month | Total Usage   | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2008 | 10    | 980,709,153.332   | 992,899,481.5   | 13,343,970.730    | 122,224,950.753 | 163,144,998.1  | 694,185,561.99101   |
| 2008 | 11    | 1,177,692,484.028   | 1,204,822,669.8 | 262,332,564.071   | 7,905,444.866   | 175,174,075.3  | 759,410,585.65234   |
| 2008 | 12    | 2,031,965,211.117   | 2,004,950,168.6 | 851,244,408.401   | 0.000           | 227,925,125.1  | 925,780,635.13407   |
| 2009 | 1     | 2,248,452,416.892   | 2,244,456,669.8 | 935,779,435.643   | 0.000           | 246,824,749.7  | 1,061,852,484.50068 |
| 2009 | 2     | 2,175,027,533.152   | 2,229,732,803.4 | 1,143,791,582.702 | 0.000           | 193,905,533.9  | 892,035,686.78862   |
| 2009 | 3     | 1,722,528,056.375   | 1,700,254,596.7 | 739,331,664.790   | 4,938,096.999   | 183,944,030.3  | 772,040,804.56212   |
| 2009 | 4     | 1,221,074,565.255   | 1,269,251,033.0 | 283,092,573.137   | 3,728,415.440   | 175,669,727.7  | 806,760,316.73115   |
| 2009 | 5     | 1,044,566,064.295   | 1,006,668,358.8 | 73,304,935.541    | 71,548,226.501  | 169,174,969.7  | 692,640,227.07398   |
| 2009 | 6     | 1,056,998,126.376   | 1,054,682,149.7 | 7,067,606.225     | 143,364,825.271 | 170,463,515.2  | 733,786,203.03578   |
| 2009 | 7     | 1,212,635,111.288   | 1,213,794,441.9 | 0.000             | 245,442,308.158 | 181,863,361.9  | 786,488,771.81797   |
| 2009 | 8     | 1,216,442,253.166   | 1,187,851,010.7 | 0.000             | 254,509,017.200 | 180,874,394.1  | 752,467,599.34767   |
| 2009 | 9     | 1,174,926,168.410   | 1,181,452,121.3 | 0.000             | 245,407,554.836 | 174,779,402.3  | 761,265,164.19459   |
| 2009 | 10    | 1,009,664,389.870   | 1,004,137,336.3 | 51,517,038.999    | 87,793,210.482  | 163,654,578.0  | 701,172,508.83360   |
| 2009 | 11    | 1,117,238,561.683   | 1,149,238,021.2 | 205,275,802.050   | 3,613,585.843   | 170,798,866.6  | 769,549,766.69478   |
| 2009 | 12    | 1,737,311,497.297   | 1,653,206,192.2 | 541,841,294.044   | 234,190.030     | 224,742,821.7  | 886,387,886.41607   |
| 2010 | 1     | 2,395,408,382.507   | 2,438,469,823.7 | 1,119,123,527.148 | 0.000           | 209,680,781.7  | 1,109,665,514.87244 |
| 2010 | 2     | 2,119,544,023.870   | 2,121,714,378.1 | 1,106,127,609.807 | 0.000           | 166,494,137.3  | 849,092,631.04844   |
| 2010 | 3     | 1,876,805,999.466   | 1,945,592,070.6 | 914,170,653.647   | 0.000           | 158,151,317.8  | 873,270,099.15432   |
| 2010 | 4     | 1,213,414,423.602   | 1,218,668,892.7 | 213,198,338.248   | 28,699,376.954  | 159,610,436.5  | 817,160,741.03029   |
| 2010 | 5     | 981,825,680.161   | 945,395,138.8   | 55,316,539.561    | 45,026,914.406  | 144,818,675.4  | 700,233,009.34665   |
| 2010 | 6     | 1,132,192,070.341   | 1,164,318,712.7 | 8,944,145.664     | 219,048,998.419 | 148,550,801.1  | 787,774,767.48916   |
| 2010 | 7     | 1,373,713,669.201   | 1,429,758,865.0 | 0.000             | 389,532,121.989 | 161,691,142.3  | 878,535,600.76819   |
| 2010 | 8     | 1,451,302,623.624   | 1,489,051,092.2 | 0.000             | 454,611,547.235 | 163,746,332.3  | 870,693,212.66526   |
| 2010 | 9     | 1,300,747,663.039   | 1,288,807,601.6 | 0.000             | 323,635,248.642 | 160,529,754.8  | 804,642,598.17960   |
| 2010 | 10    | 1,014,363,854.645   | 1,008,016,131.2 | 17,343,637.279    | 120,716,113.748 | 143,967,961.9  | 725,988,418.23920   |
| 2010 | 11    | 1,094,996,384.262   | 1,081,280,184.2 | 184,549,890.654   | 11,621,169.384  | 147,667,972.2  | 737,441,151.88348   |
| 2010 | 12    | 1,916,852,586.118   | 1,914,121,373.7 | 752,185,469.261   | 0.000           | 191,343,108.4  | 970,592,796.01167   |
| 2011 | 1     | 2,477,210,112.752   | 2,583,180,891.9 | 1,211,790,498.629 | 0.000           | 197,298,282.5  | 1,174,092,110.69671 |
| 2011 | 2     | 2,135,149,306.354   | 2,029,311,108.0 | 1,103,542,852.166 | 0.000           | 160,843,232.9  | 764,925,022.97500   |
| 2011 | 3     | 1,477,420,306.705   | 1,497,373,823.2 | 577,882,313.658   | 1,857,692.870   | 139,962,096.0  | 777,671,720.70065   |
| 2011 | 4     | 1,267,918,127.479   | 1,237,322,480.4 | 369,222,507.081   | 17,826,851.274  | 137,340,921.0  | 712,932,200.98295   |
| 2011 | 5     | 957,762,246.546   | 964,228,311.9   | 71,353,526.521    | 53,409,525.217  | 129,877,321.8  | 709,587,938.31287   |
| 2011 | 6     | 1,092,768,725.994   | 1,139,615,319.9 | 22,899,517.023    | 199,445,142.440 | 135,712,432.1  | 781,558,228.39364   |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                |                     |
|---|-------|-------------------|-----------------|-------------------|-----------------|----------------|---------------------|
| Year  | Month | Total Usage       | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2011  | 7     | 1,279,282,569.869 | 1,273,345,535.3 | 0.000             | 312,674,002.290 | 150,709,067.7  | 809,962,465.33426   |
| 2011  | 8     | 1,407,656,154.978 | 1,446,915,636.9 | 0.000             | 463,568,496.639 | 147,197,713.3  | 836,149,426.93216   |
| 2011  | 9     | 1,214,552,003.105 | 1,195,311,998.4 | 255,232.931       | 277,161,134.851 | 146,113,786.5  | 771,781,844.06542   |
| 2011  | 10    | 932,094,279.267   | 922,740,827.3   | 44,845,375.855    | 49,354,291.010  | 130,640,592.4  | 697,900,568.09341   |
| 2011  | 11    | 1,093,748,001.461 | 1,121,424,115.5 | 223,796,353.947   | 1,140,105.698   | 135,461,014.8  | 761,026,641.06655   |
| 2011  | 12    | 1,556,562,764.742 | 1,549,999,788.0 | 408,938,639.357   | 1,710,969.231   | 178,665,396.9  | 960,684,782.47209   |
| 2012  | 1     | 1,990,570,890.645 | 1,936,457,076.3 | 715,547,142.686   | 0.000           | 194,217,572.8  | 1,026,692,360.73349 |
| 2012  | 2     | 1,723,190,556.228 | 1,721,183,448.9 | 747,660,487.875   | 0.000           | 148,597,296.6  | 824,925,664.42893   |
| 2012  | 3     | 1,459,048,167.835 | 1,409,422,938.4 | 535,618,410.541   | 10,322,266.503  | 139,088,798.1  | 724,393,463.30720   |
| 2012  | 4     | 1,025,120,359.800 | 977,120,699.8   | 112,920,392.952   | 43,081,480.239  | 132,388,187.5  | 688,730,639.14928   |
| 2012  | 5     | 944,199,186.012   | 970,622,977.5   | 76,794,782.773    | 62,740,799.279  | 122,570,118.7  | 708,517,276.75022   |
| 2012  | 6     | 1,069,542,744.709 | 1,095,117,537.0 | 387,550.190       | 185,085,218.494 | 134,665,668.2  | 774,979,100.17477   |
| 2012  | 7     | 1,382,971,791.682 | 1,374,144,445.2 | 0.000             | 413,986,844.638 | 147,600,313.2  | 812,557,287.32369   |
| 2012  | 8     | 1,338,307,986.695 | 1,329,610,153.2 | 0.000             | 406,150,755.475 | 141,990,543.5  | 781,468,854.24800   |
| 2012  | 9     | 1,207,907,080.098 | 1,199,271,521.1 | 922,674.487       | 285,308,938.386 | 140,393,912.2  | 772,645,995.98460   |
| 2012  | 10    | 954,546,668.546   | 940,817,771.8   | 60,933,071.877    | 68,317,975.509  | 125,712,883.9  | 685,853,840.50400   |
| 2012  | 11    | 1,196,785,696.710 | 1,183,200,730.2 | 318,072,989.903   | 8,809,617.489   | 132,507,701.8  | 723,810,420.99938   |
| 2012  | 12    | 1,642,071,804.199 | 1,657,436,622.2 | 519,723,613.933   | 0.000           | 170,961,318.8  | 966,751,689.53373   |
| 2013  | 1     | 2,085,049,426.846 | 1,989,467,918.3 | 813,741,395.731   | 0.000           | 175,631,659.6  | 1,000,094,863.02539 |
| 2013  | 2     | 1,870,800,892.626 | 1,890,739,839.5 | 941,088,426.083   | 0.000           | 128,440,110.0  | 821,211,303.34632   |
| 2013  | 3     | 1,732,623,096.376 | 1,766,153,678.4 | 820,487,573.025   | 0.000           | 126,011,849.1  | 819,654,256.29988   |
| 2013  | 4     | 1,464,108,113.384 | 1,476,357,193.2 | 531,373,380.942   | 20,230,697.652  | 126,062,759.0  | 798,690,355.55407   |
| 2013  | 5     | 958,408,102.673   | 925,592,889.9   | 64,326,687.891    | 54,379,165.813  | 116,005,166.3  | 690,881,869.88644   |
| 2013  | 6     | 1,081,392,317.202 | 1,059,271,380.2 | 11,254,213.933    | 199,402,514.609 | 120,292,433.3  | 728,322,218.37004   |
| 2013  | 7     | 1,272,387,279.801 | 1,254,262,697.7 | 0.000             | 347,700,124.238 | 127,745,861.5  | 778,816,711.95193   |
| 2013  | 8     | 1,239,932,658.282 | 1,222,492,848.7 | 0.000             | 325,683,298.891 | 126,303,876.3  | 770,505,673.50541   |
| 2013  | 9     | 1,176,335,486.881 | 1,156,875,156.7 | 0.000             | 282,159,741.334 | 123,530,699.3  | 751,184,716.01811   |
| 2013  | 10    | 940,268,575.471   | 925,313,385.6   | 15,672,848.369    | 111,282,610.479 | 112,359,498.2  | 685,998,428.56371   |
| 2013  | 11    | 1,132,020,314.680 | 1,121,631,236.2 | 264,083,803.593   | 16,077,331.577  | 117,684,650.6  | 723,785,450.44949   |
| 2013  | 12    | 1,830,429,962.648 | 1,809,375,873.4 | 713,255,114.125   | 477,663.100     | 154,272,115.9  | 941,370,980.24857   |
| 2014  | 1     | 2,182,377,685.061 | 2,308,763,001.6 | 928,842,280.257   | 913,399.536     | 166,733,291.7  | 1,212,274,030.12115 |
| 2014  | 2     | 2,263,738,749.946 | 2,318,955,621.7 | 1,235,581,815.087 | 0.000           | 136,855,323.8  | 946,518,482.81029   |
| 2014  | 3     | 1,858,937,803.400 | 1,830,617,039.8 | 881,743,813.486   | 0.000           | 130,071,777.3  | 818,801,448.99182   |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                |                     |
|---|-------|-------------------|-----------------|-------------------|-----------------|----------------|---------------------|
| Year  | Month | Total Usage       | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |
| 2014  | 4     | 1,314,384,355.234 | 1,268,237,621.6 | 423,355,509.658   | 7,122,469.878   | 117,654,503.1  | 720,105,139.01255   |
| 2014  | 5     | 919,037,760.297   | 946,682,966.7   | 52,435,888.364    | 38,752,834.396  | 110,192,855.1  | 745,301,388.88356   |
| 2014  | 6     | 1,043,168,162.524 | 1,060,301,158.1 | 14,458,841.942    | 149,467,059.039 | 117,033,674.8  | 779,341,582.22039   |
| 2014  | 7     | 1,261,150,940.112 | 1,238,168,389.3 | 0.000             | 316,158,501.380 | 125,785,511.7  | 796,224,376.23082   |
| 2014  | 8     | 1,148,914,165.977 | 1,112,124,329.2 | 0.000             | 223,749,804.996 | 123,146,247.3  | 765,228,276.84442   |
| 2014  | 9     | 1,148,812,476.702 | 1,165,669,026.2 | 0.000             | 260,518,001.191 | 118,238,591.8  | 786,912,433.25700   |
| 2014  | 10    | 908,609,279.074   | 881,608,022.0   | 26,295,712.901    | 66,175,514.826  | 108,634,035.8  | 680,502,758.44593   |
| 2014  | 11    | 1,149,530,642.743 | 1,115,491,458.0 | 295,010,151.180   | 6,198,285.547   | 112,917,985.8  | 701,365,035.43855   |
| 2014  | 12    | 1,810,595,706.728 | 1,735,077,353.9 | 713,893,704.331   | 18,987.338      | 145,976,654.0  | 875,188,008.25113   |
| 2015  | 1     | 2,081,052,102.075 | 2,047,111,752.7 | 873,985,955.724   | 0.000           | 149,855,283.1  | 1,023,270,513.79028 |
| 2015  | 2     | 2,021,468,073.579 | 2,097,411,237.8 | 1,091,159,241.976 | 0.000           | 115,496,316.3  | 890,755,679.62181   |
| 2015  | 3     | 2,071,648,304.651 | 2,041,616,647.6 | 1,140,802,710.741 | 0.000           | 115,562,954.4  | 785,250,982.41391   |
| 2015  | 4     | 1,165,256,709.433 | 1,153,793,972.4 | 322,071,906.647   | 5,480,622.610   | 103,999,600.6  | 722,241,842.50638   |
| 2015  | 5     | 896,005,620.615   | 912,350,444.7   | 78,266,817.045    | 59,179,545.740  | 94,173,888.2   | 680,730,193.71470   |
| 2015  | 6     | 1,052,416,802.773 | 1,088,662,754.9 | 2,706,174.880     | 220,084,304.873 | 102,996,747.9  | 762,875,527.30671   |
| 2015  | 7     | 1,228,448,319.492 | 1,230,037,563.0 | 0.000             | 313,013,087.704 | 113,649,783.2  | 803,374,692.06346   |
| 2015  | 8     | 1,202,868,558.424 | 1,242,789,121.3 | 0.000             | 327,038,644.488 | 108,732,847.9  | 807,017,628.90640   |
| 2015  | 9     | 1,127,681,780.688 | 1,132,635,924.8 | 0.000             | 249,367,349.576 | 109,041,296.7  | 774,227,278.58662   |
| 2015  | 10    | 890,477,210.812   | 902,084,847.4   | 25,851,034.107    | 78,529,651.745  | 97,592,594.8   | 700,111,566.72143   |
| 2015  | 11    | 969,953,151.667   | 928,910,552.8   | 149,470,124.025   | 5,430,070.913   | 101,187,488.3  | 672,822,869.52705   |
| 2015  | 12    | 1,413,695,379.212 | 1,367,669,687.7 | 366,623,442.566   | 1,120,555.099   | 129,853,149.2  | 870,072,540.81711   |
| 2016  | 1     | 1,765,360,171.126 | 1,760,428,969.9 | 595,535,418.450   | 0.000           | 108,841,923.9  | 1,056,051,627.55448 |
| 2016  | 2     | 1,883,377,315.934 | 1,939,360,432.8 | 992,519,097.030   | 0.000           | 82,886,536.9   | 863,954,798.86707   |
| 2016  | 3     | 1,436,270,905.203 | 1,454,493,920.0 | 559,097,473.221   | 1,372,952.535   | 81,485,546.4   | 812,537,947.88792   |
| 2016  | 4     | 1,065,422,046.665 | 1,049,837,537.2 | 199,701,403.589   | 10,162,733.649  | 79,602,152.9   | 760,371,247.05061   |
| 2016  | 5     | 880,264,091.580   | 847,205,376.0   | 66,142,556.006    | 53,458,509.978  | 70,773,017.0   | 656,831,293.01692   |
| 2016  | 6     | 995,188,325.755   | 1,017,889,044.1 | 15,423,043.020    | 180,459,925.569 | 74,368,346.8   | 747,637,728.74758   |
| 2016  | 7     | 1,227,241,663.471 | 1,244,159,627.8 | 0.000             | 336,989,855.102 | 82,830,115.7   | 824,339,657.02795   |
| 2016  | 8     | 1,334,209,914.136 | 1,351,460,101.9 | 0.000             | 451,362,465.403 | 82,141,205.0   | 817,956,431.44416   |
| 2016  | 9     | 1,283,480,639.447 | 1,291,872,972.9 | 0.000             | 415,915,485.584 | 80,719,321.6   | 795,238,165.67094   |
| 2016  | 10    | 978,035,634.976   | 955,985,437.1   | 2,573,637.401     | 198,212,983.473 | 72,316,197.7   | 682,882,618.55819   |
| 2016  | 11    | 918,607,793.768   | 878,726,052.1   | 84,473,253.449    | 47,570,489.322  | 73,182,880.1   | 673,499,429.22521   |
| 2016  | 12    | 1,531,674,139.561 | 1,511,606,955.6 | 497,292,598.742   | 1,967,946.299   | 96,057,021.9   | 916,289,388.68506   |

| Kentucky Power Company<br>Residential Energy Model Output |       |                   |                 |                   |                 |                |                     |  |  |
|---|-------|-------------------|-----------------|-------------------|-----------------|----------------|---------------------|--|--|
| Year  | Month | Total Usage       | Actual Usage    | Heating Usage     | Cooling Usage   | Lighting Usage | Other Usage         |  |  |
| 2017  | 1     | 1,833,419,582.058 | 1,795,642,938.6 | 660,909,403.107   | 0.000           | 92,653,162.4   | 1,042,080,373.12177 |  |  |
| 2017  | 2     | 1,436,998,623.547 | 1,430,614,715.3 | 550,991,520.504   | 0.000           | 70,013,345.3   | 809,609,849.47956   |  |  |
| 2017  | 3     | 1,263,993,182.598 | 1,279,129,104.8 | 431,436,224.084   | 637,289.540     | 65,739,291.3   | 781,316,299.93085   |  |  |
| 2017  | 4     | 1,093,268,702.754 | 1,041,332,789.0 | 266,920,703.192   | 15,066,743.125  | 64,108,419.1   | 695,236,923.54399   |  |  |
| 2017  | 5     | 843,306,322.371   | 823,765,775.4   | 36,355,145.505    | 79,481,373.877  | 57,485,537.4   | 650,443,718.56734   |  |  |
| 2017  | 6     | 953,722,539.361   | 945,257,057.3   | 8,777,933.144     | 149,708,456.343 | 62,840,515.5   | 723,930,152.28131   |  |  |
| 2017  | 7     | 1,178,927,661.372 | 1,174,286,650.4 | 0.000             | 301,063,799.645 | 69,369,856.6   | 803,852,994.22450   |  |  |
| 2017  | 8     | 1,188,273,766.784 | 1,200,944,640.4 | 0.000             | 321,506,551.231 | 68,492,986.3   | 810,945,102.94473   |  |  |
| 2017  | 9     | 1,048,654,735.103 | 1,027,802,706.7 | 0.000             | 191,152,247.856 | 67,760,876.3   | 768,889,582.59108   |  |  |
| 2017  | 10    | 902,109,724.757   | 876,430,135.1   | 4,803,694.152     | 141,005,321.572 | 59,763,790.3   | 670,857,329.16773   |  |  |
| 2017  | 11    | 1,005,324,862.166 | 965,003,787.4   | 194,279,905.442   | 25,608,979.435  | 62,066,094.1   | 683,048,808.38824   |  |  |
| 2017  | 12    | 1,558,228,822.457 | 1,547,238,073.8 | 525,863,706.464   | 962,550.344     | 81,502,669.3   | 938,909,147.71183   |  |  |
| 2018  | 1     | 2,198,737,874.495 | 2,273,147,316.9 | 1,029,371,751.745 | 1,958,418.468   | 78,580,318.2   | 1,163,236,828.47543 |  |  |
| 2018  | 2     | 1,770,468,414.654 | 1,818,927,613.8 | 828,107,547.543   | 3,284,396.289   | 63,210,931.1   | 924,324,738.93746   |  |  |
| 2018  | 3     | 1,340,617,476.234 | 1,272,775,156.5 | 459,283,163.681   | 6,579,224.246   | 58,881,342.8   | 748,031,425.81014   |  |  |
| 2018  | 4     | 1,260,458,780.598 | 1,297,139,566.2 | 442,185,797.260   | 7,595,038.326   | 54,568,194.7   | 792,790,535.91202   |  |  |
| 2018  | 5     | 945,064,523.361   | 938,924,000.1   | 107,528,435.901   | 81,888,033.336  | 50,864,033.5   | 698,643,497.38857   |  |  |
| 2018  | 6     | 1,099,769,584.654 | 1,120,107,712.1 | 1,457,288.328     | 276,974,944.595 | 55,285,698.6   | 786,389,780.56115   |  |  |
| 2018  | 7     | 1,258,956,271.096 | 1,279,232,620.6 | 0.000             | 371,481,978.674 | 59,737,495.4   | 848,013,146.57498   |  |  |
| 2018  | 8     | 1,220,353,040.157 | 1,198,444,361.9 | 0.000             | 339,514,070.328 | 59,290,859.8   | 799,639,431.74146   |  |  |
| 2018  | 9     | 1,181,302,553.648 | 1,197,741,605.7 | 0.000             | 342,977,444.609 | 56,429,175.2   | 798,334,985.93646   |  |  |
| 2018  | 10    | 994,739,923.984   | 989,739,593.5   | 27,526,607.232    | 214,487,965.310 | 50,667,301.1   | 697,057,719.83529   |  |  |
| 2018  | 11    | 1,091,057,493.472 | 1,058,749,784.6 | 265,664,176.446   | 31,261,415.359  | 53,454,450.7   | 708,369,742.13975   |  |  |
| 2018  | 12    | 1,634,960,904.385 | 1,607,197,615.0 | 616,638,207.116   | 173,707.251     | 68,533,445.0   | 921,852,255.63474   |  |  |
| 2019  | 1     | 1,762,671,751.303 | 1,758,299,443.3 | 615,734,674.576   | 0.000           | 69,495,922.4   | 1,073,068,846.35394 |  |  |
| 2019  | 2     | 1,651,042,185.488 | 1,727,538,541.6 | 772,094,066.731   | 0.000           | 53,257,769.3   | 902,186,705.56236   |  |  |
| 2019  | 3     | 1,463,863,403.768 | 1,430,111,575.1 | 603,429,608.463   | 891,215.533     | 52,081,936.9   | 773,708,814.24149   |  |  |
| 2019  | 4     | 1,107,520,684.786 | 1,109,539,385.4 | 303,420,637.269   | 10,424,501.664  | 48,090,880.7   | 747,603,365.80066   |  |  |
| 2019  | 5     | 853,744,641.167   | 857,774,022.6   | 27,160,664.186    | 65,716,917.699  | 46,102,928.6   | 718,793,512.11765   |  |  |
| 2019  | 6     | 989,504,319.233   | 999,339,125.9   | 419,523.309       | 183,112,855.022 | 48,835,951.5   | 766,970,796.04331   |  |  |
| 2019  | 7     | 1,196,496,547.505 | 1,205,831,829.3 | 0.000             | 319,162,595.972 | 53,159,962.7   | 833,509,270.62440   |  |  |
| 2019  | 8     | 1,240,371,259.196 | 1,275,655,592.8 | 0.000             | 371,473,133.739 | 52,648,813.9   | 851,533,645.15116   |  |  |
| 2019  | 9     | 1,170,222,934.405 | 1,191,835,424.6 | 0.000             | 310,799,439.188 | 52,074,721.2   | 828,961,264.16741   |  |  |

| Kentucky Power Company |       | Residential Energy Model Output |                   |                 |                 |                |                     |
|------------------------|-------|---------------------------------|-------------------|-----------------|-----------------|----------------|---------------------|
| Year                   | Month | Total Usage                     | Actual Usage      | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
| 2019                   | 10    | 1,022,611,960.880               | 1,018,191,928.0   | 10,179,830.463  | 245,460,100.297 | 46,472,844.7   | 716,079,152.53985   |
| 2019                   | 11    | 1,040,153,391.633               | 1,019,262,981.4   | 233,880,508.340 | 20,591,348.585  | 47,606,502.6   | 717,184,621.86206   |
| 2019                   | 12    | 1,594,563,453.347               | 1,559,112,279.1   | 570,162,051.844 | 0.000           | 62,071,164.8   | 926,879,062.40530   |
| 2020                   | 1     | 1,659,412,343.806               | 1,661,810,524.3   | 502,553,867.478 | 1,911,534.244   | 65,460,195.8   | 1,091,884,926.76698 |
| 2020                   | 2     | 1,503,135,118.913               | 1,480,044,047.1   | 623,856,217.258 | 1,922,434.954   | 49,726,895.7   | 804,538,499.25829   |
| 2020                   | 3     | 1,334,242,946.839               | 1,395,120,383.4   | 519,371,542.399 | 137,574.041     | 46,177,563.8   | 829,433,703.19276   |
| 2020                   | 4     | 1,043,183,885.378               | 1,051,102,962.0   | 186,781,422.618 | 18,591,734.130  | 47,485,518.4   | 798,244,286.84886   |
| 2020                   | 5     | 933,341,960.978                 | 930,086,120.1     | 146,516,374.203 | 22,997,625.799  | 43,292,315.9   | 717,279,804.21496   |
| 2020                   | 6     | 1,026,247,832.023               | 1,039,992,866.1   | 39,783,667.054  | 174,578,153.672 | 46,016,154.8   | 779,614,890.62371   |
| 2020                   | 7     | 1,217,895,109.160               | 1,232,516,008.8   | 0.000           | 331,514,059.764 | 50,238,391.8   | 850,763,557.17588   |
| 2020                   | 8     | 1,293,987,661.632               | 1,346,233,485.2   | 0.000           | 419,076,042.397 | 49,588,326.4   | 877,569,116.46699   |
| 2020                   | 9     | 1,168,307,315.254               | 1,193,825,112.9   | 0.000           | 302,573,042.191 | 49,068,171.8   | 842,183,898.88540   |
| 2020                   | 10    | 870,458,453.371                 | 881,829,156.7     | 17,374,245.487  | 72,584,853.777  | 44,237,218.8   | 747,632,838.71648   |
| 2020                   | 11    | 933,000,938.419                 | 895,986,656.7     | 119,730,411.816 | 12,672,480.786  | 45,376,374.4   | 718,207,389.70069   |
| 2020                   | 12    | 1,472,054,598.343               | 1,438,750,552.4   | 448,387,383.817 | 1,210,508.223   | 57,950,901.2   | 931,201,759.14114   |
| 2021                   | 1     | 1,907,807,828.383               | 1,919,542,594.2   | 734,803,212.063 | 0.000           | 64,360,198.4   | 1,120,379,183.70934 |
| 2021                   | 2     | 1,829,959,367.783               | 1,845,431,621.8   | 903,100,202.863 | 0.000           | 50,854,735.7   | 891,476,683.22117   |
| 2021                   | 3     | 1,553,140,105.561               | 1,518,872,290.3   | 699,067,415.248 | 308,732.775     | 46,844,161.5   | 772,651,980.73465   |
| 2021                   | 4     | 1,000,631,096.105               | 1,043,269,031.6   | 185,274,649.372 | 7,898,432.954   | 44,303,455.6   | 805,792,493.60381   |
| 2021                   | 5     | 901,462,428.042                 | 895,111,149.3     | 94,977,455.738  | 30,696,911.580  | 42,565,794.6   | 726,870,987.48029   |
| 2021                   | 6     | 984,918,558.481                 | 968,579,545.4     | 12,179,335.908  | 148,067,353.846 | 45,247,942.2   | 763,084,913.40899   |
| 2021                   | 7     | 1,174,267,716.335               | 1,185,459,911.4   | 436,163.307     | 289,939,115.368 | 48,497,245.3   | 846,587,387.39877   |
| 2021                   | 8     | 1,211,828,463.900               | 1,216,247,133.7   | 0.000           | 331,129,425.124 | 48,322,030.5   | 836,795,678.06814   |
| 2021                   | 9     | 1,170,961,690.121               | 1,192,055,026.0   | 0.000           | 317,922,551.999 | 46,804,392.3   | 827,328,081.77046   |
| 2021                   | 10    | 913,087,841.754                 | 887,921,652.2     | 1,843,641.830   | 134,893,938.075 | 42,596,641.3   | 708,587,431.01721   |
| 2021                   | 11    | 969,495,101.187                 | 951,739,701.8     | 152,673,221.484 | 33,376,255.079  | 42,985,948.3   | 722,704,276.93094   |
| 2021                   | 12    | 1,470,039,540.407               | 1,501,885,035.6   | 436,046,739.200 | 0.000           | 56,732,924.1   | 1,009,105,372.35320 |
| 2022                   | 1     | 1,708,403,252.123               | 1,708,403,252.123 | 512,208,676.662 | 0.000           | 64,390,913.8   | 1,131,803,661.66937 |
| 2022                   | 2     | 1,708,242,990.709               | 1,708,242,990.709 | 819,536,348.080 | 198,142.156     | 47,828,234.2   | 840,680,266.31161   |
| 2022                   | 3     | 1,441,506,471.197               | 1,441,506,471.197 | 603,716,627.568 | 1,240,694.385   | 45,031,272.7   | 791,517,876.52528   |
| 2022                   | 4     | 1,106,824,884.513               | 1,106,824,884.513 | 283,051,983.702 | 13,438,868.721  | 43,620,118.2   | 766,713,913.86338   |
| 2022                   | 5     | 869,879,412.069                 | 869,879,412.069   | 67,748,647.884  | 45,248,449.382  | 40,742,823.0   | 716,139,491.78442   |
| 2022                   | 6     | 966,945,957.476                 | 966,945,957.476   | 9,114,821.385   | 141,723,716.073 | 43,930,898.5   | 772,176,521.47876   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2022 | 7     | 1,174,366,702.157 |              | 31,016.198      | 288,921,240.119 | 47,661,681.8   | 837,752,764.01898   |
| 2022 | 8     | 1,196,132,602.248 |              | 0.000           | 326,049,260.273 | 46,836,411.6   | 823,246,930.39632   |
| 2022 | 9     | 1,108,574,756.710 |              | 131,309.993     | 261,622,455.868 | 45,584,203.9   | 801,236,786.95950   |
| 2022 | 10    | 871,273,668.611   |              | 21,727,908.653  | 93,728,395.868  | 40,685,496.9   | 715,131,867.15560   |
| 2022 | 11    | 983,632,396.188   |              | 181,847,556.412 | 12,452,940.382  | 42,489,577.6   | 746,842,321.75412   |
| 2022 | 12    | 1,539,345,724.318 |              | 490,857,675.466 | 908,796.560     | 56,390,980.8   | 991,188,271.50294   |
| 2023 | 1     | 1,892,716,009.249 |              | 710,325,648.995 | 247,101.260     | 63,061,676.1   | 1,119,081,582.85264 |
| 2023 | 2     | 1,710,129,585.780 |              | 803,040,747.766 | 193,383.217     | 48,378,525.2   | 858,516,929.58121   |
| 2023 | 3     | 1,440,020,320.136 |              | 593,327,846.768 | 1,214,522.274   | 45,102,195.8   | 800,375,755.28897   |
| 2023 | 4     | 1,106,931,321.184 |              | 279,012,939.370 | 13,194,741.769  | 43,461,600.7   | 771,262,039.31052   |
| 2023 | 5     | 870,743,835.860   |              | 66,966,324.169  | 44,548,990.873  | 40,501,202.1   | 718,727,318.67217   |
| 2023 | 6     | 966,465,058.073   |              | 9,030,425.673   | 139,858,919.453 | 43,613,745.2   | 773,961,967.79464   |
| 2023 | 7     | 1,172,221,994.930 |              | 30,784.266      | 285,638,153.669 | 47,293,355.8   | 839,259,701.18879   |
| 2023 | 8     | 1,194,006,867.193 |              | 0.000           | 322,834,363.681 | 46,472,877.0   | 824,699,626.50580   |
| 2023 | 9     | 1,107,269,008.918 |              | 130,616.830     | 259,222,767.618 | 45,232,234.0   | 802,683,390.47612   |
| 2023 | 10    | 871,347,086.406   |              | 21,617,445.158  | 92,889,723.406  | 40,373,781.6   | 716,466,136.21643   |
| 2023 | 11    | 983,481,424.389   |              | 180,890,237.501 | 12,339,438.650  | 42,156,142.6   | 748,095,605.62350   |
| 2023 | 12    | 1,537,443,352.772 |              | 488,060,396.630 | 900,116.613     | 55,931,533.5   | 992,551,306.05034   |
| 2024 | 1     | 1,889,026,613.141 |              | 706,115,598.939 | 245,460.516     | 62,845,812.6   | 1,119,819,741.12694 |
| 2024 | 2     | 1,704,912,032.905 |              | 797,601,985.730 | 191,936.932     | 48,203,462.5   | 858,914,647.69374   |
| 2024 | 3     | 1,435,524,637.276 |              | 588,829,732.236 | 1,204,432.643   | 44,928,623.8   | 800,561,848.59169   |
| 2024 | 4     | 1,104,353,554.031 |              | 276,700,351.211 | 13,075,034.841  | 43,285,971.0   | 771,292,196.97885   |
| 2024 | 5     | 869,344,925.499   |              | 66,356,640.928  | 44,107,727.501  | 40,326,248.7   | 718,554,308.37164   |
| 2024 | 6     | 964,347,277.202   |              | 8,941,940.908   | 138,374,015.659 | 43,416,329.4   | 773,614,991.24973   |
| 2024 | 7     | 1,168,379,877.972 |              | 30,466.385      | 282,448,120.512 | 47,076,019.3   | 838,825,271.72916   |
| 2024 | 8     | 1,189,634,367.014 |              | 0.000           | 319,135,407.737 | 46,257,552.9   | 824,241,406.36455   |
| 2024 | 9     | 1,103,589,790.685 |              | 129,232.515     | 256,228,443.104 | 45,021,173.2   | 802,210,941.89354   |
| 2024 | 10    | 869,376,129.897   |              | 21,389,536.958  | 91,818,343.182  | 40,182,119.1   | 715,986,130.69606   |
| 2024 | 11    | 980,861,293.131   |              | 179,022,812.168 | 12,199,132.138  | 41,960,744.0   | 747,678,604.85042   |
| 2024 | 12    | 1,531,899,601.712 |              | 483,152,333.396 | 890,085.368     | 55,682,213.7   | 992,174,969.23670   |
| 2025 | 1     | 1,880,307,424.345 |              | 698,039,965.817 | 242,628.192     | 62,215,650.1   | 1,119,809,180.18814 |
| 2025 | 2     | 1,695,429,849.344 |              | 788,639,408.566 | 189,762.595     | 47,718,752.7   | 858,881,925.43804   |
| 2025 | 3     | 1,428,620,575.370 |              | 582,371,120.812 | 1,191,113.674   | 44,479,483.6   | 800,578,857.25372   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2025 | 4     | 1,100,775,766.501 |              | 273,680,835.468 | 12,932,130.602  | 42,853,302.8   | 771,309,497.64461   |
| 2025 | 5     | 867,849,998.333   |              | 65,652,643.450  | 43,638,979.952  | 39,926,574.5   | 718,631,800.41256   |
| 2025 | 6     | 962,454,857.843   |              | 8,847,419.895   | 136,916,179.863 | 42,986,387.7   | 773,704,870.41448   |
| 2025 | 7     | 1,165,082,829.437 |              | 30,142.948      | 279,475,253.237 | 46,612,198.3   | 838,965,234.96871   |
| 2025 | 8     | 1,185,979,582.161 |              | 0.000           | 315,792,303.169 | 45,802,140.5   | 824,385,138.52584   |
| 2025 | 9     | 1,100,549,577.331 |              | 127,866.132     | 253,546,085.286 | 44,575,136.1   | 802,300,489.83499   |
| 2025 | 10    | 867,797,799.770   |              | 21,164,475.713  | 90,860,164.348  | 39,779,975.3   | 715,993,184.45992   |
| 2025 | 11    | 978,393,093.681   |              | 177,133,899.308 | 12,071,368.647  | 41,538,749.8   | 747,649,075.94202   |
| 2025 | 12    | 1,526,202,865.690 |              | 478,047,211.271 | 880,724.607     | 55,123,115.0   | 992,151,814.82407   |
| 2026 | 1     | 1,874,014,071.387 |              | 690,882,338.139 | 240,315.094     | 61,681,242.9   | 1,121,210,175.28437 |
| 2026 | 2     | 1,688,216,763.090 |              | 780,600,731.894 | 187,953.462     | 47,317,353.7   | 860,110,724.01110   |
| 2026 | 3     | 1,423,526,909.768 |              | 576,438,359.715 | 1,179,713.258   | 44,109,465.7   | 801,799,371.11899   |
| 2026 | 4     | 1,098,816,403.083 |              | 270,911,011.134 | 12,808,343.006  | 42,502,801.4   | 772,594,247.53070   |
| 2026 | 5     | 867,703,818.635   |              | 64,987,770.845  | 43,219,197.904  | 39,603,558.7   | 719,893,291.23496   |
| 2026 | 6     | 962,139,472.653   |              | 8,760,064.872   | 135,620,213.475 | 42,641,617.6   | 775,117,576.74310   |
| 2026 | 7     | 1,163,658,274.030 |              | 29,852.818      | 276,876,041.117 | 46,239,230.5   | 840,513,149.61117   |
| 2026 | 8     | 1,184,202,324.290 |              | 0.000           | 312,865,227.656 | 45,435,408.7   | 825,901,687.89371   |
| 2026 | 9     | 1,099,402,550.613 |              | 126,646.884     | 251,208,326.190 | 44,222,032.1   | 803,845,545.47603   |
| 2026 | 10    | 867,915,879.144   |              | 20,964,076.295  | 90,029,065.938  | 39,469,332.9   | 717,453,404.00954   |
| 2026 | 11    | 977,819,568.815   |              | 175,494,513.655 | 11,963,075.535  | 41,213,004.4   | 749,148,975.22658   |
| 2026 | 12    | 1,523,164,637.214 |              | 473,696,813.096 | 872,940.482     | 54,678,421.6   | 993,916,462.01861   |
| 2027 | 1     | 1,868,943,848.556 |              | 684,395,479.046 | 238,342.101     | 61,353,186.3   | 1,122,956,841.08280 |
| 2027 | 2     | 1,682,315,364.570 |              | 773,384,712.891 | 186,438.621     | 47,077,498.1   | 861,666,714.99139   |
| 2027 | 3     | 1,419,663,511.467 |              | 571,220,994.874 | 1,170,416.790   | 43,892,935.0   | 803,379,164.83985   |
| 2027 | 4     | 1,097,758,354.616 |              | 268,505,455.986 | 12,709,625.450  | 42,301,028.0   | 774,242,245.21964   |
| 2027 | 5     | 868,254,869.211   |              | 64,418,128.459  | 42,891,557.332  | 39,420,768.7   | 721,524,414.75095   |
| 2027 | 6     | 962,531,063.426   |              | 8,683,523.839   | 134,600,283.084 | 42,441,107.8   | 776,806,148.67520   |
| 2027 | 7     | 1,163,057,265.945 |              | 29,591.674      | 274,798,767.871 | 46,014,702.5   | 842,214,203.88723   |
| 2027 | 8     | 1,183,277,804.677 |              | 0.000           | 310,524,200.033 | 45,213,004.4   | 827,540,600.20793   |
| 2027 | 9     | 1,099,012,147.627 |              | 125,547.858     | 249,341,496.056 | 44,010,687.9   | 805,534,415.77329   |
| 2027 | 10    | 868,478,277.703   |              | 20,781,981.526  | 89,358,172.544  | 39,285,709.9   | 719,052,413.70860   |
| 2027 | 11    | 977,523,907.426   |              | 173,950,326.999 | 11,872,890.245  | 41,014,057.8   | 750,686,632.34620   |
| 2027 | 12    | 1,520,323,079.423 |              | 469,458,018.339 | 866,263.449     | 54,395,192.5   | 995,603,605.17451   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2028 | 1     | 1,864,690,453.557 |              | 678,502,241.262 | 236,730.582     | 61,185,950.6   | 1,124,765,531.09211 |
| 2028 | 2     | 1,677,072,388.410 |              | 766,695,124.746 | 185,171.106     | 46,958,892.7   | 863,233,199.81216   |
| 2028 | 3     | 1,416,136,589.479 |              | 566,275,463.848 | 1,162,442.111   | 43,786,307.1   | 804,912,376.45659   |
| 2028 | 4     | 1,096,773,828.628 |              | 266,169,363.584 | 12,622,349.371  | 42,201,569.0   | 775,780,546.62924   |
| 2028 | 5     | 868,826,564.924   |              | 63,860,225.146  | 42,597,984.443  | 39,332,327.9   | 723,036,027.44053   |
| 2028 | 6     | 962,982,444.791   |              | 8,608,124.695   | 133,675,559.138 | 42,341,727.0   | 778,357,033.96655   |
| 2028 | 7     | 1,162,598,515.554 |              | 29,333.452      | 272,899,394.641 | 45,900,100.1   | 843,769,687.39441   |
| 2028 | 8     | 1,182,487,000.559 |              | 0.000           | 308,359,960.430 | 45,098,214.2   | 829,028,825.96150   |
| 2028 | 9     | 1,098,651,682.434 |              | 124,434.571     | 247,588,616.808 | 43,901,871.1   | 807,036,759.97186   |
| 2028 | 10    | 868,989,635.421   |              | 20,596,747.161  | 88,726,218.830  | 39,192,941.7   | 720,473,727.69363   |
| 2028 | 11    | 977,170,386.728   |              | 172,393,925.724 | 11,788,473.008  | 40,912,064.8   | 752,075,923.19013   |
| 2028 | 12    | 1,517,485,163.937 |              | 465,234,872.695 | 860,064.774     | 54,243,627.6   | 997,146,598.90696   |
| 2029 | 1     | 1,861,022,046.768 |              | 673,042,010.936 | 235,351.451     | 61,049,636.4   | 1,126,695,048.01018 |
| 2029 | 2     | 1,672,366,427.831 |              | 760,428,237.784 | 184,072.759     | 46,863,823.6   | 864,890,293.73085   |
| 2029 | 3     | 1,412,908,857.990 |              | 561,560,106.679 | 1,155,399.249   | 43,699,623.1   | 806,493,729.01109   |
| 2029 | 4     | 1,095,949,406.752 |              | 263,925,275.872 | 12,544,888.911  | 42,120,929.2   | 777,358,312.78841   |
| 2029 | 5     | 869,442,490.560   |              | 63,313,439.300  | 42,332,093.964  | 39,258,880.4   | 724,538,076.90090   |
| 2029 | 6     | 963,491,601.502   |              | 8,533,449.896   | 132,828,010.899 | 42,257,184.4   | 779,872,956.31510   |
| 2029 | 7     | 1,162,272,764.606 |              | 29,076.817      | 271,150,991.160 | 45,801,834.2   | 845,290,862.43170   |
| 2029 | 8     | 1,181,853,035.131 |              | 0.000           | 306,363,829.214 | 44,999,820.6   | 830,489,385.35788   |
| 2029 | 9     | 1,098,417,707.075 |              | 123,329.542     | 245,969,843.200 | 43,809,165.0   | 808,515,369.30383   |
| 2029 | 10    | 869,508,705.185   |              | 20,411,032.452  | 88,135,731.151  | 39,113,161.6   | 721,848,779.94364   |
| 2029 | 11    | 976,751,516.297   |              | 170,822,599.852 | 11,708,855.799  | 40,822,616.6   | 753,397,444.01914   |
| 2029 | 12    | 1,514,491,973.069 |              | 460,945,674.302 | 854,172.467     | 54,107,985.0   | 998,584,141.33849   |
| 2030 | 1     | 1,854,376,212.283 |              | 665,837,190.362 | 233,618.082     | 60,126,123.8   | 1,128,179,280.01306 |
| 2030 | 2     | 1,664,652,999.793 |              | 752,215,948.942 | 182,700.678     | 46,158,435.2   | 866,095,914.94076   |
| 2030 | 3     | 1,407,235,655.403 |              | 555,415,011.977 | 1,146,655.204   | 43,042,579.3   | 807,631,408.94500   |
| 2030 | 4     | 1,093,494,896.142 |              | 261,026,811.510 | 12,449,364.589  | 41,491,477.6   | 778,527,242.39755   |
| 2030 | 5     | 868,926,532.367   |              | 62,608,711.336  | 42,003,891.980  | 38,672,915.1   | 725,641,013.99827   |
| 2030 | 6     | 962,877,172.117   |              | 8,437,339.792   | 131,782,296.426 | 41,624,997.0   | 781,032,538.89959   |
| 2030 | 7     | 1,160,648,765.867 |              | 28,744.877      | 268,981,890.586 | 45,115,291.5   | 846,522,838.94567   |
| 2030 | 8     | 1,179,893,140.332 |              | 0.000           | 303,894,286.910 | 44,323,972.1   | 831,674,881.35154   |
| 2030 | 9     | 1,096,895,418.893 |              | 121,910.228     | 243,982,876.111 | 43,149,677.7   | 809,640,954.86708   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2030 | 10    | 868,979,725.817   |              | 20,178,408.313  | 87,430,448.503  | 38,524,001.5   | 722,846,867.51274   |
| 2030 | 11    | 975,064,888.135   |              | 168,883,836.666 | 11,615,736.182  | 40,203,581.0   | 754,361,734.30606   |
| 2030 | 12    | 1,509,598,906.854 |              | 455,749,504.717 | 847,430.026     | 53,280,012.7   | 999,721,959.44914   |
| 2031 | 1     | 1,849,345,472.049 |              | 659,407,454.509 | 232,224.168     | 59,431,734.0   | 1,130,274,059.41082 |
| 2031 | 2     | 1,658,695,970.403 |              | 744,978,876.657 | 181,616.241     | 45,635,650.2   | 867,899,827.27504   |
| 2031 | 3     | 1,403,225,884.392 |              | 550,106,351.352 | 1,139,908.308   | 42,560,628.6   | 809,418,996.14682   |
| 2031 | 4     | 1,092,478,710.712 |              | 258,612,736.927 | 12,379,045.638  | 41,037,366.4   | 780,449,561.73474   |
| 2031 | 5     | 869,707,350.265   |              | 62,048,712.063  | 41,776,419.874  | 38,259,634.0   | 727,622,584.30950   |
| 2031 | 6     | 963,840,681.369   |              | 8,363,987.428   | 131,093,443.959 | 41,182,052.1   | 783,201,197.85770   |
| 2031 | 7     | 1,161,109,559.768 |              | 28,502.512      | 267,626,436.390 | 44,632,511.4   | 848,822,109.50940   |
| 2031 | 8     | 1,180,222,411.792 |              | 0.000           | 302,409,155.628 | 43,851,147.2   | 833,962,108.93299   |
| 2031 | 9     | 1,097,637,711.646 |              | 120,923.521     | 242,809,648.683 | 42,696,881.5   | 812,010,257.90334   |
| 2031 | 10    | 870,315,116.977   |              | 20,017,798.421  | 87,018,415.311  | 38,129,585.5   | 725,149,317.78925   |
| 2031 | 11    | 975,612,280.514   |              | 167,561,169.273 | 11,561,856.938  | 39,788,608.0   | 756,700,646.28971   |
| 2031 | 12    | 1,508,233,472.328 |              | 452,207,659.700 | 843,518.647     | 52,711,614.7   | 1,002,470,679.28998 |
| 2032 | 1     | 1,846,845,687.093 |              | 654,439,156.667 | 231,342.250     | 58,883,883.0   | 1,133,291,305.21513 |
| 2032 | 2     | 1,655,144,360.787 |              | 739,266,542.234 | 180,905.072     | 45,228,075.9   | 870,468,837.59425   |
| 2032 | 3     | 1,401,022,914.598 |              | 545,816,039.681 | 1,135,312.722   | 42,184,278.3   | 811,887,283.90401   |
| 2032 | 4     | 1,092,449,736.469 |              | 256,559,461.840 | 12,327,651.766  | 40,677,381.6   | 782,885,241.23593   |
| 2032 | 5     | 871,033,462.391   |              | 61,547,900.159  | 41,598,329.993  | 37,927,464.3   | 729,959,767.92186   |
| 2032 | 6     | 965,209,577.331   |              | 8,294,933.531   | 130,515,287.835 | 40,817,493.5   | 785,581,862.49751   |
| 2032 | 7     | 1,161,830,878.502 |              | 28,262.439      | 266,411,060.738 | 44,225,154.2   | 851,166,401.11082   |
| 2032 | 8     | 1,180,665,983.658 |              | 0.000           | 301,015,971.238 | 43,447,648.4   | 836,202,364.04398   |
| 2032 | 9     | 1,098,386,365.553 |              | 119,885.733     | 241,677,488.819 | 42,308,619.1   | 814,280,371.93854   |
| 2032 | 10    | 871,542,757.102   |              | 19,844,686.178  | 86,608,484.144  | 37,789,283.1   | 727,300,303.68667   |
| 2032 | 11    | 975,859,343.948   |              | 166,101,986.231 | 11,506,878.210  | 39,427,165.0   | 758,823,314.54329   |
| 2032 | 12    | 1,506,046,115.793 |              | 448,158,406.131 | 839,356.231     | 52,209,702.2   | 1,004,838,651.24447 |
| 2033 | 1     | 1,843,891,871.140 |              | 649,023,869.906 | 230,486.301     | 58,408,417.4   | 1,136,229,097.52759 |
| 2033 | 2     | 1,651,194,521.255 |              | 733,129,050.158 | 180,231.692     | 44,877,398.8   | 873,007,840.59238   |
| 2033 | 3     | 1,398,630,888.660 |              | 541,273,169.424 | 1,131,066.635   | 41,862,776.9   | 814,363,875.73882   |
| 2033 | 4     | 1,092,424,790.238 |              | 254,415,878.661 | 12,281,211.804  | 40,371,617.0   | 785,356,082.81994   |
| 2033 | 5     | 872,478,519.085   |              | 61,032,068.101  | 41,440,521.836  | 37,647,258.8   | 732,358,670.33407   |
| 2033 | 6     | 966,821,286.905   |              | 8,225,239.991   | 130,016,464.057 | 40,511,051.7   | 788,068,531.15781   |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2033 | 7     | 1,162,938,430.326 |              | 28,024.302      | 265,383,727.840 | 43,882,024.6   | 853,644,653.55559   |
| 2033 | 8     | 1,181,524,862.119 |              | 0.000           | 299,841,154.128 | 43,107,427.5   | 838,576,280.51460   |
| 2033 | 9     | 1,099,520,103.093 |              | 118,865.489     | 240,720,775.742 | 41,982,748.9   | 816,697,712.94738   |
| 2033 | 10    | 873,050,481.621   |              | 19,674,687.040  | 86,260,678.217  | 37,505,920.7   | 729,609,195.65288   |
| 2033 | 11    | 976,355,847.226   |              | 164,667,477.012 | 11,459,912.315  | 39,124,903.8   | 761,103,554.14867   |
| 2033 | 12    | 1,504,341,207.502 |              | 444,260,467.425 | 835,881.175     | 51,788,777.0   | 1,007,456,081.90424 |
| 2034 | 1     | 1,841,943,514.738 |              | 643,775,934.480 | 229,811.243     | 58,005,072.1   | 1,139,932,696.92502 |
| 2034 | 2     | 1,648,167,042.444 |              | 727,171,162.743 | 179,697.160     | 44,586,630.8   | 876,229,551.72370   |
| 2034 | 3     | 1,397,081,352.755 |              | 536,852,059.095 | 1,127,669.316   | 41,598,364.2   | 817,503,260.10416   |
| 2034 | 4     | 1,093,191,116.563 |              | 252,328,251.434 | 12,243,925.083  | 40,122,369.1   | 788,496,570.92486   |
| 2034 | 5     | 874,673,860.882   |              | 60,528,900.106  | 41,313,260.913  | 37,421,107.9   | 735,410,592.00236   |
| 2034 | 6     | 969,258,703.875   |              | 8,157,176.435   | 129,613,462.161 | 40,261,294.4   | 791,226,770.89788   |
| 2034 | 7     | 1,164,958,765.136 |              | 27,791.688      | 264,554,683.151 | 43,596,915.4   | 856,779,374.85023   |
| 2034 | 8     | 1,183,304,739.176 |              | 0.000           | 298,896,541.474 | 42,823,728.1   | 841,584,469.63325   |
| 2034 | 9     | 1,101,586,155.597 |              | 117,873.492     | 239,958,626.523 | 41,714,963.0   | 819,794,692.61034   |
| 2034 | 10    | 875,384,281.708   |              | 19,510,084.846  | 85,986,105.598  | 37,278,576.1   | 732,609,515.20611   |
| 2034 | 11    | 977,685,163.783   |              | 163,286,205.446 | 11,423,238.869  | 38,880,704.6   | 764,095,014.89471   |
| 2034 | 12    | 1,503,697,704.249 |              | 440,526,515.878 | 833,195.319     | 51,439,226.2   | 1,010,898,766.85431 |
| 2035 | 1     | 1,840,031,660.887 |              | 638,553,924.656 | 229,295.087     | 57,686,309.7   | 1,143,562,131.46442 |
| 2035 | 2     | 1,645,228,142.790 |              | 721,279,575.456 | 179,295.150     | 44,361,215.0   | 879,408,057.23333   |
| 2035 | 3     | 1,395,644,039.196 |              | 532,507,062.504 | 1,125,155.398   | 41,395,500.9   | 820,616,320.44031   |
| 2035 | 4     | 1,094,056,037.406 |              | 250,288,532.599 | 12,216,741.601  | 39,932,701.0   | 791,618,062.19483   |
| 2035 | 5     | 876,969,866.695   |              | 60,039,958.167  | 41,221,723.807  | 37,251,030.7   | 738,457,154.01711   |
| 2035 | 6     | 971,865,296.877   |              | 8,091,232.457   | 129,325,204.172 | 40,071,873.3   | 794,376,986.92471   |
| 2035 | 7     | 1,167,259,700.990 |              | 27,566.720      | 263,962,911.779 | 43,376,762.3   | 859,892,460.19313   |
| 2035 | 8     | 1,185,392,544.914 |              | 0.000           | 298,220,668.378 | 42,603,736.1   | 844,568,140.40988   |
| 2035 | 9     | 1,103,907,915.446 |              | 116,914.033     | 239,409,980.789 | 41,509,274.5   | 822,871,746.16558   |
| 2035 | 10    | 877,846,334.149   |              | 19,350,754.642  | 85,787,063.335  | 37,106,980.7   | 735,601,535.44413   |
| 2035 | 11    | 979,112,593.340   |              | 161,946,739.633 | 11,396,365.120  | 38,694,633.6   | 767,074,855.02382   |
| 2035 | 12    | 1,503,216,530.192 |              | 436,896,976.088 | 831,204.565     | 51,166,843.4   | 1,014,321,506.12380 |
| 2036 | 1     | 1,838,715,827.804 |              | 633,800,872.095 | 229,090.421     | 57,402,519.4   | 1,147,283,345.84153 |
| 2036 | 2     | 1,642,882,447.002 |              | 715,889,408.977 | 179,129.701     | 44,162,096.5   | 882,651,811.85642   |
| 2036 | 3     | 1,394,633,131.747 |              | 528,513,725.674 | 1,124,086.996   | 41,216,479.8   | 823,778,839.28221   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2036 | 4     | 1,095,144,538.936 |              | 248,404,566.933 | 12,204,794.803  | 39,765,073.3   | 794,770,103.89931   |
| 2036 | 5     | 879,386,317.901   |              | 59,586,361.597  | 41,180,258.493  | 37,100,736.1   | 741,518,961.73225   |
| 2036 | 6     | 974,666,700.064   |              | 8,029,943.398   | 129,192,534.011 | 39,903,687.5   | 797,540,535.17744   |
| 2036 | 7     | 1,169,894,453.988 |              | 27,357.228      | 263,685,585.382 | 43,178,975.8   | 863,002,535.57281   |
| 2036 | 8     | 1,187,861,386.214 |              | 0.000           | 297,902,638.649 | 42,405,971.4   | 847,552,776.19475   |
| 2036 | 9     | 1,106,550,018.371 |              | 116,021.791     | 239,150,741.295 | 41,325,498.5   | 825,957,756.77752   |
| 2036 | 10    | 880,469,084.798   |              | 19,202,864.908  | 85,693,224.021  | 36,955,562.7   | 738,617,433.21022   |
| 2036 | 11    | 980,716,181.747   |              | 160,707,001.932 | 11,383,753.649  | 38,530,490.1   | 770,094,936.11153   |
| 2036 | 12    | 1,503,111,267.722 |              | 433,547,931.374 | 830,276.027     | 50,924,454.3   | 1,017,808,606.03309 |
| 2037 | 1     | 1,837,628,652.484 |              | 629,119,494.270 | 229,106.486     | 57,140,344.4   | 1,151,139,707.37786 |
| 2037 | 2     | 1,640,801,448.082 |              | 710,604,244.966 | 179,142.816     | 43,981,155.0   | 886,036,905.31613   |
| 2037 | 3     | 1,393,880,408.305 |              | 524,611,119.925 | 1,124,167.121   | 41,055,143.7   | 827,089,977.54164   |
| 2037 | 4     | 1,096,479,786.388 |              | 246,573,381.851 | 12,205,800.462  | 39,615,402.8   | 798,085,201.24569   |
| 2037 | 5     | 882,056,854.152   |              | 59,147,740.361  | 41,184,055.039  | 36,968,283.1   | 744,756,775.62825   |
| 2037 | 6     | 977,817,320.926   |              | 7,970,842.851   | 129,204,529.523 | 39,754,500.9   | 800,887,447.64123   |
| 2037 | 7     | 1,173,036,531.770 |              | 27,156.013      | 263,711,315.649 | 43,001,292.8   | 866,296,767.32162   |
| 2037 | 8     | 1,190,870,369.485 |              | 0.000           | 297,930,309.868 | 42,227,712.4   | 850,712,347.24314   |
| 2037 | 9     | 1,109,688,676.450 |              | 115,167.762     | 239,172,389.881 | 41,161,831.3   | 829,239,287.50651   |
| 2037 | 10    | 883,423,033.686   |              | 19,061,430.238  | 85,700,488.169  | 36,823,387.3   | 741,837,728.02172   |
| 2037 | 11    | 982,622,563.832   |              | 159,522,277.494 | 11,384,622.630  | 38,386,558.2   | 773,329,105.49838   |
| 2037 | 12    | 1,503,430,557.838 |              | 430,346,267.784 | 830,327.498     | 50,707,582.7   | 1,021,546,379.85214 |
| 2038 | 1     | 1,836,706,761.861 |              | 624,473,865.390 | 229,125.285     | 56,879,429.3   | 1,155,124,341.83927 |
| 2038 | 2     | 1,638,855,150.995 |              | 705,351,310.895 | 179,155.926     | 43,800,998.6   | 889,523,685.61810   |
| 2038 | 3     | 1,393,248,881.090 |              | 520,731,235.935 | 1,124,244.506   | 40,894,558.7   | 830,498,841.94774   |
| 2038 | 4     | 1,097,908,652.243 |              | 244,749,565.920 | 12,206,614.636  | 39,465,963.6   | 801,486,508.10220   |
| 2038 | 5     | 884,803,882.109   |              | 58,710,042.066  | 41,186,628.007  | 36,835,755.3   | 748,071,456.75771   |
| 2038 | 6     | 981,042,676.523   |              | 7,911,802.291   | 129,211,676.250 | 39,605,192.3   | 804,314,005.70587   |
| 2038 | 7     | 1,176,225,233.585 |              | 26,954.531      | 263,722,646.962 | 42,822,551.0   | 869,653,081.13892   |
| 2038 | 8     | 1,193,914,885.293 |              | 0.000           | 297,939,280.259 | 42,048,203.4   | 853,927,401.60779   |
| 2038 | 9     | 1,112,866,192.856 |              | 114,310.658     | 239,177,233.706 | 40,996,924.8   | 832,577,723.66381   |
| 2038 | 10    | 886,431,972.551   |              | 18,919,481.853  | 85,701,757.871  | 36,690,437.3   | 745,120,295.55455   |
| 2038 | 11    | 984,589,260.956   |              | 158,333,247.108 | 11,384,698.755  | 38,241,972.9   | 776,629,342.17412   |
| 2038 | 12    | 1,503,823,146.405 |              | 427,134,131.737 | 830,323.578     | 50,490,130.4   | 1,025,368,560.72723 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2039 | 1     | 1,835,542,063.381 |              | 619,650,898.927 | 229,055.363     | 56,623,923.8   | 1,159,038,185.26245 |
| 2039 | 2     | 1,636,664,547.356 |              | 699,904,728.039 | 179,101.578     | 43,624,683.9   | 892,956,033.85356   |
| 2039 | 3     | 1,392,427,629.886 |              | 516,711,011.757 | 1,123,905.945   | 40,737,365.0   | 833,855,347.13359   |
| 2039 | 4     | 1,099,225,288.964 |              | 242,862,225.566 | 12,203,058.992  | 39,319,850.0   | 804,840,154.39882   |
| 2039 | 5     | 887,486,211.954   |              | 58,257,915.994  | 41,175,117.731  | 36,706,468.7   | 751,346,709.54524   |
| 2039 | 6     | 984,190,553.182   |              | 7,850,912.419   | 129,176,479.295 | 39,459,733.1   | 807,703,428.40105   |
| 2039 | 7     | 1,179,309,605.182 |              | 26,747.291      | 263,653,456.608 | 42,648,799.4   | 872,980,601.84567   |
| 2039 | 8     | 1,196,858,099.661 |              | 0.000           | 297,864,138.155 | 41,873,942.8   | 857,120,018.72346   |
| 2039 | 9     | 1,115,968,558.858 |              | 113,434.187     | 239,120,755.101 | 40,837,120.6   | 835,897,248.96829   |
| 2039 | 10    | 889,408,965.034   |              | 18,774,739.114  | 85,683,111.036  | 36,561,978.7   | 748,389,136.18375   |
| 2039 | 11    | 986,520,473.116   |              | 157,123,255.196 | 11,382,325.058  | 38,102,045.5   | 779,912,847.36963   |
| 2039 | 12    | 1,504,166,585.482 |              | 423,876,744.533 | 830,164.100     | 50,279,795.7   | 1,029,179,881.12281 |
| 2040 | 1     | 1,833,923,083.616 |              | 614,976,695.887 | 229,019.331     | 55,491,355.3   | 1,163,226,013.11948 |
| 2040 | 2     | 1,634,153,950.280 |              | 694,650,191.414 | 179,079.097     | 42,769,883.2   | 896,554,796.54818   |
| 2040 | 3     | 1,391,291,427.233 |              | 512,851,095.741 | 1,123,802.447   | 39,946,491.7   | 837,370,037.37554   |
| 2040 | 4     | 1,100,187,330.106 |              | 241,058,905.692 | 12,202,426.857  | 38,562,732.1   | 808,363,265.42271   |
| 2040 | 5     | 889,811,370.440   |              | 57,827,686.156  | 41,174,467.199  | 36,007,589.9   | 754,801,627.17080   |
| 2040 | 6     | 987,028,896.158   |              | 7,793,186.909   | 129,178,126.721 | 38,705,321.3   | 811,352,261.22638   |
| 2040 | 7     | 1,182,145,062.831 |              | 26,551.276      | 263,662,323.950 | 41,819,686.8   | 876,636,500.83019   |
| 2040 | 8     | 1,199,572,073.764 |              | 0.000           | 297,880,209.226 | 41,056,363.8   | 860,635,500.77102   |
| 2040 | 9     | 1,118,782,455.513 |              | 112,607.747     | 239,137,316.652 | 40,047,392.0   | 839,485,139.13537   |
| 2040 | 10    | 892,032,281.489   |              | 18,638,397.679  | 85,690,722.852  | 35,866,163.1   | 751,836,997.81715   |
| 2040 | 11    | 988,112,880.186   |              | 155,985,088.818 | 11,383,493.837  | 37,370,611.6   | 783,373,685.94515   |
| 2040 | 12    | 1,504,198,818.621 |              | 420,808,771.914 | 830,251.595     | 49,291,748.7   | 1,033,268,046.46005 |
| 2041 | 1     | 1,832,913,855.616 |              | 610,653,883.756 | 229,092.716     | 54,552,355.3   | 1,167,478,523.79587 |
| 2041 | 2     | 1,632,234,445.667 |              | 689,768,748.972 | 179,136.974     | 42,064,363.6   | 900,222,196.10833   |
| 2041 | 3     | 1,390,614,830.555 |              | 509,248,519.758 | 1,124,169.599   | 39,294,655.2   | 840,947,485.96648   |
| 2041 | 4     | 1,101,454,401.838 |              | 239,368,475.322 | 12,206,566.236  | 37,939,238.4   | 811,940,121.87242   |
| 2041 | 5     | 892,345,045.079   |              | 57,422,729.813  | 41,188,869.313  | 35,432,843.6   | 758,300,602.36919   |
| 2041 | 6     | 990,075,480.169   |              | 7,738,675.312   | 129,224,521.133 | 38,083,558.5   | 815,028,725.24094   |
| 2041 | 7     | 1,185,219,347.528 |              | 26,365.729      | 263,759,138.740 | 41,133,483.0   | 880,300,360.02347   |
| 2041 | 8     | 1,202,523,497.716 |              | 0.000           | 297,991,760.354 | 40,378,960.6   | 864,152,776.72960   |
| 2041 | 9     | 1,121,816,964.295 |              | 111,822.051     | 239,228,412.812 | 39,394,408.9   | 843,082,320.54058   |

|      |       | Kentucky Power Company<br>Residential Energy Model Output |              |                 |                 |                |                     |
|------|-------|---|--------------|-----------------|-----------------|----------------|---------------------|
| Year | Month | Total Usage   | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
| 2041 | 10    | 894,832,926.184   |              | 18,508,501.587  | 85,724,119.394  | 35,292,977.9   | 755,307,327.32109   |
| 2041 | 11    | 989,904,210.006   |              | 154,898,553.199 | 11,387,976.861  | 36,766,897.7   | 786,850,782.22310   |
| 2041 | 12    | 1,504,537,126.050   |              | 417,879,013.905 | 830,581.839     | 48,472,137.9   | 1,037,355,392.41597 |
| 2042 | 1     | 1,832,375,715.036   |              | 606,541,414.109 | 229,230.021     | 53,741,486.6   | 1,171,863,584.29836 |
| 2042 | 2     | 1,630,791,090.303   |              | 685,131,918.062 | 179,246.498     | 41,458,295.2   | 904,021,630.59264   |
| 2042 | 3     | 1,390,357,617.760   |              | 505,833,632.678 | 1,124,875.218   | 38,736,117.0   | 844,662,992.85643   |
| 2042 | 4     | 1,103,051,894.995   |              | 237,768,657.637 | 12,214,492.310  | 37,406,162.6   | 815,662,582.47125   |
| 2042 | 5     | 895,145,195.864   |              | 57,039,924.633  | 41,216,292.239  | 34,942,739.2   | 761,946,239.76181   |
| 2042 | 6     | 993,400,710.008   |              | 7,687,167.805   | 129,311,866.218 | 37,552,308.1   | 818,849,367.90964   |
| 2042 | 7     | 1,188,611,919.144   |              | 26,190.575      | 263,940,645.236 | 40,544,709.3   | 884,100,373.99509   |
| 2042 | 8     | 1,205,794,423.910   |              | 0.000           | 298,198,523.929 | 39,797,120.7   | 867,798,779.30822   |
| 2042 | 9     | 1,125,159,367.820   |              | 111,080.675     | 239,396,003.820 | 38,834,916.3   | 846,817,367.04343   |
| 2042 | 10    | 897,898,918.848   |              | 18,385,948.762  | 85,784,845.709  | 34,804,139.1   | 758,923,985.27921   |
| 2042 | 11    | 991,996,431.783   |              | 153,873,954.733 | 11,396,111.418  | 36,251,077.1   | 790,475,288.54345   |
| 2042 | 12    | 1,505,310,509.775   |              | 415,116,102.545 | 831,176.897     | 47,767,425.9   | 1,041,595,804.39519 |
| 2043 | 1     | 1,832,684,397.475   |              | 602,980,096.744 | 229,550.932     | 53,077,042.7   | 1,176,397,707.07196 |
| 2043 | 2     | 1,630,230,041.379   |              | 681,116,095.157 | 179,499.249     | 40,965,976.9   | 907,968,470.08317   |
| 2043 | 3     | 1,390,805,441.383   |              | 502,873,588.688 | 1,126,472.311   | 38,283,833.9   | 848,521,546.51664   |
| 2043 | 4     | 1,105,112,527.359   |              | 236,380,915.716 | 12,232,023.372  | 36,975,517.6   | 819,524,070.67664   |
| 2043 | 5     | 898,257,278.641   |              | 56,707,723.847  | 41,275,983.747  | 34,548,212.2   | 765,725,358.86845   |
| 2043 | 6     | 997,070,026.111   |              | 7,642,498.772   | 129,500,944.766 | 37,123,462.7   | 822,803,119.91268   |
| 2043 | 7     | 1,192,433,555.080   |              | 26,038.529      | 264,328,258.179 | 40,065,647.9   | 888,013,610.45278   |
| 2043 | 8     | 1,209,515,661.485   |              | 0.000           | 298,638,290.703 | 39,323,033.8   | 871,554,336.99365   |
| 2043 | 9     | 1,128,925,290.855   |              | 110,437.477     | 239,751,593.971 | 38,381,307.6   | 850,681,951.76831   |
| 2043 | 10    | 901,290,654.933   |              | 18,279,646.853  | 85,913,050.212  | 34,411,119.4   | 762,686,838.50622   |
| 2043 | 11    | 994,478,914.905   |              | 152,984,622.250 | 11,413,166.935  | 35,835,019.3   | 794,246,106.42819   |
| 2043 | 12    | 1,506,731,636.280   |              | 412,716,744.205 | 832,420.526     | 47,193,236.6   | 1,045,989,234.95719 |
| 2044 | 1     | 1,833,261,622.851   |              | 599,483,623.828 | 229,882.014     | 52,537,551.8   | 1,181,010,565.25152 |
| 2044 | 2     | 1,629,920,948.567   |              | 677,173,825.587 | 179,760.084     | 40,570,413.5   | 911,996,949.43676   |
| 2044 | 3     | 1,391,479,560.846   |              | 499,967,784.344 | 1,128,120.372   | 37,921,972.2   | 852,461,683.91730   |
| 2044 | 4     | 1,107,372,098.148   |              | 235,018,612.782 | 12,250,119.170  | 36,632,316.6   | 823,471,049.63399   |
| 2044 | 5     | 901,543,106.038   |              | 56,381,436.709  | 41,337,477.625  | 34,235,352.9   | 769,588,838.82847   |
| 2044 | 6     | 1,000,903,866.346   |              | 7,598,534.789   | 129,694,163.916 | 36,781,715.9   | 826,829,451.71733   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2044 | 7     | 1,196,413,745.274 |              | 25,888.633      | 264,721,754.733 | 39,680,216.3   | 891,985,885.64925   |
| 2044 | 8     | 1,213,384,873.552 |              | 0.000           | 299,081,127.971 | 38,940,743.1   | 875,363,002.45752   |
| 2044 | 9     | 1,132,836,287.129 |              | 109,800.403     | 240,106,037.156 | 38,017,238.6   | 854,603,210.98584   |
| 2044 | 10    | 904,823,522.802   |              | 18,174,066.071  | 86,039,507.304  | 34,098,456.4   | 766,511,493.05132   |
| 2044 | 11    | 997,105,935.684   |              | 152,099,135.415 | 11,429,834.797  | 35,502,541.3   | 798,074,424.17409   |
| 2044 | 12    | 1,508,317,873.017 |              | 410,323,270.588 | 833,627.341     | 46,728,741.8   | 1,050,432,233.24289 |
| 2045 | 1     | 1,833,857,516.632 |              | 596,030,675.944 | 230,234.296     | 52,060,463.1   | 1,185,536,143.25661 |
| 2045 | 2     | 1,629,620,124.539 |              | 673,268,763.584 | 180,034.500     | 40,222,090.0   | 915,949,236.45077   |
| 2045 | 3     | 1,392,146,042.621 |              | 497,083,254.012 | 1,129,840.415   | 37,603,984.3   | 856,328,963.94415   |
| 2045 | 4     | 1,109,601,843.842 |              | 233,663,182.026 | 12,268,829.892  | 36,330,942.7   | 827,338,889.18014   |
| 2045 | 5     | 904,791,692.081   |              | 56,056,503.798  | 41,400,814.473  | 33,961,147.9   | 773,373,225.89682   |
| 2045 | 6     | 1,004,701,292.770 |              | 7,554,768.493   | 129,893,375.491 | 36,481,677.8   | 830,771,471.03402   |
| 2045 | 7     | 1,200,371,689.165 |              | 25,739.623      | 265,129,596.069 | 39,340,602.8   | 895,875,750.69355   |
| 2045 | 8     | 1,217,237,772.489 |              | 0.000           | 299,542,284.998 | 38,603,573.9   | 879,091,913.55582   |
| 2045 | 9     | 1,136,727,865.572 |              | 109,169.033     | 240,477,617.328 | 37,696,871.0   | 858,444,208.21281   |
| 2045 | 10    | 908,332,343.682   |              | 18,069,685.706  | 86,173,320.975  | 33,824,642.9   | 770,264,694.08306   |
| 2045 | 11    | 999,719,019.924   |              | 151,226,110.895 | 11,447,663.281  | 35,210,958.8   | 801,834,286.91543   |
| 2045 | 12    | 1,509,915,541.042 |              | 407,969,918.285 | 834,932.091     | 46,319,077.0   | 1,054,791,613.65539 |
| 2046 | 1     | 1,834,500,141.819 |              | 592,556,958.612 | 230,566.658     | 51,605,128.1   | 1,190,107,488.42345 |
| 2046 | 2     | 1,629,385,884.592 |              | 669,358,290.758 | 180,298.207     | 39,890,907.1   | 919,956,388.49520   |
| 2046 | 3     | 1,392,888,011.169 |              | 494,202,918.362 | 1,131,512.220   | 37,302,002.8   | 860,251,577.76600   |
| 2046 | 4     | 1,111,919,503.629 |              | 232,314,621.565 | 12,287,286.706  | 36,045,406.2   | 831,272,189.16786   |
| 2046 | 5     | 908,125,911.452   |              | 55,734,056.912  | 41,463,956.777  | 33,701,870.7   | 777,226,027.05117   |
| 2046 | 6     | 1,008,590,784.145 |              | 7,511,438.733   | 130,093,846.448 | 36,197,842.9   | 834,787,656.02497   |
| 2046 | 7     | 1,204,427,552.845 |              | 25,592.352      | 265,542,824.283 | 39,018,646.8   | 899,840,489.40815   |
| 2046 | 8     | 1,221,194,838.084 |              | 0.000           | 300,013,020.234 | 38,283,983.8   | 882,897,834.01750   |
| 2046 | 9     | 1,140,722,812.729 |              | 108,546.448     | 240,857,584.068 | 37,393,562.9   | 862,363,119.28404   |
| 2046 | 10    | 911,943,685.481   |              | 17,966,864.658  | 86,310,703.765  | 33,566,312.3   | 774,099,804.77522   |
| 2046 | 11    | 1,002,439,443.542 |              | 150,365,811.519 | 11,465,946.632  | 34,935,352.0   | 805,672,333.41923   |
| 2046 | 12    | 1,511,650,657.222 |              | 405,649,972.898 | 836,268.418     | 45,930,234.2   | 1,059,234,181.71035 |
| 2047 | 1     | 1,836,025,121.019 |              | 589,611,627.302 | 231,092.649     | 51,166,783.8   | 1,195,015,617.28919 |
| 2047 | 2     | 1,630,046,376.109 |              | 666,037,841.195 | 180,711.490     | 39,573,636.9   | 924,254,186.53246   |
| 2047 | 3     | 1,394,369,516.966 |              | 491,758,621.080 | 1,134,123.838   | 37,013,576.1   | 864,463,195.99654   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2047 | 4     | 1,114,751,819.244 |              | 231,169,687.644 | 12,315,880.507  | 35,773,167.6   | 835,493,083.50141   |
| 2047 | 5     | 911,836,542.607   |              | 55,460,210.446  | 41,561,128.891  | 33,455,354.0   | 781,359,849.31144   |
| 2047 | 6     | 1,012,889,507.284 |              | 7,474,579.014   | 130,399,722.658 | 35,927,095.3   | 839,088,110.35633   |
| 2047 | 7     | 1,208,981,988.849 |              | 25,466.825      | 266,168,115.638 | 38,709,783.2   | 904,078,623.21405   |
| 2047 | 8     | 1,225,659,991.419 |              | 0.000           | 300,720,121.529 | 37,976,943.3   | 886,962,926.63421   |
| 2047 | 9     | 1,145,189,759.019 |              | 108,014.393     | 241,426,166.866 | 37,103,035.3   | 866,552,542.50740   |
| 2047 | 10    | 915,910,634.243   |              | 17,878,808.408  | 86,514,619.156  | 33,319,942.1   | 778,197,264.58226   |
| 2047 | 11    | 1,005,563,137.329 |              | 149,627,872.731 | 11,492,974.783  | 34,671,807.3   | 809,770,482.52684   |
| 2047 | 12    | 1,514,019,160.999 |              | 403,656,874.416 | 838,235.845     | 45,555,752.6   | 1,063,968,298.10297 |
| 2048 | 1     | 1,837,833,409.919 |              | 586,684,524.869 | 231,611.787     | 50,739,352.2   | 1,200,177,921.03217 |
| 2048 | 2     | 1,630,967,804.257 |              | 662,738,482.340 | 181,119.465     | 39,265,697.1   | 928,782,505.37416   |
| 2048 | 3     | 1,396,096,251.978 |              | 489,327,191.463 | 1,136,695.297   | 36,734,003.6   | 868,898,361.65614   |
| 2048 | 4     | 1,117,822,335.627 |              | 230,029,512.478 | 12,343,967.331  | 35,509,708.6   | 839,939,147.21871   |
| 2048 | 5     | 915,780,015.368   |              | 55,187,478.580  | 41,656,557.603  | 33,217,449.3   | 785,718,529.88480   |
| 2048 | 6     | 1,017,428,226.433 |              | 7,437,873.644   | 130,700,137.998 | 35,665,520.7   | 843,624,694.07618   |
| 2048 | 7     | 1,213,771,881.010 |              | 25,341.867      | 266,782,564.737 | 38,410,484.6   | 908,553,489.81657   |
| 2048 | 8     | 1,230,351,461.480 |              | 0.000           | 301,414,940.150 | 37,679,260.1   | 891,257,261.18689   |
| 2048 | 9     | 1,149,891,969.495 |              | 107,484.724     | 241,984,614.870 | 36,821,921.3   | 870,977,948.62831   |
| 2048 | 10    | 920,116,623.499   |              | 17,791,172.493  | 86,714,991.251  | 33,082,560.5   | 782,527,899.23353   |
| 2048 | 11    | 1,008,938,016.335 |              | 148,894,417.949 | 11,519,600.179  | 34,417,590.1   | 814,106,408.05789   |
| 2048 | 12    | 1,516,680,731.601 |              | 401,676,288.832 | 840,174.177     | 45,192,415.6   | 1,068,971,853.01366 |
| 2049 | 1     | 1,840,535,385.386 |              | 584,310,150.716 | 232,322.613     | 50,352,197.2   | 1,205,640,714.86256 |
| 2049 | 2     | 1,632,815,622.170 |              | 660,060,602.357 | 181,676.525     | 38,990,032.7   | 933,583,310.54395   |
| 2049 | 3     | 1,398,583,765.382 |              | 487,352,909.086 | 1,140,198.271   | 36,485,129.7   | 873,605,528.34153   |
| 2049 | 4     | 1,121,419,924.764 |              | 229,104,176.183 | 12,382,151.998  | 35,276,146.5   | 844,657,450.07962   |
| 2049 | 5     | 920,094,679.552   |              | 54,965,810.515  | 41,785,655.803  | 33,007,463.2   | 790,335,750.02860   |
| 2049 | 6     | 1,022,369,368.485 |              | 7,408,015.082   | 131,105,450.032 | 35,433,390.0   | 848,422,513.33277   |
| 2049 | 7     | 1,219,050,366.565 |              | 25,240.045      | 267,608,875.176 | 38,141,854.3   | 913,274,397.00531   |
| 2049 | 8     | 1,235,541,067.279 |              | 0.000           | 302,346,112.167 | 37,411,370.7   | 895,783,584.43488   |
| 2049 | 9     | 1,155,054,626.262 |              | 107,051.180     | 242,730,208.734 | 36,570,388.5   | 875,646,977.87442   |
| 2049 | 10    | 924,680,435.683   |              | 17,719,327.438  | 86,981,748.469  | 32,872,607.8   | 787,106,751.95875   |
| 2049 | 11    | 1,012,720,000.085 |              | 148,290,493.151 | 11,554,829.240  | 34,191,366.5   | 818,683,311.21220   |
| 2049 | 12    | 1,519,991,026.083 |              | 400,039,823.866 | 842,728.301     | 44,864,561.0   | 1,074,243,912.96201 |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2050 | 1     | 1,843,584,948.084 |              | 581,995,208.207 | 233,024.073     | 50,054,374.6   | 1,211,302,341.23351 |
| 2050 | 2     | 1,634,967,799.827 |              | 657,442,695.959 | 182,224.104     | 38,783,863.4   | 938,559,016.34498   |
| 2050 | 3     | 1,401,346,523.671 |              | 485,420,481.689 | 1,143,634.882   | 36,301,278.4   | 878,481,128.73770   |
| 2050 | 4     | 1,125,271,174.667 |              | 228,198,767.578 | 12,419,619.907  | 35,105,645.7   | 849,547,141.47603   |
| 2050 | 5     | 924,636,513.649   |              | 54,748,894.591  | 41,912,273.976  | 32,856,516.7   | 795,118,828.33339   |
| 2050 | 6     | 1,027,533,463.722 |              | 7,378,829.129   | 131,503,431.296 | 35,264,314.7   | 853,386,888.58420   |
| 2050 | 7     | 1,224,539,598.767 |              | 25,140.700      | 268,421,911.223 | 37,940,587.2   | 918,151,959.64714   |
| 2050 | 8     | 1,240,937,855.621 |              | 0.000           | 303,265,484.078 | 37,209,620.0   | 900,462,751.52007   |
| 2050 | 9     | 1,160,444,014.315 |              | 106,630.764     | 243,469,148.349 | 36,384,050.2   | 880,484,184.99534   |
| 2050 | 10    | 929,481,823.258   |              | 17,649,906.995  | 87,247,246.183  | 32,721,964.7   | 791,862,705.36999   |
| 2050 | 11    | 1,016,776,775.246 |              | 147,710,459.884 | 11,590,155.162  | 34,027,196.6   | 823,448,963.63521   |
| 2050 | 12    | 1,523,674,784.745 |              | 398,477,269.847 | 845,308.462     | 44,617,629.4   | 1,079,734,577.03439 |
| 2051 | 1     | 1,846,162,001.230 |              | 579,470,370.914 | 233,687.538     | 49,671,128.1   | 1,216,786,814.64320 |
| 2051 | 2     | 1,636,675,644.743 |              | 654,602,580.092 | 182,746.133     | 38,510,240.4   | 943,380,078.12240   |
| 2051 | 3     | 1,403,745,749.447 |              | 483,334,082.946 | 1,146,935.194   | 36,054,032.8   | 883,210,698.46733   |
| 2051 | 4     | 1,128,842,324.435 |              | 227,224,074.124 | 12,455,780.779  | 34,873,406.7   | 854,289,062.79154   |
| 2051 | 5     | 928,968,815.023   |              | 54,516,671.061  | 42,035,501.783  | 32,647,806.4   | 799,768,835.80578   |
| 2051 | 6     | 1,032,493,838.209 |              | 7,347,674.347   | 131,892,487.277 | 35,033,866.0   | 858,219,810.61316   |
| 2051 | 7     | 1,229,834,824.774 |              | 25,035.123      | 269,221,889.340 | 37,674,748.7   | 922,913,151.65121   |
| 2051 | 8     | 1,246,147,590.654 |              | 0.000           | 304,173,349.435 | 36,944,711.4   | 905,029,529.78694   |
| 2051 | 9     | 1,165,649,299.293 |              | 106,186.617     | 244,202,506.582 | 36,135,449.7   | 885,205,156.38250   |
| 2051 | 10    | 934,102,962.929   |              | 17,576,760.032  | 87,511,762.815  | 32,514,370.3   | 796,500,069.81540   |
| 2051 | 11    | 1,020,623,476.921 |              | 147,100,116.689 | 11,625,421.758  | 33,804,077.9   | 828,093,860.58491   |
| 2051 | 12    | 1,527,081,074.575 |              | 396,837,258.081 | 847,893.643     | 44,295,485.6   | 1,085,100,437.22573 |
| 2052 | 1     | 1,849,071,411.250 |              | 577,119,742.733 | 234,420.433     | 49,295,170.3   | 1,222,422,077.73807 |
| 2052 | 2     | 1,638,729,731.116 |              | 651,966,379.676 | 183,324.443     | 38,242,487.1   | 948,337,539.86932   |
| 2052 | 3     | 1,406,429,587.022 |              | 481,399,468.942 | 1,150,591.634   | 35,812,047.6   | 888,067,478.83621   |
| 2052 | 4     | 1,132,629,743.639 |              | 226,323,212.466 | 12,495,953.118  | 34,646,494.5   | 859,164,083.50778   |
| 2052 | 5     | 933,464,738.806   |              | 54,302,264.400  | 42,172,368.794  | 32,443,980.7   | 804,546,124.92628   |
| 2052 | 6     | 1,037,641,880.281 |              | 7,318,985.980   | 132,325,541.834 | 34,808,785.1   | 863,188,567.31787   |
| 2052 | 7     | 1,235,351,221.267 |              | 24,937.932      | 270,111,524.095 | 37,414,312.1   | 927,800,447.17545   |
| 2052 | 8     | 1,251,592,672.338 |              | 0.000           | 305,185,364.767 | 36,685,284.8   | 909,722,022.76147   |
| 2052 | 9     | 1,171,076,709.499 |              | 105,779.450     | 245,020,522.962 | 35,892,320.5   | 890,058,086.59031   |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2052 | 10    | 938,897,996.528   |              | 17,509,801.918  | 87,806,989.427  | 32,311,842.6   | 801,269,362.61915   |
| 2052 | 11    | 1,024,671,167.974 |              | 146,542,942.601 | 11,664,881.341  | 33,586,442.4   | 832,876,901.59965   |
| 2052 | 12    | 1,530,788,347.737 |              | 395,339,971.818 | 850,783.428     | 43,980,044.8   | 1,090,617,547.64984 |
| 2053 | 1     | 1,852,088,359.250 |              | 574,804,211.740 | 235,167.265     | 48,923,032.5   | 1,228,125,947.70679 |
| 2053 | 2     | 1,640,885,977.533 |              | 649,368,530.862 | 183,913.463     | 37,977,433.5   | 953,356,099.72536   |
| 2053 | 3     | 1,409,202,807.622 |              | 479,492,189.832 | 1,154,314.016   | 35,572,472.9   | 892,983,830.85895   |
| 2053 | 4     | 1,136,491,439.885 |              | 225,434,563.939 | 12,536,822.774  | 34,421,800.9   | 864,098,252.22589   |
| 2053 | 5     | 938,025,011.788   |              | 54,090,634.439  | 42,311,522.661  | 32,242,101.1   | 809,380,753.60911   |
| 2053 | 6     | 1,042,857,661.417 |              | 7,290,652.797   | 132,765,581.010 | 34,585,818.0   | 868,215,609.60254   |
| 2053 | 7     | 1,240,939,576.127 |              | 24,841.888      | 271,015,020.931 | 37,156,315.8   | 932,743,397.48490   |
| 2053 | 8     | 1,257,107,872.292 |              | 0.000           | 306,212,545.628 | 36,428,268.4   | 914,467,058.26833   |
| 2053 | 9     | 1,176,572,335.050 |              | 105,376.565     | 245,850,320.343 | 35,651,403.2   | 894,965,234.96813   |
| 2053 | 10    | 943,752,806.268   |              | 17,443,501.684  | 88,106,285.208  | 32,111,089.1   | 806,091,930.27527   |
| 2053 | 11    | 1,028,778,541.015 |              | 145,990,847.298 | 11,704,860.258  | 33,370,696.4   | 837,712,137.06243   |
| 2053 | 12    | 1,534,569,050.834 |              | 393,855,524.619 | 853,709.920     | 43,667,392.4   | 1,096,192,423.93712 |
| 2054 | 1     | 1,855,185,818.984 |              | 572,507,892.981 | 235,923.717     | 48,554,224.6   | 1,233,887,777.63952 |
| 2054 | 2     | 1,643,117,776.361 |              | 646,791,795.836 | 184,509.931     | 37,714,669.9   | 958,426,800.72427   |
| 2054 | 3     | 1,412,044,589.224 |              | 477,600,091.904 | 1,158,082.606   | 35,334,929.9   | 897,951,484.82323   |
| 2054 | 4     | 1,140,414,014.989 |              | 224,552,774.606 | 12,578,186.848  | 34,198,979.9   | 869,084,073.60204   |
| 2054 | 5     | 942,640,831.816   |              | 53,880,592.963  | 42,452,317.895  | 32,041,858.3   | 814,266,062.65864   |
| 2054 | 6     | 1,048,132,631.696 |              | 7,262,527.898   | 133,210,691.252 | 34,364,672.2   | 873,294,740.34961   |
| 2054 | 7     | 1,246,590,708.397 |              | 24,746.537      | 271,928,694.699 | 36,900,504.5   | 937,736,762.70662   |
| 2054 | 8     | 1,262,684,651.997 |              | 0.000           | 307,251,000.866 | 36,173,441.0   | 919,260,210.11044   |
| 2054 | 9     | 1,182,128,808.671 |              | 104,976.448     | 246,688,992.356 | 35,412,484.8   | 899,922,355.04976   |
| 2054 | 10    | 948,662,215.807   |              | 17,377,640.914  | 88,408,693.503  | 31,911,918.7   | 810,963,962.70543   |
| 2054 | 11    | 1,032,940,317.445 |              | 145,442,248.358 | 11,745,242.743  | 33,156,664.7   | 842,596,161.64479   |
| 2054 | 12    | 1,538,415,649.224 |              | 392,380,155.083 | 856,665.303     | 43,357,337.0   | 1,101,821,491.80763 |
| 2055 | 1     | 1,858,356,981.233 |              | 570,226,726.724 | 236,688.102     | 48,188,591.6   | 1,239,704,974.79074 |
| 2055 | 2     | 1,645,420,808.881 |              | 644,233,175.445 | 185,112.899     | 37,454,105.6   | 963,548,414.91275   |
| 2055 | 3     | 1,414,953,741.426 |              | 475,722,161.753 | 1,161,893.912   | 35,099,373.3   | 902,970,312.51050   |
| 2055 | 4     | 1,144,399,043.432 |              | 223,678,131.176 | 12,620,042.639  | 33,978,042.2   | 874,122,827.41341   |
| 2055 | 5     | 947,315,134.561   |              | 53,672,378.340  | 42,594,863.332  | 31,843,314.1   | 819,204,578.79373   |
| 2055 | 6     | 1,053,471,323.132 |              | 7,234,661.955   | 133,661,547.572 | 34,145,453.2   | 878,429,660.42778   |

Kentucky Power Company  
 Residential Energy Model Output

| Year | Month | Total Usage       | Actual Usage | Heating Usage   | Cooling Usage   | Lighting Usage | Other Usage         |
|------|-------|-------------------|--------------|-----------------|-----------------|----------------|---------------------|
| 2055 | 7     | 1,252,311,305.562 |              | 24,652.109      | 272,854,585.831 | 36,647,012.7   | 942,785,054.89237   |
| 2055 | 8     | 1,268,331,631.422 |              | 0.000           | 308,303,858.398 | 35,920,970.1   | 924,106,802.92112   |
| 2055 | 9     | 1,187,756,307.406 |              | 104,580.639     | 247,539,710.111 | 35,175,790.3   | 904,936,226.33757   |
| 2055 | 10    | 953,636,380.398   |              | 17,312,531.594  | 88,715,607.072  | 31,714,614.1   | 815,893,627.66973   |
| 2055 | 11    | 1,037,169,915.915 |              | 144,900,269.645 | 11,786,247.831  | 32,944,690.5   | 847,538,707.96304   |
| 2055 | 12    | 1,542,350,737.516 |              | 390,923,328.306 | 859,667.422     | 43,050,326.9   | 1,107,517,414.89607 |
| 2056 | 1     | 1,861,628,551.318 |              | 567,974,034.718 | 237,465.207     | 47,826,580.5   | 1,245,590,470.84912 |
| 2056 | 2     | 1,647,821,081.974 |              | 641,707,223.559 | 185,725.998     | 37,196,125.4   | 968,732,007.01102   |
| 2056 | 3     | 1,417,951,421.021 |              | 473,868,752.021 | 1,165,769.950   | 34,866,164.0   | 908,050,735.06116   |
| 2056 | 4     | 1,148,461,529.948 |              | 222,815,260.775 | 12,662,618.653  | 33,759,324.6   | 879,224,325.90777   |
| 2056 | 5     | 952,059,137.375   |              | 53,467,047.505  | 42,739,894.898  | 31,646,779.3   | 824,205,415.69643   |
| 2056 | 6     | 1,058,885,332.956 |              | 7,207,191.412   | 134,120,357.562 | 33,928,462.0   | 883,629,321.99624   |
| 2056 | 7     | 1,258,114,073.068 |              | 24,559.050      | 273,796,992.265 | 36,396,107.1   | 947,896,414.61984   |
| 2056 | 8     | 1,274,061,016.518 |              | 0.000           | 309,375,707.978 | 35,671,092.8   | 929,014,215.78742   |
| 2056 | 9     | 1,193,466,005.131 |              | 104,190.829     | 248,405,939.874 | 34,941,559.0   | 910,014,315.40732   |
| 2056 | 10    | 958,684,057.102   |              | 17,248,433.304  | 89,028,181.775  | 31,519,402.9   | 820,888,039.10631   |
| 2056 | 11    | 1,041,476,463.314 |              | 144,366,899.720 | 11,828,017.347  | 32,734,986.1   | 852,546,560.16555   |
| 2056 | 12    | 1,546,387,049.269 |              | 389,490,026.095 | 862,725.958     | 42,746,589.3   | 1,113,287,707.96427 |
| 2057 | 1     | 1,865,014,132.307 |              | 565,756,122.074 | 238,257.407     | 47,468,393.9   | 1,251,551,358.95854 |
| 2057 | 2     | 1,650,330,524.657 |              | 639,220,093.325 | 186,350.875     | 36,940,887.4   | 973,983,193.05521   |
| 2057 | 3     | 1,421,046,424.288 |              | 472,043,678.077 | 1,169,719.704   | 34,635,432.9   | 913,197,593.65489   |
| 2057 | 4     | 1,152,606,944.513 |              | 221,965,498.541 | 12,705,992.850  | 33,542,924.6   | 884,392,528.51352   |
| 2057 | 5     | 956,876,379.456   |              | 53,264,812.287  | 42,887,609.341  | 31,452,319.1   | 829,271,638.68255   |
| 2057 | 6     | 1,064,377,580.014 |              | 7,180,131.939   | 134,587,550.478 | 33,713,736.8   | 888,896,160.82783   |
| 2057 | 7     | 1,264,001,231.446 |              | 24,467.372      | 274,756,419.262 | 36,147,795.9   | 953,072,548.87058   |
| 2057 | 8     | 1,279,873,886.690 |              | 0.000           | 310,466,666.653 | 35,423,790.6   | 933,983,429.41441   |
| 2057 | 9     | 1,199,257,902.614 |              | 103,806.683     | 249,287,416.484 | 34,709,746.0   | 915,156,933.45231   |
| 2057 | 10    | 963,804,361.604   |              | 17,185,255.852  | 89,346,185.007  | 31,326,212.4   | 825,946,708.37098   |
| 2057 | 11    | 1,045,857,430.975 |              | 143,841,090.503 | 11,870,502.269  | 32,527,444.8   | 857,618,393.44669   |
| 2057 | 12    | 1,550,518,677.537 |              | 388,076,827.588 | 865,836.341     | 42,445,965.6   | 1,119,130,048.02402 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 1995 | 1     |                   |           |           |          |          |           |           |
| 1995 | 2     | 1,596,350,328.226 | 139,081   | 108,744.4 | 0.0      | 23,089.6 | 90,188.0  | 222,022.0 |
| 1995 | 3     | 1,254,741,611.824 | 139,035   | 74,324.5  | 0.0      | 20,334.1 | 79,794.4  | 174,453.0 |
| 1995 | 4     | 968,155,387.317   | 138,956   | 27,320.4  | 904.5    | 21,467.2 | 84,839.0  | 134,531.0 |
| 1995 | 5     | 905,534,412.926   | 139,003   | 9,782.3   | 3,671.1  | 22,464.1 | 89,954.4  | 125,872.0 |
| 1995 | 6     | 960,439,592.033   | 139,129   | 626.6     | 16,538.6 | 24,091.1 | 92,368.6  | 133,625.0 |
| 1995 | 7     | 1,379,927,028.269 | 139,232   | 0.0       | 39,348.8 | 25,568.1 | 127,213.1 | 192,130.0 |
| 1995 | 8     | 1,533,806,987.231 | 139,483   | 0.0       | 61,481.5 | 28,085.4 | 124,373.1 | 213,940.0 |
| 1995 | 9     | 915,975,408.135   | 139,721   | 78.3      | 48,420.7 | 16,467.8 | 63,014.2  | 127,981.0 |
| 1995 | 10    | 895,857,463.572   | 139,866   | 2,078.5   | 8,953.8  | 23,784.7 | 90,483.0  | 125,300.0 |
| 1995 | 11    | 1,498,882,470.134 | 140,041   | 31,451.6  | 833.0    | 32,576.1 | 145,044.3 | 209,905.0 |
| 1995 | 12    | 1,967,901,146.642 | 140,41    | 77,640.1  | 56.9     | 33,328.3 | 165,287.7 | 276,313.0 |
| 1996 | 1     | 2,076,798,617.868 | 140,797   | 126,156.4 | 0.0      | 34,174.6 | 132,075.9 | 292,407.0 |
| 1996 | 2     | 1,961,229,679.535 | 140,265   | 125,279.0 | 0.0      | 30,338.3 | 119,474.6 | 275,091.9 |
| 1996 | 3     | 1,540,773,591.602 | 140,887   | 86,350.8  | 0.0      | 27,506.6 | 103,217.6 | 217,075.0 |
| 1996 | 4     | 1,352,304,482.665 | 140,586   | 59,536.3  | 1,106.0  | 25,508.0 | 103,964.7 | 190,115.1 |
| 1996 | 5     | 960,242,182.051   | 140,51    | 12,991.2  | 11,034.1 | 24,060.8 | 86,837.5  | 134,923.6 |
| 1996 | 6     | 988,971,148.581   | 140,617   | 1,788.1   | 23,768.4 | 24,522.2 | 88,987.5  | 139,066.2 |
| 1996 | 7     | 1,190,706,251.200 | 140,661   | 0.0       | 45,569.5 | 25,841.4 | 96,075.0  | 167,485.9 |
| 1996 | 8     | 1,142,380,692.841 | 140,725   | 0.0       | 41,895.1 | 25,391.1 | 93,475.3  | 160,761.5 |
| 1996 | 9     | 1,112,761,645.720 | 140,996   | 0.0       | 36,331.4 | 24,877.4 | 95,686.2  | 156,894.9 |
| 1996 | 10    | 879,169,425.208   | 141,077   | 3,982.7   | 6,662.1  | 22,836.2 | 90,549.7  | 124,030.6 |
| 1996 | 11    | 1,080,485,228.784 | 141,356   | 32,541.4  | 946.2    | 24,690.2 | 94,555.3  | 152,733.1 |
| 1996 | 12    | 1,639,880,269.112 | 141,651   | 82,197.3  | 226.5    | 32,277.3 | 117,589.5 | 232,290.7 |
| 1997 | 1     | 1,872,862,109.568 | 141,83    | 92,356.9  | 121.1    | 36,360.5 | 136,789.6 | 265,628.0 |
| 1997 | 2     | 1,697,515,457.667 | 141,839   | 112,051.2 | 100.4    | 28,279.0 | 100,343.3 | 240,773.9 |
| 1997 | 3     | 1,310,969,527.873 | 141,572   | 61,504.8  | 426.3    | 25,662.3 | 98,003.1  | 185,596.6 |
| 1997 | 4     | 1,181,396,423.418 | 141,364   | 39,201.4  | 972.5    | 25,246.4 | 101,586.7 | 167,006.9 |
| 1997 | 5     | 971,922,643.178   | 141,345   | 18,017.3  | 1,118.2  | 24,277.6 | 93,963.4  | 137,376.4 |
| 1997 | 6     | 898,196,542.170   | 141,476   | 2,722.1   | 8,249.4  | 25,814.2 | 90,287.5  | 127,073.3 |
| 1997 | 7     | 1,173,407,879.023 | 141,515   | 0.0       | 38,894.8 | 26,665.3 | 100,494.8 | 166,054.8 |
| 1997 | 8     | 1,213,288,242.802 | 141,811   | 0.0       | 47,988.9 | 26,509.3 | 97,559.5  | 172,057.6 |
| 1997 | 9     | 1,055,187,091.319 | 141,92    | 0.0       | 26,028.4 | 25,957.8 | 97,765.9  | 149,752.2 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 1997 | 10    | 861,173,070.964   | 141.988   | 2,906.5   | 8,182.7  | 23,659.9 | 87,527.1  | 122,276.2 |
| 1997 | 11    | 1,110,993,058.726 | 151.125   | 42,174.0  | 2,471.8  | 25,970.6 | 97,282.4  | 167,898.8 |
| 1997 | 12    | 1,748,100,828.390 | 138.582   | 77,465.1  | 0.0      | 32,254.1 | 132,536.1 | 242,255.3 |
| 1998 | 1     | 1,816,033,319.322 | 142.74    | 86,655.8  | 0.0      | 39,110.0 | 133,454.8 | 259,220.6 |
| 1998 | 2     | 1,553,672,256.108 | 142.471   | 91,402.8  | 0.0      | 28,595.9 | 101,354.6 | 221,353.2 |
| 1998 | 3     | 1,393,328,817.648 | 142.614   | 73,279.2  | 5.5      | 26,324.1 | 99,099.5  | 198,708.2 |
| 1998 | 4     | 1,159,163,821.785 | 142.771   | 42,822.9  | 6,934.2  | 25,963.8 | 89,774.1  | 165,495.0 |
| 1998 | 5     | 927,021,092.213   | 142.28    | 6,375.3   | 3,865.2  | 23,465.0 | 98,191.1  | 131,896.6 |
| 1998 | 6     | 1,003,710,298.966 | 142.257   | 141.3     | 22,194.2 | 26,636.3 | 93,813.1  | 142,784.8 |
| 1998 | 7     | 1,243,692,577.793 | 142.397   | 61.6      | 47,648.9 | 27,594.0 | 101,793.6 | 177,098.1 |
| 1998 | 8     | 1,250,202,535.729 | 142.602   | 0.0       | 49,411.3 | 27,233.6 | 101,636.5 | 178,281.4 |
| 1998 | 9     | 1,219,361,559.791 | 142.455   | 0.0       | 47,975.0 | 26,959.0 | 98,770.1  | 173,704.2 |
| 1998 | 10    | 994,519,240.341   | 142.643   | 1,189.3   | 29,303.9 | 24,269.3 | 87,098.6  | 141,861.2 |
| 1998 | 11    | 1,079,235,975.815 | 142.896   | 24,262.8  | 2,179.3  | 25,488.0 | 102,288.4 | 154,218.5 |
| 1998 | 12    | 1,459,519,909.401 | 143.048   | 46,059.6  | 459.1    | 34,331.7 | 127,931.1 | 208,781.4 |
| 1999 | 1     | 1,996,281,053.374 | 143.197   | 121,067.1 | 203.2    | 39,021.2 | 125,570.0 | 285,861.5 |
| 1999 | 2     | 1,466,155,153.386 | 143.168   | 84,276.8  | 0.0      | 28,093.9 | 97,535.8  | 209,906.5 |
| 1999 | 3     | 1,560,206,994.705 | 143.337   | 100,900.0 | 0.0      | 26,218.1 | 96,517.2  | 223,635.4 |
| 1999 | 4     | 1,223,541,450.470 | 143.195   | 52,146.8  | 1,626.5  | 25,973.1 | 95,458.6  | 175,205.0 |
| 1999 | 5     | 866,545,204.559   | 142.917   | 6,252.6   | 5,482.9  | 24,382.5 | 87,726.0  | 123,844.0 |
| 1999 | 6     | 977,527,859.197   | 142.951   | 0.0       | 25,520.2 | 25,924.8 | 88,293.6  | 139,738.6 |
| 1999 | 7     | 1,267,808,366.269 | 142.955   | 0.0       | 59,546.4 | 27,263.7 | 94,429.5  | 181,239.5 |
| 1999 | 8     | 1,387,451,366.655 | 143.05    | 0.0       | 74,055.2 | 26,677.5 | 97,742.1  | 198,474.9 |
| 1999 | 9     | 1,126,778,698.663 | 143.099   | 25.5      | 37,679.7 | 26,795.5 | 96,740.2  | 161,240.9 |
| 1999 | 10    | 900,664,946.978   | 143.243   | 2,840.9   | 7,835.3  | 24,362.2 | 93,975.5  | 129,013.9 |
| 1999 | 11    | 1,048,740,561.235 | 143.398   | 23,543.2  | 436.3    | 26,420.4 | 99,987.5  | 150,387.3 |
| 1999 | 12    | 1,501,399,041.609 | 143.574   | 58,782.7  | 0.0      | 34,890.5 | 121,888.7 | 215,561.9 |
| 2000 | 1     | 1,922,441,095.719 | 143.869   | 109,360.5 | 0.0      | 38,882.6 | 128,336.6 | 276,579.7 |
| 2000 | 2     | 1,921,954,652.827 | 143.934   | 145,360.4 | 0.0      | 28,812.7 | 102,461.5 | 276,634.6 |
| 2000 | 3     | 1,315,910,191.712 | 143.862   | 56,252.6  | 360.8    | 27,156.6 | 105,539.5 | 189,309.5 |
| 2000 | 4     | 1,075,373,007.298 | 143.461   | 30,955.3  | 835.3    | 27,410.7 | 95,072.9  | 154,274.1 |
| 2000 | 5     | 998,023,787.944   | 143.434   | 11,543.8  | 9,110.8  | 24,894.0 | 97,602.0  | 143,150.5 |
| 2000 | 6     | 1,048,146,689.183 | 143.303   | 26.2      | 25,308.5 | 27,364.2 | 97,503.7  | 150,202.6 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2000 | 7     | 1,220,915,630.365 | 143.298   | 0.0       | 46,530.1 | 28,841.8 | 99,582.8  | 174,954.8 |
| 2000 | 8     | 1,185,966,961.335 | 143.438   | 0.0       | 41,014.5 | 27,808.5 | 101,289.7 | 170,112.7 |
| 2000 | 9     | 1,146,883,663.901 | 143.541   | 133.9     | 35,824.0 | 27,793.1 | 100,873.8 | 164,624.8 |
| 2000 | 10    | 981,004,259.703   | 143.672   | 7,436.3   | 12,443.9 | 25,407.9 | 95,654.7  | 140,942.8 |
| 2000 | 11    | 1,034,520,178.593 | 143.791   | 25,438.3  | 1,724.4  | 27,230.4 | 94,361.6  | 148,754.7 |
| 2000 | 12    | 1,842,378,621.053 | 144.226   | 112,688.5 | 0.0      | 34,780.9 | 118,249.5 | 265,718.9 |
| 2001 | 1     | 2,442,094,256.811 | 144.223   | 170,257.7 | 0.0      | 39,030.8 | 142,917.7 | 352,206.2 |
| 2001 | 2     | 1,814,615,610.683 | 144.273   | 133,012.0 | 0.0      | 30,879.6 | 97,908.4  | 261,800.0 |
| 2001 | 3     | 1,520,046,059.159 | 144.119   | 92,355.2  | 0.0      | 27,224.6 | 99,487.8  | 219,067.5 |
| 2001 | 4     | 1,325,045,263.860 | 143.978   | 63,086.9  | 6,946.8  | 27,122.1 | 93,621.6  | 190,777.4 |
| 2001 | 5     | 979,761,380.374   | 143.932   | 9,677.2   | 15,497.1 | 25,058.6 | 90,786.1  | 141,019.0 |
| 2001 | 6     | 977,736,682.215   | 143.849   | 573.8     | 16,708.5 | 27,130.9 | 96,233.3  | 140,646.4 |
| 2001 | 7     | 1,193,277,616.734 | 143.853   | 0.0       | 41,707.7 | 29,025.4 | 100,923.5 | 171,656.6 |
| 2001 | 8     | 1,290,724,565.878 | 143.911   | 0.0       | 60,553.5 | 28,254.3 | 96,941.6  | 185,749.5 |
| 2001 | 9     | 1,220,538,371.802 | 144.012   | 27.6      | 47,533.1 | 27,780.6 | 100,430.8 | 175,772.2 |
| 2001 | 10    | 976,700,738.181   | 144.138   | 5,688.4   | 11,560.2 | 25,590.9 | 97,940.1  | 140,779.7 |
| 2001 | 11    | 1,151,266,076.803 | 144.214   | 27,310.7  | 3,405.3  | 27,808.4 | 107,504.3 | 166,028.7 |
| 2001 | 12    | 1,414,092,324.520 | 144.447   | 35,542.9  | 107.7    | 36,706.9 | 131,903.9 | 204,261.4 |
| 2002 | 1     | 2,073,169,675.913 | 144.776   | 122,384.5 | 0.0      | 41,363.6 | 136,397.2 | 300,145.2 |
| 2002 | 2     | 1,672,431,977.046 | 144.635   | 100,791.2 | 0.0      | 30,654.9 | 110,446.1 | 241,892.2 |
| 2002 | 3     | 1,604,873,500.726 | 144.57    | 89,979.7  | 218.3    | 29,087.0 | 112,731.5 | 232,016.6 |
| 2002 | 4     | 1,295,819,825.432 | 144.471   | 48,027.2  | 3,319.5  | 29,241.8 | 106,619.9 | 187,208.4 |
| 2002 | 5     | 946,106,018.862   | 144.097   | 12,709.3  | 9,413.7  | 27,048.2 | 87,159.8  | 136,331.0 |
| 2002 | 6     | 1,103,276,437.539 | 144.17    | 7,362.9   | 24,848.0 | 27,332.1 | 99,516.3  | 159,059.4 |
| 2002 | 7     | 1,356,212,003.080 | 144.163   | 0.0       | 56,820.4 | 29,725.2 | 108,970.1 | 195,515.6 |
| 2002 | 8     | 1,425,290,539.744 | 144.235   | 0.0       | 72,484.3 | 29,679.4 | 103,413.2 | 205,576.8 |
| 2002 | 9     | 1,301,868,519.212 | 144.234   | 0.0       | 63,763.1 | 28,900.7 | 95,109.9  | 187,773.7 |
| 2002 | 10    | 1,006,367,078.606 | 144.277   | 2,750.1   | 25,758.5 | 25,451.3 | 91,235.8  | 145,195.6 |
| 2002 | 11    | 1,119,831,951.270 | 144.47    | 33,961.9  | 2,568.7  | 27,501.9 | 97,749.6  | 161,782.1 |
| 2002 | 12    | 1,840,687,068.060 | 144.696   | 102,281.3 | 340.6    | 36,182.5 | 127,535.7 | 266,340.1 |
| 2003 | 1     | 2,194,397,728.135 | 144.903   | 124,379.9 | 0.0      | 40,603.3 | 152,991.6 | 317,974.8 |
| 2003 | 2     | 2,098,001,263.393 | 144.848   | 172,553.9 | 0.0      | 32,246.2 | 99,091.2  | 303,891.3 |
| 2003 | 3     | 1,707,984,851.417 | 144.7     | 116,199.1 | 0.0      | 27,801.0 | 103,145.3 | 247,145.4 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2003 | 4     | 1,143,625,004.328 | 144.415   | 30,528.0  | 2,861.4  | 27,826.8 | 103,940.4 | 165,156.6 |
| 2003 | 5     | 934,722,031.196   | 144.25    | 6,601.7   | 7,126.7  | 26,501.7 | 94,603.6  | 134,833.7 |
| 2003 | 6     | 947,952,592.993   | 144.177   | 0.0       | 9,665.9  | 27,863.6 | 99,143.5  | 136,673.0 |
| 2003 | 7     | 1,211,800,499.549 | 144.13    | 0.0       | 40,569.4 | 29,554.5 | 104,533.0 | 174,656.8 |
| 2003 | 8     | 1,243,866,913.854 | 144.29    | 0.0       | 48,572.7 | 28,786.2 | 102,118.6 | 179,477.6 |
| 2003 | 9     | 1,260,932,394.347 | 144.411   | 0.0       | 46,627.1 | 28,758.8 | 106,706.6 | 182,092.5 |
| 2003 | 10    | 967,079,428.833   | 144.406   | 7,671.1   | 6,761.6  | 26,574.3 | 98,645.0  | 139,652.1 |
| 2003 | 11    | 1,060,485,719.823 | 144.466   | 21,190.2  | 1,593.0  | 28,129.2 | 102,291.7 | 153,204.1 |
| 2003 | 12    | 1,727,644,432.171 | 144.85    | 74,941.4  | 182.3    | 36,491.9 | 138,633.7 | 250,249.3 |
| 2004 | 1     | 2,228,905,324.751 | 145.096   | 123,405.7 | 145.2    | 41,622.5 | 158,231.9 | 323,405.2 |
| 2004 | 2     | 2,116,278,744.322 | 144.846   | 159,851.5 | 48.6     | 32,815.8 | 113,818.6 | 306,534.5 |
| 2004 | 3     | 1,593,277,527.989 | 144.789   | 92,339.8  | 435.3    | 29,345.2 | 108,568.7 | 230,689.1 |
| 2004 | 4     | 1,292,407,886.915 | 144.67    | 50,838.3  | 2,404.3  | 28,796.8 | 104,933.3 | 186,972.6 |
| 2004 | 5     | 1,010,218,988.771 | 144.359   | 12,437.1  | 13,232.4 | 26,238.7 | 93,926.1  | 145,834.2 |
| 2004 | 6     | 1,153,825,211.460 | 144.117   | 863.9     | 36,364.0 | 27,778.5 | 101,279.4 | 166,285.8 |
| 2004 | 7     | 1,290,174,059.443 | 144.037   | 0.0       | 46,407.8 | 29,576.2 | 109,848.8 | 185,832.8 |
| 2004 | 8     | 1,207,890,210.043 | 144.066   | 0.0       | 45,981.9 | 29,261.8 | 98,772.2  | 174,015.9 |
| 2004 | 9     | 1,160,797,780.415 | 144.081   | 0.0       | 40,329.0 | 27,831.5 | 99,088.4  | 167,248.9 |
| 2004 | 10    | 977,278,137.334   | 144.159   | 2,122.4   | 11,996.0 | 25,744.6 | 101,020.4 | 140,883.4 |
| 2004 | 11    | 1,000,907,938.487 | 144.36    | 13,561.7  | 2,378.3  | 28,039.8 | 100,511.3 | 144,491.1 |
| 2004 | 12    | 1,636,977,562.352 | 144.623   | 62,852.4  | 347.1    | 36,286.7 | 137,258.3 | 236,744.6 |
| 2005 | 1     | 2,070,072,946.860 | 144.9     | 108,213.5 | 0.0      | 40,825.2 | 150,914.8 | 299,953.6 |
| 2005 | 2     | 1,949,462,576.602 | 144.415   | 131,829.2 | 0.0      | 31,795.4 | 117,907.1 | 281,531.6 |
| 2005 | 3     | 1,771,887,800.412 | 145.259   | 112,203.8 | 0.0      | 29,801.5 | 115,377.3 | 257,382.7 |
| 2005 | 4     | 1,308,930,626.746 | 144.955   | 51,719.2  | 1,092.4  | 29,358.2 | 107,566.3 | 189,736.0 |
| 2005 | 5     | 1,021,337,500.520 | 144.302   | 14,763.3  | 3,981.2  | 26,281.5 | 102,355.0 | 147,381.0 |
| 2005 | 6     | 1,069,231,422.594 | 144.342   | 2,037.7   | 23,469.4 | 28,544.1 | 100,283.7 | 154,335.0 |
| 2005 | 7     | 1,333,320,854.762 | 144.274   | 0.0       | 66,621.4 | 29,341.5 | 96,400.6  | 192,363.5 |
| 2005 | 8     | 1,460,080,863.337 | 144.231   | 0.0       | 85,030.4 | 27,907.6 | 97,651.0  | 210,588.9 |
| 2005 | 9     | 1,336,065,753.064 | 144.191   | 0.0       | 63,970.7 | 27,471.3 | 101,206.6 | 192,648.7 |
| 2005 | 10    | 1,033,743,952.074 | 144.223   | 1,261.0   | 29,388.4 | 25,377.3 | 93,063.0  | 149,089.7 |
| 2005 | 11    | 1,120,136,249.385 | 144.419   | 31,996.5  | 1,861.2  | 27,471.0 | 100,440.3 | 161,769.0 |
| 2005 | 12    | 1,900,439,239.220 | 144.641   | 109,032.7 | 275.1    | 35,556.7 | 130,016.9 | 274,881.4 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2006 | 1     | 2,207,723,455.085 | 144.83    | 109,619.2 | 0.0      | 39,695.5 | 170,429.9 | 319,744.6 |
| 2006 | 2     | 1,804,836,407.666 | 144.53    | 93,100.2  | 0.0      | 32,924.6 | 134,828.2 | 260,853.0 |
| 2006 | 3     | 1,626,827,484.432 | 145.013   | 106,721.0 | 253.4    | 30,818.8 | 98,118.0  | 235,911.1 |
| 2006 | 4     | 1,262,415,619.812 | 144.56    | 54,335.4  | 3,002.3  | 26,134.1 | 99,023.1  | 182,494.8 |
| 2006 | 5     | 940,154,584.148   | 144.258   | 4,417.0   | 5,018.2  | 25,484.5 | 100,705.1 | 135,624.8 |
| 2006 | 6     | 1,057,778,073.827 | 144.12    | 847.0     | 18,864.7 | 27,279.1 | 105,456.2 | 152,447.0 |
| 2006 | 7     | 1,271,276,787.077 | 144.118   | 0.0       | 46,542.6 | 29,175.0 | 107,496.3 | 183,213.9 |
| 2006 | 8     | 1,424,173,576.063 | 144.248   | 0.0       | 74,420.9 | 28,330.7 | 102,682.5 | 205,434.2 |
| 2006 | 9     | 1,255,081,860.968 | 144.269   | 204.0     | 47,280.8 | 27,757.6 | 105,827.0 | 181,069.4 |
| 2006 | 10    | 971,237,941.142   | 144.313   | 8,413.7   | 6,641.3  | 25,710.2 | 99,397.1  | 140,162.3 |
| 2006 | 11    | 1,232,087,453.734 | 144.545   | 46,467.8  | 459.2    | 27,176.4 | 103,988.7 | 178,092.1 |
| 2006 | 12    | 1,774,977,717.670 | 144.554   | 73,209.3  | 479.5    | 35,035.5 | 147,855.8 | 256,580.1 |
| 2007 | 1     | 1,894,406,857.024 | 144.815   | 79,057.5  | 52.1     | 39,462.1 | 155,766.9 | 274,338.5 |
| 2007 | 2     | 2,214,653,079.541 | 144.843   | 159,518.2 | 0.0      | 32,862.1 | 128,396.7 | 320,777.0 |
| 2007 | 3     | 1,845,838,373.912 | 144.494   | 134,027.7 | 399.0    | 27,724.1 | 104,561.7 | 266,712.6 |
| 2007 | 4     | 1,270,902,877.673 | 144.179   | 46,117.0  | 5,178.1  | 26,614.1 | 105,328.2 | 183,237.5 |
| 2007 | 5     | 1,045,100,110.539 | 143.841   | 17,460.9  | 9,008.6  | 24,730.4 | 99,128.4  | 150,328.2 |
| 2007 | 6     | 1,145,911,905.275 | 143.743   | 714.4     | 31,710.3 | 26,012.0 | 106,280.1 | 164,716.8 |
| 2007 | 7     | 1,271,357,530.661 | 143.666   | 0.0       | 51,745.8 | 27,973.6 | 102,931.4 | 182,650.9 |
| 2007 | 8     | 1,344,388,712.926 | 143.97    | 0.0       | 60,969.3 | 26,967.3 | 105,615.0 | 193,551.6 |
| 2007 | 9     | 1,445,614,073.190 | 144.118   | 0.0       | 67,440.2 | 26,827.9 | 114,070.9 | 208,339.0 |
| 2007 | 10    | 1,068,750,060.727 | 144.087   | 1,479.8   | 31,333.9 | 25,450.8 | 95,728.6  | 153,993.0 |
| 2007 | 11    | 1,140,305,733.765 | 144.181   | 29,005.2  | 5,332.2  | 26,422.6 | 103,650.4 | 164,410.4 |
| 2007 | 12    | 1,690,170,524.830 | 144.542   | 81,932.7  | 0.0      | 33,587.1 | 128,780.8 | 244,300.6 |
| 2008 | 1     | 2,114,912,301.053 | 144.825   | 114,019.2 | 0.0      | 36,207.7 | 156,065.3 | 306,292.2 |
| 2008 | 2     | 2,006,611,403.691 | 144.69    | 138,728.1 | 0.0      | 28,897.0 | 122,711.5 | 290,336.6 |
| 2008 | 3     | 1,805,065,064.247 | 144.365   | 118,297.5 | 0.0      | 27,235.4 | 115,055.3 | 260,588.2 |
| 2008 | 4     | 1,341,179,216.324 | 143.988   | 53,234.3  | 253.7    | 26,666.1 | 112,959.6 | 193,113.7 |
| 2008 | 5     | 961,256,323.062   | 143.799   | 11,816.5  | 3,305.3  | 24,361.1 | 98,744.7  | 138,227.7 |
| 2008 | 6     | 1,065,972,952.474 | 143.71    | 800.6     | 19,457.8 | 25,373.4 | 107,559.1 | 153,191.0 |
| 2008 | 7     | 1,245,205,919.785 | 143.789   | 0.0       | 40,326.6 | 27,187.8 | 111,532.5 | 179,046.9 |
| 2008 | 8     | 1,302,137,681.462 | 143.832   | 0.0       | 49,245.9 | 26,895.1 | 111,148.1 | 187,289.1 |
| 2008 | 9     | 1,237,861,165.757 | 143.855   | 0.0       | 46,068.7 | 26,398.4 | 105,605.4 | 178,072.5 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2008 | 10    | 992,899,481.527   | 143.884   | 1,920.0   | 17,586.2 | 23,474.0 | 99,882.2  | 142,862.3 |
| 2008 | 11    | 1,204,822,669.840 | 144.121   | 37,807.6  | 1,139.3  | 25,246.3 | 109,447.0 | 173,640.2 |
| 2008 | 12    | 2,004,950,168.621 | 144.407   | 122,925.7 | 0.0      | 32,914.0 | 133,689.2 | 289,528.8 |
| 2009 | 1     | 2,244,456,669.805 | 144.472   | 135,193.9 | 0.0      | 35,659.3 | 153,408.0 | 324,261.1 |
| 2009 | 2     | 2,229,732,803.426 | 144.302   | 165,051.4 | 0.0      | 27,981.0 | 128,722.5 | 321,754.9 |
| 2009 | 3     | 1,700,254,596.672 | 144.126   | 106,556.9 | 711.7    | 26,511.1 | 111,271.2 | 245,050.9 |
| 2009 | 4     | 1,269,251,033.015 | 143.754   | 40,695.7  | 536.0    | 25,253.2 | 115,975.0 | 182,459.9 |
| 2009 | 5     | 1,006,668,358.844 | 143.405   | 10,512.3  | 10,260.4 | 24,260.5 | 99,328.1  | 144,361.3 |
| 2009 | 6     | 1,054,682,149.731 | 143.404   | 1,013.5   | 20,559.1 | 24,445.1 | 105,227.9 | 151,245.6 |
| 2009 | 7     | 1,213,794,441.923 | 143.215   | 0.0       | 35,151.0 | 26,045.6 | 112,637.0 | 173,833.6 |
| 2009 | 8     | 1,187,851,010.665 | 143.272   | 0.0       | 36,464.0 | 25,914.2 | 107,807.5 | 170,185.8 |
| 2009 | 9     | 1,181,452,121.348 | 143.258   | 0.0       | 35,156.6 | 25,038.5 | 109,057.3 | 169,252.5 |
| 2009 | 10    | 1,004,137,336.330 | 143.276   | 7,381.2   | 12,578.7 | 23,447.8 | 100,461.2 | 143,868.8 |
| 2009 | 11    | 1,149,238,021.196 | 143.42    | 29,440.7  | 518.3    | 24,496.0 | 110,368.8 | 164,823.7 |
| 2009 | 12    | 1,653,206,192.170 | 143.633   | 77,826.3  | 33.6     | 32,280.5 | 127,314.6 | 237,455.0 |
| 2010 | 1     | 2,438,469,823.720 | 143.805   | 160,935.6 | 0.0      | 30,153.1 | 159,575.4 | 350,664.2 |
| 2010 | 2     | 2,121,714,378.112 | 143.788   | 159,047.9 | 0.0      | 23,939.9 | 122,089.3 | 305,077.1 |
| 2010 | 3     | 1,945,592,070.632 | 143.618   | 131,291.4 | 0.0      | 22,713.4 | 125,417.3 | 279,422.0 |
| 2010 | 4     | 1,218,668,892.723 | 143.153   | 30,520.0  | 4,108.4  | 22,848.7 | 116,979.0 | 174,456.1 |
| 2010 | 5     | 945,395,138.758   | 142.803   | 7,899.4   | 6,430.0  | 20,680.5 | 99,995.4  | 135,005.3 |
| 2010 | 6     | 1,164,318,712.651 | 142.743   | 1,276.7   | 31,267.7 | 21,204.6 | 112,449.3 | 166,198.3 |
| 2010 | 7     | 1,429,758,865.049 | 142.667   | 0.0       | 55,573.4 | 23,068.0 | 125,338.0 | 203,979.4 |
| 2010 | 8     | 1,489,051,092.180 | 142.742   | 0.0       | 64,892.2 | 23,373.5 | 124,284.5 | 212,550.1 |
| 2010 | 9     | 1,288,807,601.600 | 142.47    | 0.0       | 46,108.3 | 22,870.7 | 114,637.4 | 183,616.4 |
| 2010 | 10    | 1,008,016,131.183 | 142.457   | 2,470.7   | 17,196.9 | 20,509.2 | 103,422.1 | 143,599.0 |
| 2010 | 11    | 1,081,280,184.164 | 142.699   | 26,335.1  | 1,658.3  | 21,072.1 | 105,232.1 | 154,297.6 |
| 2010 | 12    | 1,914,121,373.714 | 142.708   | 107,342.9 | 0.0      | 27,306.2 | 138,511.4 | 273,160.4 |
| 2011 | 1     | 2,583,180,891.853 | 143.185   | 173,510.2 | 0.0      | 28,250.2 | 168,112.4 | 369,872.8 |
| 2011 | 2     | 2,029,311,107.997 | 142.735   | 157,514.2 | 0.0      | 22,958.0 | 109,181.6 | 289,653.7 |
| 2011 | 3     | 1,497,373,823.206 | 142.867   | 82,560.3  | 265.4    | 19,996.0 | 111,103.6 | 213,925.3 |
| 2011 | 4     | 1,237,322,480.358 | 142.173   | 52,493.5  | 2,534.5  | 19,526.2 | 101,359.7 | 175,913.8 |
| 2011 | 5     | 964,228,311.888   | 141.679   | 10,109.3  | 7,567.0  | 18,400.9 | 100,533.7 | 136,610.9 |
| 2011 | 6     | 1,139,615,319.907 | 141.463   | 3,239.4   | 28,214.1 | 19,198.3 | 110,561.6 | 161,213.4 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2011 | 7     | 1,273,345,535.298 | 141.398   | 0.0       | 44,211.5 | 21,310.0 | 114,527.1 | 180,048.5 |
| 2011 | 8     | 1,446,915,636.857 | 141.531   | 0.0       | 65,609.3 | 20,833.0 | 118,341.1 | 204,783.4 |
| 2011 | 9     | 1,195,311,998.358 | 141.286   | 36.1      | 39,159.0 | 20,643.8 | 109,042.0 | 168,880.9 |
| 2011 | 10    | 922,740,827.313   | 141.18    | 6,331.3   | 6,967.8  | 18,443.8 | 98,529.6  | 130,272.6 |
| 2011 | 11    | 1,121,424,115.483 | 141.32    | 31,626.9  | 161.1    | 19,143.4 | 107,548.3 | 158,479.7 |
| 2011 | 12    | 1,549,999,787.986 | 141.5     | 57,864.8  | 242.1    | 25,281.2 | 135,936.9 | 219,325.0 |
| 2012 | 1     | 1,936,457,076.255 | 141.565   | 101,296.4 | 0.0      | 27,494.4 | 145,343.7 | 274,134.5 |
| 2012 | 2     | 1,721,183,448.947 | 141.707   | 105,948.7 | 0.0      | 21,057.3 | 116,897.7 | 243,903.7 |
| 2012 | 3     | 1,409,422,938.409 | 141.335   | 75,701.6  | 1,458.9  | 19,658.1 | 102,382.2 | 199,200.8 |
| 2012 | 4     | 977,120,699.812   | 140.895   | 15,909.9  | 6,070.0  | 18,652.8 | 97,038.7  | 137,671.4 |
| 2012 | 5     | 970,622,977.484   | 140.79    | 10,811.9  | 8,833.3  | 17,256.6 | 99,752.1  | 136,654.0 |
| 2012 | 6     | 1,095,117,537.035 | 140.611   | 54.5      | 26,025.0 | 18,935.5 | 108,970.6 | 153,985.6 |
| 2012 | 7     | 1,374,144,445.155 | 140.697   | 0.0       | 58,246.7 | 20,766.9 | 114,324.4 | 193,338.0 |
| 2012 | 8     | 1,329,610,153.223 | 140.645   | 0.0       | 57,123.1 | 19,970.3 | 109,909.7 | 187,003.0 |
| 2012 | 9     | 1,199,271,521.107 | 140.641   | 129.8     | 40,126.1 | 19,745.1 | 108,665.7 | 168,666.7 |
| 2012 | 10    | 940,817,771.802   | 140.571   | 8,565.4   | 9,603.5  | 17,671.6 | 96,411.2  | 132,251.7 |
| 2012 | 11    | 1,183,200,730.212 | 140.781   | 44,778.6  | 1,240.2  | 18,654.6 | 101,898.8 | 166,572.2 |
| 2012 | 12    | 1,657,436,622.217 | 140.909   | 73,233.7  | 0.0      | 24,090.0 | 136,224.0 | 233,547.7 |
| 2013 | 1     | 1,989,467,918.323 | 141.093   | 114,813.2 | 0.0      | 24,780.4 | 141,106.4 | 280,700.0 |
| 2013 | 2     | 1,890,739,839.475 | 140.913   | 132,611.6 | 0.0      | 18,098.9 | 115,719.3 | 266,429.8 |
| 2013 | 3     | 1,766,153,678.377 | 140.755   | 115,487.7 | 0.0      | 17,736.8 | 115,370.4 | 248,595.0 |
| 2013 | 4     | 1,476,357,193.187 | 140.501   | 74,658.5  | 2,842.4  | 17,711.9 | 112,216.8 | 207,429.7 |
| 2013 | 5     | 925,592,889.859   | 140.166   | 9,016.4   | 7,622.1  | 16,260.0 | 96,838.1  | 129,736.7 |
| 2013 | 6     | 1,059,271,380.168 | 139.896   | 1,574.4   | 27,895.6 | 16,828.4 | 101,889.4 | 148,187.8 |
| 2013 | 7     | 1,254,262,697.725 | 139.651   | 0.0       | 48,556.7 | 17,839.8 | 108,762.5 | 175,159.0 |
| 2013 | 8     | 1,222,492,848.655 | 139.694   | 0.0       | 45,496.0 | 17,643.9 | 107,635.0 | 170,774.9 |
| 2013 | 9     | 1,156,875,156.672 | 139.623   | 0.0       | 39,396.0 | 17,247.7 | 104,882.7 | 161,526.4 |
| 2013 | 10    | 925,313,385.601   | 139.665   | 2,188.9   | 15,542.3 | 15,692.7 | 95,810.0  | 129,233.9 |
| 2013 | 11    | 1,121,631,236.194 | 139.889   | 36,942.4  | 2,249.0  | 16,462.8 | 101,249.6 | 156,903.9 |
| 2013 | 12    | 1,809,375,873.365 | 140.119   | 99,940.6  | 66.9     | 21,616.5 | 131,904.0 | 253,527.9 |
| 2014 | 1     | 2,308,763,001.618 | 140.271   | 130,289.6 | 128.1    | 23,387.8 | 170,046.9 | 323,852.5 |
| 2014 | 2     | 2,318,955,621.703 | 140.091   | 173,093.9 | 0.0      | 19,172.2 | 132,598.7 | 324,864.8 |
| 2014 | 3     | 1,830,617,039.827 | 139.931   | 123,383.3 | 0.0      | 18,201.1 | 114,575.7 | 256,160.1 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2014 | 4     | 1,268,237,621.629 | 139,255   | 58,954.4  | 991.8    | 16,384.0 | 100,278.2 | 176,608.4 |
| 2014 | 5     | 946,682,966.697   | 138,875   | 7,282.0   | 5,381.8  | 15,303.0 | 103,503.7 | 131,470.6 |
| 2014 | 6     | 1,060,301,158.050 | 138,595   | 2,003.9   | 20,715.4 | 16,220.3 | 108,012.8 | 146,952.4 |
| 2014 | 7     | 1,238,168,389.348 | 138,447   | 0.0       | 43,771.2 | 17,414.6 | 110,234.9 | 171,420.7 |
| 2014 | 8     | 1,112,124,329.172 | 138,262   | 0.0       | 30,936.1 | 17,026.4 | 105,802.0 | 153,764.5 |
| 2014 | 9     | 1,165,669,026.203 | 138,304   | 0.0       | 36,030.7 | 16,352.9 | 108,833.1 | 161,216.7 |
| 2014 | 10    | 881,608,021.990   | 138,245   | 3,635.3   | 9,148.4  | 15,018.1 | 94,076.1  | 121,877.9 |
| 2014 | 11    | 1,115,491,457.990 | 138,492   | 40,856.5  | 858.4    | 15,638.2 | 97,133.4  | 154,486.6 |
| 2014 | 12    | 1,735,077,353.921 | 138,726   | 99,035.6  | 2.6      | 20,250.8 | 121,411.3 | 240,700.3 |
| 2015 | 1     | 2,047,111,752.664 | 138,726   | 121,244.6 | 0.0      | 20,788.8 | 141,954.2 | 283,987.6 |
| 2015 | 2     | 2,097,411,237.850 | 138,781   | 151,432.2 | 0.0      | 16,028.7 | 123,620.0 | 291,080.8 |
| 2015 | 3     | 2,041,616,647.567 | 138,747   | 158,283.0 | 0.0      | 16,034.0 | 108,951.2 | 283,268.2 |
| 2015 | 4     | 1,153,793,972.361 | 138,064   | 44,466.5  | 756.7    | 14,358.6 | 99,715.6  | 159,297.4 |
| 2015 | 5     | 912,350,444.742   | 137,608   | 10,770.1  | 8,143.6  | 12,959.1 | 93,673.9  | 125,546.7 |
| 2015 | 6     | 1,088,662,754.935 | 137,535   | 372.2     | 30,269.3 | 14,165.7 | 104,922.1 | 149,729.2 |
| 2015 | 7     | 1,230,037,562.987 | 137,529   | 0.0       | 43,048.4 | 15,630.1 | 110,487.3 | 169,165.8 |
| 2015 | 8     | 1,242,789,121.333 | 137,572   | 0.0       | 44,991.4 | 14,958.6 | 111,023.0 | 170,973.0 |
| 2015 | 9     | 1,132,635,924.836 | 137,565   | 0.0       | 34,304.2 | 15,000.3 | 106,506.6 | 155,811.1 |
| 2015 | 10    | 902,084,847.384   | 137.6     | 3,557.1   | 10,805.7 | 13,428.7 | 96,335.4  | 124,126.9 |
| 2015 | 11    | 928,910,552.808   | 137,679   | 20,578.9  | 747.6    | 13,931.4 | 92,633.6  | 127,891.5 |
| 2015 | 12    | 1,367,669,687.720 | 137,921   | 50,565.1  | 154.5    | 17,909.5 | 120,001.3 | 188,630.4 |
| 2016 | 1     | 1,760,428,969.924 | 138,019   | 82,195.2  | 0.0      | 15,022.3 | 145,755.2 | 242,972.6 |
| 2016 | 2     | 1,939,360,432.760 | 137,998   | 136,965.7 | 0.0      | 11,438.2 | 119,224.0 | 267,627.9 |
| 2016 | 3     | 1,454,493,920.034 | 137,583   | 76,922.3  | 188.9    | 11,211.0 | 111,791.4 | 200,113.6 |
| 2016 | 4     | 1,049,837,537.238 | 137,293   | 27,417.6  | 1,395.3  | 10,928.8 | 104,393.6 | 144,135.3 |
| 2016 | 5     | 847,205,376.046   | 136,978   | 9,060.1   | 7,322.6  | 9,694.3  | 89,971.4  | 116,048.5 |
| 2016 | 6     | 1,017,889,044.112 | 136,721   | 2,108.7   | 24,672.7 | 10,167.7 | 102,217.8 | 139,166.8 |
| 2016 | 7     | 1,244,159,627.816 | 136,599   | 0.0       | 46,032.5 | 11,314.5 | 112,604.0 | 169,951.0 |
| 2016 | 8     | 1,351,460,101.868 | 136,648   | 0.0       | 61,677.8 | 11,224.4 | 111,772.1 | 184,674.3 |
| 2016 | 9     | 1,291,872,972.894 | 136,648   | 0.0       | 56,834.0 | 11,030.1 | 108,667.7 | 176,531.9 |
| 2016 | 10    | 955,985,437.107   | 136,374   | 351.0     | 27,031.1 | 9,862.0  | 93,127.4  | 130,371.6 |
| 2016 | 11    | 878,726,052.082   | 136,515   | 11,531.9  | 6,494.1  | 9,990.6  | 91,942.8  | 119,959.3 |
| 2016 | 12    | 1,511,606,955.644 | 136,781   | 68,020.2  | 269.2    | 13,138.8 | 125,331.0 | 206,759.1 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|-----------|-----------|----------|----------|-----------|-----------|
| 2017 | 1     | 1,795,642,938.613 | 136.772   | 90,393.9  | 0.0      | 12,672.4 | 142,527.4 | 245,593.7 |
| 2017 | 2     | 1,430,614,715.254 | 136.525   | 75,224.1  | 0.0      | 9,558.6  | 110,532.0 | 195,314.7 |
| 2017 | 3     | 1,279,129,104.833 | 136.455   | 58,871.6  | 87.0     | 8,970.5  | 106,614.5 | 174,543.6 |
| 2017 | 4     | 1,041,332,788.996 | 135.945   | 36,286.5  | 2,048.2  | 8,715.2  | 94,514.0  | 141,564.0 |
| 2017 | 5     | 823,765,775.385   | 135.797   | 4,936.9   | 10,793.3 | 7,806.4  | 88,328.3  | 111,864.9 |
| 2017 | 6     | 945,257,057.314   | 135.604   | 1,190.3   | 20,301.1 | 8,521.4  | 98,167.8  | 128,180.6 |
| 2017 | 7     | 1,174,286,650.432 | 135.51    | 0.0       | 40,797.2 | 9,400.3  | 108,930.1 | 159,127.6 |
| 2017 | 8     | 1,200,944,640.432 | 135.496   | 0.0       | 43,562.9 | 9,280.5  | 109,879.8 | 162,723.2 |
| 2017 | 9     | 1,027,802,706.747 | 135.661   | 0.0       | 25,931.9 | 9,192.5  | 104,308.3 | 139,432.7 |
| 2017 | 10    | 876,430,135.146   | 135.483   | 650.8     | 19,103.8 | 8,097.0  | 90,889.8  | 118,741.4 |
| 2017 | 11    | 965,003,787.404   | 135.713   | 26,366.3  | 3,475.5  | 8,423.2  | 92,698.6  | 130,963.6 |
| 2017 | 12    | 1,547,238,073.847 | 135.794   | 71,409.1  | 130.7    | 11,067.6 | 127,498.2 | 210,105.6 |
| 2018 | 1     | 2,273,147,316.930 | 135.945   | 139,937.9 | 266.2    | 10,682.6 | 158,136.2 | 309,023.0 |
| 2018 | 2     | 1,818,927,613.842 | 135.758   | 112,422.2 | 445.9    | 8,581.4  | 125,484.5 | 246,934.0 |
| 2018 | 3     | 1,272,775,156.536 | 135.432   | 62,201.6  | 891.0    | 7,974.4  | 101,307.4 | 172,374.5 |
| 2018 | 4     | 1,297,139,566.205 | 135.133   | 59,753.9  | 1,026.3  | 7,374.0  | 107,132.2 | 175,286.4 |
| 2018 | 5     | 938,924,000.119   | 134.816   | 14,496.6  | 11,039.8 | 6,857.3  | 94,188.3  | 126,582.0 |
| 2018 | 6     | 1,120,107,712.084 | 134.581   | 196.1     | 37,275.6 | 7,440.4  | 105,833.1 | 150,745.2 |
| 2018 | 7     | 1,279,232,620.619 | 134.743   | 0.0       | 50,054.6 | 8,049.2  | 114,263.8 | 172,367.6 |
| 2018 | 8     | 1,198,444,361.908 | 134.62    | 0.0       | 45,705.4 | 7,981.7  | 107,647.5 | 161,334.6 |
| 2018 | 9     | 1,197,741,605.731 | 134.705   | 0.0       | 46,200.8 | 7,601.3  | 107,539.7 | 161,341.8 |
| 2018 | 10    | 989,739,593.482   | 134.459   | 3,701.2   | 28,839.8 | 6,812.7  | 93,725.7  | 133,079.4 |
| 2018 | 11    | 1,058,749,784.630 | 134.652   | 35,772.2  | 4,209.4  | 7,197.7  | 95,383.4  | 142,562.8 |
| 2018 | 12    | 1,607,197,614.966 | 134.757   | 83,096.3  | 23.4     | 9,235.4  | 124,226.0 | 216,581.1 |
| 2019 | 1     | 1,758,299,443.331 | 134.73    | 82,957.9  | 0.0      | 9,363.2  | 144,574.6 | 236,895.7 |
| 2019 | 2     | 1,727,538,541.612 | 134.491   | 103,839.7 | 0.0      | 7,162.7  | 121,336.0 | 232,338.4 |
| 2019 | 3     | 1,430,111,575.108 | 134.34    | 81,064.7  | 119.7    | 6,996.7  | 103,940.0 | 192,121.2 |
| 2019 | 4     | 1,109,539,385.450 | 134.212   | 40,722.7  | 1,399.1  | 6,454.4  | 100,337.3 | 148,913.5 |
| 2019 | 5     | 857,774,022.561   | 133.947   | 3,638.1   | 8,802.6  | 6,175.3  | 96,280.2  | 114,896.3 |
| 2019 | 6     | 999,339,125.883   | 133.735   | 56.1      | 24,488.6 | 6,531.1  | 102,570.8 | 133,646.6 |
| 2019 | 7     | 1,205,831,829.295 | 133.751   | 0.0       | 42,688.3 | 7,110.2  | 111,482.7 | 161,281.2 |
| 2019 | 8     | 1,275,655,592.784 | 133.708   | 0.0       | 49,668.9 | 7,039.6  | 113,856.9 | 170,565.4 |
| 2019 | 9     | 1,191,835,424.581 | 133.732   | 0.0       | 41,563.8 | 6,964.1  | 110,858.6 | 159,386.5 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|-----------|----------|----------|-----------|-----------|
| 2019 | 10    | 1,018,191,928.036 | 133.623    | 1,360.3   | 32,799.1 | 6,209.8  | 95,684.6  | 136,053.9 |
| 2019 | 11    | 1,019,262,981.424 | 133.614    | 31,249.7  | 2,751.3  | 6,360.9  | 95,825.9  | 136,187.8 |
| 2019 | 12    | 1,559,112,279.050 | 133.854    | 76,318.5  | 0.0      | 8,308.5  | 124,066.5 | 208,693.4 |
| 2020 | 1     | 1,661,810,524.271 | 133.843    | 67,263.3  | 255.8    | 8,761.4  | 146,141.2 | 222,421.7 |
| 2020 | 2     | 1,480,044,047.129 | 133.675    | 83,394.0  | 257.0    | 6,647.2  | 107,546.7 | 197,844.9 |
| 2020 | 3     | 1,395,120,383.385 | 133.756    | 69,469.1  | 18.4     | 6,176.5  | 110,941.7 | 186,605.7 |
| 2020 | 4     | 1,051,102,962.045 | 133.894    | 25,008.9  | 2,489.3  | 6,358.0  | 106,880.1 | 140,736.4 |
| 2020 | 5     | 930,086,120.121   | 134.115    | 19,650.0  | 3,084.3  | 5,806.1  | 96,198.0  | 124,738.5 |
| 2020 | 6     | 1,039,992,866.132 | 134.289    | 5,342.5   | 23,443.9 | 6,179.5  | 104,693.7 | 139,659.6 |
| 2020 | 7     | 1,232,516,008.780 | 134.395    | 0.0       | 44,553.8 | 6,751.8  | 114,338.4 | 165,644.0 |
| 2020 | 8     | 1,346,233,485.219 | 134.531    | 0.0       | 56,378.7 | 6,671.2  | 118,060.3 | 181,110.1 |
| 2020 | 9     | 1,193,825,112.907 | 134.624    | 0.0       | 40,733.6 | 6,605.8  | 113,378.2 | 160,717.5 |
| 2020 | 10    | 881,829,156.736   | 134.679    | 2,339.9   | 9,775.7  | 5,957.8  | 100,690.4 | 118,763.9 |
| 2020 | 11    | 895,986,656.673   | 134.749    | 16,133.6  | 1,707.6  | 6,114.4  | 96,777.7  | 120,733.3 |
| 2020 | 12    | 1,438,750,552.417 | 134.862    | 60,470.4  | 163.3    | 7,815.4  | 125,583.7 | 194,032.8 |
| 2021 | 1     | 1,919,542,594.173 | 134.725    | 98,996.4  | 0.0      | 8,670.9  | 150,943.1 | 258,610.4 |
| 2021 | 2     | 1,845,431,621.789 | 133.661    | 120,709.3 | 0.0      | 6,797.3  | 119,155.7 | 246,662.2 |
| 2021 | 3     | 1,518,872,290.264 | 134.884    | 94,293.0  | 41.6     | 6,318.5  | 104,218.4 | 204,871.6 |
| 2021 | 4     | 1,043,269,031.555 | 133.988    | 24,824.6  | 1,058.3  | 5,936.1  | 107,966.5 | 139,785.5 |
| 2021 | 5     | 895,111,149.349   | 133.667    | 12,695.4  | 4,103.2  | 5,689.6  | 97,158.7  | 119,646.8 |
| 2021 | 6     | 968,579,545.369   | 133.515    | 1,626.1   | 19,769.2 | 6,041.3  | 101,883.3 | 129,319.9 |
| 2021 | 7     | 1,185,459,911.406 | 133.417    | 58.2      | 38,682.8 | 6,470.4  | 112,949.1 | 158,160.5 |
| 2021 | 8     | 1,216,247,133.710 | 133.535    | 0.0       | 44,217.4 | 6,452.7  | 111,741.5 | 162,411.6 |
| 2021 | 9     | 1,192,055,026.019 | 133.555    | 0.0       | 42,460.1 | 6,251.0  | 110,493.8 | 159,204.9 |
| 2021 | 10    | 887,921,652.219   | 133.469    | 246.1     | 18,004.2 | 5,685.3  | 94,574.5  | 118,510.0 |
| 2021 | 11    | 951,739,701.832   | 133.616    | 20,399.6  | 4,459.6  | 5,743.6  | 96,564.9  | 127,167.7 |
| 2021 | 12    | 1,501,885,035.622 | 133.624    | 58,266.3  | 0.0      | 7,580.9  | 134,840.7 | 200,687.9 |
| 2022 | 1     | 1,708,403,252.123 | 133.681707 | 68,472.9  | 0.0      | 8,607.9  | 151,301.4 | 228,382.3 |
| 2022 | 2     | 1,708,242,990.709 | 133.455631 | 109,371.7 | 26.4     | 6,382.9  | 112,193.5 | 227,974.6 |
| 2022 | 3     | 1,441,506,471.197 | 133.210029 | 80,421.1  | 165.3    | 5,998.6  | 105,438.1 | 192,023.1 |
| 2022 | 4     | 1,106,824,884.513 | 132.754553 | 37,576.4  | 1,784.1  | 5,790.8  | 101,784.8 | 146,936.0 |
| 2022 | 5     | 869,879,412.069   | 132.40011  | 8,969.9   | 5,990.9  | 5,394.4  | 94,816.9  | 115,172.1 |
| 2022 | 6     | 966,945,957.476   | 132.192901 | 1,204.9   | 18,734.9 | 5,807.4  | 102,076.3 | 127,823.4 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|-----------|----------|----------|-----------|-----------|
| 2022 | 7     | 1,174,366,702.157 | 132.082949 | 4.1       | 38,161.6 | 6,295.3  | 110,652.9 | 155,113.8 |
| 2022 | 8     | 1,196,132,602.248 | 132.064817 | 0.0       | 43,059.6 | 6,185.4  | 108,722.0 | 157,967.0 |
| 2022 | 9     | 1,108,574,756.710 | 132.01143  | 17.3      | 34,537.2 | 6,017.6  | 105,772.4 | 146,344.5 |
| 2022 | 10    | 871,273,668.611   | 131.918254 | 2,866.3   | 12,364.5 | 5,367.2  | 94,338.9  | 114,936.9 |
| 2022 | 11    | 983,632,396.188   | 132.028241 | 24,009.0  | 1,644.1  | 5,609.8  | 98,604.3  | 129,867.3 |
| 2022 | 12    | 1,539,345,724.318 | 132.172541 | 64,877.9  | 120.1    | 7,453.3  | 131,007.9 | 203,459.2 |
| 2023 | 1     | 1,892,716,009.249 | 132.262289 | 93,949.3  | 32.7     | 8,340.7  | 148,012.3 | 250,335.0 |
| 2023 | 2     | 1,710,129,585.780 | 132.060841 | 106,050.2 | 25.5     | 6,388.9  | 113,376.5 | 225,841.2 |
| 2023 | 3     | 1,440,020,320.136 | 131.838792 | 78,223.6  | 160.1    | 5,946.2  | 105,520.6 | 189,850.5 |
| 2023 | 4     | 1,106,931,321.184 | 131.405798 | 36,663.9  | 1,733.9  | 5,711.1  | 101,348.3 | 145,457.2 |
| 2023 | 5     | 870,743,835.860   | 131.072765 | 8,777.5   | 5,839.2  | 5,308.6  | 94,205.6  | 114,130.8 |
| 2023 | 6     | 966,465,058.073   | 130.885884 | 1,182.0   | 18,305.6 | 5,708.4  | 101,300.7 | 126,496.6 |
| 2023 | 7     | 1,172,221,994.930 | 130.795203 | 4.0       | 37,360.1 | 6,185.7  | 109,771.1 | 153,321.0 |
| 2023 | 8     | 1,194,006,867.193 | 130.795506 | 0.0       | 42,225.3 | 6,078.4  | 107,867.0 | 156,170.7 |
| 2023 | 9     | 1,107,269,008.918 | 130.759788 | 17.1      | 33,895.9 | 5,914.6  | 104,958.7 | 144,786.3 |
| 2023 | 10    | 871,347,086.406   | 130.683568 | 2,825.0   | 12,139.2 | 5,276.2  | 93,630.4  | 113,870.7 |
| 2023 | 11    | 983,481,424.389   | 130.80986  | 23,662.2  | 1,614.1  | 5,514.4  | 97,858.3  | 128,649.1 |
| 2023 | 12    | 1,537,443,352.772 | 130.969915 | 63,921.2  | 117.9    | 7,325.3  | 129,994.4 | 201,358.8 |
| 2024 | 1     | 1,889,026,613.141 | 131.074971 | 92,554.1  | 32.2     | 8,237.5  | 146,780.3 | 247,604.1 |
| 2024 | 2     | 1,704,912,032.905 | 130.888333 | 104,396.8 | 25.1     | 6,309.3  | 112,421.9 | 223,153.1 |
| 2024 | 3     | 1,435,524,637.276 | 130.680659 | 76,948.7  | 157.4    | 5,871.3  | 104,617.9 | 187,595.3 |
| 2024 | 4     | 1,104,353,554.031 | 130.261645 | 36,043.4  | 1,703.2  | 5,638.5  | 100,469.8 | 143,854.9 |
| 2024 | 5     | 869,344,925.499   | 129.942171 | 8,622.5   | 5,731.5  | 5,240.1  | 93,370.5  | 112,964.6 |
| 2024 | 6     | 964,347,277.202   | 129.768518 | 1,160.4   | 17,956.6 | 5,634.1  | 100,390.9 | 125,141.9 |
| 2024 | 7     | 1,168,379,877.972 | 129.690727 | 4.0       | 36,630.9 | 6,105.3  | 108,787.9 | 151,528.0 |
| 2024 | 8     | 1,189,634,367.014 | 129.703551 | 0.0       | 41,393.0 | 5,999.8  | 106,907.0 | 154,299.8 |
| 2024 | 9     | 1,103,589,790.685 | 129.679986 | 16.8      | 33,227.7 | 5,838.3  | 104,030.7 | 143,113.5 |
| 2024 | 10    | 869,376,129.897   | 129.615554 | 2,772.4   | 11,901.1 | 5,208.2  | 92,802.9  | 112,684.7 |
| 2024 | 11    | 980,861,293.131   | 129.753264 | 23,228.8  | 1,582.9  | 5,444.5  | 97,013.7  | 127,270.0 |
| 2024 | 12    | 1,531,899,601.712 | 129.924372 | 62,773.3  | 115.6    | 7,234.5  | 128,907.7 | 199,031.1 |
| 2025 | 1     | 1,880,307,424.345 | 130.040084 | 90,773.2  | 31.6     | 8,090.5  | 145,620.1 | 244,515.3 |
| 2025 | 2     | 1,695,429,849.344 | 129.863767 | 102,415.7 | 24.6     | 6,196.9  | 111,537.6 | 220,174.9 |
| 2025 | 3     | 1,428,620,575.370 | 129.66617  | 75,513.8  | 154.4    | 5,767.5  | 103,808.0 | 185,243.8 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating   | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|-----------|----------|----------|-----------|-----------|
| 2025 | 4     | 1,100,775,766.501 | 129.2569   | 35,375.1  | 1,671.6  | 5,539.1  | 99,697.1  | 142,282.9 |
| 2025 | 5     | 867,849,998.333   | 128.946877 | 8,465.7   | 5,627.1  | 5,148.4  | 92,665.3  | 111,906.5 |
| 2025 | 6     | 962,454,857.843   | 128.782317 | 1,139.4   | 17,632.4 | 5,535.9  | 99,639.5  | 123,947.2 |
| 2025 | 7     | 1,165,082,829.437 | 128.713328 | 3.9       | 35,972.2 | 5,999.6  | 107,986.0 | 149,961.7 |
| 2025 | 8     | 1,185,979,582.161 | 128.734718 | 0.0       | 40,653.4 | 5,896.3  | 106,127.0 | 152,676.7 |
| 2025 | 9     | 1,100,549,577.331 | 128.719424 | 16.5      | 32,636.3 | 5,737.7  | 103,271.7 | 141,662.1 |
| 2025 | 10    | 867,797,799.770   | 128.663023 | 2,723.1   | 11,690.3 | 5,118.2  | 92,121.8  | 111,653.5 |
| 2025 | 11    | 978,393,093.681   | 128.808506 | 22,816.4  | 1,554.9  | 5,350.5  | 96,303.6  | 126,025.4 |
| 2025 | 12    | 1,526,202,865.690 | 128.987187 | 61,662.0  | 113.6    | 7,110.2  | 127,974.9 | 196,860.6 |
| 2026 | 1     | 1,874,014,071.387 | 129.11025  | 89,200.0  | 31.0     | 7,963.7  | 144,759.7 | 241,954.4 |
| 2026 | 2     | 1,688,216,763.090 | 128.94106  | 100,651.5 | 24.2     | 6,101.1  | 110,903.6 | 217,680.5 |
| 2026 | 3     | 1,423,526,909.768 | 128.750377 | 74,216.7  | 151.9    | 5,679.1  | 103,232.0 | 183,279.6 |
| 2026 | 4     | 1,098,816,403.083 | 128.347835 | 34,770.8  | 1,643.9  | 5,455.1  | 99,160.8  | 141,030.7 |
| 2026 | 5     | 867,703,818.635   | 128.044344 | 8,321.3   | 5,534.0  | 5,071.0  | 92,178.3  | 111,104.6 |
| 2026 | 6     | 962,139,472.653   | 127.886165 | 1,120.3   | 17,343.9 | 5,453.3  | 99,126.8  | 123,044.3 |
| 2026 | 7     | 1,163,658,274.030 | 127.823378 | 3.8       | 35,391.2 | 5,910.5  | 107,437.2 | 148,742.7 |
| 2026 | 8     | 1,184,202,324.290 | 127.850756 | 0.0       | 40,000.1 | 5,809.0  | 105,592.2 | 151,401.2 |
| 2026 | 9     | 1,099,402,550.613 | 127.841303 | 16.2      | 32,114.8 | 5,653.4  | 102,764.7 | 140,549.1 |
| 2026 | 10    | 867,915,879.144   | 127.790549 | 2,679.0   | 11,504.9 | 5,043.8  | 91,683.8  | 110,911.4 |
| 2026 | 11    | 977,819,568.815   | 127.941579 | 22,453.0  | 1,530.6  | 5,272.9  | 95,847.3  | 125,103.8 |
| 2026 | 12    | 1,523,164,637.214 | 128.12559  | 60,692.7  | 111.8    | 7,005.7  | 127,346.1 | 195,156.4 |
| 2027 | 1     | 1,868,943,848.556 | 128.25386  | 87,776.4  | 30.6     | 7,868.8  | 144,023.5 | 239,699.3 |
| 2027 | 2     | 1,682,315,364.570 | 128.089764 | 99,062.7  | 23.9     | 6,030.1  | 110,370.7 | 215,487.4 |
| 2027 | 3     | 1,419,663,511.467 | 127.90399  | 73,061.4  | 149.7    | 5,614.1  | 102,755.4 | 181,580.6 |
| 2027 | 4     | 1,097,758,354.616 | 127.50619  | 34,236.1  | 1,620.6  | 5,393.6  | 98,720.7  | 139,971.0 |
| 2027 | 5     | 868,254,869.211   | 127.207308 | 8,194.5   | 5,456.1  | 5,014.6  | 91,783.2  | 110,448.4 |
| 2027 | 6     | 962,531,063.426   | 127.053524 | 1,103.3   | 17,101.4 | 5,392.3  | 98,696.0  | 122,293.0 |
| 2027 | 7     | 1,163,057,265.945 | 126.995017 | 3.8       | 34,898.1 | 5,843.6  | 106,957.0 | 147,702.5 |
| 2027 | 8     | 1,183,277,804.677 | 127.026513 | 0.0       | 39,444.8 | 5,743.3  | 105,119.6 | 150,307.7 |
| 2027 | 9     | 1,099,012,147.627 | 127.021079 | 15.9      | 31,671.6 | 5,590.3  | 102,319.9 | 139,597.7 |
| 2027 | 10    | 868,478,277.703   | 126.974247 | 2,638.8   | 11,346.2 | 4,988.3  | 91,301.1  | 110,274.4 |
| 2027 | 11    | 977,523,907.426   | 127.128998 | 22,114.1  | 1,509.4  | 5,214.1  | 95,434.0  | 124,271.6 |
| 2027 | 12    | 1,520,323,079.423 | 127.316627 | 59,769.8  | 110.3    | 6,925.4  | 126,756.9 | 193,562.4 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2028 | 1     | 1,864,690,453.557 | 127.448389 | 86,474.0 | 30.2     | 7,798.1  | 143,349.6 | 237,651.8 |
| 2028 | 2     | 1,677,072,388.410 | 127.287593 | 97,590.8 | 23.6     | 5,977.3  | 109,878.9 | 213,470.5 |
| 2028 | 3     | 1,416,136,589.479 | 127.104986 | 71,976.4 | 147.8    | 5,565.5  | 102,308.4 | 179,998.0 |
| 2028 | 4     | 1,096,773,828.628 | 126.710263 | 33,726.4 | 1,599.4  | 5,347.4  | 98,299.4  | 138,972.5 |
| 2028 | 5     | 868,826,564.924   | 126.414386 | 8,072.9  | 5,385.0  | 4,972.2  | 91,402.2  | 109,832.2 |
| 2028 | 6     | 962,982,444.791   | 126.263528 | 1,086.9  | 16,878.3 | 5,346.2  | 98,278.1  | 121,589.6 |
| 2028 | 7     | 1,162,598,515.554 | 126.207876 | 3.7      | 34,442.1 | 5,793.0  | 106,490.4 | 146,729.1 |
| 2028 | 8     | 1,182,487,000.559 | 126.242179 | 0.0      | 38,928.0 | 5,693.3  | 104,658.4 | 149,279.7 |
| 2028 | 9     | 1,098,651,682.434 | 126.239492 | 15.7     | 31,255.5 | 5,542.1  | 101,879.9 | 138,693.2 |
| 2028 | 10    | 868,989,635.421   | 126.195333 | 2,599.2  | 11,196.8 | 4,946.0  | 90,920.4  | 109,662.4 |
| 2028 | 11    | 977,170,386.728   | 126.352754 | 21,782.4 | 1,489.5  | 5,169.4  | 95,026.9  | 123,468.2 |
| 2028 | 12    | 1,517,485,163.937 | 126.543043 | 58,872.2 | 108.8    | 6,864.2  | 126,182.0 | 192,027.2 |
| 2029 | 1     | 1,861,022,046.768 | 126.677403 | 85,259.2 | 29.8     | 7,733.6  | 142,726.8 | 235,749.4 |
| 2029 | 2     | 1,672,366,427.831 | 126.519252 | 96,208.8 | 23.3     | 5,929.2  | 109,425.3 | 211,586.5 |
| 2029 | 3     | 1,412,908,857.990 | 126.339309 | 70,947.1 | 146.0    | 5,521.0  | 101,891.9 | 178,505.9 |
| 2029 | 4     | 1,095,949,406.752 | 125.947244 | 33,240.7 | 1,580.0  | 5,305.0  | 97,906.1  | 138,031.8 |
| 2029 | 5     | 869,442,490.560   | 125.653988 | 7,955.6  | 5,319.2  | 4,933.0  | 91,041.1  | 109,248.9 |
| 2029 | 6     | 963,491,601.502   | 125.505757 | 1,071.0  | 16,670.7 | 5,303.5  | 97,878.5  | 120,923.7 |
| 2029 | 7     | 1,162,272,764.606 | 125.452655 | 3.6      | 34,016.6 | 5,746.0  | 106,044.0 | 145,810.2 |
| 2029 | 8     | 1,181,853,035.131 | 125.489526 | 0.0      | 38,445.5 | 5,647.0  | 104,217.7 | 148,310.2 |
| 2029 | 9     | 1,098,417,707.075 | 125.48939  | 15.5     | 30,866.6 | 5,497.6  | 101,460.1 | 137,839.8 |
| 2029 | 10    | 869,508,705.185   | 125.447684 | 2,560.5  | 11,056.4 | 4,906.7  | 90,554.3  | 109,077.9 |
| 2029 | 11    | 976,751,516.297   | 125.607539 | 21,456.6 | 1,470.7  | 5,127.6  | 94,632.4  | 122,687.4 |
| 2029 | 12    | 1,514,491,973.069 | 125.800215 | 57,987.1 | 107.5    | 6,806.8  | 125,622.1 | 190,523.4 |
| 2030 | 1     | 1,854,376,212.283 | 125.93697  | 83,853.5 | 29.4     | 7,572.1  | 142,079.5 | 233,534.5 |
| 2030 | 2     | 1,664,652,999.793 | 125.781154 | 94,614.6 | 23.0     | 5,805.9  | 108,938.5 | 209,382.0 |
| 2030 | 3     | 1,407,235,655.403 | 125.603515 | 69,762.1 | 144.0    | 5,406.3  | 101,441.3 | 176,753.7 |
| 2030 | 4     | 1,093,494,896.142 | 125.213672 | 32,684.1 | 1,558.8  | 5,195.3  | 97,482.3  | 136,920.5 |
| 2030 | 5     | 868,926,532.367   | 124.922582 | 7,821.2  | 5,247.2  | 4,831.1  | 90,648.9  | 108,548.5 |
| 2030 | 6     | 962,877,172.117   | 124.776496 | 1,052.8  | 16,443.3 | 5,193.8  | 97,454.5  | 120,144.4 |
| 2030 | 7     | 1,160,648,765.867 | 124.725455 | 3.6      | 33,548.9 | 5,627.0  | 105,582.9 | 144,762.4 |
| 2030 | 8     | 1,179,893,140.332 | 124.764326 | 0.0      | 37,915.2 | 5,530.1  | 103,763.4 | 147,208.6 |
| 2030 | 9     | 1,096,895,418.893 | 124.766057 | 15.2     | 30,440.8 | 5,383.6  | 101,015.7 | 136,855.3 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2030 | 10    | 868,979,725.817   | 124.726273 | 2,516.8  | 10,904.9 | 4,805.0  | 90,158.0  | 108,384.6 |
| 2030 | 11    | 975,064,888.135   | 124.887957 | 21,091.6 | 1,450.7  | 5,020.9  | 94,210.7  | 121,773.9 |
| 2030 | 12    | 1,509,598,906.854 | 125.082367 | 57,006.2 | 106.0    | 6,664.4  | 125,047.6 | 188,824.2 |
| 2031 | 1     | 1,849,345,472.049 | 125.220814 | 82,571.5 | 29.1     | 7,442.1  | 141,533.8 | 231,576.5 |
| 2031 | 2     | 1,658,695,970.403 | 125.066649 | 93,172.0 | 22.7     | 5,707.5  | 108,545.3 | 207,447.5 |
| 2031 | 3     | 1,403,225,884.392 | 124.890531 | 68,703.1 | 142.4    | 5,315.4  | 101,088.8 | 175,249.6 |
| 2031 | 4     | 1,092,478,710.712 | 124.502184 | 32,197.9 | 1,541.2  | 5,109.2  | 97,167.7  | 136,016.0 |
| 2031 | 5     | 869,707,350.265   | 124.212506 | 7,707.2  | 5,189.2  | 4,752.3  | 90,379.8  | 108,028.5 |
| 2031 | 6     | 963,840,681.369   | 124.067781 | 1,037.7  | 16,264.5 | 5,109.4  | 97,170.0  | 119,581.6 |
| 2031 | 7     | 1,161,109,559.768 | 124.018106 | 3.5      | 33,190.5 | 5,535.2  | 105,269.3 | 143,998.6 |
| 2031 | 8     | 1,180,222,411.792 | 124.058231 | 0.0      | 37,516.3 | 5,440.1  | 103,459.9 | 146,416.3 |
| 2031 | 9     | 1,097,637,711.646 | 124.061204 | 15.0     | 30,123.3 | 5,297.0  | 100,739.0 | 136,174.3 |
| 2031 | 10    | 870,315,116.977   | 124.022256 | 2,482.7  | 10,792.2 | 4,728.9  | 89,934.9  | 107,938.7 |
| 2031 | 11    | 975,612,280.514   | 124.185352 | 20,808.6 | 1,435.8  | 4,941.2  | 93,971.1  | 121,156.8 |
| 2031 | 12    | 1,508,233,472.328 | 124.380831 | 56,246.0 | 104.9    | 6,556.3  | 124,688.1 | 187,595.3 |
| 2032 | 1     | 1,846,845,687.093 | 124.520362 | 81,491.0 | 28.8     | 7,332.2  | 141,117.8 | 229,969.9 |
| 2032 | 2     | 1,655,144,360.787 | 124.367158 | 91,940.5 | 22.5     | 5,624.9  | 108,257.7 | 205,845.6 |
| 2032 | 3     | 1,401,022,914.598 | 124.191974 | 67,786.0 | 141.0    | 5,238.9  | 100,829.9 | 173,995.8 |
| 2032 | 4     | 1,092,449,736.469 | 123.804527 | 31,763.2 | 1,526.2  | 5,036.0  | 96,924.7  | 135,250.2 |
| 2032 | 5     | 871,033,462.391   | 123.515736 | 7,602.1  | 5,138.0  | 4,684.6  | 90,161.5  | 107,586.3 |
| 2032 | 6     | 965,209,577.331   | 123.371919 | 1,023.4  | 16,101.9 | 5,035.7  | 96,918.7  | 119,079.8 |
| 2032 | 7     | 1,161,830,878.502 | 123.3231   | 3.5      | 32,854.6 | 5,454.0  | 104,968.5 | 143,280.6 |
| 2032 | 8     | 1,180,665,983.658 | 123.36416  | 0.0      | 37,134.6 | 5,359.9  | 103,157.4 | 145,651.9 |
| 2032 | 9     | 1,098,386,365.553 | 123.368051 | 14.8     | 29,815.3 | 5,219.5  | 100,456.2 | 135,505.8 |
| 2032 | 10    | 871,542,757.102   | 123.330366 | 2,447.5  | 10,681.5 | 4,660.6  | 89,698.2  | 107,487.7 |
| 2032 | 11    | 975,859,343.948   | 123.49403  | 20,512.6 | 1,421.0  | 4,869.0  | 93,710.1  | 120,512.8 |
| 2032 | 12    | 1,506,046,115.793 | 123.690492 | 55,432.9 | 103.8    | 6,457.8  | 124,289.0 | 186,283.6 |
| 2033 | 1     | 1,843,891,871.140 | 123.830921 | 80,369.2 | 28.5     | 7,232.8  | 140,700.3 | 228,330.8 |
| 2033 | 2     | 1,651,194,521.255 | 123.678659 | 90,672.4 | 22.3     | 5,550.4  | 107,972.4 | 204,217.5 |
| 2033 | 3     | 1,398,630,888.660 | 123.504453 | 66,849.6 | 139.7    | 5,170.2  | 100,577.6 | 172,737.1 |
| 2033 | 4     | 1,092,424,790.238 | 123.117931 | 31,323.2 | 1,512.0  | 4,970.5  | 96,691.4  | 134,497.1 |
| 2033 | 5     | 872,478,519.085   | 122.829997 | 7,496.6  | 5,090.1  | 4,624.2  | 89,955.6  | 107,166.5 |
| 2033 | 6     | 966,821,286.905   | 122.686926 | 1,009.1  | 15,951.3 | 4,970.2  | 96,685.7  | 118,616.3 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2033 | 7     | 1,162,938,430.326 | 122.638815 | 3.4      | 32,546.3 | 5,381.6  | 104,690.0 | 142,621.4 |
| 2033 | 8     | 1,181,524,862.119 | 122.680422 | 0.0      | 36,784.6 | 5,288.4  | 102,876.9 | 144,950.0 |
| 2033 | 9     | 1,099,520,103.093 | 122.684695 | 14.6     | 29,532.8 | 5,150.6  | 100,196.3 | 134,894.3 |
| 2033 | 10    | 873,050,481.621   | 122.647271 | 2,413.0  | 10,579.6 | 4,600.0  | 89,484.6  | 107,077.3 |
| 2033 | 11    | 976,355,847.226   | 122.811092 | 20,223.0 | 1,407.4  | 4,805.0  | 93,472.0  | 119,907.3 |
| 2033 | 12    | 1,504,341,207.502 | 123.00753  | 54,647.4 | 102.8    | 6,370.4  | 123,924.7 | 185,045.3 |
| 2034 | 1     | 1,841,943,514.738 | 123.147783 | 79,279.6 | 28.3     | 7,143.2  | 140,380.2 | 226,831.3 |
| 2034 | 2     | 1,648,167,042.444 | 122.995267 | 89,438.6 | 22.1     | 5,483.9  | 107,772.1 | 202,716.7 |
| 2034 | 3     | 1,397,081,352.755 | 122.820636 | 65,936.5 | 138.5    | 5,109.1  | 100,406.3 | 171,590.4 |
| 2034 | 4     | 1,093,191,116.563 | 122.433639 | 30,893.5 | 1,499.1  | 4,912.3  | 96,538.5  | 133,843.4 |
| 2034 | 5     | 874,673,860.882   | 122.145153 | 7,393.3  | 5,046.2  | 4,570.8  | 89,826.8  | 106,837.2 |
| 2034 | 6     | 969,258,703.875   | 122.001475 | 995.2    | 15,813.0 | 4,911.9  | 96,530.8  | 118,251.0 |
| 2034 | 7     | 1,164,958,765.136 | 121.952735 | 3.4      | 32,263.2 | 5,316.8  | 104,486.6 | 142,069.9 |
| 2034 | 8     | 1,183,304,739.176 | 121.993711 | 0.0      | 36,463.5 | 5,224.2  | 102,668.0 | 144,355.7 |
| 2034 | 9     | 1,101,586,155.597 | 121.997405 | 14.4     | 29,274.3 | 5,089.1  | 100,012.8 | 134,390.7 |
| 2034 | 10    | 875,384,281.708   | 121.959406 | 2,379.4  | 10,486.8 | 4,546.5  | 89,348.6  | 106,761.3 |
| 2034 | 11    | 977,685,163.783   | 122.122742 | 19,941.0 | 1,395.0  | 4,748.2  | 93,313.4  | 119,397.6 |
| 2034 | 12    | 1,503,697,704.249 | 122.318719 | 53,884.6 | 101.9    | 6,292.0  | 123,651.8 | 183,930.4 |
| 2035 | 1     | 1,840,031,660.887 | 122.458643 | 78,196.4 | 28.1     | 7,064.2  | 140,039.1 | 225,327.8 |
| 2035 | 2     | 1,645,228,142.790 | 122.305867 | 88,216.7 | 21.9     | 5,425.6  | 107,556.8 | 201,221.1 |
| 2035 | 3     | 1,395,644,039.196 | 122.131099 | 65,035.7 | 137.4    | 5,055.7  | 100,222.8 | 170,451.5 |
| 2035 | 4     | 1,094,056,037.406 | 121.74397  | 30,471.1 | 1,487.3  | 4,861.6  | 96,374.7  | 133,194.7 |
| 2035 | 5     | 876,969,866.695   | 121.455429 | 7,292.2  | 5,006.6  | 4,524.3  | 89,689.6  | 106,512.8 |
| 2035 | 6     | 971,865,296.877   | 121.311726 | 981.6    | 15,688.7 | 4,861.2  | 96,367.2  | 117,898.7 |
| 2035 | 7     | 1,167,259,700.990 | 121.262915 | 3.3      | 32,008.9 | 5,260.0  | 104,273.1 | 141,545.3 |
| 2035 | 8     | 1,185,392,544.914 | 121.303834 | 0.0      | 36,175.3 | 5,168.0  | 102,449.4 | 143,792.7 |
| 2035 | 9     | 1,103,907,915.446 | 121.307494 | 14.2     | 29,042.2 | 5,035.4  | 99,820.5  | 133,912.3 |
| 2035 | 10    | 877,846,334.149   | 121.269411 | 2,346.7  | 10,403.3 | 4,499.9  | 89,206.0  | 106,455.9 |
| 2035 | 11    | 979,112,593.340   | 121.432605 | 19,665.6 | 1,383.9  | 4,698.8  | 93,147.9  | 118,896.2 |
| 2035 | 12    | 1,503,216,530.192 | 121.628373 | 53,139.1 | 101.1    | 6,223.3  | 123,370.3 | 182,833.8 |
| 2036 | 1     | 1,838,715,827.804 | 121.768045 | 77,176.7 | 27.9     | 6,989.8  | 139,702.5 | 223,896.8 |
| 2036 | 2     | 1,642,882,447.002 | 121.61483  | 87,062.8 | 21.8     | 5,370.8  | 107,343.5 | 199,798.9 |
| 2036 | 3     | 1,394,633,131.747 | 121.439531 | 64,182.5 | 136.5    | 5,005.3  | 100,039.3 | 169,363.6 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2036 | 4     | 1,095,144,538.936 | 121.05179  | 30,069.8 | 1,477.4  | 4,813.6  | 96,208.3  | 132,569.2 |
| 2036 | 5     | 879,386,317.901   | 120.762533 | 7,195.8  | 4,973.0  | 4,480.4  | 89,547.7  | 106,196.9 |
| 2036 | 6     | 974,666,700.064   | 120.618043 | 968.6    | 15,583.0 | 4,813.1  | 96,197.8  | 117,562.4 |
| 2036 | 7     | 1,169,894,453.988 | 120.56834  | 3.3      | 31,792.1 | 5,206.0  | 104,050.8 | 141,052.2 |
| 2036 | 8     | 1,187,861,386.214 | 120.608297 | 0.0      | 35,929.5 | 5,114.5  | 102,221.9 | 143,265.9 |
| 2036 | 9     | 1,106,550,018.371 | 120.610873 | 14.0     | 28,844.2 | 4,984.3  | 99,619.5  | 133,462.0 |
| 2036 | 10    | 880,469,084.798   | 120.571635 | 2,315.3  | 10,332.2 | 4,455.8  | 89,056.3  | 106,159.6 |
| 2036 | 11    | 980,716,181.747   | 120.733589 | 19,402.7 | 1,374.4  | 4,651.9  | 92,976.3  | 118,405.4 |
| 2036 | 12    | 1,503,111,267.722 | 120.928051 | 52,428.1 | 100.4    | 6,158.2  | 123,081.6 | 181,768.3 |
| 2037 | 1     | 1,837,628,652.484 | 121.066357 | 76,165.2 | 27.7     | 6,917.8  | 139,364.3 | 222,475.0 |
| 2037 | 2     | 1,640,801,448.082 | 120.911744 | 85,920.4 | 21.7     | 5,317.8  | 107,132.3 | 198,392.2 |
| 2037 | 3     | 1,393,880,408.305 | 120.73498  | 63,338.9 | 135.7    | 4,956.8  | 99,858.7  | 168,290.1 |
| 2037 | 4     | 1,096,479,786.388 | 120.34571  | 29,674.0 | 1,468.9  | 4,767.5  | 96,046.1  | 131,956.6 |
| 2037 | 5     | 882,056,854.152   | 120.054872 | 7,101.0  | 4,944.3  | 4,438.2  | 89,411.7  | 105,895.2 |
| 2037 | 6     | 977,817,320.926   | 119.908759 | 955.8    | 15,492.8 | 4,766.9  | 96,033.4  | 117,248.9 |
| 2037 | 7     | 1,173,036,531.770 | 119.857436 | 3.3      | 31,607.8 | 5,154.0  | 103,832.1 | 140,597.2 |
| 2037 | 8     | 1,190,870,369.485 | 119.895668 | 0.0      | 35,720.6 | 5,062.9  | 101,996.7 | 142,780.2 |
| 2037 | 9     | 1,109,688,676.450 | 119.896461 | 13.8     | 28,675.9 | 4,935.2  | 99,422.9  | 133,047.7 |
| 2037 | 10    | 883,423,033.686   | 119.855426 | 2,284.6  | 10,271.7 | 4,413.5  | 88,913.3  | 105,883.0 |
| 2037 | 11    | 982,622,563.832   | 120.01555  | 19,145.2 | 1,366.3  | 4,607.0  | 92,811.5  | 117,930.0 |
| 2037 | 12    | 1,503,430,557.838 | 120.208142 | 51,731.1 | 99.8     | 6,095.5  | 122,798.2 | 180,724.6 |
| 2038 | 1     | 1,836,706,761.861 | 120.344507 | 75,152.0 | 27.6     | 6,845.1  | 139,012.9 | 221,037.6 |
| 2038 | 2     | 1,638,855,150.995 | 120.187936 | 84,774.7 | 21.5     | 5,264.4  | 106,910.0 | 196,970.6 |
| 2038 | 3     | 1,393,248,881.090 | 120.009175 | 62,492.5 | 134.9    | 4,907.7  | 99,667.5  | 167,202.6 |
| 2038 | 4     | 1,097,908,652.243 | 119.617904 | 29,276.4 | 1,460.1  | 4,720.8  | 95,872.1  | 131,329.5 |
| 2038 | 5     | 884,803,882.109   | 119.325044 | 7,005.6  | 4,914.6  | 4,395.4  | 89,263.7  | 105,579.3 |
| 2038 | 6     | 981,042,676.523   | 119.176849 | 942.9    | 15,399.0 | 4,720.0  | 95,855.6  | 116,917.6 |
| 2038 | 7     | 1,176,225,233.585 | 119.123381 | 3.2      | 31,415.5 | 5,101.2  | 103,596.0 | 140,115.9 |
| 2038 | 8     | 1,193,914,885.293 | 119.15954  | 0.0      | 35,502.3 | 5,010.4  | 101,753.6 | 142,266.3 |
| 2038 | 9     | 1,112,866,192.856 | 119.158242 | 13.6     | 28,499.9 | 4,885.1  | 99,208.5  | 132,607.2 |
| 2038 | 10    | 886,431,972.551   | 119.115024 | 2,253.6  | 10,208.4 | 4,370.4  | 88,755.0  | 105,587.4 |
| 2038 | 11    | 984,589,260.956   | 119.272984 | 18,884.9 | 1,357.9  | 4,561.2  | 92,630.9  | 117,434.9 |
| 2038 | 12    | 1,503,823,146.405 | 119.463398 | 51,026.9 | 99.2     | 6,031.7  | 122,494.0 | 179,651.8 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2039 | 1     | 1,835,542,063.381 | 119.597589 | 74,108.8 | 27.4     | 6,772.1  | 138,618.2 | 219,526.4 |
| 2039 | 2     | 1,636,664,547.356 | 119.43891  | 83,595.9 | 21.4     | 5,210.5  | 106,653.7 | 195,481.4 |
| 2039 | 3     | 1,392,427,629.886 | 119.258039 | 61,621.9 | 134.0    | 4,858.3  | 99,444.0  | 166,058.2 |
| 2039 | 4     | 1,099,225,288.964 | 118.864666 | 28,867.7 | 1,450.5  | 4,673.7  | 95,667.1  | 130,659.0 |
| 2039 | 5     | 887,486,211.954   | 118.569745 | 6,907.6  | 4,882.1  | 4,352.3  | 89,087.0  | 105,229.0 |
| 2039 | 6     | 984,190,553.182   | 118.419436 | 929.7    | 15,297.0 | 4,672.8  | 95,647.8  | 116,547.3 |
| 2039 | 7     | 1,179,309,605.182 | 118.363949 | 3.2      | 31,207.1 | 5,048.1  | 103,329.4 | 139,587.7 |
| 2039 | 8     | 1,196,858,099.661 | 118.398063 | 0.0      | 35,266.5 | 4,957.8  | 101,481.4 | 141,705.7 |
| 2039 | 9     | 1,115,968,558.858 | 118.3948   | 13.4     | 28,310.7 | 4,834.9  | 98,965.9  | 132,124.9 |
| 2039 | 10    | 889,408,965.034   | 118.349701 | 2,222.0  | 10,140.6 | 4,327.1  | 88,571.6  | 105,261.3 |
| 2039 | 11    | 986,520,473.116   | 118.505826 | 18,620.0 | 1,348.9  | 4,515.3  | 92,424.2  | 116,908.4 |
| 2039 | 12    | 1,504,166,585.482 | 118.694439 | 50,311.8 | 98.5     | 5,967.9  | 122,157.9 | 178,536.2 |
| 2040 | 1     | 1,833,923,083.616 | 118.826881 | 73,075.8 | 27.2     | 6,593.9  | 138,222.5 | 217,919.4 |
| 2040 | 2     | 1,634,153,950.280 | 118.66645  | 82,431.7 | 21.3     | 5,075.4  | 106,391.0 | 193,919.2 |
| 2040 | 3     | 1,391,291,427.233 | 118.483881 | 60,764.6 | 133.2    | 4,733.0  | 99,214.9  | 164,845.6 |
| 2040 | 4     | 1,100,187,330.106 | 118.088688 | 28,466.4 | 1,441.0  | 4,553.8  | 95,458.7  | 129,919.9 |
| 2040 | 5     | 889,811,370.440   | 117.79232  | 6,811.7  | 4,850.0  | 4,241.4  | 88,909.8  | 104,812.9 |
| 2040 | 6     | 987,028,896.158   | 117.640476 | 916.8    | 15,196.6 | 4,553.3  | 95,447.9  | 116,114.5 |
| 2040 | 7     | 1,182,145,062.831 | 117.583427 | 3.1      | 31,002.3 | 4,917.3  | 103,077.9 | 139,000.7 |
| 2040 | 8     | 1,199,572,073.764 | 117.615979 | 0.0      | 35,035.5 | 4,828.9  | 101,224.5 | 141,088.8 |
| 2040 | 9     | 1,118,782,455.513 | 117.611169 | 13.2     | 28,125.2 | 4,710.0  | 98,732.8  | 131,581.3 |
| 2040 | 10    | 892,032,281.489   | 117.564528 | 2,191.2  | 10,074.2 | 4,216.6  | 88,389.4  | 104,871.4 |
| 2040 | 11    | 988,112,880.186   | 117.719048 | 18,362.4 | 1,340.1  | 4,399.2  | 92,218.0  | 116,319.7 |
| 2040 | 12    | 1,504,198,818.621 | 117.906125 | 49,615.9 | 97.9     | 5,811.8  | 121,828.6 | 177,354.3 |
| 2041 | 1     | 1,832,913,855.616 | 118.037053 | 72,079.8 | 27.0     | 6,439.2  | 137,805.7 | 216,351.7 |
| 2041 | 2     | 1,632,234,445.667 | 117.875095 | 81,306.6 | 21.1     | 4,958.3  | 106,113.8 | 192,399.8 |
| 2041 | 3     | 1,390,614,830.555 | 117.690987 | 59,934.0 | 132.3    | 4,624.6  | 98,971.9  | 163,662.8 |
| 2041 | 4     | 1,101,454,401.838 | 117.294416 | 28,076.6 | 1,431.8  | 4,450.1  | 95,236.0  | 129,194.5 |
| 2041 | 5     | 892,345,045.079   | 116.996264 | 6,718.2  | 4,818.9  | 4,145.5  | 88,718.3  | 104,401.0 |
| 2041 | 6     | 990,075,480.169   | 116.842817 | 904.2    | 15,099.0 | 4,449.8  | 95,230.3  | 115,683.2 |
| 2041 | 7     | 1,185,219,347.528 | 116.784181 | 3.1      | 30,802.9 | 4,803.7  | 102,805.2 | 138,414.9 |
| 2041 | 8     | 1,202,523,497.716 | 116.815167 | 0.0      | 34,810.0 | 4,716.9  | 100,946.2 | 140,473.0 |
| 2041 | 9     | 1,121,816,964.295 | 116.808782 | 13.1     | 27,944.0 | 4,601.6  | 98,479.4  | 131,038.1 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2041 | 10    | 894,832,926.184   | 116.760579 | 2,161.1  | 10,009.2 | 4,120.8  | 88,190.1  | 104,481.2 |
| 2041 | 11    | 989,904,210.006   | 116.913574 | 18,109.7 | 1,331.4  | 4,298.5  | 91,993.5  | 115,733.2 |
| 2041 | 12    | 1,504,537,126.050 | 117.099041 | 48,933.2 | 97.3     | 5,676.0  | 121,473.3 | 176,179.9 |
| 2042 | 1     | 1,832,375,715.036 | 117.228416 | 71,103.9 | 26.9     | 6,300.0  | 137,375.7 | 214,806.5 |
| 2042 | 2     | 1,630,791,090.303 | 117.064868 | 80,204.9 | 21.0     | 4,853.3  | 105,829.2 | 190,908.3 |
| 2042 | 3     | 1,390,357,617.760 | 116.87922  | 59,121.4 | 131.5    | 4,527.4  | 98,723.6  | 162,503.9 |
| 2042 | 4     | 1,103,051,894.995 | 116.481093 | 27,695.6 | 1,422.8  | 4,357.1  | 95,009.3  | 128,484.7 |
| 2042 | 5     | 895,145,195.864   | 116.181443 | 6,627.0  | 4,788.6  | 4,059.7  | 88,524.0  | 103,999.3 |
| 2042 | 6     | 993,400,710.008   | 116.026478 | 891.9    | 15,003.6 | 4,357.1  | 95,008.2  | 115,260.8 |
| 2042 | 7     | 1,188,611,919.144 | 115.966358 | 3.0      | 30,608.2 | 4,701.8  | 102,525.9 | 137,839.0 |
| 2042 | 8     | 1,205,794,423.910 | 115.995837 | 0.0      | 34,589.8 | 4,616.3  | 100,661.0 | 139,867.1 |
| 2042 | 9     | 1,125,159,367.820 | 115.987896 | 12.9     | 27,767.0 | 4,504.4  | 98,220.6  | 130,504.9 |
| 2042 | 10    | 897,898,918.848   | 115.938118 | 2,131.6  | 9,945.7  | 4,035.1  | 87,988.2  | 104,100.7 |
| 2042 | 11    | 991,996,431.783   | 116.089574 | 17,863.2 | 1,323.0  | 4,208.4  | 91,765.9  | 115,160.4 |
| 2042 | 12    | 1,505,310,509.775 | 116.273526 | 48,267.0 | 96.6     | 5,554.1  | 121,110.0 | 175,027.8 |
| 2043 | 1     | 1,832,684,397.475 | 116.401278 | 70,187.7 | 26.7     | 6,178.2  | 136,934.2 | 213,326.8 |
| 2043 | 2     | 1,630,230,041.379 | 116.236174 | 79,170.3 | 20.9     | 4,761.7  | 105,538.8 | 189,491.7 |
| 2043 | 3     | 1,390,805,441.383 | 116.04896  | 58,358.0 | 130.7    | 4,442.8  | 98,470.0  | 161,401.5 |
| 2043 | 4     | 1,105,112,527.359 | 115.649271 | 27,337.3 | 1,414.6  | 4,276.2  | 94,777.4  | 127,805.5 |
| 2043 | 5     | 898,257,278.641   | 115.348024 | 6,541.1  | 4,761.1  | 3,985.1  | 88,324.9  | 103,612.2 |
| 2043 | 6     | 997,070,026.111   | 115.191432 | 880.4    | 14,917.4 | 4,276.3  | 94,779.9  | 114,853.9 |
| 2043 | 7     | 1,192,433,555.080 | 115.129657 | 3.0      | 30,432.0 | 4,612.7  | 102,236.7 | 137,284.5 |
| 2043 | 8     | 1,209,515,661.485 | 115.15749  | 0.0      | 34,390.4 | 4,528.3  | 100,366.0 | 139,284.8 |
| 2043 | 9     | 1,128,925,290.855 | 115.147985 | 12.7     | 27,606.9 | 4,419.5  | 97,954.3  | 129,993.5 |
| 2043 | 10    | 901,290,654.933   | 115.096574 | 2,103.9  | 9,888.3  | 3,960.6  | 87,782.6  | 103,735.5 |
| 2043 | 11    | 994,478,914.905   | 115.246402 | 17,630.9 | 1,315.3  | 4,129.9  | 91,534.0  | 114,610.1 |
| 2043 | 12    | 1,506,731,636.280 | 115.428671 | 47,639.3 | 96.1     | 5,447.5  | 120,737.1 | 173,920.0 |
| 2044 | 1     | 1,833,261,622.851 | 115.554838 | 69,273.2 | 26.6     | 6,071.0  | 136,471.5 | 211,842.2 |
| 2044 | 2     | 1,629,920,948.567 | 115.38816  | 78,137.8 | 20.7     | 4,681.3  | 105,233.6 | 188,073.6 |
| 2044 | 3     | 1,391,479,560.846 | 115.199305 | 57,595.9 | 130.0    | 4,368.6  | 98,203.0  | 160,297.5 |
| 2044 | 4     | 1,107,372,098.148 | 114.797998 | 26,979.7 | 1,406.3  | 4,205.3  | 94,532.8  | 127,124.1 |
| 2044 | 5     | 901,543,106.038   | 114.495175 | 6,455.4  | 4,732.9  | 3,919.8  | 88,114.2  | 103,222.3 |
| 2044 | 6     | 1,000,903,866.346 | 114.337122 | 868.8    | 14,828.9 | 4,205.5  | 94,537.3  | 114,440.5 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2044 | 7     | 1,196,413,745.274 | 114.273882 | 3.0      | 30,250.8 | 4,534.4  | 101,930.7 | 136,718.8 |
| 2044 | 8     | 1,213,384,873.552 | 114.300341 | 0.0      | 34,185.1 | 4,450.9  | 100,054.3 | 138,690.3 |
| 2044 | 9     | 1,132,836,287.129 | 114.289481 | 12.5     | 27,441.6 | 4,345.0  | 97,672.2  | 129,471.3 |
| 2044 | 10    | 904,823,522.802   | 114.236908 | 2,076.1  | 9,828.9  | 3,895.3  | 87,563.9  | 103,364.2 |
| 2044 | 11    | 997,105,935.684   | 114.385592 | 17,397.9 | 1,307.4  | 4,061.0  | 91,288.2  | 114,054.6 |
| 2044 | 12    | 1,508,317,873.017 | 114.566831 | 47,009.4 | 95.5     | 5,353.6  | 120,344.7 | 172,803.2 |
| 2045 | 1     | 1,833,857,516.632 | 114.692009 | 68,360.0 | 26.4     | 5,970.9  | 135,971.5 | 210,328.8 |
| 2045 | 2     | 1,629,620,124.539 | 114.524394 | 77,105.7 | 20.6     | 4,606.4  | 104,898.5 | 186,631.3 |
| 2045 | 3     | 1,392,146,042.621 | 114.334736 | 56,833.9 | 129.2    | 4,299.4  | 97,908.1  | 159,170.7 |
| 2045 | 4     | 1,109,601,843.842 | 113.932612 | 26,621.9 | 1,397.8  | 4,139.3  | 94,260.9  | 126,419.8 |
| 2045 | 5     | 904,791,692.081   | 113.62903  | 6,369.6  | 4,704.3  | 3,859.0  | 87,877.6  | 102,810.6 |
| 2045 | 6     | 1,004,701,292.770 | 113.470231 | 857.2    | 14,739.0 | 4,139.6  | 94,267.8  | 114,003.7 |
| 2045 | 7     | 1,200,371,689.165 | 113.406278 | 2.9      | 30,067.4 | 4,461.5  | 101,597.9 | 136,129.7 |
| 2045 | 8     | 1,217,237,772.489 | 113.43199  | 0.0      | 33,977.7 | 4,378.9  | 99,717.1  | 138,073.7 |
| 2045 | 9     | 1,136,727,865.572 | 113.420345 | 12.4     | 27,275.1 | 4,275.6  | 97,365.0  | 128,928.1 |
| 2045 | 10    | 908,332,343.682   | 113.366913 | 2,048.5  | 9,769.2  | 3,834.6  | 87,322.5  | 102,974.8 |
| 2045 | 11    | 999,719,019.924   | 113.514737 | 17,166.4 | 1,299.5  | 3,997.0  | 91,020.0  | 113,482.8 |
| 2045 | 12    | 1,509,915,541.042 | 113.69502  | 46,384.1 | 94.9     | 5,266.2  | 119,924.6 | 171,669.9 |
| 2046 | 1     | 1,834,500,141.819 | 113.819269 | 67,444.4 | 26.2     | 5,873.7  | 135,457.2 | 208,801.5 |
| 2046 | 2     | 1,629,385,884.592 | 113.650653 | 76,073.0 | 20.5     | 4,533.6  | 104,553.6 | 185,180.8 |
| 2046 | 3     | 1,392,888,011.169 | 113.459917 | 56,072.2 | 128.4    | 4,232.3  | 97,604.1  | 158,037.0 |
| 2046 | 4     | 1,111,919,503.629 | 113.056739 | 26,264.7 | 1,389.2  | 4,075.2  | 93,980.9  | 125,710.0 |
| 2046 | 5     | 908,125,911.452   | 112.752077 | 6,284.1  | 4,675.1  | 3,800.0  | 87,633.8  | 102,393.1 |
| 2046 | 6     | 1,008,590,784.145 | 112.592127 | 845.7    | 14,647.5 | 4,075.6  | 93,990.5  | 113,559.4 |
| 2046 | 7     | 1,204,427,552.845 | 112.52707  | 2.9      | 29,880.8 | 4,390.7  | 101,256.4 | 135,530.7 |
| 2046 | 8     | 1,221,194,838.084 | 112.551622 | 0.0      | 33,767.0 | 4,308.9  | 99,371.6  | 137,447.5 |
| 2046 | 9     | 1,140,722,812.729 | 112.538878 | 12.2     | 27,105.8 | 4,208.2  | 97,049.4  | 128,375.7 |
| 2046 | 10    | 911,943,685.481   | 112.484305 | 2,021.0  | 9,708.6  | 3,775.7  | 87,074.1  | 102,579.4 |
| 2046 | 11    | 1,002,439,443.542 | 112.631008 | 16,935.9 | 1,291.4  | 3,934.8  | 90,743.7  | 112,905.8 |
| 2046 | 12    | 1,511,650,657.222 | 112.810273 | 45,761.5 | 94.3     | 5,181.4  | 119,492.5 | 170,529.7 |
| 2047 | 1     | 1,836,025,121.019 | 112.93351  | 66,586.9 | 26.1     | 5,778.4  | 134,957.3 | 207,348.8 |
| 2047 | 2     | 1,630,046,376.109 | 112.76391  | 75,105.0 | 20.4     | 4,462.5  | 104,222.5 | 183,810.4 |
| 2047 | 3     | 1,394,369,516.966 | 112.572269 | 55,358.4 | 127.7    | 4,166.7  | 97,314.6  | 156,967.3 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2047 | 4     | 1,114,751,819.244 | 112.168218 | 25,929.9 | 1,381.5  | 4,012.6  | 93,715.8  | 125,039.7 |
| 2047 | 5     | 911,836,542.607   | 111.862671 | 6,203.9  | 4,649.1  | 3,742.4  | 87,405.0  | 102,000.5 |
| 2047 | 6     | 1,012,889,507.284 | 111.701866 | 834.9    | 14,565.9 | 4,013.1  | 93,727.7  | 113,141.6 |
| 2047 | 7     | 1,208,981,988.849 | 111.635915 | 2.8      | 29,713.9 | 4,321.4  | 100,927.6 | 134,965.8 |
| 2047 | 8     | 1,225,659,991.419 | 111.659603 | 0.0      | 33,578.3 | 4,240.5  | 99,037.9  | 136,856.7 |
| 2047 | 9     | 1,145,189,759.019 | 111.646012 | 12.1     | 26,954.3 | 4,142.4  | 96,747.1  | 127,855.9 |
| 2047 | 10    | 915,910,634.243   | 111.590636 | 1,995.1  | 9,654.2  | 3,718.2  | 86,839.5  | 102,207.1 |
| 2047 | 11    | 1,005,563,137.329 | 111.736487 | 16,718.9 | 1,284.2  | 3,874.1  | 90,480.9  | 112,358.1 |
| 2047 | 12    | 1,514,019,160.999 | 111.914847 | 45,175.2 | 93.8     | 5,098.4  | 119,073.8 | 169,441.2 |
| 2048 | 1     | 1,837,833,409.919 | 112.03716  | 65,730.5 | 25.9     | 5,684.7  | 134,464.5 | 205,905.6 |
| 2048 | 2     | 1,630,967,804.257 | 111.866676 | 74,138.4 | 20.3     | 4,392.5  | 103,899.8 | 182,450.9 |
| 2048 | 3     | 1,396,096,251.978 | 111.674046 | 54,645.1 | 126.9    | 4,102.2  | 97,033.4  | 155,907.7 |
| 2048 | 4     | 1,117,822,335.627 | 111.269015 | 25,595.2 | 1,373.5  | 3,951.1  | 93,459.2  | 124,379.0 |
| 2048 | 5     | 915,780,015.368   | 110.962491 | 6,123.7  | 4,622.3  | 3,685.9  | 87,185.3  | 101,617.2 |
| 2048 | 6     | 1,017,428,226.433 | 110.800727 | 824.1    | 14,481.7 | 3,951.8  | 93,474.2  | 112,731.8 |
| 2048 | 7     | 1,213,771,881.010 | 110.733837 | 2.8      | 29,541.9 | 4,253.3  | 100,607.6 | 134,405.6 |
| 2048 | 8     | 1,230,351,461.480 | 110.756622 | 0.0      | 33,383.7 | 4,173.2  | 98,712.6  | 136,269.6 |
| 2048 | 9     | 1,149,891,969.495 | 110.74208  | 11.9     | 26,797.9 | 4,077.7  | 96,453.9  | 127,341.4 |
| 2048 | 10    | 920,116,623.499   | 110.685818 | 1,969.2  | 9,598.1  | 3,661.8  | 86,614.7  | 101,843.9 |
| 2048 | 11    | 1,008,938,016.335 | 110.830852 | 16,502.1 | 1,276.7  | 3,814.5  | 90,228.1  | 111,821.5 |
| 2048 | 12    | 1,516,680,731.601 | 111.008452 | 44,589.5 | 93.3     | 5,016.7  | 118,664.9 | 168,364.4 |
| 2049 | 1     | 1,840,535,385.386 | 111.130012 | 64,934.4 | 25.8     | 5,595.6  | 133,982.9 | 204,538.7 |
| 2049 | 2     | 1,632,815,622.170 | 110.958827 | 73,239.5 | 20.2     | 4,326.3  | 103,589.3 | 181,175.3 |
| 2049 | 3     | 1,398,583,765.382 | 110.765582 | 53,981.9 | 126.3    | 4,041.3  | 96,765.4  | 154,914.9 |
| 2049 | 4     | 1,121,419,924.764 | 110.359951 | 25,283.9 | 1,366.5  | 3,893.1  | 93,216.4  | 123,759.8 |
| 2049 | 5     | 920,094,679.552   | 110.052892 | 6,049.1  | 4,598.6  | 3,632.6  | 86,978.7  | 101,259.1 |
| 2049 | 6     | 1,022,369,368.485 | 109.890592 | 814.1    | 14,407.3 | 3,893.8  | 93,233.7  | 112,348.8 |
| 2049 | 7     | 1,219,050,366.565 | 109.82322  | 2.8      | 29,389.7 | 4,188.9  | 100,298.7 | 133,880.0 |
| 2049 | 8     | 1,235,541,067.279 | 109.84556  | 0.0      | 33,211.4 | 4,109.5  | 98,397.8  | 135,718.7 |
| 2049 | 9     | 1,155,054,626.262 | 109.830602 | 11.8     | 26,659.2 | 4,016.5  | 96,172.8  | 126,860.3 |
| 2049 | 10    | 924,680,435.683   | 109.773953 | 1,945.1  | 9,548.3  | 3,608.6  | 86,403.8  | 101,505.8 |
| 2049 | 11    | 1,012,720,000.085 | 109.918556 | 16,299.9 | 1,270.1  | 3,758.3  | 89,988.5  | 111,316.7 |
| 2049 | 12    | 1,519,991,026.083 | 110.095793 | 44,042.7 | 92.8     | 4,939.4  | 118,269.7 | 167,344.6 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2050 | 1     | 1,843,584,948.084 | 110.217072 | 64,145.8 | 25.7     | 5,516.8  | 133,506.2 | 203,194.5 |
| 2050 | 2     | 1,634,967,799.827 | 110.045608 | 72,348.7 | 20.1     | 4,268.0  | 103,284.3 | 179,921.0 |
| 2050 | 3     | 1,401,346,523.671 | 109.8521   | 53,324.5 | 125.6    | 3,987.8  | 96,503.0  | 153,940.9 |
| 2050 | 4     | 1,125,271,174.667 | 109.446253 | 24,975.5 | 1,359.3  | 3,842.2  | 92,979.8  | 123,156.7 |
| 2050 | 5     | 924,636,513.649   | 109.138996 | 5,975.2  | 4,574.3  | 3,585.9  | 86,778.5  | 100,913.9 |
| 2050 | 6     | 1,027,533,463.722 | 108.976541 | 804.1    | 14,330.8 | 3,843.0  | 92,999.2  | 111,977.0 |
| 2050 | 7     | 1,224,539,598.767 | 108.909087 | 2.7      | 29,233.6 | 4,132.1  | 99,995.1  | 133,363.5 |
| 2050 | 8     | 1,240,937,855.621 | 108.931385 | 0.0      | 33,035.1 | 4,053.3  | 98,088.7  | 135,177.1 |
| 2050 | 9     | 1,160,444,014.315 | 108.916435 | 11.6     | 26,517.8 | 3,962.8  | 95,899.2  | 126,391.4 |
| 2050 | 10    | 929,481,823.258   | 108.859774 | 1,921.4  | 9,497.7  | 3,562.1  | 86,202.0  | 101,183.2 |
| 2050 | 11    | 1,016,776,775.246 | 109.004457 | 16,101.1 | 1,263.4  | 3,709.1  | 89,759.6  | 110,833.2 |
| 2050 | 12    | 1,523,674,784.745 | 109.181843 | 43,506.5 | 92.3     | 4,871.4  | 117,887.4 | 166,357.6 |
| 2051 | 1     | 1,846,162,001.230 | 109.303307 | 63,338.0 | 25.5     | 5,429.2  | 132,998.8 | 201,791.6 |
| 2051 | 2     | 1,636,675,644.743 | 109.132075 | 71,438.1 | 19.9     | 4,202.7  | 102,953.0 | 178,613.8 |
| 2051 | 3     | 1,403,745,749.447 | 108.938837 | 52,653.9 | 124.9    | 3,927.7  | 96,215.9  | 152,922.4 |
| 2051 | 4     | 1,128,842,324.435 | 108.533323 | 24,661.4 | 1,351.9  | 3,784.9  | 92,718.8  | 122,517.0 |
| 2051 | 5     | 928,968,815.023   | 108.226459 | 5,900.1  | 4,549.4  | 3,533.4  | 86,556.1  | 100,539.0 |
| 2051 | 6     | 1,032,493,838.209 | 108.064455 | 794.0    | 14,252.9 | 3,785.9  | 92,743.1  | 111,575.9 |
| 2051 | 7     | 1,229,834,824.774 | 107.997446 | 2.7      | 29,075.3 | 4,068.8  | 99,672.3  | 132,819.0 |
| 2051 | 8     | 1,246,147,590.654 | 108.020234 | 0.0      | 32,856.9 | 3,990.8  | 97,761.5  | 134,609.2 |
| 2051 | 9     | 1,165,649,299.293 | 108.005826 | 11.5     | 26,375.3 | 3,902.8  | 95,607.3  | 125,896.9 |
| 2051 | 10    | 934,102,962.929   | 107.949812 | 1,897.4  | 9,446.9  | 3,509.9  | 85,982.0  | 100,836.2 |
| 2051 | 11    | 1,020,623,476.921 | 108.095186 | 15,900.8 | 1,256.7  | 3,654.1  | 89,513.0  | 110,324.5 |
| 2051 | 12    | 1,527,081,074.575 | 108.273222 | 42,966.8 | 91.8     | 4,796.0  | 117,487.3 | 165,342.0 |
| 2052 | 1     | 1,849,071,411.250 | 108.395388 | 62,557.1 | 25.4     | 5,343.4  | 132,504.9 | 200,430.8 |
| 2052 | 2     | 1,638,729,731.116 | 108.224852 | 70,559.0 | 19.8     | 4,138.8  | 102,633.7 | 177,351.3 |
| 2052 | 3     | 1,406,429,587.022 | 108.032379 | 52,006.7 | 124.3    | 3,868.9  | 95,940.0  | 151,939.9 |
| 2052 | 4     | 1,132,629,743.639 | 107.627571 | 24,358.6 | 1,344.9  | 3,728.9  | 92,469.7  | 121,902.2 |
| 2052 | 5     | 933,464,738.806   | 107.321429 | 5,827.8  | 4,526.0  | 3,481.9  | 86,345.0  | 100,180.8 |
| 2052 | 6     | 1,037,641,880.281 | 107.160197 | 784.3    | 14,180.0 | 3,730.1  | 92,499.5  | 111,193.9 |
| 2052 | 7     | 1,235,351,221.267 | 107.093936 | 2.7      | 28,927.3 | 4,006.8  | 99,361.8  | 132,298.6 |
| 2052 | 8     | 1,251,592,672.338 | 107.1175   | 0.0      | 32,690.7 | 3,929.6  | 97,447.1  | 134,067.5 |
| 2052 | 9     | 1,171,076,709.499 | 107.103879 | 11.3     | 26,242.6 | 3,844.2  | 95,328.7  | 125,426.9 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2052 | 10    | 938,897,996.528   | 107.048601 | 1,874.4  | 9,399.6  | 3,458.9  | 85,774.8  | 100,507.7 |
| 2052 | 11    | 1,024,671,167.974 | 107.19471  | 15,708.6 | 1,250.4  | 3,600.3  | 89,280.0  | 109,839.3 |
| 2052 | 12    | 1,530,788,347.737 | 107.373548 | 42,449.1 | 91.4     | 4,722.3  | 117,103.5 | 164,366.2 |
| 2053 | 1     | 1,852,088,359.250 | 107.496363 | 61,789.4 | 25.3     | 5,259.0  | 132,019.1 | 199,092.8 |
| 2053 | 2     | 1,640,885,977.533 | 107.326472 | 69,694.4 | 19.7     | 4,076.0  | 102,320.3 | 176,110.5 |
| 2053 | 3     | 1,409,202,807.622 | 107.134712 | 51,370.3 | 123.7    | 3,811.0  | 95,669.6  | 150,974.5 |
| 2053 | 4     | 1,136,491,439.885 | 106.730559 | 24,060.8 | 1,338.1  | 3,673.9  | 92,225.7  | 121,298.4 |
| 2053 | 5     | 938,025,011.788   | 106.42509  | 5,756.6  | 4,503.0  | 3,431.4  | 86,138.4  | 99,829.4  |
| 2053 | 6     | 1,042,857,661.417 | 106.26458  | 774.7    | 14,108.3 | 3,675.2  | 92,260.6  | 110,818.8 |
| 2053 | 7     | 1,240,939,576.127 | 106.199018 | 2.6      | 28,781.5 | 3,946.0  | 99,056.4  | 131,786.6 |
| 2053 | 8     | 1,257,107,872.292 | 106.22331  | 0.0      | 32,526.9 | 3,869.5  | 97,137.7  | 133,534.2 |
| 2053 | 9     | 1,176,572,335.050 | 106.210429 | 11.2     | 26,111.9 | 3,786.6  | 95,054.6  | 124,964.3 |
| 2053 | 10    | 943,752,806.268   | 106.155842 | 1,851.7  | 9,353.0  | 3,408.8  | 85,571.4  | 100,184.9 |
| 2053 | 11    | 1,028,778,541.015 | 106.302639 | 15,519.2 | 1,244.3  | 3,547.4  | 89,051.0  | 109,361.9 |
| 2053 | 12    | 1,534,569,050.834 | 106.482236 | 41,938.6 | 90.9     | 4,649.8  | 116,725.0 | 163,404.3 |
| 2054 | 1     | 1,855,185,818.984 | 106.605657 | 61,032.6 | 25.2     | 5,176.2  | 131,539.4 | 197,773.3 |
| 2054 | 2     | 1,643,117,776.361 | 106.436369 | 68,842.2 | 19.6     | 4,014.2  | 102,011.5 | 174,887.5 |
| 2054 | 3     | 1,412,044,589.224 | 106.245279 | 50,742.8 | 123.0    | 3,754.2  | 95,403.1  | 150,023.1 |
| 2054 | 4     | 1,140,414,014.989 | 105.841741 | 23,767.1 | 1,331.3  | 3,619.7  | 91,985.4  | 120,703.4 |
| 2054 | 5     | 942,640,831.816   | 105.536906 | 5,686.4  | 4,480.3  | 3,381.6  | 85,935.1  | 99,483.4  |
| 2054 | 6     | 1,048,132,631.696 | 105.377078 | 765.3    | 14,037.4 | 3,621.2  | 92,025.2  | 110,449.2 |
| 2054 | 7     | 1,246,590,708.397 | 105.312176 | 2.6      | 28,637.4 | 3,886.1  | 98,755.1  | 131,281.2 |
| 2054 | 8     | 1,262,684,651.997 | 105.337157 | 0.0      | 32,364.9 | 3,810.4  | 96,832.3  | 133,007.6 |
| 2054 | 9     | 1,182,128,808.671 | 105.324979 | 11.1     | 25,982.5 | 3,729.8  | 94,784.3  | 124,507.7 |
| 2054 | 10    | 948,662,215.807   | 105.271045 | 1,829.4  | 9,306.9  | 3,359.4  | 85,371.0  | 99,866.7  |
| 2054 | 11    | 1,032,940,317.445 | 105.418494 | 15,332.3 | 1,238.2  | 3,495.3  | 88,825.2  | 108,891.0 |
| 2054 | 12    | 1,538,415,649.224 | 105.598811 | 41,434.9 | 90.5     | 4,578.5  | 116,351.0 | 162,454.9 |
| 2055 | 1     | 1,858,356,981.233 | 105.722804 | 60,286.0 | 25.0     | 5,094.6  | 131,065.1 | 196,470.7 |
| 2055 | 2     | 1,645,420,808.881 | 105.554085 | 68,001.4 | 19.5     | 3,953.4  | 101,706.5 | 173,680.9 |
| 2055 | 3     | 1,414,953,741.426 | 105.363632 | 50,123.8 | 122.4    | 3,698.2  | 95,140.2  | 149,084.7 |
| 2055 | 4     | 1,144,399,043.432 | 104.960676 | 23,477.4 | 1,324.6  | 3,566.4  | 91,748.5  | 120,116.9 |
| 2055 | 5     | 947,315,134.561   | 104.656441 | 5,617.2  | 4,457.8  | 3,332.6  | 85,735.0  | 99,142.6  |
| 2055 | 6     | 1,053,471,323.132 | 104.497264 | 756.0    | 13,967.3 | 3,568.1  | 91,793.5  | 110,084.9 |

Kentucky Power Company  
Residential Energy Model Output

| Year | Month | Total Usage       | Customers  | Heating  | Cooling  | Lighting | Other     | Total     |
|------|-------|-------------------|------------|----------|----------|----------|-----------|-----------|
| 2055 | 7     | 1,252,311,305.562 | 104.432991 | 2.6      | 28,495.0 | 3,827.2  | 98,457.9  | 130,782.6 |
| 2055 | 8     | 1,268,331,631.422 | 104.45863  | 0.0      | 32,205.0 | 3,752.3  | 96,530.9  | 132,488.2 |
| 2055 | 9     | 1,187,756,307.406 | 104.447123 | 10.9     | 25,854.8 | 3,674.0  | 94,518.0  | 124,057.7 |
| 2055 | 10    | 953,636,380.398   | 104.393812 | 1,807.3  | 9,261.4  | 3,310.8  | 85,174.2  | 99,553.7  |
| 2055 | 11    | 1,037,169,915.915 | 104.541883 | 15,148.1 | 1,232.2  | 3,444.1  | 88,603.3  | 108,427.7 |
| 2055 | 12    | 1,542,350,737.516 | 104.722891 | 40,938.6 | 90.0     | 4,508.4  | 115,982.4 | 161,519.4 |
| 2056 | 1     | 1,861,628,551.318 | 104.847428 | 59,550.6 | 24.9     | 5,014.5  | 130,597.0 | 195,187.0 |
| 2056 | 2     | 1,647,821,081.974 | 104.679251 | 67,173.4 | 19.4     | 3,893.7  | 101,406.1 | 172,492.7 |
| 2056 | 3     | 1,417,951,421.021 | 104.489406 | 49,514.3 | 121.8    | 3,643.1  | 94,881.7  | 148,160.9 |
| 2056 | 4     | 1,148,461,529.948 | 104.087006 | 23,192.2 | 1,318.0  | 3,513.9  | 91,515.8  | 119,539.9 |
| 2056 | 5     | 952,059,137.375   | 103.783346 | 5,549.0  | 4,435.7  | 3,284.4  | 85,538.8  | 98,807.9  |
| 2056 | 6     | 1,058,885,332.956 | 103.624793 | 746.8    | 13,898.2 | 3,515.8  | 91,565.9  | 109,726.8 |
| 2056 | 7     | 1,258,114,073.068 | 103.561122 | 2.5      | 28,354.7 | 3,769.2  | 98,165.2  | 130,291.7 |
| 2056 | 8     | 1,274,061,016.518 | 103.587394 | 0.0      | 32,047.4 | 3,695.1  | 96,234.2  | 131,976.7 |
| 2056 | 9     | 1,193,466,005.131 | 103.576532 | 10.8     | 25,729.0 | 3,619.1  | 94,256.1  | 123,615.1 |
| 2056 | 10    | 958,684,057.102   | 103.523819 | 1,785.6  | 9,216.5  | 3,263.0  | 84,981.5  | 99,246.6  |
| 2056 | 11    | 1,041,476,463.314 | 103.672488 | 14,966.9 | 1,226.2  | 3,393.7  | 88,385.6  | 107,972.5 |
| 2056 | 12    | 1,546,387,049.269 | 103.854162 | 40,450.2 | 89.6     | 4,439.4  | 115,619.6 | 160,598.7 |
| 2057 | 1     | 1,865,014,132.307 | 103.979221 | 58,826.9 | 24.8     | 4,935.7  | 130,135.3 | 193,922.7 |
| 2057 | 2     | 1,650,330,524.657 | 103.811563 | 66,358.4 | 19.3     | 3,834.9  | 101,110.7 | 171,323.4 |
| 2057 | 3     | 1,421,046,424.288 | 103.622305 | 48,914.3 | 121.2    | 3,589.0  | 94,627.6  | 147,252.1 |
| 2057 | 4     | 1,152,606,944.513 | 103.220439 | 22,911.4 | 1,311.5  | 3,462.3  | 91,287.4  | 118,972.6 |
| 2057 | 5     | 956,876,379.456   | 102.917332 | 5,481.9  | 4,413.9  | 3,237.0  | 85,346.4  | 98,479.2  |
| 2057 | 6     | 1,064,377,580.014 | 102.759381 | 737.8    | 13,830.1 | 3,464.4  | 91,342.4  | 109,374.8 |
| 2057 | 7     | 1,264,001,231.446 | 102.696292 | 2.5      | 28,216.5 | 3,712.2  | 97,877.0  | 129,808.2 |
| 2057 | 8     | 1,279,873,886.690 | 102.723176 | 0.0      | 31,892.1 | 3,638.8  | 95,941.7  | 131,472.7 |
| 2057 | 9     | 1,199,257,902.614 | 102.712938 | 10.7     | 25,605.0 | 3,565.1  | 93,998.5  | 123,179.3 |
| 2057 | 10    | 963,804,361.604   | 102.660803 | 1,764.3  | 9,172.4  | 3,216.0  | 84,792.4  | 98,944.9  |
| 2057 | 11    | 1,045,857,430.975 | 102.810049 | 14,788.3 | 1,220.4  | 3,344.1  | 88,171.8  | 107,524.7 |
| 2057 | 12    | 1,550,518,677.537 | 102.992368 | 39,969.0 | 89.2     | 4,371.6  | 115,261.9 | 159,691.6 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 677 of 1182

**LONG-TERM COMMERCIAL**

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther     | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|------------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2004 | 1     | 131,261.21 | 12,806.93 | 52.22     | 122,807.56 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 2     | 125,201.65 | 16,506.19 | 17.41     | 109,598.38 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 3     | 109,248.07 | 9,587.83  | 156.76    | 108,547.45 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 4     | 106,039.03 | 5,301.06  | 868.96    | 113,563.91 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 5     | 102,893.62 | 1,309.56  | 4,820.84  | 109,932.36 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 6     | 117,520.06 | 90.73     | 13,222.61 | 115,746.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 7     | 118,976.06 | 0.00      | 16,901.89 | 113,361.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 8     | 114,443.78 | 0.00      | 16,686.59 | 108,842.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 9     | 117,319.08 | 0.00      | 14,624.94 | 111,205.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 10    | 105,855.61 | 222.05    | 4,349.56  | 111,349.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00    | 0.00  |
| 2004 | 11    | 98,814.81  | 1,430.90  | 867.91    | 108,324.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00    | 0.00  |
| 2004 | 12    | 117,815.55 | 6,595.30  | 126.07    | 120,523.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 0.00  |
| 2005 | 1     | 129,923.75 | 11,079.96 | 0.00      | 120,670.04 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 2     | 124,572.17 | 13,299.73 | 0.00      | 109,413.79 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 3     | 117,738.85 | 11,349.19 | 0.00      | 108,695.92 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 4     | 108,703.50 | 5,271.56  | 388.16    | 112,232.54 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 5     | 100,091.47 | 1,521.66  | 1,427.81  | 107,426.38 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 6     | 112,547.88 | 207.51    | 8,337.62  | 114,725.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 7     | 123,433.60 | 0.00      | 23,743.62 | 111,947.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 8     | 128,530.45 | 0.00      | 30,276.26 | 108,222.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 9     | 129,452.72 | 0.00      | 22,802.19 | 112,587.79 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 10    | 112,861.11 | 129.23    | 10,487.51 | 108,194.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00    | 1.00  |
| 2005 | 11    | 105,939.34 | 3,258.98  | 660.87    | 110,475.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00    | 1.00  |
| 2005 | 12    | 127,394.44 | 11,065.30 | 97.38     | 118,338.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 1     | 135,491.87 | 10,736.64 | 0.00      | 120,953.03 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 2     | 120,935.03 | 9,120.31  | 0.00      | 109,030.33 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 3     | 113,477.41 | 10,326.21 | 90.82     | 104,726.16 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 4     | 104,629.62 | 5,357.33  | 1,092.55  | 105,329.89 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 5     | 103,898.11 | 438.01    | 1,834.89  | 109,223.81 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 6     | 112,025.55 | 84.36     | 6,917.92  | 112,451.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 7     | 121,843.93 | 0.00      | 17,037.81 | 110,890.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 8     | 125,800.38 | 0.00      | 26,832.10 | 104,193.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 9     | 127,451.38 | 19.92     | 17,045.93 | 111,542.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther     | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|------------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2006 | 10    | 107,090.52 | 824.63    | 2,400.63  | 107,019.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00    | 1.00  |
| 2006 | 11    | 105,875.30 | 4,534.98  | 165.31    | 106,558.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00    | 1.00  |
| 2006 | 12    | 121,307.33 | 7,138.44  | 172.46    | 114,179.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 1     | 127,171.78 | 7,448.30  | 19.14     | 116,980.68 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 2     | 132,079.58 | 14,967.53 | 0.00      | 104,055.65 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 3     | 122,153.43 | 12,603.01 | 146.24    | 102,914.82 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 4     | 112,596.65 | 4,354.09  | 1,904.20  | 108,880.45 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 5     | 109,476.17 | 1,642.50  | 3,304.75  | 106,204.50 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 6     | 117,861.06 | 67.62     | 11,693.29 | 107,716.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 7     | 122,280.24 | 0.00      | 19,043.54 | 106,748.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 8     | 125,107.34 | 0.00      | 22,323.35 | 104,026.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00    | 1.00  |
| 2007 | 9     | 135,178.77 | 0.00      | 24,624.59 | 107,746.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2007 | 10    | 116,735.40 | 138.63    | 11,450.34 | 105,169.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2007 | 11    | 108,929.70 | 2,709.50  | 1,943.44  | 106,801.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2007 | 12    | 122,828.83 | 7,708.82  | 0.00      | 114,004.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 1     | 135,988.54 | 10,160.03 | 0.00      | 115,403.29 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 2     | 128,780.73 | 12,401.26 | 0.00      | 102,488.23 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 3     | 122,687.26 | 10,604.68 | 0.00      | 102,905.16 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 4     | 112,736.81 | 4,780.81  | 93.78     | 105,925.61 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 5     | 103,319.37 | 1,061.20  | 1,221.79  | 102,294.06 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 6     | 114,938.69 | 72.68     | 7,253.97  | 107,205.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 7     | 122,829.36 | 0.00      | 15,072.67 | 105,514.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 8     | 124,863.56 | 0.00      | 18,219.04 | 103,538.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 9     | 127,141.73 | 0.00      | 16,895.08 | 105,374.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 10    | 111,421.47 | 174.59    | 6,553.39  | 101,709.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2008 | 11    | 106,285.45 | 3,413.40  | 421.68    | 101,759.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2008 | 12    | 131,453.16 | 11,078.65 | 0.00      | 110,350.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 1     | 140,607.60 | 11,771.23 | 0.00      | 112,077.23 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 2     | 135,440.16 | 14,288.27 | 0.00      | 100,164.79 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 3     | 117,944.09 | 9,213.66  | 265.67    | 97,051.18  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 4     | 108,021.95 | 3,549.65  | 201.46    | 101,329.25 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 5     | 105,589.96 | 915.93    | 3,853.30  | 100,415.70 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 6     | 114,602.84 | 88.69     | 7,747.04  | 101,872.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther     | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|------------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2009 | 7     | 119,391.20 | 0.00      | 13,342.13 | 101,393.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 8     | 118,640.01 | 0.00      | 13,737.45 | 98,913.93  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 9     | 122,206.78 | 0.00      | 13,116.57 | 99,914.79  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 10    | 110,816.07 | 638.62    | 4,692.97  | 99,641.60  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2009 | 11    | 102,272.00 | 2,546.06  | 193.30    | 97,878.33  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2009 | 12    | 122,093.41 | 6,697.61  | 12.50     | 108,724.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 1     | 145,310.56 | 13,527.83 | 0.00      | 108,617.42 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 2     | 130,432.77 | 13,515.07 | 0.00      | 95,834.46  | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 3     | 125,707.23 | 11,072.77 | 0.00      | 96,236.18  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 4     | 109,887.19 | 2,582.29  | 1,551.62  | 101,235.15 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 5     | 103,329.99 | 671.20    | 2,437.65  | 96,591.12  | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 6     | 120,865.71 | 108.81    | 11,883.79 | 101,293.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 7     | 128,707.61 | 0.00      | 21,383.70 | 100,117.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 8     | 130,361.66 | 0.00      | 24,919.43 | 97,458.76  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 9     | 127,048.33 | 0.00      | 17,590.07 | 99,191.92  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 10    | 109,352.30 | 213.02    | 6,587.54  | 97,301.21  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2010 | 11    | 101,528.61 | 2,266.13  | 633.52    | 95,624.45  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2010 | 12    | 126,389.76 | 9,192.50  | 0.00      | 105,868.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 1     | 149,474.96 | 14,286.85 | 0.00      | 104,920.87 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 2     | 127,879.06 | 13,010.92 | 0.00      | 93,653.65  | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 3     | 113,092.78 | 6,748.30  | 100.31    | 93,580.61  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 4     | 105,814.35 | 4,325.59  | 964.29    | 94,190.18  | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 5     | 104,301.75 | 836.35    | 2,887.94  | 96,707.23  | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 6     | 113,790.39 | 268.51    | 10,781.09 | 96,137.91  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 7     | 120,705.55 | 0.00      | 16,830.40 | 96,330.70  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 8     | 126,716.55 | 0.00      | 24,899.10 | 92,957.79  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 9     | 121,535.21 | 2.97      | 14,868.04 | 95,314.18  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 10    | 104,793.45 | 522.07    | 2,649.62  | 93,938.76  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2011 | 11    | 101,275.54 | 2,610.55  | 61.29     | 92,501.98  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2011 | 12    | 117,315.03 | 4,763.41  | 91.87     | 101,624.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 1     | 127,270.25 | 8,052.13  | 0.00      | 100,808.95 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 2     | 118,462.49 | 8,387.46  | 0.00      | 92,315.57  | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 3     | 108,112.96 | 6,016.30  | 551.27    | 90,377.39  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther     | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|------------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2012 | 4     | 99,605.52  | 1,267.01  | 2,298.78  | 92,815.00  | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 5     | 101,832.00 | 860.71    | 3,346.45  | 92,954.74  | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 6     | 110,870.17 | 4.36      | 9,914.64  | 94,983.50  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 7     | 122,720.07 | 0.00      | 22,219.46 | 95,950.97  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 8     | 118,371.52 | 0.00      | 21,872.56 | 90,546.45  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 9     | 120,105.28 | 10.50     | 15,426.45 | 94,984.44  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 10    | 102,106.00 | 697.84    | 3,712.53  | 91,406.81  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2012 | 11    | 101,170.20 | 3,629.94  | 477.53    | 92,351.13  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2012 | 12    | 116,894.04 | 5,933.57  | 0.00      | 99,792.42  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 1     | 127,144.10 | 8,975.04  | 0.00      | 100,566.90 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 2     | 121,020.08 | 10,518.59 | 0.00      | 90,839.81  | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 3     | 117,121.12 | 9,092.96  | 0.00      | 91,140.51  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 4     | 110,335.01 | 5,943.16  | 1,093.59  | 93,773.90  | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 5     | 98,184.08  | 721.52    | 2,945.93  | 92,023.57  | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 6     | 108,408.73 | 126.05    | 10,788.17 | 94,165.39  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 7     | 114,707.62 | 0.00      | 18,792.16 | 92,524.17  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 8     | 115,109.27 | 0.00      | 17,544.80 | 91,045.08  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 9     | 116,211.82 | 0.00      | 15,145.66 | 92,590.31  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 10    | 104,867.08 | 174.73    | 5,994.35  | 91,002.97  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2013 | 11    | 99,749.84  | 2,932.76  | 863.05    | 90,319.68  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2013 | 12    | 122,293.12 | 7,919.83  | 25.63     | 99,796.96  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 1     | 138,723.64 | 10,111.84 | 48.87     | 100,014.20 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 2     | 132,750.57 | 13,407.36 | 0.00      | 88,421.60  | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 3     | 118,767.78 | 9,549.36  | 0.00      | 88,491.20  | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 4     | 102,879.64 | 4,654.94  | 383.25    | 88,867.85  | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 5     | 101,231.35 | 569.56    | 2,063.55  | 91,812.43  | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 6     | 108,895.04 | 156.93    | 7,950.01  | 90,529.17  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 7     | 116,182.32 | 0.00      | 16,773.74 | 90,505.43  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 8     | 110,607.90 | 0.00      | 11,872.81 | 88,232.03  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 9     | 116,968.69 | 0.00      | 13,751.63 | 89,943.31  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 10    | 100,313.15 | 282.29    | 3,479.52  | 86,539.25  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2014 | 11    | 98,442.65  | 3,160.22  | 325.10    | 87,112.31  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2014 | 12    | 119,843.22 | 7,582.13  | 0.99      | 94,941.22  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2015 | 1     | 130,135.98 | 8,991.47  | 0.00      | 96,000.38 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 2     | 126,178.13 | 11,239.28 | 0.00      | 85,771.68 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 3     | 125,608.10 | 11,802.49 | 0.00      | 85,790.68 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 4     | 102,045.41 | 3,331.89  | 282.58    | 88,905.19 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 5     | 97,219.82  | 822.19    | 3,089.32  | 86,287.60 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 6     | 109,164.96 | 28.00     | 11,356.68 | 88,070.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 7     | 114,739.04 | 0.00      | 16,169.30 | 87,245.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 8     | 113,629.48 | 0.00      | 17,151.81 | 83,606.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 9     | 114,534.76 | 0.00      | 13,073.86 | 87,877.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 10    | 102,147.27 | 274.51    | 4,136.73  | 86,682.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2015 | 11    | 93,346.37  | 1,583.33  | 285.36    | 84,967.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2015 | 12    | 107,110.53 | 3,906.97  | 59.21     | 93,433.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 1     | 119,353.65 | 6,280.89  | 0.00      | 95,417.16 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 2     | 120,158.78 | 10,464.32 | 0.00      | 83,944.24 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 3     | 108,145.74 | 5,880.82  | 73.12     | 84,674.15 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 4     | 97,128.24  | 2,102.46  | 541.41    | 87,346.58 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 5     | 92,930.87  | 699.38    | 2,857.33  | 83,241.37 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 6     | 104,329.06 | 163.07    | 9,639.10  | 86,955.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 7     | 113,689.20 | 0.00      | 17,883.27 | 86,227.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 8     | 118,026.03 | 0.00      | 23,905.75 | 83,116.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 9     | 122,192.47 | 0.00      | 21,979.78 | 86,168.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 10    | 103,959.87 | 27.03     | 10,520.75 | 84,065.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2016 | 11    | 92,163.82  | 892.13    | 2,534.21  | 82,748.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2016 | 12    | 109,644.24 | 5,229.37  | 104.45    | 91,103.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 1     | 118,731.56 | 6,886.87  | 0.00      | 92,032.22 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 2     | 105,050.30 | 5,735.74  | 0.00      | 83,123.56 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 3     | 98,705.09  | 4,500.72  | 34.25     | 82,077.97 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 4     | 93,826.53  | 2,782.85  | 809.20    | 81,693.08 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 5     | 91,310.65  | 379.71    | 4,274.84  | 81,469.02 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 6     | 99,782.60  | 91.56     | 8,044.31  | 85,634.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 7     | 109,548.85 | 0.00      | 16,087.10 | 85,866.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 8     | 109,759.44 | 0.00      | 17,186.34 | 82,360.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 9     | 106,980.72 | 0.00      | 10,240.83 | 84,586.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat     | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|-----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2017 | 10    | 98,745.79  | 49.95     | 7,552.63  | 83,177.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2017 | 11    | 93,083.14  | 2,026.14  | 1,374.88  | 82,987.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2017 | 12    | 108,115.36 | 5,452.32  | 51.44     | 90,207.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 1     | 131,950.31 | 10,744.86 | 106.34    | 91,100.08 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 2     | 115,602.93 | 8,710.93  | 179.43    | 82,453.72 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 3     | 98,366.54  | 4,853.28  | 360.63    | 81,669.14 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 4     | 99,837.08  | 4,666.03  | 415.81    | 85,391.39 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 5     | 91,876.04  | 1,145.26  | 4,517.52  | 81,588.74 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 6     | 109,326.56 | 15.43     | 15,209.72 | 87,006.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 7     | 112,046.81 | 0.00      | 20,280.83 | 84,687.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 8     | 108,104.13 | 0.00      | 18,517.82 | 81,095.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 9     | 113,014.22 | 0.00      | 18,755.45 | 84,143.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 10    | 102,370.79 | 290.52    | 11,745.59 | 81,959.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2018 | 11    | 92,160.43  | 2,812.58  | 1,715.76  | 83,113.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2018 | 12    | 108,179.47 | 6,477.69  | 9.47      | 88,383.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 1     | 114,290.52 | 6,532.49  | 0.00      | 91,040.86 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 2     | 110,973.66 | 8,121.42  | 0.00      | 81,582.46 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 3     | 100,286.48 | 6,377.24  | 49.02     | 80,367.10 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 4     | 91,402.91  | 3,217.88  | 575.20    | 80,873.82 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 5     | 93,168.03  | 290.73    | 3,654.77  | 84,838.67 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 6     | 100,460.50 | 4.47      | 10,149.69 | 84,545.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 7     | 108,346.66 | 0.00      | 17,627.64 | 84,533.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 8     | 110,692.35 | 0.00      | 20,488.26 | 81,849.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 9     | 112,581.55 | 0.00      | 17,162.26 | 84,355.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 10    | 101,520.97 | 107.58    | 13,500.72 | 81,002.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2019 | 11    | 89,012.20  | 2,482.21  | 1,135.61  | 80,707.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2019 | 12    | 107,718.49 | 5,997.89  | 0.00      | 89,163.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 1     | 111,379.78 | 5,308.14  | 105.49    | 91,164.66 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 2     | 100,545.72 | 6,548.34  | 105.51    | 80,201.62 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 3     | 98,639.38  | 5,443.97  | 7.54      | 80,337.60 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 4     | 83,184.56  | 1,974.21  | 1,025.36  | 83,609.63 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 5     | 76,900.06  | 1,543.94  | 1,265.27  | 82,392.15 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 6     | 88,274.61  | 417.17    | 9,568.69  | 83,387.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales      | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|------------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2020 | 7     | 100,734.02 | 0.00     | 18,069.89 | 83,632.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 8     | 105,698.05 | 0.00     | 22,943.85 | 81,197.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 9     | 102,409.90 | 0.00     | 16,628.49 | 82,847.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 10    | 87,903.96  | 183.50   | 3,996.82  | 81,826.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2020 | 11    | 81,580.54  | 1,264.57 | 697.48    | 80,764.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2020 | 12    | 96,646.76  | 4,694.66 | 66.13     | 88,449.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 1     | 112,022.73 | 7,697.75 | 0.00      | 90,377.10 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 2     | 103,356.62 | 9,375.70 | 0.00      | 82,433.35 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 3     | 102,140.66 | 7,302.33 | 16.88     | 78,813.89 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 4     | 87,279.71  | 1,984.01 | 440.18    | 82,651.30 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 5     | 82,131.97  | 1,014.83 | 1,707.64  | 79,720.47 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 6     | 91,048.53  | 129.33   | 8,197.40  | 82,556.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 7     | 102,130.22 | 4.61     | 15,998.90 | 82,587.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 8     | 102,835.91 | 0.00     | 18,341.92 | 80,124.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 9     | 105,355.01 | 0.00     | 17,624.38 | 81,372.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 10    | 92,906.90  | 19.78    | 7,532.37  | 80,664.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2021 | 11    | 85,324.23  | 1,641.80 | 1,867.26  | 78,667.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2021 | 12    | 101,110.96 | 4,641.31 | 0.00      | 87,016.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 1     | 107,514.51 | 5,391.74 | 0.00      | 87,829.73 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 2     |            | 8,608.20 | 10.96     | 78,742.81 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 3     |            | 6,376.97 | 68.97     | 78,052.28 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 4     |            | 3,082.27 | 765.70    | 80,491.92 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 5     |            | 738.80   | 2,582.59  | 79,510.40 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 6     |            | 98.56    | 8,040.08  | 81,956.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 7     |            | 0.33     | 16,379.02 | 81,487.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 8     |            | 0.00     | 18,639.58 | 78,682.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 9     |            | 1.43     | 14,959.87 | 81,200.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 10    |            | 239.03   | 5,394.82  | 79,499.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2022 | 11    |            | 2,003.46 | 717.46    | 79,090.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2022 | 12    |            | 5,275.83 | 51.35     | 86,656.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 1     |            | 7,602.19 | 14.13     | 87,870.32 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 2     |            | 8,545.78 | 11.00     | 78,764.94 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 3     |            | 6,329.67 | 69.23     | 78,061.21 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales    | XHeat     | XCool     | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|----------|-----------|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2023 | 4     | 3,058.98 | 768.53    | 80,489.85 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 5     | 733.11   | 2,591.77  | 79,496.98 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 6     | 97.73    | 8,062.43  | 81,879.77 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 7     | 0.33     | 16,411.86 | 81,348.18 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 8     | 0.00     | 18,674.06 | 78,535.39 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 9     | 1.42     | 14,984.87 | 81,034.63 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 10    | 236.70   | 5,402.71  | 79,320.05 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2023 | 11    | 1,983.36 | 718.32    | 78,890.98 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2023 | 12    | 5,210.67 | 51.29     | 86,235.96 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 1     | 7,497.54 | 14.11     | 87,480.17 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 2     | 8,426.35 | 10.99     | 78,398.56 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 3     | 6,239.87 | 69.12     | 77,681.41 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 4     | 3,014.85 | 767.12    | 80,078.77 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 5     | 722.38   | 2,586.45  | 79,073.69 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 6     | 96.28    | 8,044.47  | 81,429.48 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 7     | 0.33     | 16,373.01 | 80,889.57 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 8     | 0.00     | 18,626.91 | 78,080.25 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 9     | 1.40     | 14,944.92 | 80,553.58 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 10    | 233.05   | 5,387.55  | 78,838.27 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2024 | 11    | 1,952.62 | 716.22    | 78,402.59 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2024 | 12    | 5,129.46 | 51.14     | 85,694.70 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 1     | 7,364.23 | 14.03     | 86,941.90 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 2     | 8,274.56 | 10.92     | 77,897.71 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 3     | 6,126.01 | 68.72     | 77,166.85 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 4     | 2,959.09 | 762.46    | 79,528.32 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 5     | 708.84   | 2,570.09  | 78,510.47 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 6     | 94.46    | 7,991.82  | 80,831.52 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 7     | 0.32     | 16,262.25 | 80,277.73 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 8     | 0.00     | 18,496.08 | 77,469.51 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 9     | 1.37     | 14,836.10 | 79,902.76 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 10    | 228.40   | 5,346.84  | 78,179.60 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2025 | 11    | 1,913.08 | 710.60    | 77,724.34 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2025 | 12    | 5,024.19 | 50.72     | 84,929.64 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales    | XHeat     | XCool     | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|----------|-----------|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2026 | 1     | 7,213.56 | 13.97     | 85,996.09 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 2     | 8,104.80 | 10.87     | 77,045.90 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 3     | 5,999.96 | 68.38     | 76,318.24 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 4     | 2,898.01 | 758.62    | 78,648.41 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 5     | 694.16   | 2,556.98  | 77,637.05 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 6     | 92.50    | 7,950.58  | 79,927.49 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 7     | 0.31     | 16,177.34 | 79,375.06 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 8     | 0.00     | 18,398.54 | 76,594.37 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 9     | 1.34     | 14,757.05 | 78,995.79 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 10    | 223.61   | 5,318.07  | 77,288.13 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2026 | 11    | 1,872.86 | 706.74    | 76,834.66 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2026 | 12    | 4,918.34 | 50.45     | 83,953.64 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 1     | 7,065.95 | 13.88     | 85,117.67 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 2     | 7,938.64 | 10.81     | 76,255.91 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 3     | 5,876.72 | 67.98     | 75,532.75 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 4     | 2,838.38 | 754.15    | 77,836.09 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 5     | 679.86   | 2,541.83  | 76,832.24 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 6     | 90.59    | 7,903.19  | 79,096.23 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 7     | 0.31     | 16,080.52 | 78,547.66 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 8     | 0.00     | 18,287.83 | 75,793.48 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 9     | 1.31     | 14,667.91 | 78,167.98 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 10    | 218.97   | 5,285.83  | 76,476.44 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2027 | 11    | 1,833.95 | 702.44    | 76,025.46 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2027 | 12    | 4,816.06 | 50.14     | 83,067.71 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 1     | 6,924.71 | 13.83     | 84,233.34 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 2     | 7,779.25 | 10.77     | 75,456.81 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 3     | 5,758.21 | 67.71     | 74,734.55 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 4     | 2,780.88 | 751.17    | 77,006.34 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 5     | 666.02   | 2,531.55  | 76,006.23 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 6     | 88.74    | 7,870.62  | 78,239.86 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 7     | 0.30     | 16,013.05 | 77,691.43 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 8     | 0.00     | 18,209.64 | 74,961.27 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 9     | 1.29     | 14,604.04 | 77,303.55 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2028 | 10    |       | 214.43   | 5,262.36  | 75,624.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2028 | 11    |       | 1,795.77 | 699.26    | 75,171.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2028 | 12    |       | 4,715.44 | 49.91     | 82,128.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 1     |       | 6,776.18 | 13.80     | 83,326.81 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 2     |       | 7,613.11 | 10.74     | 74,651.79 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 3     |       | 5,635.77 | 67.55     | 73,944.23 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 4     |       | 2,722.02 | 749.43    | 76,199.60 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 5     |       | 651.99   | 2,525.94  | 75,217.52 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 6     |       | 86.87    | 7,853.88  | 77,434.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 7     |       | 0.29     | 15,980.33 | 76,898.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 8     |       | 0.00     | 18,174.11 | 74,202.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 9     |       | 1.26     | 14,576.84 | 76,528.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 10    |       | 210.01   | 5,253.06  | 74,872.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2029 | 11    |       | 1,758.89 | 698.09    | 74,432.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2029 | 12    |       | 4,618.98 | 49.83     | 81,327.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 1     |       | 6,633.76 | 13.78     | 82,270.77 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 2     |       | 7,451.01 | 10.72     | 73,684.99 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 3     |       | 5,514.17 | 67.43     | 72,965.36 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 4     |       | 2,662.47 | 747.89    | 75,167.69 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 5     |       | 637.53   | 2,519.97  | 74,176.04 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 6     |       | 84.92    | 7,833.28  | 76,342.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 7     |       | 0.29     | 15,934.35 | 75,794.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 8     |       | 0.00     | 18,116.69 | 73,117.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 9     |       | 1.23     | 14,526.78 | 75,387.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 10    |       | 205.07   | 5,233.53  | 73,736.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2030 | 11    |       | 1,717.04 | 695.29    | 73,280.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2030 | 12    |       | 4,507.86 | 49.61     | 80,047.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 1     |       | 6,496.82 | 13.69     | 81,100.03 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 2     |       | 7,298.98 | 10.65     | 72,654.12 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 3     |       | 5,403.00 | 67.00     | 71,962.52 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 4     |       | 2,609.49 | 743.28    | 74,154.34 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 5     |       | 625.01   | 2,505.12  | 73,195.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 6     |       | 83.28    | 7,788.90  | 75,350.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2031 | 7     |       | 0.28     | 15,847.70 | 74,826.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 8     |       | 0.00     | 18,022.64 | 72,201.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 9     |       | 1.21     | 14,454.92 | 74,461.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 10    |       | 201.29   | 5,208.94  | 72,848.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2031 | 11    |       | 1,685.79 | 692.20    | 72,417.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2031 | 12    |       | 4,426.87 | 49.41     | 79,124.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 1     |       | 6,380.53 | 13.65     | 80,251.21 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 2     |       | 7,168.40 | 10.63     | 71,894.36 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 3     |       | 5,306.38 | 66.83     | 71,210.52 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 4     |       | 2,562.85 | 741.39    | 73,380.32 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 5     |       | 613.85   | 2,498.75  | 72,432.13 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 6     |       | 81.79    | 7,769.15  | 74,565.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 7     |       | 0.28     | 15,807.52 | 74,047.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 8     |       | 0.00     | 17,977.12 | 71,449.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 9     |       | 1.19     | 14,418.45 | 73,686.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 10    |       | 197.69   | 5,195.82  | 72,090.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2032 | 11    |       | 1,655.71 | 690.46    | 71,664.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2032 | 12    |       | 4,347.91 | 49.28     | 78,301.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 1     |       | 6,263.60 | 13.60     | 79,459.99 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 2     |       | 7,037.24 | 10.59     | 71,187.71 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 3     |       | 5,209.49 | 66.60     | 70,513.25 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 4     |       | 2,516.13 | 738.90    | 72,663.87 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 5     |       | 602.67   | 2,490.45  | 71,727.32 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 6     |       | 80.30    | 7,743.57  | 73,842.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 7     |       | 0.27     | 15,755.90 | 73,330.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 8     |       | 0.00     | 17,918.99 | 70,760.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 9     |       | 1.16     | 14,372.16 | 72,977.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 10    |       | 194.12   | 5,179.29  | 71,399.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2033 | 11    |       | 1,625.86 | 688.28    | 70,978.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2033 | 12    |       | 4,269.64 | 49.13     | 77,554.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 1     |       | 6,145.71 | 13.58     | 78,765.81 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 2     |       | 6,905.16 | 10.57     | 70,569.61 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 3     |       | 5,111.98 | 66.50     | 69,904.65 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2034 | 4     |       | 2,469.19 | 737.80    | 72,041.16 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 5     |       | 591.46   | 2,486.87  | 71,116.53 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 6     |       | 78.81    | 7,732.83  | 73,216.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 7     |       | 0.27     | 15,734.83 | 72,713.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 8     |       | 0.00     | 17,895.91 | 70,168.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 9     |       | 1.14     | 14,354.46 | 72,371.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 10    |       | 190.56   | 5,173.20  | 70,809.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2034 | 11    |       | 1,596.13 | 687.52    | 70,397.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2034 | 12    |       | 4,191.78 | 49.07     | 76,922.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 1     |       | 6,031.42 | 13.57     | 78,188.11 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 2     |       | 6,776.72 | 10.57     | 70,051.71 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 3     |       | 5,016.87 | 66.46     | 69,391.31 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 4     |       | 2,423.23 | 737.34    | 71,511.73 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 5     |       | 580.45   | 2,485.32  | 70,593.66 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 6     |       | 77.35    | 7,727.92  | 72,677.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 7     |       | 0.26     | 15,724.75 | 72,177.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 8     |       | 0.00     | 17,884.24 | 69,650.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 9     |       | 1.12     | 14,344.98 | 71,836.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 10    |       | 187.01   | 5,169.73  | 70,285.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2035 | 11    |       | 1,566.32 | 687.04    | 69,875.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2035 | 12    |       | 4,113.45 | 49.04     | 76,351.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 1     |       | 5,917.70 | 13.57     | 77,660.18 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 2     |       | 6,648.82 | 10.57     | 69,577.28 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 3     |       | 4,922.11 | 66.45     | 68,920.32 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 4     |       | 2,377.42 | 737.28    | 71,025.09 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 5     |       | 569.47   | 2,485.07  | 70,112.05 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 6     |       | 75.88    | 7,727.10  | 72,181.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 7     |       | 0.26     | 15,722.83 | 71,683.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 8     |       | 0.00     | 17,881.97 | 69,173.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 9     |       | 1.10     | 14,343.01 | 71,344.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 10    |       | 183.46   | 5,168.98  | 69,803.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2036 | 11    |       | 1,536.60 | 686.94    | 69,394.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2036 | 12    |       | 4,035.38 | 49.03     | 75,826.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales    | XHeat     | XCool     | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|----------|-----------|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2037 | 1     | 5,803.33 | 13.58     | 77,165.05 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 2     | 6,520.31 | 10.57     | 69,133.69 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 3     | 4,826.93 | 66.49     | 68,480.23 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 4     | 2,331.43 | 737.65    | 70,571.09 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 5     | 558.45   | 2,486.30  | 69,663.37 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 6     | 74.41    | 7,730.79  | 71,718.54 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 7     | 0.25     | 15,730.24 | 71,223.34 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 8     | 0.00     | 17,890.07 | 68,728.30 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 9     | 1.08     | 14,349.30 | 70,883.52 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 10    | 179.90   | 5,171.15  | 69,351.46 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2037 | 11    | 1,506.73 | 687.22    | 68,944.63 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2037 | 12    | 3,956.86 | 49.05     | 75,333.12 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 1     | 5,688.19 | 13.58     | 76,692.84 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 2     | 6,390.70 | 10.57     | 68,708.05 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 3     | 4,730.83 | 66.46     | 68,056.47 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 4     | 2,284.93 | 737.33    | 70,131.86 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 5     | 547.29   | 2,485.15  | 69,227.47 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 6     | 72.92    | 7,727.02  | 71,267.86 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 7     | 0.25     | 15,722.11 | 70,773.77 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 8     | 0.00     | 17,880.35 | 68,292.69 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 9     | 1.06     | 14,341.18 | 70,432.61 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 10    | 176.28   | 5,168.11  | 68,908.85 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2038 | 11    | 1,476.42 | 686.80    | 68,503.24 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2038 | 12    | 3,877.17 | 49.02     | 74,849.22 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 1     | 5,575.77 | 13.58     | 76,231.21 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 2     | 6,264.40 | 10.57     | 68,294.42 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 3     | 4,637.31 | 66.51     | 67,646.40 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 4     | 2,239.75 | 737.84    | 69,708.87 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 5     | 536.47   | 2,486.86  | 68,809.67 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 6     | 71.48    | 7,732.26  | 70,837.14 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 7     | 0.24     | 15,732.68 | 70,345.65 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 8     | 0.00     | 17,892.22 | 67,878.95 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 9     | 1.04     | 14,350.59 | 70,005.39 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2039 | 10    |       | 172.79   | 5,171.45  | 68,490.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2039 | 11    |       | 1,447.13 | 687.23    | 68,085.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2039 | 12    |       | 3,800.24 | 49.05     | 74,392.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 1     |       | 5,465.58 | 13.58     | 75,715.76 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 2     |       | 6,140.19 | 10.57     | 67,828.11 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 3     |       | 4,545.05 | 66.45     | 67,179.99 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 4     |       | 2,195.04 | 737.22    | 69,223.45 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 5     |       | 525.72   | 2,484.59  | 68,325.84 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 6     |       | 70.04    | 7,724.75  | 70,334.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 7     |       | 0.24     | 15,716.46 | 69,842.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 8     |       | 0.00     | 17,872.67 | 67,389.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 9     |       | 1.02     | 14,333.96 | 69,496.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 10    |       | 169.27   | 5,165.13  | 67,987.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2040 | 11    |       | 1,417.61 | 686.35    | 67,581.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2040 | 12    |       | 3,722.47 | 48.99     | 73,836.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 1     |       | 5,355.88 | 13.58     | 75,202.01 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 2     |       | 6,017.18 | 10.57     | 67,370.52 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 3     |       | 4,454.18 | 66.47     | 66,729.40 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 4     |       | 2,151.24 | 737.40    | 68,761.91 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 5     |       | 515.25   | 2,485.30  | 67,872.86 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 6     |       | 68.65    | 7,727.22  | 69,870.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 7     |       | 0.23     | 15,722.00 | 69,384.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 8     |       | 0.00     | 17,879.61 | 66,949.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 9     |       | 1.00     | 14,339.98 | 69,044.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 10    |       | 165.93   | 5,167.48  | 67,548.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2041 | 11    |       | 1,389.66 | 686.68    | 67,147.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2041 | 12    |       | 3,649.18 | 49.01     | 73,364.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 1     |       | 5,247.08 | 13.59     | 74,760.77 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 2     |       | 5,895.12 | 10.58     | 66,977.22 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 3     |       | 4,363.99 | 66.52     | 66,342.34 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 4     |       | 2,107.76 | 738.01    | 68,365.77 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 5     |       | 504.86   | 2,487.43  | 67,484.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 6     |       | 67.27    | 7,734.08  | 69,473.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2042 | 7     |       | 0.23     | 15,736.55 | 68,991.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 8     |       | 0.00     | 17,896.80 | 66,573.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 9     |       | 0.98     | 14,354.29 | 68,658.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 10    |       | 162.61   | 5,172.83  | 67,173.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2042 | 11    |       | 1,361.93 | 687.43    | 66,778.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2042 | 12    |       | 3,576.53 | 49.07     | 72,964.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 1     |       | 5,145.47 | 13.60     | 74,419.45 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 2     |       | 5,780.97 | 10.59     | 66,671.44 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 3     |       | 4,279.47 | 66.58     | 66,039.31 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 4     |       | 2,066.93 | 738.65    | 68,053.25 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 5     |       | 495.08   | 2,489.60  | 67,175.58 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 6     |       | 65.97    | 7,740.85  | 69,155.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 7     |       | 0.22     | 15,750.24 | 68,675.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 8     |       | 0.00     | 17,912.31 | 66,268.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 9     |       | 0.96     | 14,366.74 | 68,344.42 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 10    |       | 159.46   | 5,177.30  | 66,865.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2043 | 11    |       | 1,335.53 | 688.02    | 66,471.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2043 | 12    |       | 3,507.17 | 49.11     | 72,628.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 1     |       | 5,047.40 | 13.63     | 74,112.02 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 2     |       | 5,670.83 | 10.61     | 66,396.58 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 3     |       | 4,197.97 | 66.75     | 65,767.47 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 4     |       | 2,027.60 | 740.57    | 67,774.05 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 5     |       | 485.66   | 2,496.09  | 66,900.81 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 6     |       | 64.71    | 7,761.11  | 68,873.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 7     |       | 0.22     | 15,791.60 | 68,396.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 8     |       | 0.00     | 17,959.61 | 65,999.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 9     |       | 0.94     | 14,404.91 | 68,068.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 10    |       | 156.44   | 5,191.13  | 66,596.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2044 | 11    |       | 1,310.23 | 689.87    | 66,204.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2044 | 12    |       | 3,440.80 | 49.24     | 72,338.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 1     |       | 4,956.33 | 13.66     | 73,858.12 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 2     |       | 5,568.42 | 10.63     | 66,167.94 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 3     |       | 4,122.10 | 66.88     | 65,540.07 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2045 | 4     |       | 1,990.90 | 742.00    | 67,538.17 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 5     |       | 476.86   | 2,500.87  | 66,666.68 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 6     |       | 63.54    | 7,775.82  | 68,631.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 7     |       | 0.22     | 15,821.27 | 68,154.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 8     |       | 0.00     | 17,992.92 | 65,764.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 9     |       | 0.92     | 14,431.30 | 67,824.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 10    |       | 153.59   | 5,200.51  | 66,356.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2045 | 11    |       | 1,286.33 | 691.09    | 65,964.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2045 | 12    |       | 3,377.94 | 49.33     | 72,074.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 1     |       | 4,867.50 | 13.71     | 73,626.77 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 2     |       | 5,468.48 | 10.67     | 65,959.09 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 3     |       | 4,047.98 | 67.13     | 65,330.92 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 4     |       | 1,955.04 | 744.68    | 67,320.48 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 5     |       | 468.26   | 2,509.82  | 66,449.56 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 6     |       | 62.39    | 7,803.44  | 68,405.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 7     |       | 0.21     | 15,877.03 | 67,928.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 8     |       | 0.00     | 18,055.82 | 65,544.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 9     |       | 0.90     | 14,481.26 | 67,595.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 10    |       | 150.79   | 5,218.37  | 66,130.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2046 | 11    |       | 1,262.89 | 693.44    | 65,737.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2046 | 12    |       | 3,316.29 | 49.49     | 71,824.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 1     |       | 4,778.97 | 13.75     | 73,417.02 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 2     |       | 5,369.05 | 10.70     | 65,771.47 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 3     |       | 3,974.42 | 67.32     | 65,145.87 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 4     |       | 1,919.54 | 746.81    | 67,130.46 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 5     |       | 459.76   | 2,517.02  | 66,262.81 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 6     |       | 61.26    | 7,825.89  | 68,213.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 7     |       | 0.21     | 15,922.83 | 67,738.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 8     |       | 0.00     | 18,108.13 | 65,362.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 9     |       | 0.89     | 14,523.43 | 67,408.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 10    |       | 148.06   | 5,233.63  | 65,948.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2047 | 11    |       | 1,240.05 | 695.48    | 65,557.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2047 | 12    |       | 3,256.36 | 49.64     | 71,628.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales    | XHeat     | XCool     | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|----------|-----------|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2048 | 1     | 4,692.93 | 13.78     | 73,257.48 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 2     | 5,272.30 | 10.73     | 65,627.54 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 3     | 3,902.73 | 67.47     | 65,002.12 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 4     | 1,884.88 | 748.50    | 66,981.13 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 5     | 451.45   | 2,522.69  | 66,114.80 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 6     | 60.15    | 7,843.43  | 68,060.76 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 7     | 0.20     | 15,958.38 | 67,586.35 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 8     | 0.00     | 18,148.37 | 65,214.54 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 9     | 0.87     | 14,555.54 | 67,255.22 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 10    | 145.38   | 5,245.13  | 65,797.34 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2048 | 11    | 1,217.57 | 697.00    | 65,407.11 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2048 | 12    | 3,197.31 | 49.75     | 71,463.51 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 1     | 4,598.40 | 13.83     | 73,143.86 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 2     | 5,166.36 | 10.77     | 65,529.16 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 3     | 3,824.51 | 67.72     | 64,908.08 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 4     | 1,847.19 | 751.31    | 66,887.57 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 5     | 442.45   | 2,532.30  | 66,025.55 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 6     | 58.95    | 7,873.65  | 67,971.85 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 7     | 0.20     | 16,020.51 | 67,500.83 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 8     | 0.00     | 18,219.84 | 65,134.92 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 9     | 0.85     | 14,613.49 | 67,176.01 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 10    | 142.51   | 5,266.27  | 65,723.01 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2049 | 11    | 1,193.60 | 699.84    | 65,335.92 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2049 | 12    | 3,134.48 | 49.95     | 71,388.53 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 1     | 4,508.57 | 13.90     | 73,110.71 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 2     | 5,065.47 | 10.82     | 65,499.81 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 3     | 3,749.87 | 68.05     | 64,879.73 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 4     | 1,811.17 | 754.97    | 66,859.40 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 5     | 433.82   | 2,544.64  | 65,998.23 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 6     | 57.80    | 7,912.11  | 67,944.61 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 7     | 0.20     | 16,098.95 | 67,474.52 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 8     | 0.00     | 18,309.29 | 65,110.41 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 9     | 0.84     | 14,685.39 | 67,151.45 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2050 | 10    |       | 139.74   | 5,292.25  | 65,699.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2050 | 11    |       | 1,170.42 | 703.31    | 65,313.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2050 | 12    |       | 3,073.66 | 50.20     | 71,365.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 1     |       | 4,426.11 | 13.95     | 73,015.44 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 2     |       | 4,972.86 | 10.86     | 65,414.93 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 3     |       | 3,681.34 | 68.32     | 64,796.27 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 4     |       | 1,778.08 | 757.96    | 66,773.63 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 5     |       | 425.90   | 2,554.73  | 65,914.31 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 6     |       | 56.75    | 7,943.54  | 67,858.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 7     |       | 0.19     | 16,163.10 | 67,389.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 8     |       | 0.00     | 18,382.34 | 65,029.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 9     |       | 0.82     | 14,744.13 | 67,068.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 10    |       | 137.20   | 5,313.46  | 65,618.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2051 | 11    |       | 1,149.10 | 706.13    | 65,233.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2051 | 12    |       | 3,017.72 | 50.40     | 71,279.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 1     |       | 4,345.58 | 14.01     | 72,933.54 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 2     |       | 4,882.43 | 10.91     | 65,342.17 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 3     |       | 3,614.40 | 68.59     | 64,724.28 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 4     |       | 1,745.77 | 761.03    | 66,700.22 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 5     |       | 418.17   | 2,565.12  | 65,842.34 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 6     |       | 55.72    | 7,975.91  | 67,785.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 7     |       | 0.19     | 16,229.08 | 67,317.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 8     |       | 0.00     | 18,457.59 | 64,959.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 9     |       | 0.81     | 14,804.63 | 66,997.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 10    |       | 134.71   | 5,335.31  | 65,550.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2052 | 11    |       | 1,128.30 | 709.04    | 65,166.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2052 | 12    |       | 2,963.09 | 50.61     | 71,205.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 1     |       | 4,266.59 | 14.07     | 72,859.11 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 2     |       | 4,793.73 | 10.95     | 65,276.12 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 3     |       | 3,548.74 | 68.87     | 64,658.96 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 4     |       | 1,714.08 | 764.13    | 66,633.70 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 5     |       | 410.58   | 2,575.59  | 65,777.18 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 6     |       | 54.71    | 8,008.57  | 67,718.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | Sales    | XHeat     | XCool     | XOther | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|----------|-----------|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2053 | 7     | 0.19     | 16,295.65 | 67,252.02 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 8     | 0.00     | 18,533.53 | 64,897.58 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 9     | 0.79     | 14,865.69 | 66,933.93 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 10    | 132.27   | 5,357.35  | 65,488.61 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2053 | 11    | 1,107.89 | 711.98    | 65,105.92 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2053 | 12    | 2,909.51 | 50.82     | 71,140.02 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 1     | 4,189.12 | 14.12     | 72,792.23 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 2     | 4,706.74 | 11.00     | 65,216.85 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 3     | 3,484.35 | 69.15     | 64,600.37 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 4     | 1,682.99 | 767.26    | 66,574.12 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 5     | 403.14   | 2,586.17  | 65,718.89 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 6     | 53.72    | 8,041.54  | 67,659.52 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 7     | 0.18     | 16,362.83 | 67,193.64 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 8     | 0.00     | 18,610.18 | 64,842.04 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 9     | 0.78     | 14,927.32 | 66,877.34 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 10    | 129.88   | 5,379.61  | 65,433.78 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2054 | 11    | 1,087.87 | 714.95    | 65,052.22 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2054 | 12    | 2,856.96 | 51.03     | 71,081.72 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 1     | 4,113.14 | 14.18     | 72,732.88 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 2     | 4,621.42 | 11.04     | 65,164.33 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 3     | 3,421.20 | 69.44     | 64,548.48 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 4     | 1,652.51 | 770.42    | 66,521.45 | 0.00   | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 5     | 395.84   | 2,596.84  | 65,667.44 | 0.00   | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 6     | 52.75    | 8,074.80  | 67,607.31 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 7     | 0.18     | 16,430.65 | 67,142.27 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 8     | 0.00     | 18,687.54 | 64,793.28 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 9     | 0.76     | 14,989.53 | 66,827.74 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 10    | 127.54   | 5,402.07  | 65,385.81 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2055 | 11    | 1,068.24 | 717.94    | 65,005.34 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2055 | 12    | 2,805.43 | 51.25     | 71,030.88 | 0.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 1     | 4,038.63 | 14.24     | 72,681.02 | 1.00   | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 2     | 4,537.74 | 11.09     | 65,118.53 | 0.00   | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 3     | 3,359.26 | 69.72     | 64,503.27 | 0.00   | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | Sales | XHeat    | XCool     | XOther    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Sep07on | D05on |
|------|-------|-------|----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|---------|-------|
| 2056 | 4     |       | 1,622.61 | 773.61    | 66,475.67 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 5     |       | 388.68   | 2,607.61  | 65,622.79 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 6     |       | 51.79    | 8,108.38  | 67,562.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 7     |       | 0.18     | 16,499.10 | 67,097.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 8     |       | 0.00     | 18,765.63 | 64,751.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 9     |       | 0.75     | 15,052.32 | 66,785.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 10    |       | 125.24   | 5,424.75  | 65,344.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2056 | 11    |       | 1,048.99 | 720.96    | 64,965.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2056 | 12    |       | 2,754.88 | 51.46     | 70,987.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 1     |       | 3,965.54 | 14.30     | 72,636.60 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 2     |       | 4,455.66 | 11.13     | 65,079.41 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 3     |       | 3,298.51 | 70.01     | 64,464.69 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 4     |       | 1,593.29 | 776.83    | 66,436.74 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 5     |       | 381.66   | 2,618.47  | 65,584.91 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 6     |       | 50.86    | 8,142.28  | 67,523.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 7     |       | 0.17     | 16,568.19 | 67,060.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 8     |       | 0.00     | 18,844.45 | 64,715.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 9     |       | 0.74     | 15,115.71 | 66,749.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 10    |       | 122.98   | 5,447.64  | 65,310.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00    | 1.00  |
| 2057 | 11    |       | 1,030.11 | 724.02    | 64,931.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00    | 1.00  |
| 2057 | 12    |       | 2,705.31 | 51.68     | 70,951.48 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00    | 1.00  |









Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2015 | 1     | 1.00  | 1.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 2     | 1.00  | 0.00     | 1.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 3     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 4     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 5     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 6     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 7     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 8     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 9     | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 10    | 1.00  | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2015 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 0.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2016 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2017 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2017 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 0.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2018 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2019 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 0.00    | 0.00    | 0.00     | 0        |
| 2020 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0.00     | 0        |
| 2020 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0.00     | 0        |
| 2020 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0.00     | 0        |
| 2020 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0.00     | 0        |
| 2020 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 0.00    | 0.00     | 0        |
| 2020 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 1.00     | 1.00    | 0.00    | 0.00     | 0        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2020 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2020 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2020 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2020 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2020 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2020 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 0.00    | 0        | 0        |
| 2021 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2021 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2021 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2021 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2021 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2021 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2022 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 0        |
| 2022 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2022 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2023 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2023 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2024 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2025 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2026 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2026 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2027 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2028 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2028 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2029 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2030 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2031 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2031 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2032 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2033 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2034 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2034 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2035 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2036 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2037 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2037 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2038 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2039 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2039 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2040 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2041 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2042 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2042 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2043 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2044 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2045 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2045 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2046 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2047 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2048 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2048 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2049 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2050 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2050 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2051 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2052 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2053 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2053 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2054 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2055 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 2     | 1.00  | 0.00     | 1.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
 Commercial Energy Model Input Variables

| Year | Month | D12on | dJan12on | dFeb12on | nov15on | nov16on | may18on | mayjun20 | jan20on | Jul21on | XMissing | YMissing |
|------|-------|-------|----------|----------|---------|---------|---------|----------|---------|---------|----------|----------|
| 2056 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2056 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 1     | 1.00  | 1.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 2     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 3     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 4     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 5     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 6     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 7     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 8     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 9     | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 10    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 11    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |
| 2057 | 12    | 1.00  | 0.00     | 0.00     | 1.00    | 1.00    | 1.00    | 0.00     | 1.00    | 1.00    | 0        | 1        |

Kentucky Power Company  
Commercial Energy Model Coefficients

| Variable              | Coefficient | StdErr   | T-Stat | P-Value | Units | Definition                        |
|-----------------------|-------------|----------|--------|---------|-------|-----------------------------------|
| CONST                 | 75237.817   | 7567.186 | 9.943  | 0.00%   |       | Constant term                     |
| CommercialVars.XHeat  | 1.995       | 0.129    | 15.485 | 0.00%   |       | Commercial Heating Component      |
| CommercialVars.XCool  | 0.963       | 0.075    | 12.887 | 0.00%   |       | Commercial Cooling Component      |
| CommercialVars.XOther | 0.236       | 0.062    | 3.786  | 0.02%   |       | Commercial Other Component        |
| BinaryVars.Jan        | 5545.164    | 1149.718 | 4.823  | 0.00%   |       | January                           |
| BinaryVars.Feb        | -4103.534   | 1377.529 | -2.979 | 0.33%   |       | February                          |
| BinaryVars.Mar        | -5053.094   | 996.944  | -5.069 | 0.00%   |       | March                             |
| BinaryVars.Apr        | -7113.221   | 975.445  | -7.292 | 0.00%   |       | April                             |
| BinaryVars.May        | -6803.616   | 1244.103 | -5.469 | 0.00%   |       | May                               |
| BinaryVars.Jun        | -1839.411   | 1438.973 | -1.278 | 20.27%  |       | June                              |
| BinaryVars.Jul        | -1969.620   | 1836.708 | -1.072 | 28.49%  |       | July                              |
| BinaryVars.Aug        | -2784.509   | 2045.940 | -1.361 | 17.51%  |       | August                            |
| BinaryVars.Sep        | 1520.561    | 1772.126 | 0.858  | 39.19%  |       | September                         |
| BinaryVars.Oct        | -3431.877   | 1373.788 | -2.498 | 1.33%   |       | October                           |
| BinaryVars.Nov        | -8483.525   | 1091.589 | -7.772 | 0.00%   |       | November                          |
| BinaryVars.Sep07on    | 4856.027    | 749.713  | 6.477  | 0.00%   |       | Binary Variable September 2007 On |
| BinaryVars.D05on      | 4074.301    | 801.570  | 5.083  | 0.00%   |       | Binary Variable 2005 On           |
| BinaryVars.D12on      | -3512.491   | 760.564  | -4.618 | 0.00%   |       | Binary Variable 2012 On           |
| BinaryVars.dJan12on   | 2905.024    | 1187.958 | 2.445  | 1.54%   |       | Binary Variable 2012 On January   |
| BinaryVars.dFeb12on   | 4751.722    | 1219.077 | 3.898  | 0.01%   |       | Binary Variable 2012 On February  |
| BinaryVars.nov15on    | -2718.891   | 831.736  | -3.269 | 0.13%   |       | Binary Variable November 2015 On  |
| BinaryVars.nov16on    | -2047.728   | 868.685  | -2.357 | 1.94%   |       | Binary Variable November 2016 On  |
| BinaryVars.may18on    | -2081.655   | 766.894  | -2.714 | 0.72%   |       | Binary Variable May 2018 On       |
| BinaryVars.mayjun20   | -7685.656   | 1773.667 | -4.333 | 0.00%   |       | Binary Variable May June 2020     |
| BinaryVars.jan20on    | -5954.278   | 790.439  | -7.533 | 0.00%   |       | Binary Variable January 2020 On   |
| BinaryVars.Jul21on    | 1420.894    | 1056.625 | 1.345  | 18.03%  |       | Binary Variable July 2021 On      |

Kentucky Power Company  
 Commercial Energy Model Statistics

| Model Statistics          |                   | Forecast Statistics            |        |
|---------------------------|-------------------|--------------------------------|--------|
| Iterations                | 1                 | Forecast Observations          | 0      |
| Adjusted Observations     | 217               | Mean Abs. Dev. (MAD)           | 0.00   |
| Deg. of Freedom for Error | 191               | Mean Abs. % Err. (MAPE)        | 0.00%  |
| R-Squared                 | 0.972             | Avg. Forecast Error            | 0.00   |
| Adjusted R-Squared        | 0.968             | Mean % Error                   | 0.00%  |
| AIC                       | 15.582            | Root Mean-Square Error         | 0.00   |
| BIC                       | 15.987            | Theil's Inequality Coefficient | 0.0000 |
| F-Statistic               | 261.883           | -- Bias Proportion             | 0.00%  |
| Prob (F-Statistic)        | 0.0000            | -- Variance Proportion         | 0.00%  |
| Log-Likelihood            | -1,972.60         | -- Covariance Proportion       | 0.00%  |
| Model Sum of Squares      | 34,258,891,495.07 |                                |        |
| Sum of Squared Errors     | 999,445,566.36    |                                |        |
| Mean Squared Error        | 5,232,699.30      |                                |        |
| Std. Error of Regression  | 2,287.51          |                                |        |
| Mean Abs. Dev. (MAD)      | 1,612.10          |                                |        |
| Mean Abs. % Err. (MAPE)   | 1.43%             |                                |        |
| Durbin-Watson Statistic   | 1.420             |                                |        |
| Durbin-H Statistic        | #NA               |                                |        |
| Ljung-Box Statistic       | 34.53             |                                |        |
| Prob (Ljung-Box)          | 0.0757            |                                |        |
| Skewness                  | 0.268             |                                |        |
| Kurtosis                  | 3.903             |                                |        |
| Jarque-Bera               | 9.974             |                                |        |
| Prob (Jarque-Bera)        | 0.0068            |                                |        |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2004   | 1     | 135,376.984 | 75,237.817 | 25,553.825 | 50.299     | 28,989.879 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 2     | 129,957.791 | 75,237.817 | 32,935.006 | 16.774     | 25,871.727 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 3     | 115,090.081 | 75,237.817 | 19,130.713 | 150.999    | 25,623.646 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2004   | 4     | 106,346.731 | 75,237.817 | 10,577.267 | 837.039    | 26,807.828 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2004   | 5     | 101,641.475 | 75,237.817 | 2,612.985  | 4,643.723  | 25,950.566 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2004   | 6     | 113,639.254 | 75,237.817 | 181.025    | 12,736.825 | 27,322.997 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2004   | 7     | 116,309.241 | 75,237.817 | 0.000      | 16,280.926 | 26,760.118 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 8     | 114,220.166 | 75,237.817 | 0.000      | 16,073.539 | 25,693.319 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 9     | 117,097.016 | 75,237.817 | 0.000      | 14,087.638 | 26,251.000 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 10    | 102,723.860 | 75,237.817 | 443.062    | 4,189.763  | 26,285.095 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 11    | 96,016.362  | 75,237.817 | 2,855.083  | 836.021    | 25,570.966 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2004   | 12    | 116,969.558 | 75,237.817 | 13,159.680 | 121.435    | 28,450.625 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 1     | 135,450.571 | 75,237.817 | 22,107.991 | 0.000      | 28,485.298 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 2     | 127,573.863 | 75,237.817 | 26,537.124 | 0.000      | 25,828.155 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 3     | 122,562.908 | 75,237.817 | 22,645.190 | 0.000      | 25,658.694 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2005   | 4     | 109,584.760 | 75,237.817 | 10,518.415 | 373.901    | 26,493.546 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2005   | 5     | 102,279.051 | 75,237.817 | 3,036.193  | 1,375.350  | 25,359.006 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2005   | 6     | 112,999.973 | 75,237.817 | 414.041    | 8,031.301  | 27,081.922 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2005   | 7     | 126,639.998 | 75,237.817 | 0.000      | 22,871.300 | 26,426.199 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 8     | 131,238.584 | 75,237.817 | 0.000      | 29,163.941 | 25,547.034 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 9     | 129,374.546 | 75,237.817 | 0.000      | 21,964.460 | 26,577.406 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 10    | 111,780.662 | 75,237.817 | 257.850    | 10,102.210 | 25,540.361 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 11    | 104,046.595 | 75,237.817 | 6,502.679  | 636.586    | 26,078.736 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2005   | 12    | 129,419.668 | 75,237.817 | 22,078.730 | 93.806     | 27,935.014 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2006   | 1     | 134,832.323 | 75,237.817 | 21,422.941 | 0.000      | 28,552.100 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2006   | 2     | 119,144.079 | 75,237.817 | 18,197.861 | 0.000      | 25,737.634 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2006   | 3     | 119,672.124 | 75,237.817 | 20,604.018 | 87.488     | 24,721.594 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2006   | 4     | 108,804.966 | 75,237.817 | 10,689.552 | 1,052.407  | 24,864.110 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2006   | 5     | 100,933.253 | 75,237.817 | 873.966    | 1,767.477  | 25,783.308 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2006   | 6     | 110,850.073 | 75,237.817 | 168.323    | 6,663.761  | 26,545.281 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2006   | 7     | 119,931.088 | 75,237.817 | 0.000      | 16,411.856 | 26,176.734 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2006   | 8     | 126,969.852 | 75,237.817 | 0.000      | 25,846.316 | 24,595.927 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2006   | 9     | 123,622.703 | 75,237.817 | 39.744     | 16,419.681 | 26,330.598 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |



Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
|------|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| 2009 | 7     | 118,985.304 | 75,237.817 | 0.000      | 12,851.954 | 23,934.824 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2009 | 8     | 117,965.951 | 75,237.817 | 0.000      | 13,232.752 | 23,349.563 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2009 | 9     | 121,909.215 | 75,237.817 | 0.000      | 12,634.682 | 23,585.826 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2009 | 10    | 110,052.402 | 75,237.817 | 1,274.245  | 4,520.552  | 23,521.337 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2009 | 11    | 104,056.101 | 75,237.817 | 5,080.181  | 186.200    | 23,105.099 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2009 | 12    | 123,209.383 | 75,237.817 | 13,363.829 | 12.038     | 25,665.369 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 1     | 142,345.729 | 75,237.817 | 26,992.257 | 0.000      | 25,640.163 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 2     | 129,654.016 | 75,237.817 | 26,966.780 | 0.000      | 22,622.625 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 3     | 123,926.136 | 75,237.817 | 22,093.630 | 0.000      | 22,717.454 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2010 | 4     | 107,599.536 | 75,237.817 | 5,152.485  | 1,494.617  | 23,897.509 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2010 | 5     | 103,853.124 | 75,237.817 | 1,339.260  | 2,348.093  | 22,801.242 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2010 | 6     | 117,904.343 | 75,237.817 | 217.109    | 11,447.188 | 23,911.311 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2010 | 7     | 126,430.329 | 75,237.817 | 0.000      | 20,598.084 | 23,633.719 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 8     | 128,393.604 | 75,237.817 | 0.000      | 24,003.910 | 23,006.057 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 9     | 126,047.720 | 75,237.817 | 0.000      | 16,943.828 | 23,415.185 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 10    | 110,475.696 | 75,237.817 | 425.047    | 6,345.516  | 22,968.865 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 11    | 103,389.547 | 75,237.817 | 4,521.628  | 610.248    | 22,573.051 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2010 | 12    | 127,501.342 | 75,237.817 | 18,341.902 | 0.000      | 24,991.295 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 1     | 142,987.605 | 75,237.817 | 28,506.738 | 0.000      | 24,767.558 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 2     | 128,133.291 | 75,237.817 | 25,960.856 | 0.000      | 22,107.824 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 3     | 114,767.218 | 75,237.817 | 13,464.960 | 96.625     | 22,090.582 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2011 | 4     | 108,849.175 | 75,237.817 | 8,630.908  | 928.865    | 22,234.477 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2011 | 5     | 104,643.809 | 75,237.817 | 1,668.786  | 2,781.843  | 22,828.650 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2011 | 6     | 115,943.753 | 75,237.817 | 535.762    | 10,384.999 | 22,694.257 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2011 | 7     | 121,150.359 | 75,237.817 | 0.000      | 16,212.067 | 22,739.767 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 8     | 127,311.527 | 75,237.817 | 0.000      | 23,984.331 | 21,943.559 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 9     | 122,516.233 | 75,237.817 | 5,919      | 14,321.800 | 22,499.808 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 10    | 106,505.368 | 75,237.817 | 1,041.693  | 2,552.279  | 22,175.127 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 11    | 102,788.484 | 75,237.817 | 5,208.865  | 59.038     | 21,835.961 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2011 | 12    | 117,750.448 | 75,237.817 | 9,504.498  | 88.497     | 23,989.307 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012 | 1     | 128,969.262 | 75,237.817 | 16,066.519 | 0.000      | 23,796.901 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012 | 2     | 119,831.395 | 75,237.817 | 16,735.594 | 0.000      | 21,791.959 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012 | 3     | 109,472.409 | 75,237.817 | 12,004.396 | 531.020    | 21,334.432 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2012   | 4     | 100,194.687 | 75,237.817 | 2,528.081  | 2,214.321  | 21,909.853 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2012   | 5     | 100,735.778 | 75,237.817 | 1,717.394  | 3,223.506  | 21,942.840 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2012   | 6     | 110,797.082 | 75,237.817 | 8.708      | 9,550.382  | 22,421.747 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2012   | 7     | 122,739.297 | 75,237.817 | 0.000      | 21,403.134 | 22,650.128 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012   | 8     | 120,314.464 | 75,237.817 | 0.000      | 21,068.978 | 21,374.340 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012   | 9     | 119,478.826 | 75,237.817 | 20.946     | 14,859.695 | 22,421.969 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012   | 10    | 103,769.751 | 75,237.817 | 1,392.401  | 3,576.137  | 21,577.436 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012   | 11    | 101,675.335 | 75,237.817 | 7,242.864  | 459.991    | 21,800.351 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2012   | 12    | 116,051.913 | 75,237.817 | 11,839.321 | 0.000      | 23,556.938 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 1     | 130,753.620 | 75,237.817 | 17,908.016 | 0.000      | 23,739.762 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 2     | 123,735.316 | 75,237.817 | 20,987.880 | 0.000      | 21,443.592 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 3     | 115,260.426 | 75,237.817 | 18,143.291 | 0.000      | 21,514.574 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2013   | 4     | 108,590.510 | 75,237.817 | 11,858.451 | 1,053.414  | 22,136.211 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2013   | 5     | 99,852.427  | 75,237.817 | 1,439.665  | 2,837.696  | 21,723.028 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2013   | 6     | 111,688.200 | 75,237.817 | 251.506    | 10,391.824 | 22,228.627 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2013   | 7     | 118,628.989 | 75,237.817 | 0.000      | 18,101.754 | 21,841.201 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 8     | 116,263.410 | 75,237.817 | 0.000      | 16,900.218 | 21,492.047 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 9     | 118,622.253 | 75,237.817 | 0.000      | 14,589.225 | 21,856.813 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 10    | 104,828.651 | 75,237.817 | 348.648    | 5,774.119  | 21,482.107 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 11    | 100,176.043 | 75,237.817 | 5,851.766  | 831.338    | 21,320.811 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2013   | 12    | 120,040.882 | 75,237.817 | 15,802.526 | 24.691     | 23,558.010 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 1     | 132,938.491 | 75,237.817 | 20,176.286 | 47.072     | 23,609.291 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 2     | 128,928.458 | 75,237.817 | 26,751.866 | 0.000      | 20,872.749 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 3     | 115,545.689 | 75,237.817 | 19,053.948 | 0.000      | 20,889.179 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2014   | 4     | 104,177.758 | 75,237.817 | 9,288.062  | 369.171    | 20,978.091 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2014   | 5     | 98,649.408  | 75,237.817 | 1,136.442  | 1,987.740  | 21,673.188 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2014   | 6     | 108,157.570 | 75,237.817 | 313.129    | 7,657.935  | 21,370.262 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2014   | 7     | 116,208.176 | 75,237.817 | 0.000      | 16,157.483 | 21,364.657 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 8     | 110,135.759 | 75,237.817 | 0.000      | 11,436.614 | 20,828.000 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 9     | 116,654.589 | 75,237.817 | 0.000      | 13,246.409 | 21,231.965 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 10    | 101,567.118 | 75,237.817 | 563.253    | 3,351.685  | 20,428.403 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 11    | 99,354.587  | 75,237.817 | 6,305.625  | 313.153    | 20,563.680 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2014   | 12    | 118,197.096 | 75,237.817 | 15,128.722 | 0.952      | 22,411.769 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2015   | 1     | 129,708.426 | 75,237.817 | 17,940.791 | 0.000      | 22,661.792 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 2     | 123,976.939 | 75,237.817 | 22,425.885 | 0.000      | 20,247.211 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 3     | 119,403.922 | 75,237.817 | 23,549.664 | 0.000      | 20,251.697 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2015   | 4     | 101,449.704 | 75,237.817 | 6,648.167  | 272.197    | 20,986.907 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2015   | 5     | 98,837.381  | 75,237.817 | 1,640.524  | 2,975.819  | 20,368.999 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2015   | 6     | 110,601.417 | 75,237.817 | 55.872     | 10,939.444 | 20,789.857 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2015   | 7     | 114,856.346 | 75,237.817 | 0.000      | 15,575.258 | 20,595.053 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 8     | 114,128.977 | 75,237.817 | 0.000      | 16,521.668 | 19,736.164 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 9     | 115,514.131 | 75,237.817 | 0.000      | 12,593.540 | 20,744.375 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 10    | 102,218.392 | 75,237.817 | 547.726    | 3,984.753  | 20,462.136 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 11    | 92,944.771  | 75,237.817 | 3,159.233  | 274.876    | 20,057.424 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2015   | 12    | 107,845.161 | 75,237.817 | 7,795.617  | 57.032     | 22,055.749 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 1     | 121,443.402 | 75,237.817 | 12,532.335 | 0.000      | 22,524.117 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 2     | 119,280.368 | 75,237.817 | 20,879.589 | 0.000      | 19,815.827 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 3     | 104,676.301 | 75,237.817 | 11,734.065 | 70.438     | 19,988.128 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2016   | 4     | 96,159.096  | 75,237.817 | 4,195.056  | 521.516    | 20,618.981 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2016   | 5     | 94,930.897  | 75,237.817 | 1,395.490  | 2,752.353  | 19,649.907 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2016   | 6     | 106,234.314 | 75,237.817 | 325.385    | 9,284.971  | 20,526.604 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2016   | 7     | 113,548.175 | 75,237.817 | 0.000      | 17,226.251 | 20,354.780 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 8     | 117,800.107 | 75,237.817 | 0.000      | 23,027.476 | 19,620.377 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 9     | 120,970.587 | 75,237.817 | 0.000      | 21,172.264 | 20,340.998 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 10    | 104,537.601 | 75,237.817 | 53.942     | 10,134.227 | 19,844.546 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 11    | 91,160.239  | 75,237.817 | 1,780.075  | 2,441.109  | 19,533.545 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2016   | 12    | 107,929.590 | 75,237.817 | 10,434.219 | 100.613    | 21,505.722 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2017   | 1     | 119,805.749 | 75,237.817 | 13,741.456 | 0.000      | 21,725.070 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2017   | 2     | 107,603.915 | 75,237.817 | 11,444.593 | 0.000      | 19,622.098 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2017   | 3     | 99,224.560  | 75,237.817 | 8,980.346  | 32.996     | 19,375.276 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2017   | 4     | 94,392.351  | 75,237.817 | 5,552.648  | 779.468    | 19,284.419 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2017   | 5     | 93,192.386  | 75,237.817 | 757.650    | 4,117.789  | 19,231.527 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2017   | 6     | 102,196.006 | 75,237.817 | 182.691    | 7,748.771  | 20,214.919 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2017   | 7     | 109,684.995 | 75,237.817 | 0.000      | 15,496.075 | 20,269.504 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2017   | 8     | 109,101.352 | 75,237.817 | 0.000      | 16,554.933 | 19,441.892 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2017   | 9     | 107,241.549 | 75,237.817 | 0.000      | 9,864.590  | 19,967.363 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |



Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
|------|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| 2020 | 7     | 103,031.738 | 75,237.817 | 0.000      | 17,406.018 | 19,742.237 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2020 | 8     | 106,336.882 | 75,237.817 | 0.000      | 22,100.916 | 19,167.373 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2020 | 9     | 104,948.182 | 75,237.817 | 0.000      | 16,017.574 | 19,556.945 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2020 | 10    | 87,953.258  | 75,237.817 | 366.136    | 3,849.984  | 19,315.913 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2020 | 11    | 81,629.877  | 75,237.817 | 2,523.214  | 671.860    | 19,065.227 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2020 | 12    | 98,163.430  | 75,237.817 | 9,367.320  | 63.702     | 20,879.305 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 1     | 112,997.064 | 75,237.817 | 15,359.411 | 0.000      | 21,334.363 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 2     | 106,667.902 | 75,237.817 | 18,707.445 | 0.000      | 19,459.166 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 3     | 95,991.452  | 75,237.817 | 14,570.425 | 16.259     | 18,604.759 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2021 | 4     | 84,633.213  | 75,237.817 | 3,958.710  | 424.005    | 19,510.617 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2021 | 5     | 83,538.064  | 75,237.817 | 2,024.905  | 1,644.907  | 18,818.766 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2021 | 6     | 93,656.267  | 75,237.817 | 258.054    | 7,896.231  | 19,488.291 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2021 | 7     | 102,220.353 | 75,237.817 | 9.203      | 15,411.112 | 19,495.662 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 8     | 103,071.744 | 75,237.817 | 0.000      | 17,668.056 | 18,914.201 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 9     | 106,980.223 | 75,237.817 | 0.000      | 16,976.872 | 19,208.794 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 10    | 92,178.850  | 75,237.817 | 39.464     | 7,255.641  | 19,041.626 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 11    | 84,435.205  | 75,237.817 | 3,275.907  | 1,798.659  | 18,570.169 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2021 | 12    | 99,075.947  | 75,237.817 | 9,260.858  | 0.000      | 20,541.093 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 1     | 109,215.428 | 75,237.817 | 10,758.210 | 0.000      | 20,733.034 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 2     | 105,696.774 | 75,237.817 | 17,176.055 | 10.555     | 18,587.980 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 3     | 95,436.351  | 75,237.817 | 12,724.042 | 66.432     | 18,424.974 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2022 | 4     | 88,049.308  | 75,237.817 | 6,150.093  | 737.565    | 19,000.874 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2022 | 5     | 85,201.395  | 75,237.817 | 1,474.134  | 2,487.705  | 18,769.177 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2022 | 6     | 94,722.652  | 75,237.817 | 196.666    | 7,744.698  | 19,346.703 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2022 | 7     | 102,318.274 | 75,237.817 | 0.668      | 15,777.266 | 19,235.964 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 8     | 103,017.986 | 75,237.817 | 0.000      | 17,954.781 | 18,573.718 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 9     | 104,375.871 | 75,237.817 | 2.858      | 14,410.256 | 19,168.199 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 10    | 90,282.249  | 75,237.817 | 476.941    | 5,196.621  | 18,766.568 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 11    | 84,149.134  | 75,237.817 | 3,997.537  | 691.104    | 18,670.023 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2022 | 12    | 100,306.529 | 75,237.817 | 10,526.924 | 49.465     | 20,456.144 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023 | 1     | 113,649.159 | 75,237.817 | 15,168.753 | 13.607     | 20,742.616 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023 | 2     | 105,577.482 | 75,237.817 | 17,051.497 | 10.597     | 18,593.204 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023 | 3     | 95,344.336  | 75,237.817 | 12,629.665 | 66.687     | 18,427.082 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2023   | 4     | 88,005.078  | 75,237.817 | 6,103.622  | 740.294    | 19,000.387 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2023   | 5     | 85,195.724  | 75,237.817 | 1,462.786  | 2,496.550  | 18,766.009 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2023   | 6     | 94,724.304  | 75,237.817 | 195.001    | 7,766.228  | 19,328.490 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2023   | 7     | 102,316.939 | 75,237.817 | 0.662      | 15,808.899 | 19,203.002 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023   | 8     | 103,016.494 | 75,237.817 | 0.000      | 17,987.991 | 18,539.017 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023   | 9     | 104,360.715 | 75,237.817 | 2.831      | 14,434.342 | 19,128.985 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023   | 10    | 90,242.860  | 75,237.817 | 472.282    | 5,204.215  | 18,724.245 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023   | 11    | 84,062.789  | 75,237.817 | 3,957.431  | 691.930    | 18,622.958 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2023   | 12    | 100,077.129 | 75,237.817 | 10,396.915 | 49,408     | 20,356.810 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 1     | 113,348.234 | 75,237.817 | 14,959.942 | 13,591     | 20,650.517 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 2     | 105,252.682 | 75,237.817 | 16,813.197 | 10,583     | 18,506.718 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 3     | 95,075.396  | 75,237.817 | 12,450.486 | 66,581     | 18,337.427 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2024   | 4     | 87,818.623  | 75,237.817 | 6,015.566  | 738,936    | 18,903.347 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2024   | 5     | 85,069.258  | 75,237.817 | 1,441.367  | 2,491.425  | 18,666.087 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2024   | 6     | 94,597.816  | 75,237.817 | 192.112    | 7,748.924  | 19,222.195 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2024   | 7     | 102,171.254 | 75,237.817 | 0.652      | 15,771.482 | 19,094.743 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 8     | 102,863.635 | 75,237.817 | 0.000      | 17,942.571 | 18,431.578 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 9     | 104,208.628 | 75,237.817 | 2,788      | 14,395.853 | 19,015.430 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 10    | 90,107.267  | 75,237.817 | 465.016    | 5,189.619  | 18,610.514 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 11    | 83,884.138  | 75,237.817 | 3,896.090  | 689,908    | 18,507.669 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2024   | 12    | 99,787.171  | 75,237.817 | 10,234.877 | 49,260     | 20,229.039 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 1     | 112,955.092 | 75,237.817 | 14,693.936 | 13,518     | 20,523.454 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 2     | 104,831.522 | 75,237.817 | 16,510.326 | 10,524     | 18,388.488 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 3     | 94,726.362  | 75,237.817 | 12,223.307 | 66,193     | 18,215.960 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2025   | 4     | 87,572.947  | 75,237.817 | 5,904.317  | 734,447    | 18,773.408 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2025   | 5     | 84,893.542  | 75,237.817 | 1,414.357  | 2,475.670  | 18,533.136 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2025   | 6     | 94,402.307  | 75,237.817 | 188.470    | 7,698.211  | 19,081.040 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2025   | 7     | 101,920.114 | 75,237.817 | 0.640      | 15,664.785 | 18,950.313 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 8     | 102,593.442 | 75,237.817 | 0.000      | 17,816.550 | 18,287.405 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 9     | 103,950.125 | 75,237.817 | 2,733      | 14,291.037 | 18,861.798 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 10    | 89,903.288  | 75,237.817 | 455.736    | 5,150.403  | 18,455.030 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 11    | 83,639.718  | 75,237.817 | 3,817.195  | 684,490    | 18,347.562 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2025   | 12    | 99,396.116  | 75,237.817 | 10,024.822 | 48,859     | 20,048.439 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |

Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 728 of 1182

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2026   | 1     | 112,431.127 | 75,237.817 | 14,393.305 | 13.452     | 20,300.185 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 2     | 104,291.677 | 75,237.817 | 16,171.612 | 10.472     | 18,187.409 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 3     | 94,274.194  | 75,237.817 | 11,971.790 | 65.864     | 18,015.638 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2026   | 4     | 87,239.650  | 75,237.817 | 5,782.433  | 730.745    | 18,565.697 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2026   | 5     | 84,645.451  | 75,237.817 | 1,385.075  | 2,463.041  | 18,326.955 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2026   | 6     | 94,145.262  | 75,237.817 | 184.557    | 7,658.484  | 18,867.636 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2026   | 7     | 101,625.228 | 75,237.817 | 0.626      | 15,582.996 | 18,737.229 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 8     | 102,292.897 | 75,237.817 | 0.000      | 17,722.590 | 18,080.820 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 9     | 103,659.818 | 75,237.817 | 2.675      | 14,214.887 | 18,647.699 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 10    | 89,655.575  | 75,237.817 | 446.175    | 5,122.691  | 18,244.591 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 11    | 83,345.741  | 75,237.817 | 3,736.950  | 680.777    | 18,137.543 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2026   | 12    | 98,954.265  | 75,237.817 | 9,813.632  | 48.592     | 19,818.045 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 1     | 111,929.161 | 75,237.817 | 14,098.777 | 13.375     | 20,092.825 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 2     | 103,773.595 | 75,237.817 | 15,840.074 | 10.411     | 18,000.925 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 3     | 93,842.492  | 75,237.817 | 11,725.895 | 65.478     | 17,830.217 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2027   | 4     | 86,924.615  | 75,237.817 | 5,663.457  | 726.442    | 18,373.941 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2027   | 5     | 84,412.321  | 75,237.817 | 1,356.525  | 2,448.444  | 18,136.973 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2027   | 6     | 93,899.573  | 75,237.817 | 180.746    | 7,612.833  | 18,671.409 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2027   | 7     | 101,336.643 | 75,237.817 | 0.613      | 15,489.739 | 18,541.914 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 8     | 101,997.205 | 75,237.817 | 0.000      | 17,615.954 | 17,891.764 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 9     | 103,378.493 | 75,237.817 | 2.620      | 14,129.029 | 18,452.287 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 10    | 89,423.649  | 75,237.817 | 436.918    | 5,091.630  | 18,052.982 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 11    | 83,072.934  | 75,237.817 | 3,659.309  | 676.629    | 17,946.525 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2027   | 12    | 98,540.741  | 75,237.817 | 9,609.536  | 48.295     | 19,608.915 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2028   | 1     | 111,438.535 | 75,237.817 | 13,816.953 | 13.326     | 19,884.073 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2028   | 2     | 103,266.880 | 75,237.817 | 15,522.034 | 10.372     | 17,812.290 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2028   | 3     | 93,417.353  | 75,237.817 | 11,489.433 | 65.226     | 17,641.793 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2028   | 4     | 86,611.146  | 75,237.817 | 5,548.730  | 723.570    | 18,178.071 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2028   | 5     | 84,179.829  | 75,237.817 | 1,328.923  | 2,438.540  | 17,941.986 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2028   | 6     | 93,662.351  | 75,237.817 | 177.055    | 7,581.457  | 18,469.255 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2028   | 7     | 101,069.514 | 75,237.817 | 0.601      | 15,424.745 | 18,339.793 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2028   | 8     | 101,725.433 | 75,237.817 | 0.000      | 17,540.633 | 17,695.313 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2028   | 9     | 103,112.853 | 75,237.817 | 2.566      | 14,067.499 | 18,248.231 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 730 of 1182

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2031   | 7     | 100,233.992 | 75,237.817 | 0.564      | 15,265.469 | 17,663.583 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2031   | 8     | 100,893.840 | 75,237.817 | 0.000      | 17,360.508 | 17,043.846 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2031   | 9     | 102,298.265 | 75,237.817 | 2.408      | 13,923.858 | 17,577.441 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2031   | 10    | 88,457.972  | 75,237.817 | 401.628    | 5,017.573  | 17,196.652 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2031   | 11    | 81,915.761  | 75,237.817 | 3,363.668  | 666.772    | 17,094.850 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2031   | 12    | 96,832.550  | 75,237.817 | 8,832.989  | 47.590     | 18,677.975 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 1     | 109,412.537 | 75,237.817 | 12,731.152 | 13.149     | 18,944.052 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 2     | 101,206.947 | 75,237.817 | 14,303.188 | 10.235     | 16,971.338 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 3     | 91,683.070  | 75,237.817 | 10,587.884 | 64.372     | 16,809.911 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2032   | 4     | 85,310.732  | 75,237.817 | 5,113.693  | 714.149    | 17,322.115 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2032   | 5     | 83,200.426  | 75,237.817 | 1,224.813  | 2,406.949  | 17,098.284 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2032   | 6     | 92,683.379  | 75,237.817 | 163.195    | 7,483.718  | 17,601.881 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2032   | 7     | 100,011.194 | 75,237.817 | 0.554      | 15,226.764 | 17,479.500 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 8     | 100,672.536 | 75,237.817 | 0.000      | 17,316.661 | 16,866.388 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 9     | 102,080.137 | 75,237.817 | 2.366      | 13,888.734 | 17,394.481 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 10    | 88,259.205  | 75,237.817 | 394.463    | 5,004.927  | 17,017.696 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 11    | 81,676.195  | 75,237.817 | 3,303.663  | 665.092    | 16,916.969 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2032   | 12    | 96,480.599  | 75,237.817 | 8,675.447  | 47.471     | 18,483.686 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 1     | 108,992.404 | 75,237.817 | 12,497.838 | 13.104     | 18,757.278 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 2     | 100,778.405 | 75,237.817 | 14,041.493 | 10.200     | 16,804.527 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 3     | 91,324.929  | 75,237.817 | 10,394.558 | 64.154     | 16,645.315 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2033   | 4     | 85,045.981  | 75,237.817 | 5,020.463  | 711.753    | 17,152.990 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2033   | 5     | 83,003.766  | 75,237.817 | 1,202.523  | 2,398.956  | 16,931.907 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2033   | 6     | 92,484.995  | 75,237.817 | 160.229    | 7,459.078  | 17,431.102 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2033   | 7     | 99,792.346  | 75,237.817 | 0.544      | 15,177.045 | 17,310.381 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 8     | 100,453.870 | 75,237.817 | 0.000      | 17,260.659 | 16,703.724 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 9     | 101,868.138 | 75,237.817 | 2.323      | 13,844.137 | 17,227.121 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 10    | 88,072.953  | 75,237.817 | 387.339    | 4,989.011  | 16,854.484 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 11    | 81,452.797  | 75,237.817 | 3,244.097  | 662.997    | 16,755.232 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2033   | 12    | 96,148.076  | 75,237.817 | 8,519.268  | 47.322     | 18,307.490 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 1     | 108,593.289 | 75,237.817 | 12,262.613 | 13.082     | 18,593.409 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 2     | 100,368.950 | 75,237.817 | 13,777.962 | 10.184     | 16,658.620 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 3     | 90,986.609  | 75,237.817 | 10,200.003 | 64.054     | 16,501.650 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2034   | 4     | 84,804.257  | 75,237.817 | 4,926.799  | 710.692    | 17,005.992 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2034   | 5     | 82,833.766  | 75,237.817 | 1,180.153  | 2,395.508  | 16,787.725 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2034   | 6     | 92,324.119  | 75,237.817 | 157.257    | 7,448.734  | 17,283.543 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2034   | 7     | 99,626.357  | 75,237.817 | 0.534      | 15,156.751 | 17,164.696 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 8     | 100,291.881 | 75,237.817 | 0.000      | 17,238.431 | 16,563.964 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 9     | 101,707.884 | 75,237.817 | 2.280      | 13,827.094 | 17,083.952 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 10    | 87,920.810  | 75,237.817 | 380.233    | 4,983.140  | 16,715.319 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 11    | 81,255.379  | 75,237.817 | 3,184.769  | 662.257    | 16,617.882 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2034   | 12    | 95,843.527  | 75,237.817 | 8,363.903  | 47.272     | 18,158.356 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 1     | 108,228.873 | 75,237.817 | 12,034.576 | 13.074     | 18,457.039 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 2     | 99,990.408  | 75,237.817 | 13,521.682 | 10.178     | 16,536.364 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 3     | 90,675.619  | 75,237.817 | 10,010.231 | 64.015     | 16,380.471 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2035   | 4     | 84,587.151  | 75,237.817 | 4,835.108  | 710.250    | 16,881.017 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2035   | 5     | 82,686.875  | 75,237.817 | 1,158.186  | 2,394.012  | 16,664.297 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2035   | 6     | 92,189.214  | 75,237.817 | 154.328    | 7,444.007  | 17,156.293 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2035   | 7     | 99,490.158  | 75,237.817 | 0.524      | 15,147.040 | 17,038.218 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 8     | 100,158.394 | 75,237.817 | 0.000      | 17,227.186 | 16,441.721 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 9     | 101,572.483 | 75,237.817 | 2.237      | 13,817.959 | 16,957.729 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 10    | 87,786.704  | 75,237.817 | 373.138    | 4,979.797  | 16,591.651 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 11    | 81,072.258  | 75,237.817 | 3,125.296  | 661.803    | 16,494.689 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2035   | 12    | 95,552.394  | 75,237.817 | 8,207.620  | 47.239     | 18,023.539 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 1     | 107,877.342 | 75,237.817 | 11,807.670 | 13.074     | 18,332.415 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 2     | 99,623.198  | 75,237.817 | 13,266.465 | 10.177     | 16,424.371 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 3     | 90,375.344  | 75,237.817 | 9,821.143  | 64.011     | 16,269.288 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2036   | 4     | 84,380.797  | 75,237.817 | 4,743.692  | 710.191    | 16,766.139 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2036   | 5     | 82,551.027  | 75,237.817 | 1,136.268  | 2,393.770  | 16,550.609 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2036   | 6     | 92,068.353  | 75,237.817 | 151.406    | 7,443.211  | 17,039.151 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2036   | 7     | 99,371.709  | 75,237.817 | 0.514      | 15,145.192 | 16,921.627 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 8     | 100,043.633 | 75,237.817 | 0.000      | 17,225.007 | 16,329.139 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 9     | 101,454.240 | 75,237.817 | 2.195      | 13,816.059 | 16,841.429 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 10    | 87,664.978  | 75,237.817 | 366.060    | 4,979.072  | 16,477.727 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 11    | 80,899.479  | 75,237.817 | 3,065.996  | 661.701    | 16,381.311 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2036   | 12    | 95,272.641  | 75,237.817 | 8,051.847  | 47.232     | 17,899.567 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |

Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 732 of 1182

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2037   | 1     | 107,532.259 | 75,237.817 | 11,579.459 | 13.081     | 18,215.535 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 2     | 99,262.084  | 75,237.817 | 13,010.060 | 10.183     | 16,319.657 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 3     | 90,081.576  | 75,237.817 | 9,631.230  | 64.043     | 16,165.401 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2037   | 4     | 84,182.223  | 75,237.817 | 4,651.931  | 710.547    | 16,658.969 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2037   | 5     | 82,424.308  | 75,237.817 | 1,114.281  | 2,394.954  | 16,444.694 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2037   | 6     | 91,959.666  | 75,237.817 | 148.474    | 7,446.772  | 16,929.834 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2037   | 7     | 99,270.143  | 75,237.817 | 0.504      | 15,152.324 | 16,812.939 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 8     | 99,946.253  | 75,237.817 | 0.000      | 17,232.806 | 16,223.961 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 9     | 101,351.554 | 75,237.817 | 2.152      | 13,822.123 | 16,732.721 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 10    | 87,553.298  | 75,237.817 | 358.950    | 4,981.165  | 16,371.065 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 11    | 80,733.866  | 75,237.817 | 3,006.397  | 661.970    | 16,275.028 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2037   | 12    | 94,999.517  | 75,237.817 | 7,895.180  | 47.250     | 17,783.092 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 1     | 107,191.036 | 75,237.817 | 11,349.711 | 13.077     | 18,104.065 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 2     | 98,902.993  | 75,237.817 | 12,751.449 | 10.179     | 16,219.181 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 3     | 89,789.774  | 75,237.817 | 9,439.485  | 64.018     | 16,065.369 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2038   | 4     | 83,985.456  | 75,237.817 | 4,559.153  | 710.243    | 16,555.285 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2038   | 5     | 82,298.042  | 75,237.817 | 1,092.021  | 2,393.848  | 16,341.794 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2038   | 6     | 91,846.670  | 75,237.817 | 145.504    | 7,443.133  | 16,823.447 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2038   | 7     | 99,156.176  | 75,237.817 | 0.494      | 15,144.492 | 16,706.814 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 8     | 99,834.064  | 75,237.817 | 0.000      | 17,223.447 | 16,121.131 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 9     | 101,237.241 | 75,237.817 | 2.109      | 13,814.295 | 16,626.279 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 10    | 87,438.676  | 75,237.817 | 351.735    | 4,978.240  | 16,266.582 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 11    | 80,568.780  | 75,237.817 | 2,945.909  | 661.568    | 16,170.833 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2038   | 12    | 94,726.240  | 75,237.817 | 7,736.164  | 47.220     | 17,668.861 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2039   | 1     | 106,857.777 | 75,237.817 | 11,125.413 | 13.086     | 17,995.095 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2039   | 2     | 98,553.347  | 75,237.817 | 12,499.437 | 10.186     | 16,121.540 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2039   | 3     | 89,506.414  | 75,237.817 | 9,252.880  | 64.063     | 15,968.569 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2039   | 4     | 83,795.941  | 75,237.817 | 4,468.998  | 710.733    | 16,455.434 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2039   | 5     | 82,179.464  | 75,237.817 | 1,070.422  | 2,395.492  | 16,243.170 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2039   | 6     | 91,747.165  | 75,237.817 | 142.625    | 7,448.182  | 16,721.773 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2039   | 7     | 99,065.293  | 75,237.817 | 0.484      | 15,154.680 | 16,605.752 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2039   | 8     | 99,747.822  | 75,237.817 | 0.000      | 17,234.873 | 16,023.463 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2039   | 9     | 101,145.415 | 75,237.817 | 2.067      | 13,823.359 | 16,525.431 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |



Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
|------|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| 2042 | 7     | 98,749.406  | 75,237.817 | 0.455      | 15,158.401 | 16,286.173 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2042 | 8     | 99,444.029  | 75,237.817 | 0.000      | 17,239.286 | 15,715.256 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2042 | 9     | 100,831.028 | 75,237.817 | 1.946      | 13,826.925 | 16,207.600 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2042 | 10    | 87,006.319  | 75,237.817 | 324.462    | 4,982.788  | 15,856.950 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2042 | 11    | 79,933.707  | 75,237.817 | 2,717.483  | 662.171    | 15,763.583 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2042 | 12    | 93,681.454  | 75,237.817 | 7,136.303  | 47.263     | 17,223.892 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 1     | 105,571.524 | 75,237.817 | 10,266.829 | 13.100     | 17,567.412 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 2     | 97,205.642  | 75,237.817 | 11,534.840 | 10.197     | 15,738.420 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 3     | 88,413.122  | 75,237.817 | 8,538.887  | 64.133     | 15,589.200 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2043 | 4     | 83,061.079  | 75,237.817 | 4,124.179  | 711.516    | 16,064.609 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2043 | 5     | 81,713.776  | 75,237.817 | 987.833    | 2,398.136  | 15,857.427 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2043 | 6     | 91,347.463  | 75,237.817 | 131.622    | 7,456.461  | 16,324.795 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2043 | 7     | 98,688.017  | 75,237.817 | 0.447      | 15,171.594 | 16,211.601 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 8     | 99,386.957  | 75,237.817 | 0.000      | 17,254.228 | 15,643.242 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 9     | 100,768.730 | 75,237.817 | 1.908      | 13,838.921 | 16,133.343 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 10    | 86,931.623  | 75,237.817 | 318.173    | 4,987.092  | 15,784.240 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 11    | 79,809.221  | 75,237.817 | 2,664.793  | 662.739    | 15,691.218 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2043 | 12    | 93,463.908  | 75,237.817 | 6,997.892  | 47.303     | 17,144.716 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 1     | 105,303.293 | 75,237.817 | 10,071.137 | 13.134     | 17,494.839 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 2     | 96,921.020  | 75,237.817 | 11,315.076 | 10.223     | 15,673.536 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 3     | 88,186.487  | 75,237.817 | 8,376.256  | 64.299     | 15,525.030 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2044 | 4     | 82,918.526  | 75,237.817 | 4,045.686  | 713.362    | 15,998.702 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2044 | 5     | 81,636.376  | 75,237.817 | 969.044    | 2,404.388  | 15,792.564 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2044 | 6     | 91,297.849  | 75,237.817 | 129.120    | 7,475.971  | 16,258.173 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2044 | 7     | 98,661.838  | 75,237.817 | 0.438      | 15,211.433 | 16,145.592 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 8     | 99,369.050  | 75,237.817 | 0.000      | 17,299.789 | 15,579.775 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 9     | 100,740.268 | 75,237.817 | 1.872      | 13,875.690 | 16,068.149 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 10    | 86,875.360  | 75,237.817 | 312.141    | 5,000.415  | 15,720.686 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 11    | 79,697.610  | 75,237.817 | 2,614.319  | 664.521    | 15,628.299 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2044 | 12    | 93,263.169  | 75,237.817 | 6,865.467  | 47.431     | 17,076.274 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045 | 1     | 105,061.680 | 75,237.817 | 9,889.433  | 13.160     | 17,434.903 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045 | 2     | 96,662.723  | 75,237.817 | 11,110.732 | 10.243     | 15,619.563 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045 | 3     | 87,981.545  | 75,237.817 | 8,224.869  | 64.424     | 15,471.350 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |            |            |            |            |           |            |            |            |            |            |
|--|-------|-------------|------------|------------|------------|------------|-----------|------------|------------|------------|------------|------------|
| Year   | Month | Pred        | CONST      | XHeat      | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
| 2045   | 4     | 82,791.010  | 75,237.817 | 3,972.476  | 714.740    | 15,943.019 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2045   | 5     | 81,568.154  | 75,237.817 | 951.490    | 2,408.987  | 15,737.297 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2045   | 6     | 91,252.508  | 75,237.817 | 126.779    | 7,490.143  | 16,201.001 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2045   | 7     | 98,633.365  | 75,237.817 | 0.430      | 15,240.013 | 16,088.545 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045   | 8     | 99,345.714  | 75,237.817 | 0.000      | 17,331.875 | 15,524.352 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045   | 9     | 100,708.126 | 75,237.817 | 1.838      | 13,901.108 | 16,010.624 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045   | 10    | 86,822.018  | 75,237.817 | 306.454    | 5,009.446  | 15,664.000 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045   | 11    | 79,594.343  | 75,237.817 | 2,566.622  | 665.704    | 15,571.547 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2045   | 12    | 93,075.385  | 75,237.817 | 6,740.040  | 47.515     | 17,013.835 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 1     | 104,829.869 | 75,237.817 | 9,712.186  | 13.208     | 17,380.292 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 2     | 96,414.060  | 75,237.817 | 10,911.332 | 10.281     | 15,570.262 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 3     | 87,784.516  | 75,237.817 | 8,076.978  | 64.659     | 15,421.977 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2046   | 4     | 82,670.653  | 75,237.817 | 3,900.922  | 717.324    | 15,891.632 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2046   | 5     | 81,508.356  | 75,237.817 | 934.320    | 2,417.613  | 15,686.043 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2046   | 6     | 91,223.596  | 75,237.817 | 124.487    | 7,516.748  | 16,147.775 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2046   | 7     | 98,633.771  | 75,237.817 | 0.422      | 15,293.725 | 16,035.247 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 8     | 99,354.433  | 75,237.817 | 0.000      | 17,392.463 | 15,472.483 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 9     | 100,702.194 | 75,237.817 | 1.804      | 13,949.236 | 15,956.596 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 10    | 86,780.373  | 75,237.817 | 300.880    | 5,026.654  | 15,610.721 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 11    | 79,496.351  | 75,237.817 | 2,519.855  | 667.968    | 15,518.057 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2046   | 12    | 92,893.609  | 75,237.817 | 6,617.037  | 47.675     | 16,954.901 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 1     | 104,603.751 | 75,237.817 | 9,535.544  | 13.246     | 17,330.778 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 2     | 96,171.395  | 75,237.817 | 10,712.927 | 10.310     | 15,525.973 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 3     | 87,594.247  | 75,237.817 | 7,930.207  | 64.843     | 15,378.294 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2047   | 4     | 82,557.000  | 75,237.817 | 3,830.074  | 719.374    | 15,846.777 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2047   | 5     | 81,454.252  | 75,237.817 | 917.363    | 2,424.551  | 15,641.959 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2047   | 6     | 91,197.697  | 75,237.817 | 122.229    | 7,538.374  | 16,102.509 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2047   | 7     | 98,633.041  | 75,237.817 | 0.415      | 15,337.837 | 15,990.413 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 8     | 99,361.755  | 75,237.817 | 0.000      | 17,442.850 | 15,429.418 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 9     | 100,698.606 | 75,237.817 | 1.772      | 13,989.856 | 15,912.421 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 10    | 86,746.607  | 75,237.817 | 295.435    | 5,041.355  | 15,567.699 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 11    | 79,410.167  | 75,237.817 | 2,474.286  | 669.930    | 15,475.480 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2047   | 12    | 92,727.865  | 75,237.817 | 6,497.457  | 47.816     | 16,908.597 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |





Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Pred        | CONST      | XHeat     | XCool      | XOther     | Jan       | Feb        | Mar        | Apr        | May        | Jun        |
|------|-------|-------------|------------|-----------|------------|------------|-----------|------------|------------|------------|------------|------------|
| 2053 | 7     | 98,877.178  | 75,237.817 | 0.370     | 15,696.959 | 15,875.472 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2053 | 8     | 99,661.797  | 75,237.817 | 0.000     | 17,852.628 | 15,319.683 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2053 | 9     | 100,916.062 | 75,237.817 | 1.583     | 14,319.540 | 15,800.382 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2053 | 10    | 86,725.778  | 75,237.817 | 263.927   | 5,160.531  | 15,459.201 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2053 | 11    | 79,055.741  | 75,237.817 | 2,210.583 | 685.822    | 15,368.865 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2053 | 12    | 91,921.596  | 75,237.817 | 5,805.377 | 48.953     | 16,793.270 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 1     | 103,279.689 | 75,237.817 | 8,358.609 | 13.605     | 17,183.291 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 2     | 94,719.233  | 75,237.817 | 9,391.408 | 10.591     | 15,395.050 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 3     | 86,489.410  | 75,237.817 | 6,952.370 | 66.613     | 15,249.524 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2054 | 4     | 81,973.394  | 75,237.817 | 3,358.097 | 739.076    | 15,715.446 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2054 | 5     | 81,279.474  | 75,237.817 | 804.381   | 2,491.152  | 15,513.562 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2054 | 6     | 91,259.532  | 75,237.817 | 107.184   | 7,746.097  | 15,971.666 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2054 | 7     | 98,928.110  | 75,237.817 | 0.364     | 15,761.679 | 15,861.691 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 8     | 99,722.518  | 75,237.817 | 0.000     | 17,926.457 | 15,306.574 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 9     | 100,962.041 | 75,237.817 | 1.554     | 14,378.906 | 15,787.024 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 10    | 86,729.502  | 75,237.817 | 259.156   | 5,181.968  | 15,446.259 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 11    | 79,005.987  | 75,237.817 | 2,170.648 | 688.680    | 15,356.189 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2054 | 12    | 91,803.192  | 75,237.817 | 5,700.531 | 49.157     | 16,779.507 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 1     | 103,114.135 | 75,237.817 | 8,207.009 | 13.661     | 17,169.281 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 2     | 94,536.640  | 75,237.817 | 9,221.169 | 10.635     | 15,382.652 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 3     | 86,351.424  | 75,237.817 | 6,826.358 | 66.887     | 15,237.276 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |
| 2055 | 4     | 81,903.179  | 75,237.817 | 3,297.271 | 742.119    | 15,703.014 | 0.000     | 0.000      | 0.000      | -7,113.221 | 0.000      | 0.000      |
| 2055 | 5     | 81,263.043  | 75,237.817 | 789.817   | 2,501.431  | 15,501.416 | 0.000     | 0.000      | 0.000      | 0.000      | -6,803.616 | 0.000      |
| 2055 | 6     | 91,277.314  | 75,237.817 | 105.245   | 7,778.144  | 15,959.340 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | -1,839.411 |
| 2055 | 7     | 98,981.300  | 75,237.817 | 0.357     | 15,827.002 | 15,849.565 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 8     | 99,785.527  | 75,237.817 | 0.000     | 18,000.976 | 15,295.064 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 9     | 101,010.227 | 75,237.817 | 1.526     | 14,438.828 | 15,775.316 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 10    | 86,735.137  | 75,237.817 | 254.477   | 5,203.607  | 15,434.935 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 11    | 78,958.638  | 75,237.817 | 2,131.481 | 691.564    | 15,345.122 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2055 | 12    | 91,688.568  | 75,237.817 | 5,597.702 | 49.364     | 16,767.507 | 0.000     | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2056 | 1     | 102,953.261 | 75,237.817 | 8,058.322 | 13.717     | 17,157.037 | 5,545.164 | 0.000      | 0.000      | 0.000      | 0.000      | 0.000      |
| 2056 | 2     | 94,358.904  | 75,237.817 | 9,054.201 | 10.678     | 15,371.840 | 0.000     | -4,103.534 | 0.000      | 0.000      | 0.000      | 0.000      |
| 2056 | 3     | 86,217.437  | 75,237.817 | 6,702.770 | 67.163     | 15,226.603 | 0.000     | 0.000      | -5,053.094 | 0.000      | 0.000      | 0.000      |



Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on | D05on     | D12on | dJan12on | dFeb12on | nov15on |
|------|-------|------------|------------|-----------|------------|------------|---------|-----------|-------|----------|----------|---------|
| 2004 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2004 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 0.000     | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2005 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 0.000   | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on | dJan12on | dFeb12on | nov15on |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|-------|----------|----------|---------|
| 2006 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2006 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 0.000     | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2007 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2008 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |
| 2009 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000 | 0.000    | 0.000    | 0.000   |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|---------|
| 2009 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2009 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2009 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2009 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2009 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2009 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2010 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2011 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | 0.000      | 0.000     | 0.000     | 0.000   |
| 2012 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | 0.000   |
| 2012 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | 0.000   |
| 2012 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|---------|
| 2012 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2012 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | 0.000   |
| 2013 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | 0.000   |
| 2013 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2013 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 10    | 0.000      | 0.000      | 0.000     | 0.000      | -3,431.877 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |
| 2014 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000   |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2015 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | 0.000      |
| 2015 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | 0.000      |
| 2015 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | 0.000      |
| 2015 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2015 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2016 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2016 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2016 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2017 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2017 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2017 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2017 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2018 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2018 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2018 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2019 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2019 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2019 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2020 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2020 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2020 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2020 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2021 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2021 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2021 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2022 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2022 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2022 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2023 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2023 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2023 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2023 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2024 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2024 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2024 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2025 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2025 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 10    | 0.000      | 0.000      | 0.000     | 0.000      | -3,431.877 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2025 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2026 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2026 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2026 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2026 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2027 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2027 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2027 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2028 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2028 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2028 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2028 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2029 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2029 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2029 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2030 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2030 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2030 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2031 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2031 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2031 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2031 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2032 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2032 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2032 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2033 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2033 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2033 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2034 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2034 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2034 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2034 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2035 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2035 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2035 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2036 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2036 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 10    | 0.000      | 0.000      | 0.000     | 0.000      | -3,431.877 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2036 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2037 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2037 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2037 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2037 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2038 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2038 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2038 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2039 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2039 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2039 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2039 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2040 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2040 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2040 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2041 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2041 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2041 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2042 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2042 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2042 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2042 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2043 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2043 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2043 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2044 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2044 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2044 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2045 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2045 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2045 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2045 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2046 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2046 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2046 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2047 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2047 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 10    | 0.000      | 0.000      | 0.000     | 0.000      | -3,431.877 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2047 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2048 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2048 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2048 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2048 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2049 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2049 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2049 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2050 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2050 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2050 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2050 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2051 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2051 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2051 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2052 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2052 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2052 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2053 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2053 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2053 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2053 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2054 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2054 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2054 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2055 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2055 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2055 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2056 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2056 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Jul        | Aug        | Sep       | Oct        | Nov        | Sep07on   | D05on     | D12on      | dJan12on  | dFeb12on  | nov15on    |
|------|-------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|-----------|------------|
| 2056 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2056 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 1     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 2,905.024 | 0.000     | -2,718.891 |
| 2057 | 2     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 4,751.722 | -2,718.891 |
| 2057 | 3     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 4     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 5     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 6     | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 7     | -1,969.620 | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 8     | 0.000      | -2,784.509 | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 9     | 0.000      | 0.000      | 1,520.561 | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 10    | 0.000      | 0.000      | 0.000     | -3,431.877 | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 11    | 0.000      | 0.000      | 0.000     | 0.000      | -8,483.525 | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |
| 2057 | 12    | 0.000      | 0.000      | 0.000     | 0.000      | 0.000      | 4,856.027 | 4,074.301 | -3,512.491 | 0.000     | 0.000     | -2,718.891 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on | may18on | mayjun20 | jan20on | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|---------|---------|----------|---------|---------|-----------|------------|------------|-------------------|
| 2004 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 25,553.825 | 50.299     | 109,772.860445854 |
| 2004 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 32,935.006 | 16.774     | 97,006.010370613  |
| 2004 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 19,130.713 | 150.999    | 95,808.369610782  |
| 2004 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 10,577.267 | 837.039    | 94,932.424813032  |
| 2004 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 2,612.985  | 4,643.723  | 94,384.767363220  |
| 2004 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 181.025    | 12,736.825 | 100,721.403762376 |
| 2004 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,280.926 | 100,028.315848560 |
| 2004 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,073.539 | 98,146.626972839  |
| 2004 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 14,087.638 | 103,009.378878931 |
| 2004 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 443.062    | 4,189.763  | 98,091.035067234  |
| 2004 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 2,855.083  | 836.021    | 92,325.257514694  |
| 2004 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 13,159.680 | 121.435    | 103,688.441809909 |
| 2005 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,107.991 | 0.000      | 113,342.580668582 |
| 2005 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 26,537.124 | 0.000      | 101,036.739443420 |
| 2005 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,645.190 | 0.000      | 99,917.718293669  |
| 2005 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 10,518.415 | 373.901    | 98,692.443576533  |
| 2005 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 3,036.193  | 1,375.350  | 97,867.508019437  |
| 2005 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 414.041    | 8,031.301  | 104,554.629953223 |
| 2005 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 22,871.300 | 103,768.697786609 |
| 2005 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 29,163.941 | 102,074.643266223 |
| 2005 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 21,964.460 | 107,410.085923597 |
| 2005 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 257.850    | 10,102.210 | 101,420.602135685 |
| 2005 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 6,502.679  | 636.586    | 96,907.329173157  |
| 2005 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,078.730 | 93.806     | 107,247.132555006 |
| 2006 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 21,422.941 | 0.000      | 113,409.382098986 |
| 2006 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 18,197.861 | 0.000      | 100,946.218520249 |
| 2006 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20,604.018 | 87.488     | 98,980.618901241  |
| 2006 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 10,689.552 | 1,052.407  | 97,063.007384424  |
| 2006 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 873.966    | 1,767.477  | 98,291.810202929  |
| 2006 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 168.323    | 6,663.761  | 104,017.988893396 |
| 2006 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,411.856 | 103,519.232127326 |
| 2006 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 25,846.316 | 101,123.536510257 |
| 2006 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 39.744     | 16,419.681 | 107,163.277703389 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on | may18on | mayjun20 | jan20on | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|---------|---------|----------|---------|---------|-----------|------------|------------|-------------------|
| 2006 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,645.399  | 2,312.437  | 101,143.122864501 |
| 2006 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 9,048.709  | 159.241    | 95,982.639921831  |
| 2006 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 14,243.415 | 166.129    | 106,265.184181655 |
| 2007 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 14,861.693 | 18.438     | 112,471.671482015 |
| 2007 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 29,864.904 | 0.000      | 99,771.899422620  |
| 2007 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 25,146.949 | 140.867    | 98,553.034204270  |
| 2007 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 8,687.767  | 1,834.237  | 97,901.151695714  |
| 2007 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 3,277.298  | 3,183.332  | 97,579.073409867  |
| 2007 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 134.925    | 11,263.686 | 102,900.277147946 |
| 2007 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 18,343.897 | 102,541.557617330 |
| 2007 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 21,503.209 | 101,084.153571274 |
| 2007 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 23,719.902 | 111,123.173286924 |
| 2007 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 276.601    | 11,029.662 | 105,562.476013341 |
| 2007 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,406.301  | 1,872.038  | 100,896.055779320 |
| 2007 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 15,381.504 | 0.000      | 111,080.094178846 |
| 2008 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20,272.431 | 0.000      | 116,955.341944729 |
| 2008 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 24,744.382 | 0.000      | 104,257.921464582 |
| 2008 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 21,159.649 | 0.000      | 103,406.782507733 |
| 2008 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 9,539.217  | 90.336     | 102,059.659611101 |
| 2008 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 2,117.431  | 1,176.903  | 101,512.004727490 |
| 2008 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 145.010    | 6,987.469  | 107,635.683447654 |
| 2008 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 14,518.913 | 107,106.134924987 |
| 2008 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 17,549.686 | 105,824.871067266 |
| 2008 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,274.372 | 110,563.365639280 |
| 2008 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 348.357    | 6,312.628  | 104,745.800120599 |
| 2008 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 6,810.798  | 406.186    | 99,705.928393482  |
| 2008 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,105.361 | 0.000      | 110,217.388932489 |
| 2009 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 23,487.280 | 0.000      | 116,170.192688064 |
| 2009 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 28,509.557 | 0.000      | 103,709.452276590 |
| 2009 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 18,384.121 | 255.906    | 102,024.895111570 |
| 2009 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 7,082.660  | 194.055    | 100,974.646056189 |
| 2009 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,827.565  | 3,711.737  | 101,068.599976353 |
| 2009 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 176.959    | 7,462.421  | 106,376.609951657 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on | may18on | mayjun20 | jan20on | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|---------|---------|----------|---------|---------|-----------|------------|------------|-------------------|
| 2009 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 12,851.954 | 106,133.349580634 |
| 2009 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 13,232.752 | 104,733.198831382 |
| 2009 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 12,634.682 | 109,274.532698044 |
| 2009 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,274.245  | 4,520.552  | 104,257.604534920 |
| 2009 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,080.181  | 186.200    | 98,789.719160046  |
| 2009 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 13,363.829 | 12.038     | 109,833.514696692 |
| 2010 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 26,992.257 | 0.000      | 115,353.472182475 |
| 2010 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 26,966.780 | 0.000      | 102,687.236702657 |
| 2010 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,093.630 | 0.000      | 101,832.505545420 |
| 2010 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,152.485  | 1,494.617  | 100,952.433761175 |
| 2010 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,339.260  | 2,348.093  | 100,165.771137163 |
| 2010 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 217.109    | 11,447.188 | 106,240.045967647 |
| 2010 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 20,598.084 | 105,832.244626259 |
| 2010 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 24,003.910 | 104,389.693218613 |
| 2010 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,943.828 | 109,103.891873920 |
| 2010 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 425.047    | 6,345.516  | 103,705.132980125 |
| 2010 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 4,521.628  | 610.248    | 98,257.670724421  |
| 2010 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 18,341.902 | 0.000      | 109,159.440180126 |
| 2011 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 28,506.738 | 0.000      | 114,480.867398032 |
| 2011 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 25,960.856 | 0.000      | 102,172.435464513 |
| 2011 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 13,464.960 | 96.625     | 101,205.633588714 |
| 2011 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 8,630.908  | 928.865    | 99,289.401943076  |
| 2011 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,668.786  | 2,781.843  | 100,193.179343089 |
| 2011 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 535.762    | 10,384.999 | 105,022.991347952 |
| 2011 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,212.067 | 104,938.292183844 |
| 2011 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 23,984.331 | 103,327.195644680 |
| 2011 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5.919      | 14,321.800 | 108,188.514346306 |
| 2011 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,041.693  | 2,552.279  | 102,911.395353261 |
| 2011 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,208.865  | 59.038     | 97,520.581071967  |
| 2011 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 9,504.498  | 88.497     | 108,157.452624552 |
| 2012 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 16,066.519 | 0.000      | 112,902.743260949 |
| 2012 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 16,735.594 | 0.000      | 103,095.801680966 |
| 2012 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 12,004.396 | 531.020    | 96,936.992381869  |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on | may18on | mayjun20 | jan20on | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|---------|---------|----------|---------|---------|-----------|------------|------------|-------------------|
| 2012 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 2,528.081  | 2,214.321  | 95,452.286142470  |
| 2012 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,717.394  | 3,223.506  | 95,794.878237283  |
| 2012 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 8.708      | 9,550.382  | 101,237.990948205 |
| 2012 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 21,403.134 | 101,336.163188078 |
| 2012 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 21,068.978 | 99,245.485736578  |
| 2012 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20.946     | 14,859.695 | 104,598.184799197 |
| 2012 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,392.401  | 3,576.137  | 98,801.213278135  |
| 2012 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 7,242.864  | 459.991    | 93,972.480234473  |
| 2012 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 11,839.321 | 0.000      | 104,212.592540872 |
| 2013 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 17,908.016 | 0.000      | 112,845.604097649 |
| 2013 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20,987.880 | 0.000      | 102,747.435314306 |
| 2013 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 18,143.291 | 0.000      | 97,117.134821057  |
| 2013 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 11,858.451 | 1,053.414  | 95,678.644665908  |
| 2013 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,439.665  | 2,837.696  | 95,575.066494001  |
| 2013 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 251.506    | 10,391.824 | 101,044.870388094 |
| 2013 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 18,101.754 | 100,527.235486720 |
| 2013 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,900.218 | 99,363.192025872  |
| 2013 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 14,589.225 | 104,033.028578605 |
| 2013 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 348.648    | 5,774.119  | 98,705.884265434  |
| 2013 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,851.766  | 831.338    | 93,492.939539905  |
| 2013 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 15,802.526 | 24.691     | 104,213.664241503 |
| 2014 | 1     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20,176.286 | 47.072     | 112,715.133506149 |
| 2014 | 2     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 26,751.866 | 0.000      | 102,176.591955518 |
| 2014 | 3     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 19,053.948 | 0.000      | 96,491.740205397  |
| 2014 | 4     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 9,288.062  | 369.171    | 94,520.524307605  |
| 2014 | 5     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,136.442  | 1,987.740  | 95,525.226040331  |
| 2014 | 6     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 313.129    | 7,657.935  | 100,186.505471686 |
| 2014 | 7     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,157.483 | 100,050.692098313 |
| 2014 | 8     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 11,436.614 | 98,699.145513679  |
| 2014 | 9     | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 13,246.409 | 103,408.180765281 |
| 2014 | 10    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 563.253    | 3,351.685  | 97,652.179920709  |
| 2014 | 11    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 6,305.625  | 313.153    | 92,735.809189521  |
| 2014 | 12    | 0.000   | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 15,128.722 | 0.952      | 103,067.422975933 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on | mayjun20 | jan20on | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|---------|----------|---------|---------|-----------|------------|------------|-------------------|
| 2015 | 1     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 17,940.791 | 0.000      | 111,767.634441621 |
| 2015 | 2     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 22,425.885 | 0.000      | 101,551.054523550 |
| 2015 | 3     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 23,549.664 | 0.000      | 95,854.258234892  |
| 2015 | 4     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 6,648.167  | 272.197    | 94,529.340357092  |
| 2015 | 5     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,640.524  | 2,975.819  | 94,221.037545641  |
| 2015 | 6     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 55.872     | 10,939.444 | 99,606.100947517  |
| 2015 | 7     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 15,575.258 | 99,281.088003428  |
| 2015 | 8     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,521.668 | 97,607.309044666  |
| 2015 | 9     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 12,593.540 | 102,920.590809367 |
| 2015 | 10    | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 547.726    | 3,984.753  | 97,685.912963879  |
| 2015 | 11    | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 3,159.233  | 274.876    | 89,510.661931067  |
| 2015 | 12    | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 7,795.617  | 57.032     | 99,992.512357154  |
| 2016 | 1     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 12,532.335 | 0.000      | 108,911.067563964 |
| 2016 | 2     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 20,879.589 | 0.000      | 98,400.779219898  |
| 2016 | 3     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 11,734.065 | 70.438     | 92,871.798010893  |
| 2016 | 4     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 4,195.056  | 521.516    | 91,442.522926379  |
| 2016 | 5     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,395.490  | 2,752.353  | 90,783.054282881  |
| 2016 | 6     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 325.385    | 9,284.971  | 96,623.957102444  |
| 2016 | 7     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 17,226.251 | 96,321.923226038  |
| 2016 | 8     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 23,027.476 | 94,772.631206695  |
| 2016 | 9     | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 21,172.264 | 99,798.323036500  |
| 2016 | 10    | 0.000      | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 53.942     | 10,134.227 | 94,349.431601257  |
| 2016 | 11    | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 1,780.075  | 2,441.109  | 86,939.055040542  |
| 2016 | 12    | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 10,434.219 | 100.613    | 97,394.757943842  |
| 2017 | 1     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 13,741.456 | 0.000      | 106,064.293353016 |
| 2017 | 2     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 11,444.593 | 0.000      | 96,159.322211092  |
| 2017 | 3     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 8,980.346  | 32.996     | 90,211.217575363  |
| 2017 | 4     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 5,552.648  | 779.468    | 88,060.233916138  |
| 2017 | 5     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 757.650    | 4,117.789  | 88,316.946926510  |
| 2017 | 6     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 182.691    | 7,748.771  | 94,264.544178251  |
| 2017 | 7     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 15,496.075 | 94,188.920094405  |
| 2017 | 8     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 16,554.933 | 92,546.418938365  |
| 2017 | 9     | -2,047.728 | 0.000   | 0.000    | 0.000   | 0.000   | 0.000     | 0.000      | 9,864.590  | 97,376.959881631  |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20   | jan20on    | Jul21on | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|------------|------------|------------|---------|-----------|------------|------------|-------------------|
| 2017 | 10    | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 99.667     | 7,275.150  | 92,091.881313060  |
| 2017 | 11    | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 4,042.782  | 1,324.372  | 86,995.467316749  |
| 2017 | 12    | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 10,879.088 | 49.552     | 97,183.312369391  |
| 2018 | 1     | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 21,439.351 | 102.434    | 105,844.254107881 |
| 2018 | 2     | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 17,381.031 | 172.840    | 96,001.199906594  |
| 2018 | 3     | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 9,683.816  | 347.377    | 90,114.709108120  |
| 2018 | 4     | -2,047.728 | 0.000      | 0.000      | 0.000      | 0.000   | 0.000     | 9,310.187  | 400.532    | 88,933.254935880  |
| 2018 | 5     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 2,285.156  | 4,351.546  | 86,263.554009277  |
| 2018 | 6     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 30.789     | 14,650.929 | 92,506.555249318  |
| 2018 | 7     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 19,535.726 | 91,829.051284036  |
| 2018 | 8     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 17,837.493 | 90,166.202321481  |
| 2018 | 9     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 18,066.389 | 95,190.917707506  |
| 2018 | 10    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 579.687    | 11,314.064 | 89,722.900915729  |
| 2018 | 11    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 5,611.967  | 1,652.727  | 84,943.597899983  |
| 2018 | 12    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 12,925.019 | 9.126      | 94,671.071176234  |
| 2019 | 1     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 13,034.366 | 0.000      | 103,748.617688894 |
| 2019 | 2     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 16,204.777 | 0.000      | 93,713.876008896  |
| 2019 | 3     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 12,724.577 | 47.223     | 87,725.696090143  |
| 2019 | 4     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 6,420.684  | 554.068    | 85,785.184452373  |
| 2019 | 5     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 580.102    | 3,520.495  | 87,030.730099649  |
| 2019 | 6     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 8.922      | 9,776.795  | 91,925.680917275  |
| 2019 | 7     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 16,980.015 | 91,792.673248960  |
| 2019 | 8     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 19,735.544 | 90,344.265086476  |
| 2019 | 9     | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 0.000      | 16,531.734 | 95,240.771787862  |
| 2019 | 10    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 214.655    | 13,004.716 | 89,496.877679553  |
| 2019 | 11    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 4,952.780  | 1,093.885  | 84,375.543989541  |
| 2019 | 12    | -2,047.728 | -2,081.655 | 0.000      | 0.000      | 0.000   | 0.000     | 11,967.674 | 0.000      | 94,855.358490866  |
| 2020 | 1     | -2,047.728 | -2,081.655 | 0.000      | -5,954.278 | 0.000   | 0.000     | 10,591.396 | 101.618    | 97,823.563779497  |
| 2020 | 2     | -2,047.728 | -2,081.655 | 0.000      | -5,954.278 | 0.000   | 0.000     | 13,065.994 | 101.632    | 87,433.636319244  |
| 2020 | 3     | -2,047.728 | -2,081.655 | 0.000      | -5,954.278 | 0.000   | 0.000     | 10,862.419 | 7.264      | 81,764.454429786  |
| 2020 | 4     | -2,047.728 | -2,081.655 | 0.000      | -5,954.278 | 0.000   | 0.000     | 3,939.162  | 987.686    | 80,476.721213732  |
| 2020 | 5     | -2,047.728 | -2,081.655 | -7,685.656 | -5,954.278 | 0.000   | 0.000     | 3,080.650  | 1,218.787  | 72,813.271423028  |
| 2020 | 6     | -2,047.728 | -2,081.655 | -7,685.656 | -5,954.278 | 0.000   | 0.000     | 832.390    | 9,217.149  | 78,012.422872352  |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|-------------------|
| 2020 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 0.000      | 17,406.018 | 85,625.719242963  |
| 2020 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 0.000      | 22,100.916 | 84,235.9655566285 |
| 2020 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 0.000      | 16,017.574 | 88,930.608482149  |
| 2020 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 366.136    | 3,849.984  | 83,737.138021389  |
| 2020 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 2,523.214  | 671.860    | 78,434.803219346  |
| 2020 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 9,367.320  | 63.702     | 88,732.407394894  |
| 2021 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 15,359.411 | 0.000      | 97,637.653127179  |
| 2021 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 18,707.445 | 0.000      | 87,960.456691283  |
| 2021 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 14,570.425 | 16.259     | 81,404.767677264  |
| 2021 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 3,958.710  | 424.005    | 80,250.498148343  |
| 2021 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 2,024.905  | 1,644.907  | 79,868.252040417  |
| 2021 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 0.000     | 0.000     | 258.054    | 7,896.231  | 85,501.982403076  |
| 2021 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9.203      | 15,411.112 | 86,800.037966059  |
| 2021 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,668.056 | 85,403.687981019  |
| 2021 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 16,976.872 | 90,003.351436572  |
| 2021 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 39.464     | 7,255.641  | 84,883.744881456  |
| 2021 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,275.907  | 1,798.659  | 79,360.639247056  |
| 2021 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,260.858  | 0.000      | 89,815.089070782  |
| 2022 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,758.210 | 0.000      | 98,457.217795025  |
| 2022 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 17,176.055 | 10.555     | 88,510.164497603  |
| 2022 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,724.042 | 66.432     | 82,645.876512074  |
| 2022 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,150.093  | 737.565    | 81,161.649043603  |
| 2022 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,474.134  | 2,487.705  | 81,239.556606824  |
| 2022 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 196.666    | 7,744.698  | 86,781.288539685  |
| 2022 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.668      | 15,777.266 | 86,540.339651221  |
| 2022 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,954.781 | 85,063.204419529  |
| 2022 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.858      | 14,410.256 | 89,962.756496322  |
| 2022 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 476.941    | 5,196.621  | 84,608.686563670  |
| 2022 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,997.537  | 691.104    | 79,460.493125383  |
| 2022 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,526.924 | 49.465     | 89,730.139899306  |
| 2023 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 15,168.753 | 13.607     | 98,466.799456197  |
| 2023 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 17,051.497 | 10.597     | 88,515.388032115  |
| 2023 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,629.665 | 66.687     | 82,647.983747304  |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2023 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,103.622  | 740.294    | 81,161.161868703 |
| 2023 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,462.786  | 2,496.550  | 81,236.389107253 |
| 2023 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 195.001    | 7,766.228  | 86,763.074931967 |
| 2023 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.662      | 15,808.899 | 86,507.378215053 |
| 2023 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,987.991 | 85,028.503294934 |
| 2023 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.831      | 14,434.342 | 89,923.542376807 |
| 2023 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 472.282    | 5,204.215  | 84,566.363028131 |
| 2023 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,957.431  | 691.930    | 79,413.428156856 |
| 2023 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,396.915 | 49.408     | 89,630.805584903 |
| 2024 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,959.942 | 13.591     | 98,374.700812888 |
| 2024 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 16,813.197 | 10.583     | 88,428.902271982 |
| 2024 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,450.486 | 66.581     | 82,558.329074852 |
| 2024 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,015.566  | 738.936    | 81,064.121645623 |
| 2024 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,441.367  | 2,491.425  | 81,136.466506297 |
| 2024 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 192.112    | 7,748.924  | 86,656.780659166 |
| 2024 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.652      | 15,771.482 | 86,399.119599870 |
| 2024 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,942.571 | 84,921.064628352 |
| 2024 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.788      | 14,395.853 | 89,809.987030027 |
| 2024 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 465.016    | 5,189.619  | 84,452.632155584 |
| 2024 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,896.090  | 689.908    | 79,298.139379164 |
| 2024 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,234.877 | 49.260     | 89,503.034370234 |
| 2025 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,693.936 | 13.518     | 98,247.637259082 |
| 2025 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 16,510.326 | 10.524     | 88,310.672124072 |
| 2025 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,223.307 | 66.193     | 82,436.862579188 |
| 2025 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,904.317  | 734.447    | 80,934.182763859 |
| 2025 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,414.357  | 2,475.670  | 81,003.515428772 |
| 2025 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 188.470    | 7,698.211  | 86,515.625621255 |
| 2025 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.640      | 15,664.785 | 86,254.688808288 |
| 2025 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,816.550 | 84,776.891767379 |
| 2025 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.733      | 14,291.037 | 89,656.355578706 |
| 2025 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 455.736    | 5,150.403  | 84,297.148852069 |
| 2025 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,817.195  | 684.490    | 79,138.032330133 |
| 2025 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,024.822 | 48.859     | 89,322.434658689 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|-------------------|
| 2026 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,393.305 | 13.452     | 98,024.368619503  |
| 2026 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 16,171.612 | 10.472     | 88,109.5933337567 |
| 2026 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,971.790 | 65.864     | 82,236.539684622  |
| 2026 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,782.433  | 730.745    | 80,726.471679275  |
| 2026 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,385.075  | 2,463.041  | 80,797.334443980  |
| 2026 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 184.557    | 7,658.484  | 86,302.221500226  |
| 2026 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.626      | 15,582.996 | 86,041.605136860  |
| 2026 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,722.590 | 84,570.307065788  |
| 2026 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.675      | 14,214.887 | 89,442.255741219  |
| 2026 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 446.175    | 5,122.691  | 84,086.709135193  |
| 2026 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,736.950  | 680.777    | 78,928.013623166  |
| 2026 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,813.632  | 48.592     | 89,092.041082889  |
| 2027 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,098.777 | 13.375     | 97,817.008790356  |
| 2027 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 15,840.074 | 10.411     | 87,923.109748435  |
| 2027 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,725.895 | 65.478     | 82,051.118688628  |
| 2027 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,663.457  | 726.442    | 80,534.715816536  |
| 2027 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,356.525  | 2,448.444  | 80,607.352472244  |
| 2027 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 180.746    | 7,612.833  | 86,105.993846489  |
| 2027 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.613      | 15,489.739 | 85,846.290629448  |
| 2027 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,615.954 | 84,381.251212015  |
| 2027 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.620      | 14,129.029 | 89,246.844666709  |
| 2027 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 436.918    | 5,091.630  | 83,895.100682193  |
| 2027 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,659.309  | 676.629    | 78,736.995506567  |
| 2027 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,609.536  | 48.295     | 88,882.910549142  |
| 2028 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,816.953 | 13.326     | 97,608.256115760  |
| 2028 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 15,522.034 | 10.372     | 87,734.474223960  |
| 2028 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,489.433 | 65.226     | 81,862.694706981  |
| 2028 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,548.730  | 723.570    | 80,338.846249451  |
| 2028 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,328.923  | 2,438.540  | 80,412.365985003  |
| 2028 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 177.055    | 7,581.457  | 85,903.839781790  |
| 2028 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.601      | 15,424.745 | 85,644.168802649  |
| 2028 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,540.633 | 84,184.799320699  |
| 2028 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.566      | 14,067.499 | 89,042.787963580  |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2028 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 427.859    | 5,069.030  | 83,693.953146635 |
| 2028 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,583.128  | 673.568    | 78,535.512332742 |
| 2028 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,408.776  | 48.073     | 88,661.315079791 |
| 2029 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,520.593 | 13.291     | 97,394.260096002 |
| 2029 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 15,190.538 | 10.346     | 87,544.441057616 |
| 2029 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,245.123 | 65.068     | 81,676.133309051 |
| 2029 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,431.284  | 721.896    | 80,148.406721843 |
| 2029 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,300.926  | 2,433.142  | 80,226.182040459 |
| 2029 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 173.340    | 7,565.331  | 85,713.773714945 |
| 2029 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.588      | 15,393.226 | 85,456.953991379 |
| 2029 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,506.411 | 84,005.784722572 |
| 2029 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.513      | 14,041.296 | 88,859.778970845 |
| 2029 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 419.032    | 5,060.065  | 83,516.585829205 |
| 2029 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,509.532  | 672.439    | 78,360.850101680 |
| 2029 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,216.314  | 47.996     | 88,472.134715218 |
| 2030 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,236.430 | 13.275     | 97,144.973070882 |
| 2030 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,867.099 | 10.331     | 87,316.218214309 |
| 2030 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,002.489 | 64.955     | 81,445.061670794 |
| 2030 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,312.456  | 720.412    | 79,904.813987633 |
| 2030 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,272.071  | 2,427.392  | 79,980.330462079 |
| 2030 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 169.451    | 7,545.495  | 85,455.994294633 |
| 2030 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.575      | 15,348.933 | 85,196.377298038 |
| 2030 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,451.104 | 83,749.462023352 |
| 2030 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.454      | 13,993.075 | 88,590.513594813 |
| 2030 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 409.182    | 5,041.258  | 83,248.209218213 |
| 2030 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,426.022  | 669.742    | 78,088.944424835 |
| 2030 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,994.586  | 47.791     | 88,169.947194254 |
| 2031 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,963.188 | 13.183     | 96,868.608736969 |
| 2031 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,563.742 | 10.262     | 87,072.872888129 |
| 2031 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,780.678 | 64.537     | 81,208.332134633 |
| 2031 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,206.744  | 715.976    | 79,665.604734892 |
| 2031 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,247.089  | 2,413.085  | 79,748.853913517 |
| 2031 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 166.162    | 7,502.747  | 85,221.851816714 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2031 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.564      | 15,265.469 | 84,967.958786560 |
| 2031 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,360.508 | 83,533.332450225 |
| 2031 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.408      | 13,923.858 | 88,371.998141947 |
| 2031 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 401.628    | 5,017.573  | 83,038.770849724 |
| 2031 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,363.668  | 666.772    | 77,885.320911509 |
| 2031 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,832.989  | 47.590     | 87,951.970677250 |
| 2032 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,731.152 | 13.149     | 96,668.235145691 |
| 2032 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,303.188 | 10.235     | 86,893.522972773 |
| 2032 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,587.884 | 64.372     | 81,030.813665751 |
| 2032 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,113.693  | 714.149    | 79,482.890381576 |
| 2032 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,224.813  | 2,406.949  | 79,568.664242178 |
| 2032 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 163.195    | 7,483.718  | 85,036.466720699 |
| 2032 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.554      | 15,226.764 | 84,783.876366655 |
| 2032 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,316.661 | 83,355.875041034 |
| 2032 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.366      | 13,888.734 | 88,189.038213754 |
| 2032 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 394.463    | 5,004.927  | 82,859.814596809 |
| 2032 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,303.663  | 665.092    | 77,707.439664002 |
| 2032 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,675.447  | 47.471     | 87,757.682094010 |
| 2033 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,497.838 | 13.104     | 96,481.461690392 |
| 2033 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 14,041.493 | 10.200     | 86,726.711865695 |
| 2033 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,394.558 | 64.154     | 80,866.217536971 |
| 2033 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,020.463  | 711.753    | 79,313.764802309 |
| 2033 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,202.523  | 2,398.956  | 79,402.287082979 |
| 2033 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 160.229    | 7,459.078  | 84,865.687267092 |
| 2033 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.544      | 15,177.045 | 84,614.757286958 |
| 2033 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,260.659 | 83,193.211121336 |
| 2033 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.323      | 13,844.137 | 88,021.678676666 |
| 2033 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 387.339    | 4,989.011  | 82,696.602930828 |
| 2033 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,244.097  | 662.997    | 77,545.702793269 |
| 2033 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,519.268  | 47.322     | 87,581.485396650 |
| 2034 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,262.613 | 13.082     | 96,317.592862265 |
| 2034 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,777.962 | 10.184     | 86,580.804878922 |
| 2034 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,200.003 | 64.054     | 80,722.551793986 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|-------------------|
| 2034 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,926.799  | 710.692    | 79,166.766964244  |
| 2034 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,180.153  | 2,395.508  | 79,258.105190874  |
| 2034 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 157.257    | 7,448.734  | 84,718.127942104  |
| 2034 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.534      | 15,156.751 | 84,469.072536821  |
| 2034 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,238.431 | 83,053.450386727  |
| 2034 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.280      | 13,827.094 | 87,878.509612985  |
| 2034 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 380.233    | 4,983.140  | 82,557.437661008  |
| 2034 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,184.769  | 662.257    | 77,408.352813315  |
| 2034 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,363.903  | 47.272     | 87,432.352214444  |
| 2035 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,034.576 | 13.074     | 96,181.222287083  |
| 2035 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,521.682 | 10.178     | 86,458.548275077  |
| 2035 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,010.231 | 64.015     | 80,601.373263729  |
| 2035 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,835.108  | 710.250    | 79,041.791850174  |
| 2035 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,158.186  | 2,394.012  | 79,134.677151066  |
| 2035 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 154.328    | 7,444.007  | 84,590.878757195  |
| 2035 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.524      | 15,147.040 | 84,342.593909109  |
| 2035 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,227.186 | 82,931.207680343  |
| 2035 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.237      | 13,817.959 | 87,752.286646685  |
| 2035 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 373.138    | 4,979.797  | 82,433.769221621  |
| 2035 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,125.296  | 661.803    | 77,285.159186817  |
| 2035 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,207.620  | 47.239     | 87,297.534685602  |
| 2036 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,807.670 | 13.074     | 96,056.598217755  |
| 2036 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,266.465 | 10.177     | 86,346.555649421  |
| 2036 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,821.143  | 64.011     | 80,490.190499780  |
| 2036 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,743.692  | 710.191    | 78,926.9144455901 |
| 2036 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,136.268  | 2,393.770  | 79,020.988629350  |
| 2036 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 151.406    | 7,443.211  | 84,473.735957817  |
| 2036 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.514      | 15,145.192 | 84,226.003088288  |
| 2036 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,225.007 | 82,818.625813550  |
| 2036 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.195      | 13,816.059 | 87,635.986203620  |
| 2036 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 366.060    | 4,979.072  | 82,319.845968098  |
| 2036 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,065.996  | 661.701    | 77,171.781900524  |
| 2036 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,051.847  | 47.232     | 87,173.563217956  |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2037 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,579.459 | 13.081     | 95,939.718866534 |
| 2037 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 13,010.060 | 10.183     | 86,241.841886693 |
| 2037 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,631.230  | 64.043     | 80,386.303140307 |
| 2037 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,651.931  | 710.547    | 78,819.744237276 |
| 2037 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,114.281  | 2,394.954  | 78,915.073412296 |
| 2037 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 148.474    | 7,446.772  | 84,364.419677523 |
| 2037 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.504      | 15,152.324 | 84,117.314874385 |
| 2037 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,232.806 | 82,713.447732210 |
| 2037 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.152      | 13,822.123 | 87,527.278034875 |
| 2037 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 358.950    | 4,981.165  | 82,213.183114828 |
| 2037 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,006.397  | 661.970    | 77,065.498641405 |
| 2037 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,895.180  | 47.250     | 87,057.087834662 |
| 2038 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,349.711 | 13.077     | 95,828.248819165 |
| 2038 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,751.449 | 10.179     | 86,141.365735003 |
| 2038 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,439.485  | 64.018     | 80,286.271051197 |
| 2038 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,559.153  | 710.243    | 78,716.059976571 |
| 2038 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,092.021  | 2,393.848  | 78,812.173685737 |
| 2038 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 145.504    | 7,443.133  | 84,258.032767302 |
| 2038 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.494      | 15,144.492 | 84,011.189907686 |
| 2038 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,223.447 | 82,610.617686492 |
| 2038 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.109      | 13,814.295 | 87,420.836374828 |
| 2038 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 351.735    | 4,978.240  | 82,108.700882828 |
| 2038 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,945.909  | 661.568    | 76,961.303484763 |
| 2038 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,736.164  | 47.220     | 86,942.856729226 |
| 2039 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,125.413 | 13.086     | 95,719.278198033 |
| 2039 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,499.437 | 10.186     | 86,043.724349156 |
| 2039 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,252.880  | 64.063     | 80,189.471175652 |
| 2039 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,468.998  | 710.733    | 78,616.208868196 |
| 2039 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,070.422  | 2,395.492  | 78,713.549570250 |
| 2039 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 142.625    | 7,448.182  | 84,156.358150016 |
| 2039 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.484      | 15,154.680 | 83,910.128580664 |
| 2039 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,234.873 | 82,512.949952371 |
| 2039 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.067      | 13,823.359 | 87,319.988402512 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2039 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 344.765    | 4,981.459  | 82,009.881487361 |
| 2039 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,887.476  | 661.983    | 76,862.769543223 |
| 2039 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,582.664  | 47.249     | 86,835.083245144 |
| 2040 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,905.547 | 13.077     | 95,597.600924041 |
| 2040 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,251.600 | 10.179     | 85,933.648614481 |
| 2040 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,068.804  | 64.013     | 80,079.370358621 |
| 2040 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,379.790  | 710.134    | 78,501.622244479 |
| 2040 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,048.983  | 2,393.308  | 78,599.336194636 |
| 2040 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 139.760    | 7,440.951  | 84,037.802116194 |
| 2040 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.474      | 15,139.055 | 83,791.401411006 |
| 2040 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,216.043 | 82,397.407289666 |
| 2040 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2.026      | 13,807.344 | 87,199.741472914 |
| 2040 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 337.755    | 4,975.370  | 81,891.213712118 |
| 2040 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,828.578  | 661.130    | 76,743.749565171 |
| 2040 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,427.494  | 47.185     | 86,703.862246785 |
| 2041 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,686.652 | 13.079     | 95,476.324151931 |
| 2041 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 12,006.158 | 10.181     | 85,825.629483320 |
| 2041 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,887.474  | 64.027     | 79,973.003963711 |
| 2041 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,292.388  | 710.310    | 78,392.669809830 |
| 2041 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,028.089  | 2,393.992  | 78,492.405438609 |
| 2041 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 136.981    | 7,443.331  | 83,928.289685149 |
| 2041 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.465      | 15,144.390 | 83,683.187025382 |
| 2041 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,222.726 | 82,293.559434790 |
| 2041 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.985      | 13,813.141 | 87,093.162766409 |
| 2041 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 331.083    | 4,977.627  | 81,787.487309453 |
| 2041 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,772.800  | 661.454    | 76,641.202417942 |
| 2041 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,281.263  | 47.210     | 86,592.380036373 |
| 2042 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,469.564 | 13.088     | 95,372.165865343 |
| 2042 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,762.615 | 10.188     | 85,732.787160411 |
| 2042 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,707.522  | 64.076     | 79,881.635465966 |
| 2042 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,205.643  | 710.892    | 78,299.158624647 |
| 2042 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1,007.350  | 2,396.043  | 78,400.699322415 |
| 2042 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 134.222    | 7,449.936  | 83,834.382527898 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other             |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|-------------------|
| 2042 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.455      | 15,158.401 | 83,590.5493000512 |
| 2042 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,239.286 | 82,204.742813740  |
| 2042 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.946      | 13,826.925 | 87,002.157049302  |
| 2042 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 324.462    | 4,982.788  | 81,699.068863167  |
| 2042 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,717.483  | 662.171    | 76,554.053321442  |
| 2042 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,136.303  | 47.263     | 86,497.888070280  |
| 2043 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,266.829 | 13.100     | 95,291.595450011  |
| 2043 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,534.840 | 10.197     | 85,660.604728149  |
| 2043 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,538.887  | 64.133     | 79,810.102042753  |
| 2043 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,124.179  | 711.516    | 78,225.383590480  |
| 2043 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 987.833    | 2,398.136  | 78,327.807073947  |
| 2043 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 131.622    | 7,456.461  | 83,759.380335273  |
| 2043 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.447      | 15,171.594 | 83,515.977035413  |
| 2043 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,254.228 | 82,132.728944050  |
| 2043 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.908      | 13,838.921 | 86,927.900186034  |
| 2043 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 318.173    | 4,987.092  | 81,626.358126327  |
| 2043 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,664.793  | 662.739    | 76,481.688713576  |
| 2043 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,997.892  | 47.303     | 86,418.712152980  |
| 2044 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,071.137 | 13.134     | 95,219.022128175  |
| 2044 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,315.076 | 10.223     | 85,595.720671247  |
| 2044 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,376.256  | 64.299     | 79,745.932596845  |
| 2044 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 4,045.686  | 713.362    | 78,159.477368115  |
| 2044 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 969.044    | 2,404.388  | 78,262.943739308  |
| 2044 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 129.120    | 7,475.971  | 83,692.758508458  |
| 2044 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.438      | 15,211.433 | 83,449.967741624  |
| 2044 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,299.789 | 82,069.261409767  |
| 2044 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.872      | 13,875.690 | 86,862.706365153  |
| 2044 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 312.141    | 5,000.415  | 81,562.804416337  |
| 2044 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,614.319  | 664.521    | 76,418.769862539  |
| 2044 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,865.467  | 47.431     | 86,350.269909613  |
| 2045 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,889.433  | 13.160     | 95,159.086932457  |
| 2045 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 11,110.732 | 10.243     | 85,541.747727452  |
| 2045 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,224.869  | 64.424     | 79,692.252115430  |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2045 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,972.476  | 714.740    | 78,103.794010927 |
| 2045 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 951.490    | 2,408.987  | 78,207.676269607 |
| 2045 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 126.779    | 7,490.143  | 83,635.585952419 |
| 2045 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.430      | 15,240.013 | 83,392.921229685 |
| 2045 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,331.875 | 82,013.839157665 |
| 2045 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.838      | 13,901.108 | 86,805.180965208 |
| 2045 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 306.454    | 5,009.446  | 81,506.118732290 |
| 2045 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,566.622  | 665.704    | 76,362.017365630 |
| 2045 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,740.040  | 47.515     | 86,287.830650435 |
| 2046 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,712.186  | 13.208     | 95,104.475317850 |
| 2046 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,911.332 | 10.281     | 85,492.446927764 |
| 2046 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,076.978  | 64.659     | 79,642.879157155 |
| 2046 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,900.922  | 717.324    | 78,052.407157381 |
| 2046 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 934.320    | 2,417.613  | 78,156.422879898 |
| 2046 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 124.487    | 7,516.748  | 83,582.360318826 |
| 2046 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.422      | 15,293.725 | 83,339.623552343 |
| 2046 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,392.463 | 81,961.969997757 |
| 2046 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.804      | 13,949.236 | 86,751.153583976 |
| 2046 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 300.880    | 5,026.654  | 81,452.839550570 |
| 2046 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,519.855  | 667.968    | 76,308.527595699 |
| 2046 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,617.037  | 47.675     | 86,228.896929868 |
| 2047 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,535.544  | 13.246     | 95,054.961411529 |
| 2047 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,712.927 | 10.310     | 85,448.157304788 |
| 2047 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,930.207  | 64.843     | 79,599.196628532 |
| 2047 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,830.074  | 719.374    | 78,007.551719124 |
| 2047 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 917.363    | 2,424.551  | 78,112.338746788 |
| 2047 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 122.229    | 7,538.374  | 83,537.094009545 |
| 2047 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.415      | 15,337.837 | 83,294.789397053 |
| 2047 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,442.850 | 81,918.905002448 |
| 2047 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.772      | 13,989.856 | 86,706.977816536 |
| 2047 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 295.435    | 5,041.355  | 81,409.817141930 |
| 2047 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,474.286  | 669.930    | 76,265.950909239 |
| 2047 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,497.457  | 47.816     | 86,182.592432764 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating    | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|------------|------------|------------------|
| 2048 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,363.868  | 13.276     | 95,017.300974538 |
| 2048 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,519.893 | 10.334     | 85,414.181965191 |
| 2048 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,787.171  | 64.991     | 79,565.262738135 |
| 2048 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,760.924  | 721.000    | 77,972.300769360 |
| 2048 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 900.792    | 2,430.011  | 78,077.400872244 |
| 2048 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 120.020    | 7,555.274  | 83,500.966615093 |
| 2048 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.407      | 15,372.084 | 83,258.769740138 |
| 2048 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,481.619 | 81,883.991648318 |
| 2048 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.740      | 14,020.785 | 86,670.784203030 |
| 2048 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 290.083    | 5,052.432  | 81,374.199031613 |
| 2048 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,429.442  | 671.397    | 76,230.433504729 |
| 2048 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,379.638  | 47.920     | 86,143.629568296 |
| 2049 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,175.235  | 13.324     | 94,990.480379109 |
| 2049 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,308.508 | 10.372     | 85,390.958415608 |
| 2049 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,631.098  | 65.232     | 79,543.065343437 |
| 2049 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,685.730  | 723.712    | 77,950.213726558 |
| 2049 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 882.823    | 2,439.265  | 78,056.330712990 |
| 2049 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 117.631    | 7,584.379  | 83,479.978977671 |
| 2049 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.399      | 15,431.933 | 83,238.581070300 |
| 2049 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,550.464 | 81,865.197238027 |
| 2049 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.705      | 14,076.607 | 86,652.084844440 |
| 2049 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 284.359    | 5,072.792  | 81,356.652162289 |
| 2049 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,381.604  | 674.130    | 76,213.627848449 |
| 2049 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,254.264  | 48.117     | 86,125.930131125 |
| 2050 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,996.011  | 13.389     | 94,982.653852912 |
| 2050 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 10,107.202 | 10.422     | 85,384.031436250 |
| 2050 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,482.159  | 65.549     | 79,536.373450507 |
| 2050 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,613.851  | 727.232    | 77,943.563931637 |
| 2050 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 865.613    | 2,451.149  | 78,049.883233281 |
| 2050 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 115.339    | 7,621.426  | 83,473.548327277 |
| 2050 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.391      | 15,507.485 | 83,232.371420031 |
| 2050 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000      | 17,636.625 | 81,859.411915133 |
| 2050 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.672      | 14,145.865 | 86,646.287524415 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating   | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|-----------|------------|------------------|
| 2050 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 278.833   | 5,097.815  | 81,351.174922233 |
| 2050 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,335.356 | 677.467    | 76,208.437014700 |
| 2050 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,132.911 | 48.356     | 86,120.531666219 |
| 2051 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,831.469 | 13.441     | 94,960.165278158 |
| 2051 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,922.407 | 10.463     | 85,363.994722548 |
| 2051 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,345.429 | 65.808     | 79,516.671286155 |
| 2051 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,547.824 | 730.110    | 77,923.318943954 |
| 2051 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 849.807   | 2,460.875  | 78,030.072547008 |
| 2051 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 113.233   | 7,651.700  | 83,453.221591560 |
| 2051 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.384     | 15,569.283 | 83,212.387915624 |
| 2051 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 17,706.989 | 81,840.199881735 |
| 2051 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.642     | 14,202.442 | 86,626.629205213 |
| 2051 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 273.752   | 5,118.249  | 81,332.079583055 |
| 2051 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,292.819 | 680.187    | 76,189.544308709 |
| 2051 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,021.285 | 48.550     | 86,100.110518902 |
| 2052 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,670.787 | 13.496     | 94,940.832080293 |
| 2052 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,741.967 | 10.505     | 85,346.817941219 |
| 2052 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,211.861 | 66.074     | 79,499.677673617 |
| 2052 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,483.352 | 733.072    | 77,905.989871729 |
| 2052 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 834.370   | 2,470.877  | 78,013.082399556 |
| 2052 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 111.178   | 7,682.883  | 83,435.900143997 |
| 2052 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.377     | 15,632.835 | 83,195.290528659 |
| 2052 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 17,779.480 | 81,823.884315276 |
| 2052 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.612     | 14,260.725 | 86,609.956583983 |
| 2052 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 268.792   | 5,139.293  | 81,315.887067900 |
| 2052 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,251.302 | 682.991    | 76,173.629295027 |
| 2052 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,912.281 | 48.751     | 86,082.798662130 |
| 2053 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,513.182 | 13.550     | 94,923.260895768 |
| 2053 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,564.985 | 10.548     | 85,331.225300601 |
| 2053 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,080.855 | 66.342     | 79,484.257016033 |
| 2053 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,420.116 | 736.060    | 77,890.285209505 |
| 2053 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 819.230   | 2,480.968  | 77,997.701095136 |
| 2053 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 109.161   | 7,714.345  | 83,420.239898364 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating   | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|-----------|------------|------------------|
| 2053 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.370     | 15,696.959 | 83,179.847771603 |
| 2053 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 17,852.628 | 81,809.169609051 |
| 2053 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.583     | 14,319.540 | 86,594.939575021 |
| 2053 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 263.927   | 5,160.531  | 81,301.319863138 |
| 2053 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,210.583 | 685.822    | 76,159.335534886 |
| 2053 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,805.377 | 48.953     | 86,067.265765251 |
| 2054 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,358.609 | 13.605     | 94,907.474630813 |
| 2054 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,391.408 | 10.591     | 85,317.234215485 |
| 2054 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,952.370 | 66.613     | 79,470.426589649 |
| 2054 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,358.097 | 739.076    | 77,876.220957408 |
| 2054 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 804.381   | 2,491.152  | 77,983.941413692 |
| 2054 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 107.184   | 7,746.097  | 83,406.251098864 |
| 2054 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.364     | 15,761.679 | 83,166.067299422 |
| 2054 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 17,926.457 | 81,796.060831581 |
| 2054 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.554     | 14,378.906 | 86,581.580977105 |
| 2054 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 259.156   | 5,181.968  | 81,288.377769874 |
| 2054 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,170.648 | 688.680    | 76,146.659157691 |
| 2054 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,700.531 | 49.157     | 86,053.503254621 |
| 2055 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,207.009 | 13.661     | 94,893.464182847 |
| 2055 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,221.169 | 10.635     | 85,304.836597484 |
| 2055 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,826.358 | 66.887     | 79,458.178416193 |
| 2055 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,297.271 | 742.119    | 77,863.788967869 |
| 2055 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 789.817   | 2,501.431  | 77,971.795369244 |
| 2055 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 105.245   | 7,778.144  | 83,393.925594656 |
| 2055 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.357     | 15,827.002 | 83,153.941076255 |
| 2055 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 18,000.976 | 81,784.550302958 |
| 2055 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.526     | 14,438.828 | 86,569.872938641 |
| 2055 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 254.477   | 5,203.607  | 81,277.053165848 |
| 2055 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,131.481 | 691.564    | 76,135.592662953 |
| 2055 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,597.702 | 49.364     | 86,041.502990598 |
| 2056 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,058.322 | 13.717     | 94,881.220877352 |
| 2056 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 9,054.201 | 10.678     | 85,294.024742812 |
| 2056 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,702.770 | 67.163     | 79,447.504900304 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | nov16on    | may18on    | mayjun20 | jan20on    | Jul21on   | X-Missing | Heating   | Cooling    | Other            |
|------|-------|------------|------------|----------|------------|-----------|-----------|-----------|------------|------------------|
| 2056 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,237.615 | 745.190    | 77,852.981488568 |
| 2056 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 775.534   | 2,511.804  | 77,961.255367051 |
| 2056 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 103.342   | 7,810.489  | 83,383.255638519 |
| 2056 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.351     | 15,892.935 | 83,143.461468206 |
| 2056 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 18,076.195 | 81,774.630731923 |
| 2056 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.498     | 14,499.315 | 86,559.808009826 |
| 2056 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 249.888   | 5,225.451  | 81,267.338823097 |
| 2056 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,093.067 | 694.476    | 76,126.128942921 |
| 2056 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,496.849 | 49.572     | 86,031.257264223 |
| 2057 | 1     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 7,912.492 | 13.774     | 94,870.736464347 |
| 2057 | 2     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 8,890.440 | 10.723     | 85,284.791329156 |
| 2057 | 3     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 6,581.556 | 67.441     | 79,438.398826439 |
| 2057 | 4     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 3,179.105 | 748.290    | 77,843.791159267 |
| 2057 | 5     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 761.525   | 2,522.274  | 77,952.314200497 |
| 2057 | 6     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 101.477   | 7,843.136  | 83,374.233883681 |
| 2057 | 7     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.344     | 15,959.487 | 83,134.621240210 |
| 2057 | 8     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 0.000     | 18,152.121 | 81,766.295212872 |
| 2057 | 9     | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 1.471     | 14,560.372 | 86,551.379139577 |
| 2057 | 10    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 245.386   | 5,247.502  | 81,259.227904968 |
| 2057 | 11    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 2,055.390 | 697.415    | 76,118.261279636 |
| 2057 | 12    | -2,047.728 | -2,081.655 | 0.000    | -5,954.278 | 1,420.894 | 0.000     | 5,397.934 | 49.782     | 86,022.758794021 |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |             |         |            |            |             |
|--|-------|-------------|----------|------------|------------|-------------|---------|------------|------------|-------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other       | Total   | Add Factor | Add Factor | Total       |
| 2004   | 1     | 135,376.984 | 131261.2 | 25,553.825 | 50.299     | 105,657.084 | 280634  |            |            | 131,261.208 |
| 2004   | 2     | 129,957.791 | 125201.7 | 32,935.006 | 16.774     | 92,249.871  | 1101976 |            |            | 125,201.652 |
| 2004   | 3     | 115,090.081 | 109248.1 | 19,130.713 | 150.999    | 89,966.356  | 162005  |            |            | 109,248.068 |
| 2004   | 4     | 106,346.731 | 106039   | 10,577.267 | 837.039    | 94,624.721  | 1020403 |            |            | 106,039.027 |
| 2004   | 5     | 101,641.475 | 102893.6 | 2,612.985  | 4,643.723  | 95,636.911  | 1330465 |            |            | 102,893.619 |
| 2004   | 6     | 113,639.254 | 117520.1 | 181.025    | 12,736.825 | 104,602.206 | 175965  |            |            | 117,520.056 |
| 2004   | 7     | 116,309.241 | 118976.1 | 0.000      | 16,280.926 | 102,695.132 | 411005  |            |            | 118,976.058 |
| 2004   | 8     | 114,220.166 | 114443.8 | 0.000      | 16,073.539 | 98,370.242  | 463282  |            |            | 114,443.781 |
| 2004   | 9     | 117,097.016 | 117319.1 | 0.000      | 14,087.638 | 103,231.442 | 486623  |            |            | 117,319.080 |
| 2004   | 10    | 102,723.860 | 105855.6 | 443.062    | 4,189.763  | 101,222.786 | 138511  |            |            | 105,855.611 |
| 2004   | 11    | 96,016.362  | 98814.81 | 2,855.083  | 836.021    | 95,123.702  | 605376  |            |            | 98,814.807  |
| 2004   | 12    | 116,969.558 | 117815.6 | 13,159.680 | 121.435    | 104,534.436 | 281527  |            |            | 117,815.552 |
| 2005   | 1     | 135,450.571 | 129923.7 | 22,107.991 | 0.000      | 107,815.756 | 403787  |            |            | 129,923.747 |
| 2005   | 2     | 127,573.863 | 124572.2 | 26,537.124 | 0.000      | 98,035.050  | 489241  |            |            | 124,572.174 |
| 2005   | 3     | 122,562.908 | 117738.9 | 22,645.190 | 0.000      | 95,093.664  | 399799  |            |            | 117,738.854 |
| 2005   | 4     | 109,584.760 | 108703.5 | 10,518.415 | 373.901    | 97,811.187  | 702035  |            |            | 108,703.503 |
| 2005   | 5     | 102,279.051 | 100091.5 | 3,036.193  | 1,375.350  | 95,679.922  | 624705  |            |            | 100,091.466 |
| 2005   | 6     | 112,999.973 | 112547.9 | 414.041    | 8,031.301  | 104,102.539 | 199344  |            |            | 112,547.882 |
| 2005   | 7     | 126,639.998 | 123433.6 | 0.000      | 22,871.300 | 100,562.300 | 003707  |            |            | 123,433.600 |
| 2005   | 8     | 131,238.584 | 128530.4 | 0.000      | 29,163.941 | 99,366.507  | 995093  |            |            | 128,530.449 |
| 2005   | 9     | 129,374.546 | 129452.7 | 0.000      | 21,964.460 | 107,488.256 | 048924  |            |            | 129,452.716 |
| 2005   | 10    | 111,780.662 | 112861.1 | 257.850    | 10,102.210 | 102,501.050 | 77745   |            |            | 112,861.111 |
| 2005   | 11    | 104,046.595 | 105939.3 | 6,502.679  | 636.586    | 98,800.077  | 443860  |            |            | 105,939.343 |
| 2005   | 12    | 129,419.668 | 127394.4 | 22,078.730 | 93.806     | 105,221.902 | 781722  |            |            | 127,394.438 |
| 2006   | 1     | 134,832.323 | 135491.9 | 21,422.941 | 0.000      | 114,068.923 | 717015  |            |            | 135,491.865 |
| 2006   | 2     | 119,144.079 | 120935   | 18,197.861 | 0.000      | 102,737.165 | 449485  |            |            | 120,935.026 |
| 2006   | 3     | 119,672.124 | 113477.4 | 20,604.018 | 87.488     | 92,785.901  | 501733  |            |            | 113,477.407 |
| 2006   | 4     | 108,804.966 | 104629.6 | 10,689.552 | 1,052.407  | 92,887.656  | 316475  |            |            | 104,629.615 |
| 2006   | 5     | 100,933.253 | 103898.1 | 873.966    | 1,767.477  | 101,256.661 | 761339  |            |            | 103,898.105 |
| 2006   | 6     | 110,850.073 | 112025.5 | 168.323    | 6,663.761  | 105,193.463 | 488151  |            |            | 112,025.548 |
| 2006   | 7     | 119,931.088 | 121843.9 | 0.000      | 16,411.856 | 105,432.071 | 357880  |            |            | 121,843.927 |
| 2006   | 8     | 126,969.852 | 125800.4 | 0.000      | 25,846.316 | 99,954.064  | 4457507 |            |            | 125,800.380 |
| 2006   | 9     | 123,622.703 | 127451.4 | 39.744     | 16,419.681 | 110,991.950 | 854712  |            |            | 127,451.376 |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                   |             |            |            |
|--|-------|-------------|----------|------------|------------|-------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other             | Total       | Add Factor | Add Factor |
| 2006   | 10    | 105,100.958 | 107090.5 | 1,645.399  | 2,312.437  | 103,132.681808949 | 107,090.517 |            |            |
| 2006   | 11    | 105,190.590 | 105875.3 | 9,048.709  | 159.241    | 96,667.349713965  | 105,875.300 |            |            |
| 2006   | 12    | 120,674.727 | 121307.3 | 14,243.415 | 166.129    | 106,897.790751084 | 121,307.334 |            |            |
| 2007   | 1     | 127,351.803 | 127171.8 | 14,861.693 | 18.438     | 112,291.648371694 | 127,171.780 |            |            |
| 2007   | 2     | 129,636.803 | 132079.6 | 29,864.904 | 0.000      | 102,214.677945829 | 132,079.582 |            |            |
| 2007   | 3     | 123,840.850 | 122153.4 | 25,146.949 | 140.867    | 96,865.609536542  | 122,153.425 |            |            |
| 2007   | 4     | 108,423.156 | 112596.6 | 8,687.767  | 1,834.237  | 102,074.642452127 | 112,596.647 |            |            |
| 2007   | 5     | 104,039.703 | 109476.2 | 3,277.298  | 3,183.332  | 103,015.544184418 | 109,476.174 |            |            |
| 2007   | 6     | 114,298.888 | 117861.1 | 134.925    | 11,263.686 | 106,462.450749047 | 117,861.062 |            |            |
| 2007   | 7     | 120,885.454 | 122280.2 | 0.000      | 18,343.897 | 103,936.347149097 | 122,280.244 |            |            |
| 2007   | 8     | 122,587.363 | 125107.3 | 0.000      | 21,503.209 | 103,604.131850678 | 125,107.341 |            |            |
| 2007   | 9     | 134,843.076 | 135178.8 | 0.000      | 23,719.902 | 111,458.862671441 | 135,178.765 |            |            |
| 2007   | 10    | 116,868.739 | 116735.4 | 276.601    | 11,029.662 | 105,429.138951212 | 116,735.402 |            |            |
| 2007   | 11    | 108,174.395 | 108929.7 | 5,406.301  | 1,872.038  | 101,651.360121321 | 108,929.699 |            |            |
| 2007   | 12    | 126,461.599 | 122828.8 | 15,381.504 | 0.000      | 107,447.324609564 | 122,828.829 |            |            |
| 2008   | 1     | 137,227.773 | 135988.5 | 20,272.431 | 0.000      | 115,716.109622353 | 135,988.541 |            |            |
| 2008   | 2     | 129,002.303 | 128780.7 | 24,744.382 | 0.000      | 104,036.350030977 | 128,780.732 |            |            |
| 2008   | 3     | 124,566.432 | 122687.3 | 21,159.649 | 0.000      | 101,527.614754651 | 122,687.264 |            |            |
| 2008   | 4     | 111,689.213 | 112736.8 | 9,539.217  | 90.336     | 103,107.254041545 | 112,736.807 |            |            |
| 2008   | 5     | 104,806.338 | 103319.4 | 2,117.431  | 1,176.903  | 100,025.032886322 | 103,319.366 |            |            |
| 2008   | 6     | 114,768.163 | 114938.7 | 145.010    | 6,987.469  | 107,806.207740520 | 114,938.687 |            |            |
| 2008   | 7     | 121,625.048 | 122829.4 | 0.000      | 14,518.913 | 108,310.442222062 | 122,829.355 |            |            |
| 2008   | 8     | 123,374.557 | 124863.6 | 0.000      | 17,549.686 | 107,313.873143670 | 124,863.559 |            |            |
| 2008   | 9     | 126,837.738 | 127141.7 | 0.000      | 16,274.372 | 110,867.360995057 | 127,141.733 |            |            |
| 2008   | 10    | 111,406.784 | 111421.5 | 348.357    | 6,312.628  | 104,760.481641587 | 111,421.466 |            |            |
| 2008   | 11    | 106,922.912 | 106285.5 | 6,810.798  | 406.186    | 99,068.466004684  | 106,285.450 |            |            |
| 2008   | 12    | 132,322.750 | 131453.2 | 22,105.361 | 0.000      | 109,347.796034105 | 131,453.157 |            |            |
| 2009   | 1     | 139,657.472 | 140607.6 | 23,487.280 | 0.000      | 117,120.321420313 | 140,607.601 |            |            |
| 2009   | 2     | 132,219.009 | 135440.2 | 28,509.557 | 0.000      | 106,930.606917023 | 135,440.164 |            |            |
| 2009   | 3     | 120,664.921 | 117944.1 | 18,384.121 | 255.906    | 99,304.066886627  | 117,944.093 |            |            |
| 2009   | 4     | 108,251.361 | 108022   | 7,082.660  | 194.055    | 100,745.238743385 | 108,021.954 |            |            |
| 2009   | 5     | 106,607.902 | 105590   | 1,827.565  | 3,711.737  | 100,050.658866329 | 105,589.961 |            |            |
| 2009   | 6     | 114,015.990 | 114602.8 | 176.959    | 7,462.421  | 106,963.456910391 | 114,602.837 |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                   |             |            |            |
|--|-------|-------------|----------|------------|------------|-------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other             | Total       | Add Factor | Add Factor |
| 2009   | 7     | 118,985.304 | 119391.2 | 0.000      | 12,851.954 | 106,539.240927443 | 119,391.195 |            |            |
| 2009   | 8     | 117,965.951 | 118640   | 0.000      | 13,232.752 | 105,407.254001930 | 118,640.006 |            |            |
| 2009   | 9     | 121,909.215 | 122206.8 | 0.000      | 12,634.682 | 109,572.100665092 | 122,206.783 |            |            |
| 2009   | 10    | 110,052.402 | 110816.1 | 1,274.245  | 4,520.552  | 105,021.271845651 | 110,816.069 |            |            |
| 2009   | 11    | 104,056.101 | 102272   | 5,080.181  | 186.200    | 97,005.622380234  | 102,272.004 |            |            |
| 2009   | 12    | 123,209.383 | 122093.4 | 13,363.829 | 12.038     | 108,717.546098393 | 122,093.414 |            |            |
| 2010   | 1     | 142,345.729 | 145310.6 | 26,992.257 | 0.000      | 118,318.301854685 | 145,310.559 |            |            |
| 2010   | 2     | 129,654.016 | 130432.8 | 26,966.780 | 0.000      | 103,465.992242709 | 130,432.772 |            |            |
| 2010   | 3     | 123,926.136 | 125707.2 | 22,093.630 | 0.000      | 103,613.603503207 | 125,707.234 |            |            |
| 2010   | 4     | 107,599.536 | 109887.2 | 5,152.485  | 1,494.617  | 103,240.084936634 | 109,887.187 |            |            |
| 2010   | 5     | 103,853.124 | 103330   | 1,339.260  | 2,348.093  | 99,642.636795940  | 103,329.990 |            |            |
| 2010   | 6     | 117,904.343 | 120865.7 | 217.109    | 11,447.188 | 109,201.410886231 | 120,865.708 |            |            |
| 2010   | 7     | 126,430.329 | 128707.6 | 0.000      | 20,598.084 | 108,109.523997347 | 128,707.608 |            |            |
| 2010   | 8     | 128,393.604 | 130361.7 | 0.000      | 24,003.910 | 106,357.750591066 | 130,361.661 |            |            |
| 2010   | 9     | 126,047.720 | 127048.3 | 0.000      | 16,943.828 | 110,104.505927366 | 127,048.334 |            |            |
| 2010   | 10    | 110,475.696 | 109352.3 | 425.047    | 6,345.516  | 102,581.738317225 | 109,352.301 |            |            |
| 2010   | 11    | 103,389.547 | 101528.6 | 4,521.628  | 610.248    | 96,396.728710569  | 101,528.605 |            |            |
| 2010   | 12    | 127,501.342 | 126389.8 | 18,341.902 | 0.000      | 108,047.856468248 | 126,389.758 |            |            |
| 2011   | 1     | 142,987.605 | 149475   | 28,506.738 | 0.000      | 120,968.223238131 | 149,474.961 |            |            |
| 2011   | 2     | 128,133.291 | 127879.1 | 25,960.856 | 0.000      | 101,918.199487876 | 127,879.055 |            |            |
| 2011   | 3     | 114,767.218 | 113092.8 | 13,464.960 | 96.625     | 99,531.198874817  | 113,092.783 |            |            |
| 2011   | 4     | 108,849.175 | 105814.3 | 8,630.908  | 928.865    | 96,254.576314322  | 105,814.349 |            |            |
| 2011   | 5     | 104,643.809 | 104301.7 | 1,668.786  | 2,781.843  | 99,851.119536269  | 104,301.749 |            |            |
| 2011   | 6     | 115,943.753 | 113790.4 | 535.762    | 10,384.999 | 102,869.632486597 | 113,790.394 |            |            |
| 2011   | 7     | 121,150.359 | 120705.5 | 0.000      | 16,212.067 | 104,493.481760057 | 120,705.549 |            |            |
| 2011   | 8     | 127,311.527 | 126716.5 | 0.000      | 23,984.331 | 102,732.215927265 | 126,716.547 |            |            |
| 2011   | 9     | 122,516.233 | 121535.2 | 5.919      | 14,321.800 | 107,207.490912040 | 121,535.210 |            |            |
| 2011   | 10    | 106,505.368 | 104793.4 | 1,041.693  | 2,552.279  | 101,199.476795133 | 104,793.449 |            |            |
| 2011   | 11    | 102,788.484 | 101275.5 | 5,208.865  | 59.038     | 96,007.636277832  | 101,275.539 |            |            |
| 2011   | 12    | 117,750.448 | 117315   | 9,504.498  | 88.497     | 107,722.029835833 | 117,315.025 |            |            |
| 2012   | 1     | 128,969.262 | 127270.3 | 16,066.519 | 0.000      | 111,203.735191919 | 127,270.254 |            |            |
| 2012   | 2     | 119,831.395 | 118462.5 | 16,735.594 | 0.000      | 101,726.899451430 | 118,462.493 |            |            |
| 2012   | 3     | 109,472.409 | 108113   | 12,004.396 | 531.020    | 95,577.543427650  | 108,112.960 |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                   |             |            |            |             |            |
|--|-------|-------------|----------|------------|------------|-------------------|-------------|------------|------------|-------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other             | Total       | Add Factor | Add Factor | Total       | Add Factor |
| 2012   | 4     | 100,194.687 | 99605.52 | 2,528.081  | 2,214.321  | 94,863.120645237  | 99,605.522  |            |            | 99,605.522  |            |
| 2012   | 5     | 100,735.778 | 101832   | 1,717.394  | 3,223.506  | 96,891.103825291  | 101,832.004 |            |            | 101,832.004 |            |
| 2012   | 6     | 110,797.082 | 110870.2 | 8.708      | 9,550.382  | 101,311.076264351 | 110,870.167 |            |            | 110,870.167 |            |
| 2012   | 7     | 122,739.297 | 122720.1 | 0.000      | 21,403.134 | 101,316.935757606 | 122,720.070 |            |            | 122,720.070 |            |
| 2012   | 8     | 120,314.464 | 118371.5 | 0.000      | 21,068.978 | 97,302.541894390  | 118,371.520 |            |            | 118,371.520 |            |
| 2012   | 9     | 119,478.826 | 120105.3 | 20.946     | 14,859.695 | 105,224.636868749 | 120,105.278 |            |            | 120,105.278 |            |
| 2012   | 10    | 103,769.751 | 102106   | 1,392.401  | 3,576.137  | 97,137.464855553  | 102,106.003 |            |            | 102,106.003 |            |
| 2012   | 11    | 101,675.335 | 101170.2 | 7,242.864  | 459.991    | 93,467.343119675  | 101,170.198 |            |            | 101,170.198 |            |
| 2012   | 12    | 116,051.913 | 116894   | 11,839.321 | 0.000      | 105,054.722182235 | 116,894.043 |            |            | 116,894.043 |            |
| 2013   | 1     | 130,753.620 | 127144.1 | 17,908.016 | 0.000      | 109,236.084621688 | 127,144.101 |            |            | 127,144.101 |            |
| 2013   | 2     | 123,735.316 | 121020.1 | 20,987.880 | 0.000      | 100,032.199728887 | 121,020.080 |            |            | 121,020.080 |            |
| 2013   | 3     | 115,260.426 | 117121.1 | 18,143.291 | 0.000      | 98,977.831512026  | 117,121.123 |            |            | 117,121.123 |            |
| 2013   | 4     | 108,590.510 | 110335   | 11,858.451 | 1,053.414  | 97,423.149092765  | 110,335.014 |            |            | 110,335.014 |            |
| 2013   | 5     | 99,852.427  | 98184.08 | 1,439.665  | 2,837.696  | 93,906.716104128  | 98,184.077  |            |            | 98,184.077  |            |
| 2013   | 6     | 111,688.200 | 108408.7 | 251.506    | 10,391.824 | 97,765.398002620  | 108,408.728 |            |            | 108,408.728 |            |
| 2013   | 7     | 118,628.989 | 114707.6 | 0.000      | 18,101.754 | 96,605.870216318  | 114,707.624 |            |            | 114,707.624 |            |
| 2013   | 8     | 116,263.410 | 115109.3 | 0.000      | 16,900.218 | 98,209.049903800  | 115,109.268 |            |            | 115,109.268 |            |
| 2013   | 9     | 118,622.253 | 116211.8 | 0.000      | 14,589.225 | 101,622.592348172 | 116,211.817 |            |            | 116,211.817 |            |
| 2013   | 10    | 104,828.651 | 104867.1 | 348.648    | 5,774.119  | 98,744.312357659  | 104,867.079 |            |            | 104,867.079 |            |
| 2013   | 11    | 100,176.043 | 99749.84 | 5,851.766  | 831.338    | 93,066.735306854  | 99,749.839  |            |            | 99,749.839  |            |
| 2013   | 12    | 120,040.882 | 122293.1 | 15,802.526 | 24.691     | 106,465.901547863 | 122,293.119 |            |            | 122,293.119 |            |
| 2014   | 1     | 132,938.491 | 138723.6 | 20,176.286 | 47.072     | 118,500.280775609 | 138,723.638 |            |            | 138,723.638 |            |
| 2014   | 2     | 128,928.458 | 132750.6 | 26,751.866 | 0.000      | 105,998.706286003 | 132,750.572 |            |            | 132,750.572 |            |
| 2014   | 3     | 115,545.689 | 118767.8 | 19,053.948 | 0.000      | 99,713.828548287  | 118,767.777 |            |            | 118,767.777 |            |
| 2014   | 4     | 104,177.758 | 102879.6 | 9,288.062  | 369.171    | 93,222.407347995  | 102,879.641 |            |            | 102,879.641 |            |
| 2014   | 5     | 98,649.408  | 101231.3 | 1,136.442  | 1,987.740  | 98,107.165957087  | 101,231.348 |            |            | 101,231.348 |            |
| 2014   | 6     | 108,157.570 | 108895   | 313.129    | 7,657.935  | 100,923.974471514 | 108,895.039 |            |            | 108,895.039 |            |
| 2014   | 7     | 116,208.176 | 116182.3 | 0.000      | 16,157.483 | 100,024.839504727 | 116,182.323 |            |            | 116,182.323 |            |
| 2014   | 8     | 110,135.759 | 110607.9 | 0.000      | 11,436.614 | 99,171.284267526  | 110,607.898 |            |            | 110,607.898 |            |
| 2014   | 9     | 116,654.589 | 116968.7 | 0.000      | 13,246.409 | 103,722.279286619 | 116,968.688 |            |            | 116,968.688 |            |
| 2014   | 10    | 101,567.118 | 100313.1 | 563.253    | 3,351.685  | 96,398.207809475  | 100,313.146 |            |            | 100,313.146 |            |
| 2014   | 11    | 99,354.587  | 98442.65 | 6,305.625  | 313.153    | 91,823.876327523  | 98,442.654  |            |            | 98,442.654  |            |
| 2014   | 12    | 118,197.096 | 119843.2 | 15,128.722 | 0.952      | 104,713.544942150 | 119,843.218 |            |            | 119,843.218 |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                   |             |            |            |
|--|-------|-------------|----------|------------|------------|-------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other             | Total       | Add Factor | Add Factor |
| 2015   | 1     | 129,708.426 | 130136   | 17,940.791 | 0.000      | 112,195.192815626 | 130,135.984 |            |            |
| 2015   | 2     | 123,976.939 | 126178.1 | 22,425.885 | 0.000      | 103,752.242460613 | 126,178.127 |            |            |
| 2015   | 3     | 119,403.922 | 125608.1 | 23,549.664 | 0.000      | 102,058.431170711 | 125,608.095 |            |            |
| 2015   | 4     | 101,449.704 | 102045.4 | 6,648.167  | 272.197    | 95,125.042980563  | 102,045.407 |            |            |
| 2015   | 5     | 98,837.381  | 97219.82 | 1,640.524  | 2,975.819  | 92,603.473357557  | 97,219.817  |            |            |
| 2015   | 6     | 110,601.417 | 109165   | 55.872     | 10,939.444 | 98,169.638671248  | 109,164.955 |            |            |
| 2015   | 7     | 114,856.346 | 114739   | 0.000      | 15,575.258 | 99,163.785075716  | 114,739.043 |            |            |
| 2015   | 8     | 114,128.977 | 113629.5 | 0.000      | 16,521.668 | 97,107.815129096  | 113,629.483 |            |            |
| 2015   | 9     | 115,514.131 | 114534.8 | 0.000      | 12,593.540 | 101,941.220102158 | 114,534.760 |            |            |
| 2015   | 10    | 102,218.392 | 102147.3 | 547.726    | 3,984.753  | 97,614.789654551  | 102,147.269 |            |            |
| 2015   | 11    | 92,944.771  | 93346.37 | 3,159.233  | 274.876    | 89,912.258017728  | 93,346.367  |            |            |
| 2015   | 12    | 107,845.161 | 107110.5 | 7,795.617  | 57.032     | 99,257.879023343  | 107,110.528 |            |            |
| 2016   | 1     | 121,443.402 | 119353.7 | 12,532.335 | 0.000      | 106,821.318370319 | 119,353.653 |            |            |
| 2016   | 2     | 119,280.368 | 120158.8 | 20,879.589 | 0.000      | 99,279.186013115  | 120,158.775 |            |            |
| 2016   | 3     | 104,676.301 | 108145.7 | 11,734.065 | 70.438     | 96,341.231810815  | 108,145.735 |            |            |
| 2016   | 4     | 96,159.096  | 97128.24 | 4,195.056  | 521.516    | 92,411.668281700  | 97,128.241  |            |            |
| 2016   | 5     | 94,930.897  | 92930.87 | 1,395.490  | 2,752.353  | 88,783.021984690  | 92,930.865  |            |            |
| 2016   | 6     | 106,234.314 | 104329.1 | 325.385    | 9,284.971  | 94,718.704487407  | 104,329.061 |            |            |
| 2016   | 7     | 113,548.175 | 113689.2 | 0.000      | 17,226.251 | 96,462.945623561  | 113,689.197 |            |            |
| 2016   | 8     | 117,800.107 | 118026   | 0.000      | 23,027.476 | 94,998.549792932  | 118,026.026 |            |            |
| 2016   | 9     | 120,970.587 | 122192.5 | 0.000      | 21,172.264 | 101,020.202819475 | 122,192.467 |            |            |
| 2016   | 10    | 104,537.601 | 103959.9 | 53.942     | 10,134.227 | 93,771.696239938  | 103,959.866 |            |            |
| 2016   | 11    | 91,160.239  | 92163.82 | 1,780.075  | 2,441.109  | 87,942.638848595  | 92,163.823  |            |            |
| 2016   | 12    | 107,929.590 | 109644.2 | 10,434.219 | 100.613    | 99,109.406980522  | 109,644.239 |            |            |
| 2017   | 1     | 119,805.749 | 118731.6 | 13,741.456 | 0.000      | 104,990.103179164 | 118,731.559 |            |            |
| 2017   | 2     | 107,603.915 | 105050.3 | 11,444.593 | 0.000      | 93,605.707025589  | 105,050.300 |            |            |
| 2017   | 3     | 99,224.560  | 98705.09 | 8,980.346  | 32.996     | 89,691.749333972  | 98,705.092  |            |            |
| 2017   | 4     | 94,392.351  | 93826.53 | 5,552.648  | 779.468    | 87,494.411212488  | 93,826.528  |            |            |
| 2017   | 5     | 93,192.386  | 91310.65 | 757.650    | 4,117.789  | 86,435.214382433  | 91,310.653  |            |            |
| 2017   | 6     | 102,196.006 | 99782.6  | 182.691    | 7,748.771  | 91,851.140588073  | 99,782.602  |            |            |
| 2017   | 7     | 109,684.995 | 109548.9 | 0.000      | 15,496.075 | 94,052.777460765  | 109,548.852 |            |            |
| 2017   | 8     | 109,101.352 | 109759.4 | 0.000      | 16,554.933 | 93,204.505212694  | 109,759.438 |            |            |
| 2017   | 9     | 107,241.549 | 106980.7 | 0.000      | 9,864.590  | 97,116.130447896  | 106,980.720 |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                   |             |            |            |
|--|-------|-------------|----------|------------|------------|-------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other             | Total       | Add Factor | Add Factor |
| 2017   | 10    | 99,466.698  | 98745.79 | 99.667     | 7,275.150  | 91,370.973001181  | 98,745.790  |            |            |
| 2017   | 11    | 92,362.621  | 93083.14 | 4,042.782  | 1,324.372  | 87,715.982804839  | 93,083.136  |            |            |
| 2017   | 12    | 108,111.952 | 108115.4 | 10,879.088 | 49.552     | 97,186.723989943  | 108,115.364 |            |            |
| 2018   | 1     | 127,386.039 | 131950.3 | 21,439.351 | 102.434    | 110,408.521898226 | 131,950.307 |            |            |
| 2018   | 2     | 113,555.071 | 115602.9 | 17,381.031 | 172.840    | 98,049.056255135  | 115,602.927 |            |            |
| 2018   | 3     | 100,145.902 | 98366.54 | 9,683.816  | 347.377    | 88,335.346328216  | 98,366.539  |            |            |
| 2018   | 4     | 98,643.974  | 99837.08 | 9,310.187  | 400.532    | 90,126.360166884  | 99,837.079  |            |            |
| 2018   | 5     | 92,900.256  | 91876.04 | 2,285.156  | 4,351.546  | 85,239.337390888  | 91,876.039  |            |            |
| 2018   | 6     | 107,188.273 | 109326.6 | 30.789     | 14,650.929 | 94,644.840661760  | 109,326.558 |            |            |
| 2018   | 7     | 111,364.778 | 112046.8 | 0.000      | 19,535.726 | 92,511.081552635  | 112,046.808 |            |            |
| 2018   | 8     | 108,003.696 | 108104.1 | 0.000      | 17,837.493 | 90,266.631724383  | 108,104.125 |            |            |
| 2018   | 9     | 113,257.307 | 113014.2 | 0.000      | 18,066.389 | 94,947.832708027  | 113,014.222 |            |            |
| 2018   | 10    | 101,616.652 | 102370.8 | 579.687    | 11,314.064 | 90,477.035986004  | 102,370.787 |            |            |
| 2018   | 11    | 92,208.293  | 92160.43 | 5,611.967  | 1,652.727  | 84,895.738399371  | 92,160.433  |            |            |
| 2018   | 12    | 107,605.217 | 108179.5 | 12,925.019 | 9.126      | 95,245.328615292  | 108,179.474 |            |            |
| 2019   | 1     | 116,782.983 | 114290.5 | 13,034.366 | 0.000      | 101,256.157244576 | 114,290.523 |            |            |
| 2019   | 2     | 109,918.653 | 110973.7 | 16,204.777 | 0.000      | 94,768.886539998  | 110,973.664 |            |            |
| 2019   | 3     | 100,497.496 | 100286.5 | 12,724.577 | 47.223     | 87,514.682977185  | 100,286.483 |            |            |
| 2019   | 4     | 92,759.937  | 91402.91 | 6,420.684  | 554.068    | 84,428.157883825  | 91,402.910  |            |            |
| 2019   | 5     | 91,131.327  | 93168.03 | 580.102    | 3,520.495  | 89,067.429313205  | 93,168.026  |            |            |
| 2019   | 6     | 101,711.398 | 100460.5 | 8.922      | 9,776.795  | 90,674.780042560  | 100,460.497 |            |            |
| 2019   | 7     | 108,772.688 | 108346.7 | 0.000      | 16,980.015 | 91,366.640229170  | 108,346.655 |            |            |
| 2019   | 8     | 110,079.809 | 110692.4 | 0.000      | 19,735.544 | 90,956.810102372  | 110,692.354 |            |            |
| 2019   | 9     | 111,772.506 | 112581.5 | 0.000      | 16,531.734 | 96,049.815151727  | 112,581.549 |            |            |
| 2019   | 10    | 102,716.249 | 101521   | 214.655    | 13,004.716 | 88,301.593588332  | 101,520.965 |            |            |
| 2019   | 11    | 90,422.209  | 89012.2  | 4,952.780  | 1,093.885  | 82,965.534860369  | 89,012.200  |            |            |
| 2019   | 12    | 106,823.032 | 107718.5 | 11,967.674 | 0.000      | 95,750.81132106   | 107,718.485 |            |            |
| 2020   | 1     | 108,516.578 | 111379.8 | 10,591.396 | 101.618    | 100,686.770091943 | 111,379.784 |            |            |
| 2020   | 2     | 100,601.262 | 100545.7 | 13,065.994 | 101.632    | 87,378.092288558  | 100,545.718 |            |            |
| 2020   | 3     | 92,634.137  | 98639.38 | 10,862.419 | 7.264      | 87,769.692845924  | 98,639.375  |            |            |
| 2020   | 4     | 85,403.570  | 83184.56 | 3,939.162  | 987.686    | 78,257.711445975  | 83,184.560  |            |            |
| 2020   | 5     | 77,112.709  | 76900.06 | 3,080.650  | 1,218.787  | 72,600.621607127  | 76,900.059  |            |            |
| 2020   | 6     | 88,061.962  | 88274.61 | 832.390    | 9,217.149  | 78,225.072688228  | 88,274.612  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |          |            |            |                  |             |            |            |
|--|-------|-------------|----------|------------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual   | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2020   | 7     | 103,031.738 | 100734   | 0.000      | 17,406.018 | 83,328.005580928 | 100,734.024 |            |            |
| 2020   | 8     | 106,336.882 | 105698.1 | 0.000      | 22,100.916 | 83,597.137029208 | 105,698.053 |            |            |
| 2020   | 9     | 104,948.182 | 102409.9 | 0.000      | 16,017.574 | 86,392.324117120 | 102,409.898 |            |            |
| 2020   | 10    | 87,953.258  | 87903.96 | 366.136    | 3,849.984  | 83,687.836085232 | 87,903.956  |            |            |
| 2020   | 11    | 81,629.877  | 81580.54 | 2,523.214  | 671.860    | 78,385.461654388 | 81,580.535  |            |            |
| 2020   | 12    | 98,163.430  | 96646.76 | 9,367.320  | 63.702     | 87,215.733519685 | 96,646.756  |            |            |
| 2021   | 1     | 112,997.064 | 112022.7 | 15,359.411 | 0.000      | 96,663.315831753 | 112,022.727 |            |            |
| 2021   | 2     | 106,667.902 | 103356.6 | 18,707.445 | 0.000      | 84,649.177781883 | 103,356.623 |            |            |
| 2021   | 3     | 95,991.452  | 102140.7 | 14,570.425 | 16.259     | 87,553.972723773 | 102,140.657 |            |            |
| 2021   | 4     | 84,633.213  | 87279.71 | 3,958.710  | 424.005    | 82,896.989954330 | 87,279.705  |            |            |
| 2021   | 5     | 83,538.064  | 82131.97 | 2,024.905  | 1,644.907  | 78,462.159370126 | 82,131.971  |            |            |
| 2021   | 6     | 93,656.267  | 91048.53 | 258.054    | 7,896.231  | 82,894.247435811 | 91,048.532  |            |            |
| 2021   | 7     | 102,220.353 | 102130.2 | 9.203      | 15,411.112 | 86,709.907704307 | 102,130.223 |            |            |
| 2021   | 8     | 103,071.744 | 102835.9 | 0.000      | 17,668.056 | 85,167.857016524 | 102,835.913 |            |            |
| 2021   | 9     | 106,980.223 | 105355   | 0.000      | 16,976.872 | 88,378.133223575 | 105,355.005 |            |            |
| 2021   | 10    | 92,178.850  | 92906.9  | 39.464     | 7,255.641  | 85,611.798056089 | 92,906.903  |            |            |
| 2021   | 11    | 84,435.205  | 85324.23 | 3,275.907  | 1,798.659  | 80,249.666749683 | 85,324.233  |            |            |
| 2021   | 12    | 99,075.947  | 101111   | 9,260.858  | 0.000      | 91,850.102926865 | 101,110.961 |            |            |
| 2022   | 1     | 109,215.428 |          | 10,758.210 | 0.000      | 98,457.217795025 | 109,215.428 |            |            |
| 2022   | 2     | 105,696.774 |          | 17,176.055 | 10.555     | 88,510.164497603 | 105,696.774 |            |            |
| 2022   | 3     | 95,436.351  |          | 12,724.042 | 66.432     | 82,645.876512074 | 95,436.351  |            |            |
| 2022   | 4     | 88,049.308  |          | 6,150.093  | 737.565    | 81,161.649043603 | 88,049.308  |            |            |
| 2022   | 5     | 85,201.395  |          | 1,474.134  | 2,487.705  | 81,239.556606824 | 85,201.395  |            |            |
| 2022   | 6     | 94,722.652  |          | 196.666    | 7,744.698  | 86,781.288539685 | 94,722.652  |            |            |
| 2022   | 7     | 102,318.274 |          | 0.668      | 15,777.266 | 86,540.339651221 | 102,318.274 |            |            |
| 2022   | 8     | 103,017.986 |          | 0.000      | 17,954.781 | 85,063.204419529 | 103,017.986 |            |            |
| 2022   | 9     | 104,375.871 |          | 2.858      | 14,410.256 | 89,962.756496322 | 104,375.871 |            |            |
| 2022   | 10    | 90,282.249  |          | 476.941    | 5,196.621  | 84,608.686563670 | 90,282.249  |            |            |
| 2022   | 11    | 84,149.134  |          | 3,997.537  | 691.104    | 79,460.493125383 | 84,149.134  |            |            |
| 2022   | 12    | 100,306.529 |          | 10,526.924 | 49.465     | 89,730.139899306 | 100,306.529 |            |            |
| 2023   | 1     | 113,649.159 |          | 15,168.753 | 13.607     | 98,466.799456197 | 113,649.159 |            |            |
| 2023   | 2     | 105,577.482 |          | 17,051.497 | 10.597     | 88,515.388032115 | 105,577.482 |            |            |
| 2023   | 3     | 95,344.336  |          | 12,629.665 | 66.687     | 82,647.983747304 | 95,344.336  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |             |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|-------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor | Total       | Add Factor |
| 2023   | 4     | 88,005.078  |        | 6,103.622  | 740.294    | 81,161.161868703 | 88,005.078  |            |            | 88,005.078  |            |
| 2023   | 5     | 85,195.724  |        | 1,462.786  | 2,496.550  | 81,236.389107253 | 85,195.724  |            |            | 85,195.724  |            |
| 2023   | 6     | 94,724.304  |        | 195.001    | 7,766.228  | 86,763.074931967 | 94,724.304  |            |            | 94,724.304  |            |
| 2023   | 7     | 102,316.939 |        | 0.662      | 15,808.899 | 86,507.378215053 | 102,316.939 |            |            | 102,316.939 |            |
| 2023   | 8     | 103,016.494 |        | 0.000      | 17,987.991 | 85,028.503294934 | 103,016.494 |            |            | 103,016.494 |            |
| 2023   | 9     | 104,360.715 |        | 2.831      | 14,434.342 | 89,923.542376807 | 104,360.715 |            |            | 104,360.715 |            |
| 2023   | 10    | 90,242.860  |        | 472.282    | 5,204.215  | 84,566.363028131 | 90,242.860  |            |            | 90,242.860  |            |
| 2023   | 11    | 84,062.789  |        | 3,957.431  | 691.930    | 79,413.428156856 | 84,062.789  |            |            | 84,062.789  |            |
| 2023   | 12    | 100,077.129 |        | 10,396.915 | 49.408     | 89,630.805584903 | 100,077.129 |            |            | 100,077.129 |            |
| 2024   | 1     | 113,348.234 |        | 14,959.942 | 13.591     | 98,374.700812888 | 113,348.234 |            |            | 113,348.234 |            |
| 2024   | 2     | 105,252.682 |        | 16,813.197 | 10.583     | 88,428.902271982 | 105,252.682 |            |            | 105,252.682 |            |
| 2024   | 3     | 95,075.396  |        | 12,450.486 | 66.581     | 82,558.329074852 | 95,075.396  |            |            | 95,075.396  |            |
| 2024   | 4     | 87,818.623  |        | 6,015.566  | 738.936    | 81,064.121645623 | 87,818.623  |            |            | 87,818.623  |            |
| 2024   | 5     | 85,069.258  |        | 1,441.367  | 2,491.425  | 81,136.466506297 | 85,069.258  |            |            | 85,069.258  |            |
| 2024   | 6     | 94,597.816  |        | 192.112    | 7,748.924  | 86,656.780659166 | 94,597.816  |            |            | 94,597.816  |            |
| 2024   | 7     | 102,171.254 |        | 0.652      | 15,771.482 | 86,399.119599870 | 102,171.254 |            |            | 102,171.254 |            |
| 2024   | 8     | 102,863.635 |        | 0.000      | 17,942.571 | 84,921.064628352 | 102,863.635 |            |            | 102,863.635 |            |
| 2024   | 9     | 104,208.628 |        | 2.788      | 14,395.853 | 89,809.987030027 | 104,208.628 |            |            | 104,208.628 |            |
| 2024   | 10    | 90,107.267  |        | 465.016    | 5,189.619  | 84,452.632155584 | 90,107.267  |            |            | 90,107.267  |            |
| 2024   | 11    | 83,884.138  |        | 3,896.090  | 689.908    | 79,298.139379164 | 83,884.138  |            |            | 83,884.138  |            |
| 2024   | 12    | 99,787.171  |        | 10,234.877 | 49.260     | 89,503.034370234 | 99,787.171  |            |            | 99,787.171  |            |
| 2025   | 1     | 112,955.092 |        | 14,693.936 | 13.518     | 98,247.637259082 | 112,955.092 |            |            | 112,955.092 |            |
| 2025   | 2     | 104,831.522 |        | 16,510.326 | 10.524     | 88,310.672124072 | 104,831.522 |            |            | 104,831.522 |            |
| 2025   | 3     | 94,726.362  |        | 12,223.307 | 66.193     | 82,436.862579188 | 94,726.362  |            |            | 94,726.362  |            |
| 2025   | 4     | 87,572.947  |        | 5,904.317  | 734.447    | 80,934.182763859 | 87,572.947  |            |            | 87,572.947  |            |
| 2025   | 5     | 84,893.542  |        | 1,414.357  | 2,475.670  | 81,003.515428772 | 84,893.542  |            |            | 84,893.542  |            |
| 2025   | 6     | 94,402.307  |        | 188.470    | 7,698.211  | 86,515.625621255 | 94,402.307  |            |            | 94,402.307  |            |
| 2025   | 7     | 101,920.114 |        | 0.640      | 15,664.785 | 86,254.688808288 | 101,920.114 |            |            | 101,920.114 |            |
| 2025   | 8     | 102,593.442 |        | 0.000      | 17,816.550 | 84,776.891767379 | 102,593.442 |            |            | 102,593.442 |            |
| 2025   | 9     | 103,950.125 |        | 2.733      | 14,291.037 | 89,656.355578706 | 103,950.125 |            |            | 103,950.125 |            |
| 2025   | 10    | 89,903.288  |        | 455.736    | 5,150.403  | 84,297.148852069 | 89,903.288  |            |            | 89,903.288  |            |
| 2025   | 11    | 83,639.718  |        | 3,817.195  | 684.490    | 79,138.032330133 | 83,639.718  |            |            | 83,639.718  |            |
| 2025   | 12    | 99,396.116  |        | 10,024.822 | 48.859     | 89,322.434658689 | 99,396.116  |            |            | 99,396.116  |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2026   | 1     | 112,431.127 |        | 14,393.305 | 13.452     | 98,024.368619503 | 112,431.127 |            |            |
| 2026   | 2     | 104,291.677 |        | 16,171.612 | 10.472     | 88,109.593337567 | 104,291.677 |            |            |
| 2026   | 3     | 94,274.194  |        | 11,971.790 | 65.864     | 82,236.539684622 | 94,274.194  |            |            |
| 2026   | 4     | 87,239.650  |        | 5,782.433  | 730.745    | 80,726.471679275 | 87,239.650  |            |            |
| 2026   | 5     | 84,645.451  |        | 1,385.075  | 2,463.041  | 80,797.334443980 | 84,645.451  |            |            |
| 2026   | 6     | 94,145.262  |        | 184.557    | 7,658.484  | 86,302.221500226 | 94,145.262  |            |            |
| 2026   | 7     | 101,625.228 |        | 0.626      | 15,582.996 | 86,041.605136860 | 101,625.228 |            |            |
| 2026   | 8     | 102,292.897 |        | 0.000      | 17,722.590 | 84,570.307065788 | 102,292.897 |            |            |
| 2026   | 9     | 103,659.818 |        | 2.675      | 14,214.887 | 89,442.255741219 | 103,659.818 |            |            |
| 2026   | 10    | 89,655.575  |        | 446.175    | 5,122.691  | 84,086.709135193 | 89,655.575  |            |            |
| 2026   | 11    | 83,345.741  |        | 3,736.950  | 680.777    | 78,928.013623166 | 83,345.741  |            |            |
| 2026   | 12    | 98,954.265  |        | 9,813.632  | 48.592     | 89,092.041082889 | 98,954.265  |            |            |
| 2027   | 1     | 111,929.161 |        | 14,098.777 | 13.375     | 97,817.008790356 | 111,929.161 |            |            |
| 2027   | 2     | 103,773.595 |        | 15,840.074 | 10.411     | 87,923.109748435 | 103,773.595 |            |            |
| 2027   | 3     | 93,842.492  |        | 11,725.895 | 65.478     | 82,051.118688628 | 93,842.492  |            |            |
| 2027   | 4     | 86,924.615  |        | 5,663.457  | 726.442    | 80,534.715816536 | 86,924.615  |            |            |
| 2027   | 5     | 84,412.321  |        | 1,356.525  | 2,448.444  | 80,607.352472244 | 84,412.321  |            |            |
| 2027   | 6     | 93,899.573  |        | 180.746    | 7,612.833  | 86,105.993846489 | 93,899.573  |            |            |
| 2027   | 7     | 101,336.643 |        | 0.613      | 15,489.739 | 85,846.290629448 | 101,336.643 |            |            |
| 2027   | 8     | 101,997.205 |        | 0.000      | 17,615.954 | 84,381.251212015 | 101,997.205 |            |            |
| 2027   | 9     | 103,378.493 |        | 2.620      | 14,129.029 | 89,246.844666709 | 103,378.493 |            |            |
| 2027   | 10    | 89,423.649  |        | 436.918    | 5,091.630  | 83,895.100682193 | 89,423.649  |            |            |
| 2027   | 11    | 83,072.934  |        | 3,659.309  | 676.629    | 78,736.995506567 | 83,072.934  |            |            |
| 2027   | 12    | 98,540.741  |        | 9,609.536  | 48.295     | 88,882.910549142 | 98,540.741  |            |            |
| 2028   | 1     | 111,438.535 |        | 13,816.953 | 13.326     | 97,608.256115760 | 111,438.535 |            |            |
| 2028   | 2     | 103,266.880 |        | 15,522.034 | 10.372     | 87,734.474223960 | 103,266.880 |            |            |
| 2028   | 3     | 93,417.353  |        | 11,489.433 | 65.226     | 81,862.694706981 | 93,417.353  |            |            |
| 2028   | 4     | 86,611.146  |        | 5,548.730  | 723.570    | 80,338.846249451 | 86,611.146  |            |            |
| 2028   | 5     | 84,179.829  |        | 1,328.923  | 2,438.540  | 80,412.365985003 | 84,179.829  |            |            |
| 2028   | 6     | 93,662.351  |        | 177.055    | 7,581.457  | 85,903.839781790 | 93,662.351  |            |            |
| 2028   | 7     | 101,069.514 |        | 0.601      | 15,424.745 | 85,644.168802649 | 101,069.514 |            |            |
| 2028   | 8     | 101,725.433 |        | 0.000      | 17,540.633 | 84,184.799320699 | 101,725.433 |            |            |
| 2028   | 9     | 103,112.853 |        | 2.566      | 14,067.499 | 89,042.787963580 | 103,112.853 |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |            |             |            |
|--|-------|-------------|--------|------------|------------|------------|-------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other      | Total       | Add Factor |
| 2028   | 10    | 89,190.842  |        | 427.859    | 5,069.030  | 83,693.953 | 89,190.842  |            |
| 2028   | 11    | 82,792.208  |        | 3,583.128  | 673.568    | 78,535.512 | 82,792.208  |            |
| 2028   | 12    | 98,118.164  |        | 9,408.776  | 48.073     | 88,661.315 | 98,118.164  |            |
| 2029   | 1     | 110,928.144 |        | 13,520.593 | 13.291     | 97,394.260 | 110,928.144 |            |
| 2029   | 2     | 102,745.324 |        | 15,190.538 | 10.346     | 87,544.441 | 102,745.324 |            |
| 2029   | 3     | 92,986.325  |        | 11,245.123 | 65.068     | 81,676.133 | 92,986.325  |            |
| 2029   | 4     | 86,301.587  |        | 5,431.284  | 721.896    | 80,148.406 | 86,301.587  |            |
| 2029   | 5     | 83,960.249  |        | 1,300.926  | 2,433.142  | 80,226.182 | 83,960.249  |            |
| 2029   | 6     | 93,452.445  |        | 173.340    | 7,565.331  | 85,713.773 | 93,452.445  |            |
| 2029   | 7     | 100,850.768 |        | 0.588      | 15,393.226 | 85,456.953 | 100,850.768 |            |
| 2029   | 8     | 101,512.196 |        | 0.000      | 17,506.411 | 84,005.784 | 101,512.196 |            |
| 2029   | 9     | 102,903.588 |        | 2.513      | 14,041.296 | 88,859.778 | 102,903.588 |            |
| 2029   | 10    | 88,995.682  |        | 419.032    | 5,060.065  | 83,516.585 | 88,995.682  |            |
| 2029   | 11    | 82,542.821  |        | 3,509.532  | 672.439    | 78,360.850 | 82,542.821  |            |
| 2029   | 12    | 97,736.445  |        | 9,216.314  | 47.996     | 88,472.134 | 97,736.445  |            |
| 2030   | 1     | 110,394.679 |        | 13,236.430 | 13.275     | 97,144.973 | 110,394.679 |            |
| 2030   | 2     | 102,193.648 |        | 14,867.099 | 10.331     | 87,316.218 | 102,193.648 |            |
| 2030   | 3     | 92,512.506  |        | 11,002.489 | 64.955     | 81,445.061 | 92,512.506  |            |
| 2030   | 4     | 85,937.682  |        | 5,312.456  | 720.412    | 79,904.813 | 85,937.682  |            |
| 2030   | 5     | 83,679.794  |        | 1,272.071  | 2,427.392  | 79,980.330 | 83,679.794  |            |
| 2030   | 6     | 93,170.940  |        | 169.451    | 7,545.495  | 85,455.994 | 93,170.940  |            |
| 2030   | 7     | 100,545.885 |        | 0.575      | 15,348.933 | 85,196.377 | 100,545.885 |            |
| 2030   | 8     | 101,200.566 |        | 0.000      | 17,451.104 | 83,749.462 | 101,200.566 |            |
| 2030   | 9     | 102,586.043 |        | 2.454      | 13,993.075 | 88,590.513 | 102,586.043 |            |
| 2030   | 10    | 88,698.649  |        | 409.182    | 5,041.258  | 83,248.209 | 88,698.649  |            |
| 2030   | 11    | 82,184.708  |        | 3,426.022  | 669.742    | 78,088.944 | 82,184.708  |            |
| 2030   | 12    | 97,212.324  |        | 8,994.586  | 47.791     | 88,169.947 | 97,212.324  |            |
| 2031   | 1     | 109,844.980 |        | 12,963.188 | 13.183     | 96,868.608 | 109,844.980 |            |
| 2031   | 2     | 101,646.877 |        | 14,563.742 | 10.262     | 87,072.872 | 101,646.877 |            |
| 2031   | 3     | 92,053.548  |        | 10,780.678 | 64.537     | 81,208.332 | 92,053.548  |            |
| 2031   | 4     | 85,588.325  |        | 5,206.744  | 715.976    | 79,665.604 | 85,588.325  |            |
| 2031   | 5     | 83,409.027  |        | 1,247.089  | 2,413.085  | 79,748.853 | 83,409.027  |            |
| 2031   | 6     | 92,890.760  |        | 166.162    | 7,502.747  | 85,221.851 | 92,890.760  |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2031   | 7     | 100,233.992 |        | 0.564      | 15,265.469 | 84,967.958786560 | 100,233.992 |            |            |
| 2031   | 8     | 100,893.840 |        | 0.000      | 17,360.508 | 83,533.332450225 | 100,893.840 |            |            |
| 2031   | 9     | 102,298.265 |        | 2.408      | 13,923.858 | 88,371.998141947 | 102,298.265 |            |            |
| 2031   | 10    | 88,457.972  |        | 401.628    | 5,017.573  | 83,038.770849724 | 88,457.972  |            |            |
| 2031   | 11    | 81,915.761  |        | 3,363.668  | 666.772    | 77,885.320911509 | 81,915.761  |            |            |
| 2031   | 12    | 96,832.550  |        | 8,832.989  | 47.590     | 87,951.970677250 | 96,832.550  |            |            |
| 2032   | 1     | 109,412.537 |        | 12,731.152 | 13.149     | 96,668.235145691 | 109,412.537 |            |            |
| 2032   | 2     | 101,206.947 |        | 14,303.188 | 10.235     | 86,893.522972773 | 101,206.947 |            |            |
| 2032   | 3     | 91,683.070  |        | 10,587.884 | 64.372     | 81,030.813665751 | 91,683.070  |            |            |
| 2032   | 4     | 85,310.732  |        | 5,113.693  | 714.149    | 79,482.890381576 | 85,310.732  |            |            |
| 2032   | 5     | 83,200.426  |        | 1,224.813  | 2,406.949  | 79,568.664242178 | 83,200.426  |            |            |
| 2032   | 6     | 92,683.379  |        | 163.195    | 7,483.718  | 85,036.466720699 | 92,683.379  |            |            |
| 2032   | 7     | 100,011.194 |        | 0.554      | 15,226.764 | 84,783.876366655 | 100,011.194 |            |            |
| 2032   | 8     | 100,672.536 |        | 0.000      | 17,316.661 | 83,355.875041034 | 100,672.536 |            |            |
| 2032   | 9     | 102,080.137 |        | 2.366      | 13,888.734 | 88,189.038213754 | 102,080.137 |            |            |
| 2032   | 10    | 88,259.205  |        | 394.463    | 5,004.927  | 82,859.814596809 | 88,259.205  |            |            |
| 2032   | 11    | 81,676.195  |        | 3,303.663  | 665.092    | 77,707.439664002 | 81,676.195  |            |            |
| 2032   | 12    | 96,480.599  |        | 8,675.447  | 47.471     | 87,757.682094010 | 96,480.599  |            |            |
| 2033   | 1     | 108,992.404 |        | 12,497.838 | 13.104     | 96,481.461690392 | 108,992.404 |            |            |
| 2033   | 2     | 100,778.405 |        | 14,041.493 | 10.200     | 86,726.711865695 | 100,778.405 |            |            |
| 2033   | 3     | 91,324.929  |        | 10,394.558 | 64.154     | 80,866.217536971 | 91,324.929  |            |            |
| 2033   | 4     | 85,045.981  |        | 5,020.463  | 711.753    | 79,313.764802309 | 85,045.981  |            |            |
| 2033   | 5     | 83,003.766  |        | 1,202.523  | 2,398.956  | 79,402.287082979 | 83,003.766  |            |            |
| 2033   | 6     | 92,484.995  |        | 160.229    | 7,459.078  | 84,865.687267092 | 92,484.995  |            |            |
| 2033   | 7     | 99,792.346  |        | 0.544      | 15,177.045 | 84,614.757286958 | 99,792.346  |            |            |
| 2033   | 8     | 100,453.870 |        | 0.000      | 17,260.659 | 83,193.211121336 | 100,453.870 |            |            |
| 2033   | 9     | 101,868.138 |        | 2.323      | 13,844.137 | 88,021.678676666 | 101,868.138 |            |            |
| 2033   | 10    | 88,072.953  |        | 387.339    | 4,989.011  | 82,696.602930828 | 88,072.953  |            |            |
| 2033   | 11    | 81,452.797  |        | 3,244.097  | 662.997    | 77,545.702793269 | 81,452.797  |            |            |
| 2033   | 12    | 96,148.076  |        | 8,519.268  | 47.322     | 87,581.485396650 | 96,148.076  |            |            |
| 2034   | 1     | 108,593.289 |        | 12,262.613 | 13.082     | 96,317.592862265 | 108,593.289 |            |            |
| 2034   | 2     | 100,368.950 |        | 13,777.962 | 10.184     | 86,580.804878922 | 100,368.950 |            |            |
| 2034   | 3     | 90,986.609  |        | 10,200.003 | 64.054     | 80,722.551793986 | 90,986.609  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |             |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|-------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor | Total       | Add Factor |
| 2034   | 4     | 84,804.257  |        | 4,926.799  | 710.692    | 79,166.766964244 | 84,804.257  |            |            | 84,804.257  |            |
| 2034   | 5     | 82,833.766  |        | 1,180.153  | 2,395.508  | 79,258.105190874 | 82,833.766  |            |            | 82,833.766  |            |
| 2034   | 6     | 92,324.119  |        | 157.257    | 7,448.734  | 84,718.127942104 | 92,324.119  |            |            | 92,324.119  |            |
| 2034   | 7     | 99,626.357  |        | 0.534      | 15,156.751 | 84,469.072536821 | 99,626.357  |            |            | 99,626.357  |            |
| 2034   | 8     | 100,291.881 |        | 0.000      | 17,238.431 | 83,053.450386727 | 100,291.881 |            |            | 100,291.881 |            |
| 2034   | 9     | 101,707.884 |        | 2.280      | 13,827.094 | 87,878.509612985 | 101,707.884 |            |            | 101,707.884 |            |
| 2034   | 10    | 87,920.810  |        | 380.233    | 4,983.140  | 82,557.437661008 | 87,920.810  |            |            | 87,920.810  |            |
| 2034   | 11    | 81,255.379  |        | 3,184.769  | 662.257    | 77,408.352813315 | 81,255.379  |            |            | 81,255.379  |            |
| 2034   | 12    | 95,843.527  |        | 8,363.903  | 47.272     | 87,432.352214444 | 95,843.527  |            |            | 95,843.527  |            |
| 2035   | 1     | 108,228.873 |        | 12,034.576 | 13.074     | 96,181.222287083 | 108,228.873 |            |            | 108,228.873 |            |
| 2035   | 2     | 99,990.408  |        | 13,521.682 | 10.178     | 86,458.548275077 | 99,990.408  |            |            | 99,990.408  |            |
| 2035   | 3     | 90,675.619  |        | 10,010.231 | 64.015     | 80,601.373263729 | 90,675.619  |            |            | 90,675.619  |            |
| 2035   | 4     | 84,587.151  |        | 4,835.108  | 710.250    | 79,041.791850174 | 84,587.151  |            |            | 84,587.151  |            |
| 2035   | 5     | 82,686.875  |        | 1,158.186  | 2,394.012  | 79,134.677151066 | 82,686.875  |            |            | 82,686.875  |            |
| 2035   | 6     | 92,189.214  |        | 154.328    | 7,444.007  | 84,590.878757195 | 92,189.214  |            |            | 92,189.214  |            |
| 2035   | 7     | 99,490.158  |        | 0.524      | 15,147.040 | 84,342.593909109 | 99,490.158  |            |            | 99,490.158  |            |
| 2035   | 8     | 100,158.394 |        | 0.000      | 17,227.186 | 82,931.207680343 | 100,158.394 |            |            | 100,158.394 |            |
| 2035   | 9     | 101,572.483 |        | 2.237      | 13,817.959 | 87,752.286646685 | 101,572.483 |            |            | 101,572.483 |            |
| 2035   | 10    | 87,786.704  |        | 373.138    | 4,979.797  | 82,433.769221621 | 87,786.704  |            |            | 87,786.704  |            |
| 2035   | 11    | 81,072.258  |        | 3,125.296  | 661.803    | 77,285.159186817 | 81,072.258  |            |            | 81,072.258  |            |
| 2035   | 12    | 95,552.394  |        | 8,207.620  | 47.239     | 87,297.534685602 | 95,552.394  |            |            | 95,552.394  |            |
| 2036   | 1     | 107,877.342 |        | 11,807.670 | 13.074     | 96,056.598217755 | 107,877.342 |            |            | 107,877.342 |            |
| 2036   | 2     | 99,623.198  |        | 13,266.465 | 10.177     | 86,346.555649421 | 99,623.198  |            |            | 99,623.198  |            |
| 2036   | 3     | 90,375.344  |        | 9,821.143  | 64.011     | 80,490.190499780 | 90,375.344  |            |            | 90,375.344  |            |
| 2036   | 4     | 84,380.797  |        | 4,743.692  | 710.191    | 78,926.914455901 | 84,380.797  |            |            | 84,380.797  |            |
| 2036   | 5     | 82,551.027  |        | 1,136.268  | 2,393.770  | 79,020.988629350 | 82,551.027  |            |            | 82,551.027  |            |
| 2036   | 6     | 92,068.353  |        | 151.406    | 7,443.211  | 84,473.735957817 | 92,068.353  |            |            | 92,068.353  |            |
| 2036   | 7     | 99,371.709  |        | 0.514      | 15,145.192 | 84,226.003088288 | 99,371.709  |            |            | 99,371.709  |            |
| 2036   | 8     | 100,043.633 |        | 0.000      | 17,225.007 | 82,818.625813550 | 100,043.633 |            |            | 100,043.633 |            |
| 2036   | 9     | 101,454.240 |        | 2.195      | 13,816.059 | 87,635.986203620 | 101,454.240 |            |            | 101,454.240 |            |
| 2036   | 10    | 87,664.978  |        | 366.060    | 4,979.072  | 82,319.845968098 | 87,664.978  |            |            | 87,664.978  |            |
| 2036   | 11    | 80,899.479  |        | 3,065.996  | 661.701    | 77,171.781900524 | 80,899.479  |            |            | 80,899.479  |            |
| 2036   | 12    | 95,272.641  |        | 8,051.847  | 47.232     | 87,173.563217956 | 95,272.641  |            |            | 95,272.641  |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |       |            |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|-------|------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor | Total | Add Factor | Add Factor |
| 2037   | 1     | 107,532.259 |        | 11,579.459 | 13.081     | 95,939.718866534 | 107,532.259 |            |            |       |            |            |
| 2037   | 2     | 99,262.084  |        | 13,010.060 | 10.183     | 86,241.841886693 | 99,262.084  |            |            |       |            |            |
| 2037   | 3     | 90,081.576  |        | 9,631.230  | 64.043     | 80,386.303140307 | 90,081.576  |            |            |       |            |            |
| 2037   | 4     | 84,182.223  |        | 4,651.931  | 710.547    | 78,819.744237276 | 84,182.223  |            |            |       |            |            |
| 2037   | 5     | 82,424.308  |        | 1,114.281  | 2,394.954  | 78,915.073412296 | 82,424.308  |            |            |       |            |            |
| 2037   | 6     | 91,959.666  |        | 148.474    | 7,446.772  | 84,364.419677523 | 91,959.666  |            |            |       |            |            |
| 2037   | 7     | 99,270.143  |        | 0.504      | 15,152.324 | 84,117.314874385 | 99,270.143  |            |            |       |            |            |
| 2037   | 8     | 99,946.253  |        | 0.000      | 17,232.806 | 82,713.447732210 | 99,946.253  |            |            |       |            |            |
| 2037   | 9     | 101,351.554 |        | 2.152      | 13,822.123 | 87,527.278034875 | 101,351.554 |            |            |       |            |            |
| 2037   | 10    | 87,553.298  |        | 358.950    | 4,981.165  | 82,213.183114828 | 87,553.298  |            |            |       |            |            |
| 2037   | 11    | 80,733.866  |        | 3,006.397  | 661.970    | 77,065.498641405 | 80,733.866  |            |            |       |            |            |
| 2037   | 12    | 94,999.517  |        | 7,895.180  | 47.250     | 87,057.087834662 | 94,999.517  |            |            |       |            |            |
| 2038   | 1     | 107,191.036 |        | 11,349.711 | 13.077     | 95,828.248819165 | 107,191.036 |            |            |       |            |            |
| 2038   | 2     | 98,902.993  |        | 12,751.449 | 10.179     | 86,141.365735003 | 98,902.993  |            |            |       |            |            |
| 2038   | 3     | 89,789.774  |        | 9,439.485  | 64.018     | 80,286.271051197 | 89,789.774  |            |            |       |            |            |
| 2038   | 4     | 83,985.456  |        | 4,559.153  | 710.243    | 78,716.059976571 | 83,985.456  |            |            |       |            |            |
| 2038   | 5     | 82,298.042  |        | 1,092.021  | 2,393.848  | 78,812.173685737 | 82,298.042  |            |            |       |            |            |
| 2038   | 6     | 91,846.670  |        | 145.504    | 7,443.133  | 84,258.032767302 | 91,846.670  |            |            |       |            |            |
| 2038   | 7     | 99,156.176  |        | 0.494      | 15,144.492 | 84,011.189907686 | 99,156.176  |            |            |       |            |            |
| 2038   | 8     | 99,834.064  |        | 0.000      | 17,223.447 | 82,610.617686492 | 99,834.064  |            |            |       |            |            |
| 2038   | 9     | 101,237.241 |        | 2.109      | 13,814.295 | 87,420.836374828 | 101,237.241 |            |            |       |            |            |
| 2038   | 10    | 87,438.676  |        | 351.735    | 4,978.240  | 82,108.700882828 | 87,438.676  |            |            |       |            |            |
| 2038   | 11    | 80,568.780  |        | 2,945.909  | 661.568    | 76,961.303484763 | 80,568.780  |            |            |       |            |            |
| 2038   | 12    | 94,726.240  |        | 7,736.164  | 47.220     | 86,942.856729226 | 94,726.240  |            |            |       |            |            |
| 2039   | 1     | 106,857.777 |        | 11,125.413 | 13.086     | 95,719.278198033 | 106,857.777 |            |            |       |            |            |
| 2039   | 2     | 98,553.347  |        | 12,499.437 | 10.186     | 86,043.724349156 | 98,553.347  |            |            |       |            |            |
| 2039   | 3     | 89,506.414  |        | 9,252.880  | 64.063     | 80,189.471175652 | 89,506.414  |            |            |       |            |            |
| 2039   | 4     | 83,795.941  |        | 4,468.998  | 710.733    | 78,616.208868196 | 83,795.941  |            |            |       |            |            |
| 2039   | 5     | 82,179.464  |        | 1,070.422  | 2,395.492  | 78,713.549570250 | 82,179.464  |            |            |       |            |            |
| 2039   | 6     | 91,747.165  |        | 142.625    | 7,448.182  | 84,156.358150016 | 91,747.165  |            |            |       |            |            |
| 2039   | 7     | 99,065.293  |        | 0.484      | 15,154.680 | 83,910.128580664 | 99,065.293  |            |            |       |            |            |
| 2039   | 8     | 99,747.822  |        | 0.000      | 17,234.873 | 82,512.949952371 | 99,747.822  |            |            |       |            |            |
| 2039   | 9     | 101,145.415 |        | 2.067      | 13,823.359 | 87,319.988402512 | 101,145.415 |            |            |       |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2039   | 10    | 87,336.105  |        | 344.765    | 4,981.459  | 82,009.881487361 | 87,336.105  |            |            |
| 2039   | 11    | 80,412.228  |        | 2,887.476  | 661.983    | 76,862.769543223 | 80,412.228  |            |            |
| 2039   | 12    | 94,464.997  |        | 7,582.664  | 47.249     | 86,835.083245144 | 94,464.997  |            |            |
| 2040   | 1     | 106,516.225 |        | 10,905.547 | 13.077     | 95,597.600924041 | 106,516.225 |            |            |
| 2040   | 2     | 98,195.428  |        | 12,251.600 | 10.179     | 85,933.648614481 | 98,195.428  |            |            |
| 2040   | 3     | 89,212.187  |        | 9,068.804  | 64.013     | 80,079.370358621 | 89,212.187  |            |            |
| 2040   | 4     | 83,591.546  |        | 4,379.790  | 710.134    | 78,501.622244479 | 83,591.546  |            |            |
| 2040   | 5     | 82,041.627  |        | 1,048.983  | 2,393.308  | 78,599.336194636 | 82,041.627  |            |            |
| 2040   | 6     | 91,618.513  |        | 139.760    | 7,440.951  | 84,037.802116194 | 91,618.513  |            |            |
| 2040   | 7     | 98,930.931  |        | 0.474      | 15,139.055 | 83,791.401411006 | 98,930.931  |            |            |
| 2040   | 8     | 99,613.451  |        | 0.000      | 17,216.043 | 82,397.407289666 | 99,613.451  |            |            |
| 2040   | 9     | 101,009.111 |        | 2.026      | 13,807.344 | 87,199.741472914 | 101,009.111 |            |            |
| 2040   | 10    | 87,204.339  |        | 337.755    | 4,975.370  | 81,891.213712118 | 87,204.339  |            |            |
| 2040   | 11    | 80,233.458  |        | 2,828.578  | 661.130    | 76,743.749565171 | 80,233.458  |            |            |
| 2040   | 12    | 94,178.542  |        | 7,427.494  | 47.185     | 86,703.862246785 | 94,178.542  |            |            |
| 2041   | 1     | 106,176.055 |        | 10,686.652 | 13.079     | 95,476.324151931 | 106,176.055 |            |            |
| 2041   | 2     | 97,841.968  |        | 12,006.158 | 10.181     | 85,825.629483320 | 97,841.968  |            |            |
| 2041   | 3     | 88,924.505  |        | 8,887.474  | 64.027     | 79,973.003963711 | 88,924.505  |            |            |
| 2041   | 4     | 83,395.368  |        | 4,292.388  | 710.310    | 78,392.669809830 | 83,395.368  |            |            |
| 2041   | 5     | 81,914.486  |        | 1,028.089  | 2,393.992  | 78,492.405438609 | 81,914.486  |            |            |
| 2041   | 6     | 91,508.602  |        | 136.981    | 7,443.331  | 83,928.289685149 | 91,508.602  |            |            |
| 2041   | 7     | 98,828.042  |        | 0.465      | 15,144.390 | 83,683.187025382 | 98,828.042  |            |            |
| 2041   | 8     | 99,516.286  |        | 0.000      | 17,222.726 | 82,293.559434790 | 99,516.286  |            |            |
| 2041   | 9     | 100,908.289 |        | 1.985      | 13,813.141 | 87,093.162766409 | 100,908.289 |            |            |
| 2041   | 10    | 87,096.197  |        | 331.083    | 4,977.627  | 81,787.487309453 | 87,096.197  |            |            |
| 2041   | 11    | 80,075.456  |        | 2,772.800  | 661.454    | 76,641.202417942 | 80,075.456  |            |            |
| 2041   | 12    | 93,920.853  |        | 7,281.263  | 47.210     | 86,592.380036373 | 93,920.853  |            |            |
| 2042   | 1     | 105,854.818 |        | 10,469.564 | 13.088     | 95,372.165865343 | 105,854.818 |            |            |
| 2042   | 2     | 97,505.591  |        | 11,762.615 | 10.188     | 85,732.787160411 | 97,505.591  |            |            |
| 2042   | 3     | 88,653.234  |        | 8,707.522  | 64.076     | 79,881.635465966 | 88,653.234  |            |            |
| 2042   | 4     | 83,215.694  |        | 4,205.643  | 710.892    | 78,299.158624647 | 83,215.694  |            |            |
| 2042   | 5     | 81,804.092  |        | 1,007.350  | 2,396.043  | 78,400.699322415 | 81,804.092  |            |            |
| 2042   | 6     | 91,418.540  |        | 134.222    | 7,449.936  | 83,834.382527898 | 91,418.540  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2042   | 7     | 98,749.406  |        | 0.455      | 15,158.401 | 83,590.549300512 | 98,749.406  |            |            |
| 2042   | 8     | 99,444.029  |        | 0.000      | 17,239.286 | 82,204.742813740 | 99,444.029  |            |            |
| 2042   | 9     | 100,831.028 |        | 1.946      | 13,826.925 | 87,002.157049302 | 100,831.028 |            |            |
| 2042   | 10    | 87,006.319  |        | 324.462    | 4,982.788  | 81,699.068863167 | 87,006.319  |            |            |
| 2042   | 11    | 79,933.707  |        | 2,717.483  | 662.171    | 76,554.053321442 | 79,933.707  |            |            |
| 2042   | 12    | 93,681.454  |        | 7,136.303  | 47.263     | 86,497.888070280 | 93,681.454  |            |            |
| 2043   | 1     | 105,571.524 |        | 10,266.829 | 13.100     | 95,291.595450011 | 105,571.524 |            |            |
| 2043   | 2     | 97,205.642  |        | 11,534.840 | 10.197     | 85,660.604728149 | 97,205.642  |            |            |
| 2043   | 3     | 88,413.122  |        | 8,538.887  | 64.133     | 79,810.102042753 | 88,413.122  |            |            |
| 2043   | 4     | 83,061.079  |        | 4,124.179  | 711.516    | 78,225.383590480 | 83,061.079  |            |            |
| 2043   | 5     | 81,713.776  |        | 987.833    | 2,398.136  | 78,327.807073947 | 81,713.776  |            |            |
| 2043   | 6     | 91,347.463  |        | 131.622    | 7,456.461  | 83,759.380335273 | 91,347.463  |            |            |
| 2043   | 7     | 98,688.017  |        | 0.447      | 15,171.594 | 83,515.977035413 | 98,688.017  |            |            |
| 2043   | 8     | 99,386.957  |        | 0.000      | 17,254.228 | 82,132.728944050 | 99,386.957  |            |            |
| 2043   | 9     | 100,768.730 |        | 1.908      | 13,838.921 | 86,927.900186034 | 100,768.730 |            |            |
| 2043   | 10    | 86,931.623  |        | 318.173    | 4,987.092  | 81,626.358126327 | 86,931.623  |            |            |
| 2043   | 11    | 79,809.221  |        | 2,664.793  | 662.739    | 76,481.688713576 | 79,809.221  |            |            |
| 2043   | 12    | 93,463.908  |        | 6,997.892  | 47.303     | 86,418.712152980 | 93,463.908  |            |            |
| 2044   | 1     | 105,303.293 |        | 10,071.137 | 13.134     | 95,219.022128175 | 105,303.293 |            |            |
| 2044   | 2     | 96,921.020  |        | 11,315.076 | 10.223     | 85,595.720671247 | 96,921.020  |            |            |
| 2044   | 3     | 88,186.487  |        | 8,376.256  | 64.299     | 79,745.932596845 | 88,186.487  |            |            |
| 2044   | 4     | 82,918.526  |        | 4,045.686  | 713.362    | 78,159.477368115 | 82,918.526  |            |            |
| 2044   | 5     | 81,636.376  |        | 969.044    | 2,404.388  | 78,262.943739308 | 81,636.376  |            |            |
| 2044   | 6     | 91,297.849  |        | 129.120    | 7,475.971  | 83,692.758508458 | 91,297.849  |            |            |
| 2044   | 7     | 98,661.838  |        | 0.438      | 15,211.433 | 83,449.967741624 | 98,661.838  |            |            |
| 2044   | 8     | 99,369.050  |        | 0.000      | 17,299.789 | 82,069.261409767 | 99,369.050  |            |            |
| 2044   | 9     | 100,740.268 |        | 1.872      | 13,875.690 | 86,862.706365153 | 100,740.268 |            |            |
| 2044   | 10    | 86,875.360  |        | 312.141    | 5,000.415  | 81,562.804416337 | 86,875.360  |            |            |
| 2044   | 11    | 79,697.610  |        | 2,614.319  | 664.521    | 76,418.769862539 | 79,697.610  |            |            |
| 2044   | 12    | 93,263.169  |        | 6,865.467  | 47.431     | 86,350.269909613 | 93,263.169  |            |            |
| 2045   | 1     | 105,061.680 |        | 9,889.433  | 13.160     | 95,159.086932457 | 105,061.680 |            |            |
| 2045   | 2     | 96,662.723  |        | 11,110.732 | 10.243     | 85,541.747727452 | 96,662.723  |            |            |
| 2045   | 3     | 87,981.545  |        | 8,224.869  | 64.424     | 79,692.252115430 | 87,981.545  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |                  |             |            |            |       |            |
|--|-------|-------------|--------|------------|------------|------------------|-------------|------------|------------|-------|------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other            | Total       | Add Factor | Add Factor | Total | Add Factor |
| 2045   | 4     | 82,791.010  |        | 3,972.476  | 714.740    | 78,103.794010927 | 82,791.010  |            |            |       |            |
| 2045   | 5     | 81,568.154  |        | 951.490    | 2,408.987  | 78,207.676269607 | 81,568.154  |            |            |       |            |
| 2045   | 6     | 91,252.508  |        | 126.779    | 7,490.143  | 83,635.585952419 | 91,252.508  |            |            |       |            |
| 2045   | 7     | 98,633.365  |        | 0.430      | 15,240.013 | 83,392.921229685 | 98,633.365  |            |            |       |            |
| 2045   | 8     | 99,345.714  |        | 0.000      | 17,331.875 | 82,013.839157665 | 99,345.714  |            |            |       |            |
| 2045   | 9     | 100,708.126 |        | 1.838      | 13,901.108 | 86,805.180965208 | 100,708.126 |            |            |       |            |
| 2045   | 10    | 86,822.018  |        | 306.454    | 5,009.446  | 81,506.118732290 | 86,822.018  |            |            |       |            |
| 2045   | 11    | 79,594.343  |        | 2,566.622  | 665.704    | 76,362.017365630 | 79,594.343  |            |            |       |            |
| 2045   | 12    | 93,075.385  |        | 6,740.040  | 47.515     | 86,287.830650435 | 93,075.385  |            |            |       |            |
| 2046   | 1     | 104,829.869 |        | 9,712.186  | 13.208     | 95,104.475317850 | 104,829.869 |            |            |       |            |
| 2046   | 2     | 96,414.060  |        | 10,911.332 | 10.281     | 85,492.446927764 | 96,414.060  |            |            |       |            |
| 2046   | 3     | 87,784.516  |        | 8,076.978  | 64.659     | 79,642.879157155 | 87,784.516  |            |            |       |            |
| 2046   | 4     | 82,670.653  |        | 3,900.922  | 717.324    | 78,052.407157381 | 82,670.653  |            |            |       |            |
| 2046   | 5     | 81,508.356  |        | 934.320    | 2,417.613  | 78,156.422879898 | 81,508.356  |            |            |       |            |
| 2046   | 6     | 91,223.596  |        | 124.487    | 7,516.748  | 83,582.360318826 | 91,223.596  |            |            |       |            |
| 2046   | 7     | 98,633.771  |        | 0.422      | 15,293.725 | 83,339.623552343 | 98,633.771  |            |            |       |            |
| 2046   | 8     | 99,354.433  |        | 0.000      | 17,392.463 | 81,961.969997757 | 99,354.433  |            |            |       |            |
| 2046   | 9     | 100,702.194 |        | 1.804      | 13,949.236 | 86,751.153583976 | 100,702.194 |            |            |       |            |
| 2046   | 10    | 86,780.373  |        | 300.880    | 5,026.654  | 81,452.839550570 | 86,780.373  |            |            |       |            |
| 2046   | 11    | 79,496.351  |        | 2,519.855  | 667.968    | 76,308.527595699 | 79,496.351  |            |            |       |            |
| 2046   | 12    | 92,893.609  |        | 6,617.037  | 47.675     | 86,228.896929868 | 92,893.609  |            |            |       |            |
| 2047   | 1     | 104,603.751 |        | 9,535.544  | 13.246     | 95,054.961411529 | 104,603.751 |            |            |       |            |
| 2047   | 2     | 96,171.395  |        | 10,712.927 | 10.310     | 85,448.157304788 | 96,171.395  |            |            |       |            |
| 2047   | 3     | 87,594.247  |        | 7,930.207  | 64.843     | 79,599.196628532 | 87,594.247  |            |            |       |            |
| 2047   | 4     | 82,557.000  |        | 3,830.074  | 719.374    | 78,007.551719124 | 82,557.000  |            |            |       |            |
| 2047   | 5     | 81,454.252  |        | 917.363    | 2,424.551  | 78,112.338746788 | 81,454.252  |            |            |       |            |
| 2047   | 6     | 91,197.697  |        | 122.229    | 7,538.374  | 83,537.094009545 | 91,197.697  |            |            |       |            |
| 2047   | 7     | 98,633.041  |        | 0.415      | 15,337.837 | 83,294.789397053 | 98,633.041  |            |            |       |            |
| 2047   | 8     | 99,361.755  |        | 0.000      | 17,442.850 | 81,918.905002448 | 99,361.755  |            |            |       |            |
| 2047   | 9     | 100,698.606 |        | 1.772      | 13,989.856 | 86,706.977816536 | 100,698.606 |            |            |       |            |
| 2047   | 10    | 86,746.607  |        | 295.435    | 5,041.355  | 81,409.817141930 | 86,746.607  |            |            |       |            |
| 2047   | 11    | 79,410.167  |        | 2,474.286  | 669.930    | 76,265.950909239 | 79,410.167  |            |            |       |            |
| 2047   | 12    | 92,727.865  |        | 6,497.457  | 47.816     | 86,182.592432764 | 92,727.865  |            |            |       |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |            |            |            |           |            |             |
|--|-------|-------------|--------|------------|------------|------------|-----------|------------|-------------|
| Year   | Month | Total       | Actual | Heating    | Cooling    | Other      | Total     | Add Factor | Add Factor  |
| 2048   | 1     | 104,394.445 |        | 9,363.868  | 13.276     | 95,017.300 | 97,453.8  |            | 104,394.445 |
| 2048   | 2     | 95,944.409  |        | 10,519.893 | 10.334     | 85,414.181 | 96,519.1  |            | 95,944.409  |
| 2048   | 3     | 87,417.425  |        | 7,787.171  | 64.991     | 79,565.262 | 87,381.3  |            | 87,417.425  |
| 2048   | 4     | 82,454.225  |        | 3,760.924  | 721.000    | 77,972.300 | 82,454.2  |            | 82,454.225  |
| 2048   | 5     | 81,408.204  |        | 900.792    | 2,430.011  | 78,077.400 | 81,408.2  |            | 81,408.204  |
| 2048   | 6     | 91,176.260  |        | 120.020    | 7,555.274  | 83,500.966 | 91,176.2  |            | 91,176.260  |
| 2048   | 7     | 98,631.261  |        | 0.407      | 15,372.084 | 83,258.769 | 98,631.2  |            | 98,631.261  |
| 2048   | 8     | 99,365.610  |        | 0.000      | 17,481.619 | 81,883.991 | 99,365.6  |            | 99,365.610  |
| 2048   | 9     | 100,693.309 |        | 1.740      | 14,020.785 | 86,670.784 | 100,693.3 |            | 100,693.309 |
| 2048   | 10    | 86,716.714  |        | 290.083    | 5,052.432  | 81,374.199 | 86,716.7  |            | 86,716.714  |
| 2048   | 11    | 79,331.273  |        | 2,429.442  | 671.397    | 76,230.433 | 79,331.2  |            | 79,331.273  |
| 2048   | 12    | 92,571.188  |        | 6,379.638  | 47.920     | 86,143.629 | 92,571.1  |            | 92,571.188  |
| 2049   | 1     | 104,179.040 |        | 9,175.235  | 13.324     | 94,990.480 | 104,179.0 |            | 104,179.040 |
| 2049   | 2     | 95,709.838  |        | 10,308.508 | 10.372     | 85,390.958 | 95,709.8  |            | 95,709.838  |
| 2049   | 3     | 87,239.395  |        | 7,631.098  | 65.232     | 79,543.065 | 87,239.3  |            | 87,239.395  |
| 2049   | 4     | 82,359.656  |        | 3,685.730  | 723.712    | 77,950.213 | 82,359.6  |            | 82,359.656  |
| 2049   | 5     | 81,378.419  |        | 882.823    | 2,439.265  | 78,056.330 | 81,378.4  |            | 81,378.419  |
| 2049   | 6     | 91,181.989  |        | 117.631    | 7,584.379  | 83,479.978 | 91,181.9  |            | 91,181.989  |
| 2049   | 7     | 98,670.914  |        | 0.399      | 15,431.933 | 83,238.581 | 98,670.9  |            | 98,670.914  |
| 2049   | 8     | 99,415.661  |        | 0.000      | 17,550.464 | 81,865.197 | 99,415.6  |            | 99,415.661  |
| 2049   | 9     | 100,730.397 |        | 1.705      | 14,076.607 | 86,652.084 | 100,730.3 |            | 100,730.397 |
| 2049   | 10    | 86,713.804  |        | 284.359    | 5,072.792  | 81,356.652 | 86,713.8  |            | 86,713.804  |
| 2049   | 11    | 79,269.363  |        | 2,381.604  | 674.130    | 76,213.627 | 79,269.3  |            | 79,269.363  |
| 2049   | 12    | 92,428.310  |        | 6,254.264  | 48.117     | 86,125.930 | 92,428.3  |            | 92,428.310  |
| 2050   | 1     | 103,992.053 |        | 8,996.011  | 13.389     | 94,982.653 | 103,992.0 |            | 103,992.053 |
| 2050   | 2     | 95,501.656  |        | 10,107.202 | 10.422     | 85,384.031 | 95,501.6  |            | 95,501.656  |
| 2050   | 3     | 87,084.081  |        | 7,482.159  | 65.549     | 79,536.373 | 87,084.0  |            | 87,084.081  |
| 2050   | 4     | 82,284.647  |        | 3,613.851  | 727.232    | 77,943.563 | 82,284.6  |            | 82,284.647  |
| 2050   | 5     | 81,366.645  |        | 865.613    | 2,451.149  | 78,049.883 | 81,366.6  |            | 81,366.645  |
| 2050   | 6     | 91,210.314  |        | 115.339    | 7,621.426  | 83,473.548 | 91,210.3  |            | 91,210.314  |
| 2050   | 7     | 98,740.248  |        | 0.391      | 15,507.485 | 83,232.371 | 98,740.2  |            | 98,740.248  |
| 2050   | 8     | 99,496.037  |        | 0.000      | 17,636.625 | 81,859.411 | 99,496.0  |            | 99,496.037  |
| 2050   | 9     | 100,793.825 |        | 1.672      | 14,145.865 | 86,646.287 | 100,793.8 |            | 100,793.825 |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |           |            |                  |             |            |            |
|--|-------|-------------|--------|-----------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating   | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2050   | 10    | 86,727.822  |        | 278.833   | 5,097.815  | 81,351.174922233 | 86,727.822  |            |            |
| 2050   | 11    | 79,221.260  |        | 2,335.356 | 677.467    | 76,208.437014700 | 79,221.260  |            |            |
| 2050   | 12    | 92,301.799  |        | 6,132.911 | 48.356     | 86,120.531666219 | 92,301.799  |            |            |
| 2051   | 1     | 103,805.075 |        | 8,831.469 | 13.441     | 94,960.165278158 | 103,805.075 |            |            |
| 2051   | 2     | 95,296.865  |        | 9,922.407 | 10.463     | 85,363.994722548 | 95,296.865  |            |            |
| 2051   | 3     | 86,927.908  |        | 7,345.429 | 65.808     | 79,516.671286155 | 86,927.908  |            |            |
| 2051   | 4     | 82,201.253  |        | 3,547.824 | 730.110    | 77,923.318943954 | 82,201.253  |            |            |
| 2051   | 5     | 81,340.754  |        | 849.807   | 2,460.875  | 78,030.072547008 | 81,340.754  |            |            |
| 2051   | 6     | 91,218.155  |        | 113.233   | 7,651.700  | 83,453.221591560 | 91,218.155  |            |            |
| 2051   | 7     | 98,782.055  |        | 0.384     | 15,569.283 | 83,212.387915624 | 98,782.055  |            |            |
| 2051   | 8     | 99,547.189  |        | 0.000     | 17,706.989 | 81,840.199881735 | 99,547.189  |            |            |
| 2051   | 9     | 100,830.713 |        | 1.642     | 14,202.442 | 86,626.629205213 | 100,830.713 |            |            |
| 2051   | 10    | 86,724.081  |        | 273.752   | 5,118.249  | 81,332.079583055 | 86,724.081  |            |            |
| 2051   | 11    | 79,162.550  |        | 2,292.819 | 680.187    | 76,189.544308709 | 79,162.550  |            |            |
| 2051   | 12    | 92,169.946  |        | 6,021.285 | 48.550     | 86,100.110518902 | 92,169.946  |            |            |
| 2052   | 1     | 103,625.115 |        | 8,670.787 | 13.496     | 94,940.832080293 | 103,625.115 |            |            |
| 2052   | 2     | 95,099.291  |        | 9,741.967 | 10.505     | 85,346.817941219 | 95,099.291  |            |            |
| 2052   | 3     | 86,777.613  |        | 7,211.861 | 66.074     | 79,499.677673617 | 86,777.613  |            |            |
| 2052   | 4     | 82,122.414  |        | 3,483.352 | 733.072    | 77,905.989871729 | 82,122.414  |            |            |
| 2052   | 5     | 81,318.330  |        | 834.370   | 2,470.877  | 78,013.082399556 | 81,318.330  |            |            |
| 2052   | 6     | 91,229.961  |        | 111.178   | 7,682.883  | 83,435.900143997 | 91,229.961  |            |            |
| 2052   | 7     | 98,828.503  |        | 0.377     | 15,632.835 | 83,195.290528659 | 98,828.503  |            |            |
| 2052   | 8     | 99,603.364  |        | 0.000     | 17,779.480 | 81,823.884315276 | 99,603.364  |            |            |
| 2052   | 9     | 100,872.293 |        | 1.612     | 14,260.725 | 86,609.956583983 | 100,872.293 |            |            |
| 2052   | 10    | 86,723.972  |        | 268.792   | 5,139.293  | 81,315.887067900 | 86,723.972  |            |            |
| 2052   | 11    | 79,107.922  |        | 2,251.302 | 682.991    | 76,173.629295027 | 79,107.922  |            |            |
| 2052   | 12    | 92,043.831  |        | 5,912.281 | 48.751     | 86,082.798662130 | 92,043.831  |            |            |
| 2053   | 1     | 103,449.993 |        | 8,513.182 | 13.550     | 94,923.260895768 | 103,449.993 |            |            |
| 2053   | 2     | 94,906.758  |        | 9,564.985 | 10.548     | 85,331.225300601 | 94,906.758  |            |            |
| 2053   | 3     | 86,631.454  |        | 7,080.855 | 66.342     | 79,484.257016033 | 86,631.454  |            |            |
| 2053   | 4     | 82,046.461  |        | 3,420.116 | 736.060    | 77,890.285209505 | 82,046.461  |            |            |
| 2053   | 5     | 81,297.899  |        | 819.230   | 2,480.968  | 77,997.701095136 | 81,297.899  |            |            |
| 2053   | 6     | 91,243.746  |        | 109.161   | 7,714.345  | 83,420.239898364 | 91,243.746  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |           |            |                  |             |            |            |
|--|-------|-------------|--------|-----------|------------|------------------|-------------|------------|------------|
| Year   | Month | Total       | Actual | Heating   | Cooling    | Other            | Total       | Add Factor | Add Factor |
| 2053   | 7     | 98,877.178  |        | 0.370     | 15,696.959 | 83,179.847771603 | 98,877.178  |            |            |
| 2053   | 8     | 99,661.797  |        | 0.000     | 17,852.628 | 81,809.169609051 | 99,661.797  |            |            |
| 2053   | 9     | 100,916.062 |        | 1.583     | 14,319.540 | 86,594.939575021 | 100,916.062 |            |            |
| 2053   | 10    | 86,725.778  |        | 263.927   | 5,160.531  | 81,301.319863138 | 86,725.778  |            |            |
| 2053   | 11    | 79,055.741  |        | 2,210.583 | 685.822    | 76,159.335534886 | 79,055.741  |            |            |
| 2053   | 12    | 91,921.596  |        | 5,805.377 | 48.953     | 86,067.265765251 | 91,921.596  |            |            |
| 2054   | 1     | 103,279.689 |        | 8,358.609 | 13.605     | 94,907.474630813 | 103,279.689 |            |            |
| 2054   | 2     | 94,719.233  |        | 9,391.408 | 10.591     | 85,317.234215485 | 94,719.233  |            |            |
| 2054   | 3     | 86,489.410  |        | 6,952.370 | 66.613     | 79,470.426589649 | 86,489.410  |            |            |
| 2054   | 4     | 81,973.394  |        | 3,358.097 | 739.076    | 77,876.220957408 | 81,973.394  |            |            |
| 2054   | 5     | 81,279.474  |        | 804.381   | 2,491.152  | 77,983.941413692 | 81,279.474  |            |            |
| 2054   | 6     | 91,259.532  |        | 107.184   | 7,746.097  | 83,406.251098864 | 91,259.532  |            |            |
| 2054   | 7     | 98,928.110  |        | 0.364     | 15,761.679 | 83,166.067299422 | 98,928.110  |            |            |
| 2054   | 8     | 99,722.518  |        | 0.000     | 17,926.457 | 81,796.060831581 | 99,722.518  |            |            |
| 2054   | 9     | 100,962.041 |        | 1.554     | 14,378.906 | 86,581.580977105 | 100,962.041 |            |            |
| 2054   | 10    | 86,729.502  |        | 259.156   | 5,181.968  | 81,288.377769874 | 86,729.502  |            |            |
| 2054   | 11    | 79,005.987  |        | 2,170.648 | 688.680    | 76,146.659157691 | 79,005.987  |            |            |
| 2054   | 12    | 91,803.192  |        | 5,700.531 | 49.157     | 86,053.503254621 | 91,803.192  |            |            |
| 2055   | 1     | 103,114.135 |        | 8,207.009 | 13.661     | 94,893.464182847 | 103,114.135 |            |            |
| 2055   | 2     | 94,536.640  |        | 9,221.169 | 10.635     | 85,304.836597484 | 94,536.640  |            |            |
| 2055   | 3     | 86,351.424  |        | 6,826.358 | 66.887     | 79,458.178416193 | 86,351.424  |            |            |
| 2055   | 4     | 81,903.179  |        | 3,297.271 | 742.119    | 77,863.788967869 | 81,903.179  |            |            |
| 2055   | 5     | 81,263.043  |        | 789.817   | 2,501.431  | 77,971.795369244 | 81,263.043  |            |            |
| 2055   | 6     | 91,277.314  |        | 105.245   | 7,778.144  | 83,393.925594656 | 91,277.314  |            |            |
| 2055   | 7     | 98,981.300  |        | 0.357     | 15,827.002 | 83,153.941076255 | 98,981.300  |            |            |
| 2055   | 8     | 99,785.527  |        | 0.000     | 18,000.976 | 81,784.550302958 | 99,785.527  |            |            |
| 2055   | 9     | 101,010.227 |        | 1.526     | 14,438.828 | 86,569.872938641 | 101,010.227 |            |            |
| 2055   | 10    | 86,735.137  |        | 254.477   | 5,203.607  | 81,277.053165848 | 86,735.137  |            |            |
| 2055   | 11    | 78,958.638  |        | 2,131.481 | 691.564    | 76,135.592662953 | 78,958.638  |            |            |
| 2055   | 12    | 91,688.568  |        | 5,597.702 | 49.364     | 86,041.502990598 | 91,688.568  |            |            |
| 2056   | 1     | 102,953.261 |        | 8,058.322 | 13.717     | 94,881.220877352 | 102,953.261 |            |            |
| 2056   | 2     | 94,358.904  |        | 9,054.201 | 10.678     | 85,294.024742812 | 94,358.904  |            |            |
| 2056   | 3     | 86,217.437  |        | 6,702.770 | 67.163     | 79,447.504900304 | 86,217.437  |            |            |

| Kentucky Power Company<br>Commercial Energy Model Output |       |             |        |           |            |                  |             |            |            |       |            |
|--|-------|-------------|--------|-----------|------------|------------------|-------------|------------|------------|-------|------------|
| Year   | Month | Total       | Actual | Heating   | Cooling    | Other            | Total       | Add Factor | Add Factor | Total | Add Factor |
| 2056   | 4     | 81,835.787  |        | 3,237.615 | 745.190    | 77,852.981488568 | 81,835.787  |            |            |       |            |
| 2056   | 5     | 81,248.593  |        | 775.534   | 2,511.804  | 77,961.255367051 | 81,248.593  |            |            |       |            |
| 2056   | 6     | 91,297.087  |        | 103.342   | 7,810.489  | 83,383.255638519 | 91,297.087  |            |            |       |            |
| 2056   | 7     | 99,036.747  |        | 0.351     | 15,892.935 | 83,143.461468206 | 99,036.747  |            |            |       |            |
| 2056   | 8     | 99,850.826  |        | 0.000     | 18,076.195 | 81,774.630731923 | 99,850.826  |            |            |       |            |
| 2056   | 9     | 101,060.621 |        | 1.498     | 14,499.315 | 86,559.808009826 | 101,060.621 |            |            |       |            |
| 2056   | 10    | 86,742.677  |        | 249.888   | 5,225.451  | 81,267.338823097 | 86,742.677  |            |            |       |            |
| 2056   | 11    | 78,913.672  |        | 2,093.067 | 694.476    | 76,126.128942921 | 78,913.672  |            |            |       |            |
| 2056   | 12    | 91,577.678  |        | 5,496.849 | 49.572     | 86,031.257264223 | 91,577.678  |            |            |       |            |
| 2057   | 1     | 102,797.002 |        | 7,912.492 | 13.774     | 94,870.736464347 | 102,797.002 |            |            |       |            |
| 2057   | 2     | 94,185.954  |        | 8,890.440 | 10.723     | 85,284.791329156 | 94,185.954  |            |            |       |            |
| 2057   | 3     | 86,087.396  |        | 6,581.556 | 67.441     | 79,438.398826439 | 86,087.396  |            |            |       |            |
| 2057   | 4     | 81,771.186  |        | 3,179.105 | 748.290    | 77,843.791159267 | 81,771.186  |            |            |       |            |
| 2057   | 5     | 81,236.113  |        | 761.525   | 2,522.274  | 77,952.314200497 | 81,236.113  |            |            |       |            |
| 2057   | 6     | 91,318.847  |        | 101.477   | 7,843.136  | 83,374.233883681 | 91,318.847  |            |            |       |            |
| 2057   | 7     | 99,094.452  |        | 0.344     | 15,959.487 | 83,134.621240210 | 99,094.452  |            |            |       |            |
| 2057   | 8     | 99,918.416  |        | 0.000     | 18,152.121 | 81,766.295212872 | 99,918.416  |            |            |       |            |
| 2057   | 9     | 101,113.223 |        | 1.471     | 14,560.372 | 86,551.379139577 | 101,113.223 |            |            |       |            |
| 2057   | 10    | 86,752.116  |        | 245.386   | 5,247.502  | 81,259.227904968 | 86,752.116  |            |            |       |            |
| 2057   | 11    | 78,871.067  |        | 2,055.390 | 697.415    | 76,118.261279636 | 78,871.067  |            |            |       |            |
| 2057   | 12    | 91,470.475  |        | 5,397.934 | 49.782     | 86,022.758794021 | 91,470.475  |            |            |       |            |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total      |
|------|-------|------------|-------------|------------|-------------------|------------|
| 2004 | 1     | 0          | 25553.8245  | 50.299     | 105,657.084280634 | 131261.208 |
| 2004 | 2     | 0          | 32935.00648 | 16.774     | 92,249.871101976  | 125201.652 |
| 2004 | 3     | 0          | 19130.71264 | 150.999    | 89,966.356162005  | 109248.068 |
| 2004 | 4     | 0          | 10577.2672  | 837.039    | 94,624.721020403  | 106039.027 |
| 2004 | 5     | 0          | 2612.984752 | 4,643.723  | 95,636.911330465  | 102893.619 |
| 2004 | 6     | 0          | 181.0252073 | 12,736.825 | 104,602.206175965 | 117520.056 |
| 2004 | 7     | 0          | 0           | 16,280.926 | 102,695.132411005 | 118976.058 |
| 2004 | 8     | 0          | 0           | 16,073.539 | 98,370.242463282  | 114443.781 |
| 2004 | 9     | 0          | 0           | 14,087.638 | 103,231.442486623 | 117319.08  |
| 2004 | 10    | 0          | 443.0619538 | 4,189.763  | 101,222.786138511 | 105855.611 |
| 2004 | 11    | 0          | 2855.08333  | 836.021    | 95,123.702605376  | 98814.807  |
| 2004 | 12    | 0          | 13159.68034 | 121.435    | 104,534.436281527 | 117815.552 |
| 2005 | 1     | 0          | 22107.9906  | 0.000      | 107,815.756403787 | 129923.747 |
| 2005 | 2     | 0          | 26537.12351 | 0.000      | 98,035.050489241  | 124572.174 |
| 2005 | 3     | 0          | 22645.1896  | 0.000      | 95,093.664399799  | 117738.854 |
| 2005 | 4     | 0          | 10518.41524 | 373.901    | 97,811.187070235  | 108703.503 |
| 2005 | 5     | 0          | 3036.193034 | 1,375.350  | 95,679.922624705  | 100091.466 |
| 2005 | 6     | 0          | 414.0413206 | 8,031.301  | 104,102.539199344 | 112547.882 |
| 2005 | 7     | 0          | 0           | 22,871.300 | 100,562.300003707 | 123433.6   |
| 2005 | 8     | 0          | 0           | 29,163.941 | 99,366.507995093  | 128530.449 |
| 2005 | 9     | 0          | 0           | 21,964.460 | 107,488.256048924 | 129452.716 |
| 2005 | 10    | 0          | 257.8499243 | 10,102.210 | 102,501.050777745 | 112861.111 |
| 2005 | 11    | 0          | 6502.679279 | 636.586    | 98,800.077443860  | 105939.343 |
| 2005 | 12    | 0          | 22078.72962 | 93.806     | 105,221.902781722 | 127394.438 |
| 2006 | 1     | 0          | 21422.94128 | 0.000      | 114,068.923717015 | 135491.865 |
| 2006 | 2     | 0          | 18197.86055 | 0.000      | 102,737.165449485 | 120935.026 |
| 2006 | 3     | 0          | 20604.01763 | 87.488     | 92,785.901501733  | 113477.407 |
| 2006 | 4     | 0          | 10689.55157 | 1,052.407  | 92,887.656316475  | 104629.615 |
| 2006 | 5     | 0          | 873.9657716 | 1,767.477  | 101,256.661761339 | 103898.105 |
| 2006 | 6     | 0          | 168.3234303 | 6,663.761  | 105,193.463488151 | 112025.548 |
| 2006 | 7     | 0          | 0           | 16,411.856 | 105,432.071357880 | 121843.927 |
| 2006 | 8     | 0          | 0           | 25,846.316 | 99,954.064457507  | 125800.38  |
| 2006 | 9     | 0          | 39.74434576 | 16,419.681 | 110,991.950854712 | 127451.376 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total      |
|------|-------|------------|-------------|------------|-------------------|------------|
| 2006 | 10    | 0          | 1645.398523 | 2,312.437  | 103,132.681808949 | 107090.517 |
| 2006 | 11    | 0          | 9048.709448 | 159.241    | 96,667.349713965  | 105875.3   |
| 2006 | 12    | 0          | 14243.4145  | 166.129    | 106,897.790751084 | 121307.334 |
| 2007 | 1     | 0          | 14861.6934  | 18.438     | 112,291.648371694 | 127171.78  |
| 2007 | 2     | 0          | 29864.90405 | 0.000      | 102,214.677945829 | 132079.582 |
| 2007 | 3     | 0          | 25146.94857 | 140.867    | 96,865.609536542  | 122153.425 |
| 2007 | 4     | 0          | 8687.767351 | 1,834.237  | 102,074.642452127 | 112596.647 |
| 2007 | 5     | 0          | 3277.297615 | 3,183.332  | 103,015.544184418 | 109476.174 |
| 2007 | 6     | 0          | 134.9254381 | 11,263.686 | 106,462.450749047 | 117861.062 |
| 2007 | 7     | 0          | 0           | 18,343.897 | 103,936.347149097 | 122280.244 |
| 2007 | 8     | 0          | 0           | 21,503.209 | 103,604.131850678 | 125107.341 |
| 2007 | 9     | 0          | 0           | 23,719.902 | 111,458.862671441 | 135178.765 |
| 2007 | 10    | 0          | 276.6014254 | 11,029.662 | 105,429.138951212 | 116735.402 |
| 2007 | 11    | 0          | 5406.30057  | 1,872.038  | 101,651.360121321 | 108929.699 |
| 2007 | 12    | 0          | 15381.50439 | 0.000      | 107,447.324609564 | 122828.829 |
| 2008 | 1     | 0          | 20272.43138 | 0.000      | 115,716.109622353 | 135988.541 |
| 2008 | 2     | 0          | 24744.38197 | 0.000      | 104,036.350030977 | 128780.732 |
| 2008 | 3     | 0          | 21159.64925 | 0.000      | 101,527.614754651 | 122687.264 |
| 2008 | 4     | 0          | 9539.216625 | 90.336     | 103,107.254041545 | 112736.807 |
| 2008 | 5     | 0          | 2117.430579 | 1,176.903  | 100,025.032886322 | 103319.366 |
| 2008 | 6     | 0          | 145.009782  | 6,987.469  | 107,806.207740520 | 114938.687 |
| 2008 | 7     | 0          | 0           | 14,518.913 | 108,310.442222062 | 122829.355 |
| 2008 | 8     | 0          | 0           | 17,549.686 | 107,313.873143670 | 124863.559 |
| 2008 | 9     | 0          | 0           | 16,274.372 | 110,867.360995057 | 127141.733 |
| 2008 | 10    | 0          | 348.3566787 | 6,312.628  | 104,760.481641587 | 111421.466 |
| 2008 | 11    | 0          | 6810.798046 | 406.186    | 99,068.466004684  | 106285.45  |
| 2008 | 12    | 0          | 22105.36097 | 0.000      | 109,347.796034105 | 131453.157 |
| 2009 | 1     | 0          | 23487.27958 | 0.000      | 117,120.321420313 | 140607.601 |
| 2009 | 2     | 0          | 28509.55708 | 0.000      | 106,930.606917023 | 135440.164 |
| 2009 | 3     | 0          | 18384.12051 | 255.906    | 99,304.066886627  | 117944.093 |
| 2009 | 4     | 0          | 7082.659905 | 194.055    | 100,745.238743385 | 108021.954 |
| 2009 | 5     | 0          | 1827.564993 | 3,711.737  | 100,050.658866329 | 105589.961 |
| 2009 | 6     | 0          | 176.9593403 | 7,462.421  | 106,963.456910391 | 114602.837 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total      |
|------|-------|------------|-------------|------------|-------------------|------------|
| 2009 | 7     | 0          | 0           | 12,851.954 | 106,539.240927443 | 119391.195 |
| 2009 | 8     | 0          | 0           | 13,232.752 | 105,407.254001930 | 118640.006 |
| 2009 | 9     | 0          | 0           | 12,634.682 | 109,572.100665092 | 122206.783 |
| 2009 | 10    | 0          | 1274.244884 | 4,520.552  | 105,021.271845651 | 110816.069 |
| 2009 | 11    | 0          | 5080.181319 | 186.200    | 97,005.622380234  | 102272.004 |
| 2009 | 12    | 0          | 13363.82944 | 12.038     | 108,717.546098393 | 122093.414 |
| 2010 | 1     | 0          | 26992.25715 | 0.000      | 118,318.301854685 | 145310.559 |
| 2010 | 2     | 0          | 26966.77976 | 0.000      | 103,465.992242709 | 130432.772 |
| 2010 | 3     | 0          | 22093.6305  | 0.000      | 103,613.603503207 | 125707.234 |
| 2010 | 4     | 0          | 5152.484771 | 1,494.617  | 103,240.084936634 | 109887.187 |
| 2010 | 5     | 0          | 1339.259959 | 2,348.093  | 99,642.636795940  | 103329.99  |
| 2010 | 6     | 0          | 217.1092096 | 11,447.188 | 109,201.410886231 | 120865.708 |
| 2010 | 7     | 0          | 0           | 20,598.084 | 108,109.523997347 | 128707.608 |
| 2010 | 8     | 0          | 0           | 24,003.910 | 106,357.750591066 | 130361.661 |
| 2010 | 9     | 0          | 0           | 16,943.828 | 110,104.505927366 | 127048.334 |
| 2010 | 10    | 0          | 425.0465491 | 6,345.516  | 102,581.738317225 | 109352.301 |
| 2010 | 11    | 0          | 4521.627954 | 610.248    | 96,396.728710569  | 101528.605 |
| 2010 | 12    | 0          | 18341.90153 | 0.000      | 108,047.856468248 | 126389.758 |
| 2011 | 1     | 0          | 28506.73776 | 0.000      | 120,968.223238131 | 149474.961 |
| 2011 | 2     | 0          | 25960.85551 | 0.000      | 101,918.199487876 | 127879.055 |
| 2011 | 3     | 0          | 13464.95952 | 96.625     | 99,531.198874817  | 113092.783 |
| 2011 | 4     | 0          | 8630.907851 | 928.865    | 96,254.576314322  | 105814.349 |
| 2011 | 5     | 0          | 1668.78638  | 2,781.843  | 99,851.119536269  | 104301.749 |
| 2011 | 6     | 0          | 535.7623032 | 10,384.999 | 102,869.632486597 | 113790.394 |
| 2011 | 7     | 0          | 0           | 16,212.067 | 104,493.481760057 | 120705.549 |
| 2011 | 8     | 0          | 0           | 23,984.331 | 102,732.215927265 | 126716.547 |
| 2011 | 9     | 0          | 5,918885085 | 14,321.800 | 107,207.490912040 | 121535.21  |
| 2011 | 10    | 0          | 1041.693011 | 2,552.279  | 101,199.476795133 | 104793.449 |
| 2011 | 11    | 0          | 5208.864589 | 59.038     | 96,007.636277832  | 101275.539 |
| 2011 | 12    | 0          | 9504.498185 | 88.497     | 107,722.029835833 | 117315.025 |
| 2012 | 1     | 0          | 16066.51881 | 0.000      | 111,203.735191919 | 127270.254 |
| 2012 | 2     | 0          | 16735.59355 | 0.000      | 101,726.899451430 | 118462.493 |
| 2012 | 3     | 0          | 12004.39634 | 531.020    | 95,577.543427650  | 108112.96  |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total      |
|------|-------|------------|-------------|------------|-------------------|------------|
| 2012 | 4     | 0          | 2528.080669 | 2,214.321  | 94,863.120645237  | 99605.522  |
| 2012 | 5     | 0          | 1717.39392  | 3,223.506  | 96,891.103825291  | 101832.004 |
| 2012 | 6     | 0          | 8.708404223 | 9,550.382  | 101,311.076264351 | 110870.167 |
| 2012 | 7     | 0          | 0           | 21,403.134 | 101,316.935757606 | 122720.07  |
| 2012 | 8     | 0          | 0           | 21,068.978 | 97,302.541894390  | 118371.52  |
| 2012 | 9     | 0          | 20.94603878 | 14,859.695 | 105,224.636868749 | 120105.278 |
| 2012 | 10    | 0          | 1392.401359 | 3,576.137  | 97,137.464855553  | 102106.003 |
| 2012 | 11    | 0          | 7242.864149 | 459.991    | 93,467.343119675  | 101170.198 |
| 2012 | 12    | 0          | 11839.32082 | 0.000      | 105,054.722182235 | 116894.043 |
| 2013 | 1     | 0          | 17908.01638 | 0.000      | 109,236.084621688 | 127144.101 |
| 2013 | 2     | 0          | 20987.88027 | 0.000      | 100,032.199728887 | 121020.08  |
| 2013 | 3     | 0          | 18143.29149 | 0.000      | 98,977.831512026  | 117121.123 |
| 2013 | 4     | 0          | 11858.45116 | 1,053.414  | 97,423.149092765  | 110335.014 |
| 2013 | 5     | 0          | 1439.664559 | 2,837.696  | 93,906.716104128  | 98184.077  |
| 2013 | 6     | 0          | 251.5057879 | 10,391.824 | 97,765.398002620  | 108408.728 |
| 2013 | 7     | 0          | 0           | 18,101.754 | 96,605.870216318  | 114707.624 |
| 2013 | 8     | 0          | 0           | 16,900.218 | 98,209.049903800  | 115109.268 |
| 2013 | 9     | 0          | 0           | 14,589.225 | 101,622.592348172 | 116211.817 |
| 2013 | 10    | 0          | 348.6480734 | 5,774.119  | 98,744.312357659  | 104867.079 |
| 2013 | 11    | 0          | 5851.76587  | 831.338    | 93,066.735306854  | 99749.839  |
| 2013 | 12    | 0          | 15802.52643 | 24.691     | 106,465.901547863 | 122293.119 |
| 2014 | 1     | 0          | 20176.28571 | 47.072     | 118,500.280775609 | 138723.638 |
| 2014 | 2     | 0          | 26751.86571 | 0.000      | 105,998.706286003 | 132750.572 |
| 2014 | 3     | 0          | 19053.94845 | 0.000      | 99,713.828548287  | 118767.777 |
| 2014 | 4     | 0          | 9288.062153 | 369.171    | 93,222.407347995  | 102879.641 |
| 2014 | 5     | 0          | 1136.441852 | 1,987.740  | 98,107.165957087  | 101231.348 |
| 2014 | 6     | 0          | 313.1294724 | 7,657.935  | 100,923.974471514 | 108895.039 |
| 2014 | 7     | 0          | 0           | 16,157.483 | 100,024.839504727 | 116182.323 |
| 2014 | 8     | 0          | 0           | 11,436.614 | 99,171.284267526  | 110607.898 |
| 2014 | 9     | 0          | 0           | 13,246.409 | 103,722.279286619 | 116968.688 |
| 2014 | 10    | 0          | 563.2529901 | 3,351.685  | 96,398.207809475  | 100313.146 |
| 2014 | 11    | 0          | 6305.625072 | 313.153    | 91,823.876327523  | 98442.654  |
| 2014 | 12    | 0          | 15128.72155 | 0.952      | 104,713.544942150 | 119843.218 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total      |
|------|-------|------------|-------------|------------|-------------------|------------|
| 2015 | 1     | 0          | 17940.79118 | 0.000      | 112,195.192815626 | 130135.984 |
| 2015 | 2     | 0          | 22425.88454 | 0.000      | 103,752.242460613 | 126178.127 |
| 2015 | 3     | 0          | 23549.66383 | 0.000      | 102,058.431170711 | 125608.095 |
| 2015 | 4     | 0          | 6648.166942 | 272.197    | 95,125.042980563  | 102045.407 |
| 2015 | 5     | 0          | 1640.524169 | 2,975.819  | 92,603.473357557  | 97219.817  |
| 2015 | 6     | 0          | 55.87210671 | 10,939.444 | 98,169.638671248  | 109164.955 |
| 2015 | 7     | 0          | 0           | 15,575.258 | 99,163.785075716  | 114739.043 |
| 2015 | 8     | 0          | 0           | 16,521.668 | 97,107.815129096  | 113629.483 |
| 2015 | 9     | 0          | 0           | 12,593.540 | 101,941.220102158 | 114534.76  |
| 2015 | 10    | 0          | 547.7260686 | 3,984.753  | 97,614.789654551  | 102147.269 |
| 2015 | 11    | 0          | 3159.232654 | 274.876    | 89,912.258017728  | 93346.367  |
| 2015 | 12    | 0          | 7795.616819 | 57.032     | 99,257.879023343  | 107110.528 |
| 2016 | 1     | 0          | 12532.33463 | 0.000      | 106,821.318370319 | 119353.653 |
| 2016 | 2     | 0          | 20879.58899 | 0.000      | 99,279.186013115  | 120158.775 |
| 2016 | 3     | 0          | 11734.06539 | 70.438     | 96,341.231810815  | 108145.735 |
| 2016 | 4     | 0          | 4195.056485 | 521.516    | 92,411.668281700  | 97128.241  |
| 2016 | 5     | 0          | 1395.489877 | 2,752.353  | 88,783.021984690  | 92930.865  |
| 2016 | 6     | 0          | 325.3851174 | 9,284.971  | 94,718.704487407  | 104329.061 |
| 2016 | 7     | 0          | 0           | 17,226.251 | 96,462.945623561  | 113689.197 |
| 2016 | 8     | 0          | 0           | 23,027.476 | 94,998.549792932  | 118026.026 |
| 2016 | 9     | 0          | 0           | 21,172.264 | 101,020.202819475 | 122192.467 |
| 2016 | 10    | 0          | 53.94229453 | 10,134.227 | 93,771.696239938  | 103959.866 |
| 2016 | 11    | 0          | 1780.075382 | 2,441.109  | 87,942.638848595  | 92163.823  |
| 2016 | 12    | 0          | 10434.21905 | 100.613    | 99,109.406980522  | 109644.239 |
| 2017 | 1     | 0          | 13741.45582 | 0.000      | 104,990.103179164 | 118731.559 |
| 2017 | 2     | 0          | 11444.59297 | 0.000      | 93,605.707025589  | 105050.3   |
| 2017 | 3     | 0          | 8980.346407 | 32.996     | 89,691.749333972  | 98705.092  |
| 2017 | 4     | 0          | 5552.64831  | 779.468    | 87,494.411212488  | 93826.528  |
| 2017 | 5     | 0          | 757.6500098 | 4,117.789  | 86,435.214382433  | 91310.653  |
| 2017 | 6     | 0          | 182.6905747 | 7,748.771  | 91,851.140588073  | 99782.602  |
| 2017 | 7     | 0          | 0           | 15,496.075 | 94,052.777460765  | 109548.852 |
| 2017 | 8     | 0          | 0           | 16,554.933 | 93,204.505212694  | 109759.438 |
| 2017 | 9     | 0          | 0           | 9,864.590  | 97,116.130447896  | 106980.72  |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating       | Cooling    | Other             | Total      |
|------|-------|------------|---------------|------------|-------------------|------------|
| 2017 | 10    | 0          | 99,667,26994  | 7,275.150  | 91,370.973001181  | 98745.79   |
| 2017 | 11    | 0          | 4042.781571   | 1,324.372  | 87,715.982804839  | 93083.136  |
| 2017 | 12    | 0          | 10879.0884    | 49.552     | 97,186.723989943  | 108115.364 |
| 2018 | 1     | 0          | 21439.35096   | 102.434    | 110,408.521898226 | 131950.307 |
| 2018 | 2     | 0          | 17381.03119   | 172.840    | 98,049.056255135  | 115602.927 |
| 2018 | 3     | 0          | 9683.81563    | 347.377    | 88,335.346328216  | 98366.539  |
| 2018 | 4     | 0          | 9310.187319   | 400.532    | 90,126.360166884  | 99837.079  |
| 2018 | 5     | 0          | 2285.155823   | 4,351.546  | 85,239.337390888  | 91876.039  |
| 2018 | 6     | 0          | 30,788,67401  | 14,650.929 | 94,644.840661760  | 109326.558 |
| 2018 | 7     | 0          | 0             | 19,535.726 | 92,511.081552635  | 112046.808 |
| 2018 | 8     | 0          | 0             | 17,837.493 | 90,266.631724383  | 108104.125 |
| 2018 | 9     | 0          | 0             | 18,066.389 | 94,947.832708027  | 113014.222 |
| 2018 | 10    | 0          | 579.686872    | 11,314.064 | 90,477.035986004  | 102370.787 |
| 2018 | 11    | 0          | 5611.967415   | 1,652.727  | 84,895.738399371  | 92160.433  |
| 2018 | 12    | 0          | 12925.01906   | 9.126      | 95,245.328615292  | 108179.474 |
| 2019 | 1     | 0          | 13034.36576   | 0.000      | 101,256.157244576 | 114290.523 |
| 2019 | 2     | 0          | 16204.77746   | 0.000      | 94,768.886539998  | 110973.664 |
| 2019 | 3     | 0          | 12724.57682   | 47.223     | 87,514.682977185  | 100286.483 |
| 2019 | 4     | 0          | 6420.683723   | 554.068    | 84,428.157883825  | 91402.91   |
| 2019 | 5     | 0          | 580.101845    | 3,520.495  | 89,067.429313205  | 93168.026  |
| 2019 | 6     | 0          | 8,921,541,149 | 9,776.795  | 90,674.780042560  | 100460.497 |
| 2019 | 7     | 0          | 0             | 16,980.015 | 91,366.640229170  | 108346.655 |
| 2019 | 8     | 0          | 0             | 19,735.544 | 90,956.810102372  | 110692.354 |
| 2019 | 9     | 0          | 0             | 16,531.734 | 96,049.815151727  | 112581.549 |
| 2019 | 10    | 0          | 214.6552343   | 13,004.716 | 88,301.593588332  | 101520.965 |
| 2019 | 11    | 0          | 4952.779662   | 1,093.885  | 82,965.534860369  | 89012.2    |
| 2019 | 12    | 0          | 11967.67387   | 0.000      | 95,750.811132106  | 107718.485 |
| 2020 | 1     | 0          | 10591.39622   | 101.618    | 100,686.770091943 | 111379.784 |
| 2020 | 2     | 0          | 13065.99357   | 101.632    | 87,378.092288558  | 100545.718 |
| 2020 | 3     | 0          | 10862.41859   | 7.264      | 87,769.692845924  | 98639.375  |
| 2020 | 4     | 0          | 3939.16221    | 987.686    | 78,257.711445975  | 83184.56   |
| 2020 | 5     | 0          | 3080.649895   | 1,218.787  | 72,600.621607127  | 76900.059  |
| 2020 | 6     | 0          | 832.3902373   | 9,217.149  | 78,225.072688228  | 88274.612  |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Add Factor | Heating      | Cooling    | Other             | Total       |
|------|-------|------------|--------------|------------|-------------------|-------------|
| 2020 | 7     | 0          | 0            | 17,406.018 | 83,328.005580928  | 100734.024  |
| 2020 | 8     | 0          | 0            | 22,100.916 | 83,597.137029208  | 105698.053  |
| 2020 | 9     | 0          | 0            | 16,017.574 | 86,392.324117120  | 102409.898  |
| 2020 | 10    | 0          | 366.1362811  | 3,849.984  | 83,687.836085232  | 87903.956   |
| 2020 | 11    | 0          | 2523.213587  | 671.860    | 78,385.461654388  | 81580.535   |
| 2020 | 12    | 0          | 9367.320068  | 63.702     | 87,215.733519685  | 96646.756   |
| 2021 | 1     | 0          | 15359.41117  | 0.000      | 96,663.315831753  | 112022.727  |
| 2021 | 2     | 0          | 18707.44522  | 0.000      | 84,649.177781883  | 103356.623  |
| 2021 | 3     | 0          | 14570.42479  | 16.259     | 87,553.972723773  | 102140.657  |
| 2021 | 4     | 0          | 3958.709968  | 424.005    | 82,896.989954330  | 87279.705   |
| 2021 | 5     | 0          | 2024.905017  | 1,644.907  | 78,462.159370126  | 82131.971   |
| 2021 | 6     | 0          | 258.0535889  | 7,896.231  | 82,894.247435811  | 91048.532   |
| 2021 | 7     | 0          | 9.20290303   | 15,411.112 | 86,709.907704307  | 102130.223  |
| 2021 | 8     | 0          | 0            | 17,668.056 | 85,167.857016524  | 102835.913  |
| 2021 | 9     | 0          | 0            | 16,976.872 | 88,378.133223575  | 105355.005  |
| 2021 | 10    | 0          | 39,464.20742 | 7,255.641  | 85,611.798056089  | 92906.903   |
| 2021 | 11    | 0          | 3275.907186  | 1,798.659  | 80,249.666749683  | 85324.233   |
| 2021 | 12    | 0          | 9260.858073  | 0.000      | 91,850.102926865  | 101110.961  |
| 2022 | 1     | 0          | 10758.2103   | 0.000      | 98,457.217795025  | 109215.4281 |
| 2022 | 2     | 0          | 17176.05468  | 10.555     | 88,510.164497603  | 105696.7742 |
| 2022 | 3     | 0          | 12724.04235  | 66.432     | 82,645.876512074  | 95436.3508  |
| 2022 | 4     | 0          | 6150.093438  | 737.565    | 81,161.649043603  | 88049.30796 |
| 2022 | 5     | 0          | 1474.133951  | 2,487.705  | 81,239.556606824  | 85201.39519 |
| 2022 | 6     | 0          | 196.6655534  | 7,744.698  | 86,781.288539685  | 94722.65222 |
| 2022 | 7     | 0          | 0.668209233  | 15,777.266 | 86,540.339651221  | 102318.2741 |
| 2022 | 8     | 0          | 0            | 17,954.781 | 85,063.204419529  | 103017.9856 |
| 2022 | 9     | 0          | 2.858047797  | 14,410.256 | 89,962.756496322  | 104375.8707 |
| 2022 | 10    | 0          | 476.9413437  | 5,196.621  | 84,608.686563670  | 90282.2492  |
| 2022 | 11    | 0          | 3997.536587  | 691.104    | 79,460.493125383  | 84149.13368 |
| 2022 | 12    | 0          | 10526.92392  | 49.465     | 89,730.139899306  | 100306.5288 |
| 2023 | 1     | 4106.25    | 15168.75328  | 13.607     | 102,573.049456197 | 117755.4094 |
| 2023 | 2     | 4106.25    | 17051.49697  | 10.597     | 92,621.638032115  | 109683.7323 |
| 2023 | 3     | 4106.25    | 12629.66538  | 66.687     | 86,754.233747304  | 99450.58614 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2023 | 4     | 4106.25    | 6103.622288 | 740.294    | 85,267.411868703  | 92111.32799 |
| 2023 | 5     | 4106.25    | 1462.785754 | 2,496.550  | 85,342.639107253  | 89301.97449 |
| 2023 | 6     | 4106.25    | 195.0007666 | 7,766.228  | 90,869.324931967  | 98830.55358 |
| 2023 | 7     | 4106.25    | 0.662040759 | 15,808.899 | 90,613.628215053  | 106423.1892 |
| 2023 | 8     | 4106.25    | 0           | 17,987.991 | 89,134.753294934  | 107122.744  |
| 2023 | 9     | 4106.25    | 2.830721695 | 14,434.342 | 94,029.792376807  | 108466.9654 |
| 2023 | 10    | 4106.25    | 472.2821028 | 5,204.215  | 88,672.613028131  | 94349.10978 |
| 2023 | 11    | 4106.25    | 3957.430807 | 691.930    | 83,519.678156856  | 88169.03852 |
| 2023 | 12    | 4106.25    | 10396.91515 | 49,408     | 93,737.055584903  | 104183.3789 |
| 2024 | 1     | 41062.5    | 14959.94191 | 13,591     | 139,437.200812888 | 154410.7335 |
| 2024 | 2     | 41062.5    | 16813.19699 | 10,583     | 129,491.402271982 | 146315.182  |
| 2024 | 3     | 41062.5    | 12450.48564 | 66,581     | 123,620.829074852 | 136137.8956 |
| 2024 | 4     | 41062.5    | 6015.566266 | 738.936    | 122,126.621645623 | 128881.1235 |
| 2024 | 5     | 41062.5    | 1441.367363 | 2,491.425  | 122,198.966506297 | 126131.7584 |
| 2024 | 6     | 41062.5    | 192.1117805 | 7,748.924  | 127,719.280659166 | 135660.3162 |
| 2024 | 7     | 41062.5    | 0.652141799 | 15,771.482 | 127,461.619599870 | 143233.7539 |
| 2024 | 8     | 41062.5    | 0           | 17,942.571 | 125,983.564628352 | 143926.1353 |
| 2024 | 9     | 41062.5    | 2.787558562 | 14,395.853 | 130,872.487030027 | 145271.1276 |
| 2024 | 10    | 41062.5    | 465.0162766 | 5,189.619  | 125,515.132155584 | 131169.7671 |
| 2024 | 11    | 41062.5    | 3896.090227 | 689.908    | 120,360.639379164 | 124946.6375 |
| 2024 | 12    | 41062.5    | 10234.87715 | 49,260     | 130,565.534370234 | 140849.6711 |
| 2025 | 1     | 41062.5    | 14693.93638 | 13,518     | 139,310.137259082 | 154017.5917 |
| 2025 | 2     | 41062.5    | 16510.32597 | 10,524     | 129,373.172124072 | 145894.0217 |
| 2025 | 3     | 41062.5    | 12223.30662 | 66,193     | 123,499.362579188 | 135788.8623 |
| 2025 | 4     | 41062.5    | 5904.317002 | 734.447    | 121,996.682763859 | 128635.4466 |
| 2025 | 5     | 41062.5    | 1414.357005 | 2,475.670  | 122,066.015428772 | 125956.0424 |
| 2025 | 6     | 41062.5    | 188.4698115 | 7,698.211  | 127,578.125621255 | 135464.8068 |
| 2025 | 7     | 41062.5    | 0.639636629 | 15,664.785 | 127,317.188808288 | 142982.6136 |
| 2025 | 8     | 41062.5    | 0           | 17,816.550 | 125,839.391767379 | 143655.9419 |
| 2025 | 9     | 41062.5    | 2.732685724 | 14,291.037 | 130,718.855578706 | 145012.625  |
| 2025 | 10    | 41062.5    | 455.7359566 | 5,150.403  | 125,359.648852068 | 130965.788  |
| 2025 | 11    | 41062.5    | 3817.195309 | 684.490    | 120,200.532330133 | 124702.2177 |
| 2025 | 12    | 41062.5    | 10024.82243 | 48,859     | 130,384.934658689 | 140458.6162 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2026 | 1     | 41062.5    | 14393.30549 | 13.452     | 139,086.868619503 | 153493.6265 |
| 2026 | 2     | 41062.5    | 16171.6116  | 10.472     | 129,172.093337567 | 145354.1768 |
| 2026 | 3     | 41062.5    | 11971.79039 | 65.864     | 123,299.039684622 | 135336.694  |
| 2026 | 4     | 41062.5    | 5782.433422 | 730.745    | 121,788.971679275 | 128302.1504 |
| 2026 | 5     | 41062.5    | 1385.074978 | 2,463.041  | 121,859.834443980 | 125707.9507 |
| 2026 | 6     | 41062.5    | 184.5568111 | 7,658.484  | 127,364.721500226 | 135207.7623 |
| 2026 | 7     | 41062.5    | 0.626318367 | 15,582.996 | 127,104.105136860 | 142687.7276 |
| 2026 | 8     | 41062.5    | 0           | 17,722.590 | 125,632.807065788 | 143355.3973 |
| 2026 | 9     | 41062.5    | 2.67549822  | 14,214.887 | 130,504.755741219 | 144722.3183 |
| 2026 | 10    | 41062.5    | 446.175266  | 5,122.691  | 125,149.209135193 | 130718.075  |
| 2026 | 11    | 41062.5    | 3736.950252 | 680.777    | 119,990.513623166 | 124408.2407 |
| 2026 | 12    | 41062.5    | 9813.632294 | 48.592     | 130,154.541082889 | 140016.7652 |
| 2027 | 1     | 41062.5    | 14098.77737 | 13.375     | 138,879.508790356 | 152991.6609 |
| 2027 | 2     | 41062.5    | 15840.07381 | 10.411     | 128,985.609748435 | 144836.0946 |
| 2027 | 3     | 41062.5    | 11725.8946  | 65.478     | 123,113.618688628 | 134904.9917 |
| 2027 | 4     | 41062.5    | 5663.456946 | 726.442    | 121,597.215816536 | 127987.1149 |
| 2027 | 5     | 41062.5    | 1356.52461  | 2,448.444  | 121,669.852472244 | 125474.8206 |
| 2027 | 6     | 41062.5    | 180.7463623 | 7,612.833  | 127,168.493846489 | 134962.0734 |
| 2027 | 7     | 41062.5    | 0.613372437 | 15,489.739 | 126,908.790629448 | 142399.1426 |
| 2027 | 8     | 41062.5    | 0           | 17,615.954 | 125,443.751212015 | 143059.7047 |
| 2027 | 9     | 41062.5    | 2.620049753 | 14,129.029 | 130,309.344666709 | 144440.9933 |
| 2027 | 10    | 41062.5    | 436.918286  | 5,091.630  | 124,957.600682193 | 130486.1494 |
| 2027 | 11    | 41062.5    | 3659.309361 | 676.629    | 119,799.495506567 | 124135.4339 |
| 2027 | 12    | 41062.5    | 9609.536114 | 48.295     | 129,945.410549142 | 139603.2414 |
| 2028 | 1     | 41062.5    | 13816.95324 | 13.326     | 138,670.756115760 | 152501.0349 |
| 2028 | 2     | 41062.5    | 15522.03383 | 10.372     | 128,796.974223960 | 144329.3798 |
| 2028 | 3     | 41062.5    | 11489.43262 | 65.226     | 122,925.194706981 | 134479.853  |
| 2028 | 4     | 41062.5    | 5548.730019 | 723.570    | 121,401.346249451 | 127673.6463 |
| 2028 | 5     | 41062.5    | 1328.923248 | 2,438.540  | 121,474.865985003 | 125242.3291 |
| 2028 | 6     | 41062.5    | 177.0550636 | 7,581.457  | 126,966.339781790 | 134724.8513 |
| 2028 | 7     | 41062.5    | 0.600800945 | 15,424.745 | 126,706.668802649 | 142132.0144 |
| 2028 | 8     | 41062.5    | 0           | 17,540.633 | 125,247.299320699 | 142787.9327 |
| 2028 | 9     | 41062.5    | 2.56594057  | 14,067.499 | 130,105.287963580 | 144175.3533 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2028 | 10    | 41062.5    | 427.8589549 | 5,069.030  | 124,756.453146635 | 130253.3417 |
| 2028 | 11    | 41062.5    | 3583.127717 | 673.568    | 119,598.012332741 | 123854.7079 |
| 2028 | 12    | 41062.5    | 9408.776019 | 48.073     | 129,723.815079791 | 139180.6637 |
| 2029 | 1     | 41062.5    | 13520.59316 | 13.291     | 138,456.760096002 | 151990.6441 |
| 2029 | 2     | 41062.5    | 15190.53751 | 10.346     | 128,606.941057616 | 143807.8243 |
| 2029 | 3     | 41062.5    | 11245.12331 | 65.068     | 122,738.633309051 | 134048.8249 |
| 2029 | 4     | 41062.5    | 5431.284173 | 721.896    | 121,210.906721843 | 127364.0867 |
| 2029 | 5     | 41062.5    | 1300.925501 | 2,433.142  | 121,288.682040459 | 125022.7493 |
| 2029 | 6     | 41062.5    | 173.3399401 | 7,565.331  | 126,776.273714945 | 134514.9451 |
| 2029 | 7     | 41062.5    | 0.588243639 | 15,393.226 | 126,519.453991379 | 141913.2681 |
| 2029 | 8     | 41062.5    | 0           | 17,506.411 | 125,068.284722572 | 142574.696  |
| 2029 | 9     | 41062.5    | 2.512764992 | 14,041.296 | 129,922.278970845 | 143966.0882 |
| 2029 | 10    | 41062.5    | 419.0316728 | 5,060.065  | 124,579.085829205 | 130058.1822 |
| 2029 | 11    | 41062.5    | 3509.531555 | 672.439    | 119,423.350101680 | 123605.3212 |
| 2029 | 12    | 41062.5    | 9216.313595 | 47.996     | 129,534.634715218 | 138798.9445 |
| 2030 | 1     | 41062.5    | 13236.43034 | 13.275     | 138,207.473070882 | 151457.1786 |
| 2030 | 2     | 41062.5    | 14867.09893 | 10.331     | 128,378.718214309 | 143256.1478 |
| 2030 | 3     | 41062.5    | 11002.4894  | 64.955     | 122,507.561670794 | 133575.0056 |
| 2030 | 4     | 41062.5    | 5312.455734 | 720.412    | 120,967.313987633 | 127000.1817 |
| 2030 | 5     | 41062.5    | 1272.071    | 2,427.392  | 121,042.830462079 | 124742.2937 |
| 2030 | 6     | 41062.5    | 169.4512504 | 7,545.495  | 126,518.494294633 | 134233.4403 |
| 2030 | 7     | 41062.5    | 0.574899792 | 15,348.933 | 126,258.877298038 | 141608.3848 |
| 2030 | 8     | 41062.5    | 0           | 17,451.104 | 124,811.962023352 | 142263.0657 |
| 2030 | 9     | 41062.5    | 2.454393604 | 13,993.075 | 129,653.013594813 | 143648.5433 |
| 2030 | 10    | 41062.5    | 409.1815674 | 5,041.258  | 124,310.709218213 | 129761.1486 |
| 2030 | 11    | 41062.5    | 3426.021631 | 669.742    | 119,151.444424835 | 123247.2084 |
| 2030 | 12    | 41062.5    | 8994.586011 | 47.791     | 129,232.447194254 | 138274.8241 |
| 2031 | 1     | 41062.5    | 12963.18803 | 13.183     | 137,931.108736969 | 150907.4802 |
| 2031 | 2     | 41062.5    | 14563.74186 | 10.262     | 128,135.372888129 | 142709.3765 |
| 2031 | 3     | 41062.5    | 10780.67844 | 64.537     | 122,270.832134633 | 133116.0479 |
| 2031 | 4     | 41062.5    | 5206.743993 | 715.976    | 120,728.104734892 | 126650.8247 |
| 2031 | 5     | 41062.5    | 1247.088599 | 2,413.085  | 120,811.353913517 | 124471.527  |
| 2031 | 6     | 41062.5    | 166.1616285 | 7,502.747  | 126,284.351816713 | 133953.2603 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2031 | 7     | 41062.5    | 0.563868094 | 15,265.469 | 126,030.458786560 | 141296.4919 |
| 2031 | 8     | 41062.5    | 0           | 17,360.508 | 124,595.832450225 | 141956.3404 |
| 2031 | 9     | 41062.5    | 2.408485398 | 13,923.858 | 129,434.498141947 | 143360.7647 |
| 2031 | 10    | 41062.5    | 401.6282224 | 5,017.573  | 124,101.270849724 | 129520.4718 |
| 2031 | 11    | 41062.5    | 3363.66787  | 666.772    | 118,947.820911509 | 122978.2609 |
| 2031 | 12    | 41062.5    | 8832.989119 | 47.590     | 129,014.470677250 | 137895.05   |
| 2032 | 1     | 41062.5    | 12731.15213 | 13.149     | 137,730.735145691 | 150475.0367 |
| 2032 | 2     | 41062.5    | 14303.18849 | 10.235     | 127,956.022972773 | 142269.4468 |
| 2032 | 3     | 41062.5    | 10587.88438 | 64.372     | 122,093.313665751 | 132745.5699 |
| 2032 | 4     | 41062.5    | 5113.692526 | 714.149    | 120,545.390381576 | 126373.2317 |
| 2032 | 5     | 41062.5    | 1224.813065 | 2,406.949  | 120,631.164242178 | 124262.9265 |
| 2032 | 6     | 41062.5    | 163.1946694 | 7,483.718  | 126,098.966720699 | 133745.8792 |
| 2032 | 7     | 41062.5    | 0.553800174 | 15,226.764 | 125,846.376366655 | 141073.6938 |
| 2032 | 8     | 41062.5    | 0           | 17,316.661 | 124,418.375041034 | 141735.0362 |
| 2032 | 9     | 41062.5    | 2.365512222 | 13,888.734 | 129,251.538213753 | 143142.6373 |
| 2032 | 10    | 41062.5    | 394.4631384 | 5,004.927  | 123,922.314596809 | 129321.7049 |
| 2032 | 11    | 41062.5    | 3303.662778 | 665.092    | 118,769.939664002 | 122738.6947 |
| 2032 | 12    | 41062.5    | 8675.446742 | 47.471     | 128,820.182094010 | 137543.0993 |
| 2033 | 1     | 41062.5    | 12497.83777 | 13.104     | 137,543.961690392 | 150054.9035 |
| 2033 | 2     | 41062.5    | 14041.49319 | 10.200     | 127,789.211865695 | 141840.9054 |
| 2033 | 3     | 41062.5    | 10394.55774 | 64.154     | 121,928.717536971 | 132387.4294 |
| 2033 | 4     | 41062.5    | 5020.462627 | 711.753    | 120,376.264802309 | 126108.4809 |
| 2033 | 5     | 41062.5    | 1202.522965 | 2,398.956  | 120,464.787082979 | 124066.2659 |
| 2033 | 6     | 41062.5    | 160.2293039 | 7,459.078  | 125,928.187267092 | 133547.4945 |
| 2033 | 7     | 41062.5    | 0.543752081 | 15,177.045 | 125,677.257286958 | 140854.8459 |
| 2033 | 8     | 41062.5    | 0           | 17,260.659 | 124,255.711121336 | 141516.37   |
| 2033 | 9     | 41062.5    | 2.322718942 | 13,844.137 | 129,084.178676666 | 142930.6381 |
| 2033 | 10    | 41062.5    | 387.3391177 | 4,989.011  | 123,759.102930828 | 129135.4531 |
| 2033 | 11    | 41062.5    | 3244.096994 | 662.997    | 118,608.202793269 | 122515.2971 |
| 2033 | 12    | 41062.5    | 8519.267985 | 47.322     | 128,643.985396649 | 137210.5757 |
| 2034 | 1     | 41062.5    | 12262.61346 | 13.082     | 137,380.092862265 | 149655.7886 |
| 2034 | 2     | 41062.5    | 13777.96151 | 10.184     | 127,643.304878922 | 141431.4504 |
| 2034 | 3     | 41062.5    | 10200.00287 | 64.054     | 121,785.051793986 | 132049.1092 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2034 | 4     | 41062.5    | 4926.798753 | 710.692    | 120,229.266964244 | 125866.7573 |
| 2034 | 5     | 41062.5    | 1180.152955 | 2,395.508  | 120,320.605190874 | 123896.2662 |
| 2034 | 6     | 41062.5    | 157.2565749 | 7,448.734  | 125,780.627942104 | 133386.6187 |
| 2034 | 7     | 41062.5    | 0.533690377 | 15,156.751 | 125,531.572536821 | 140688.8573 |
| 2034 | 8     | 41062.5    | 0           | 17,238.431 | 124,115.950386727 | 141354.3811 |
| 2034 | 9     | 41062.5    | 2.279981078 | 13,827.094 | 128,941.009612985 | 142770.3838 |
| 2034 | 10    | 41062.5    | 380.2327358 | 4,983.140  | 123,619.937661008 | 128983.3102 |
| 2034 | 11    | 41062.5    | 3184.769464 | 662.257    | 118,470.852813315 | 122317.879  |
| 2034 | 12    | 41062.5    | 8363.902553 | 47.272     | 128,494.852214444 | 136906.0267 |
| 2035 | 1     | 41062.5    | 12034.57612 | 13.074     | 137,243.722287083 | 149291.3728 |
| 2035 | 2     | 41062.5    | 13521.68203 | 10.178     | 127,521.048275077 | 141052.9081 |
| 2035 | 3     | 41062.5    | 10010.23068 | 64.015     | 121,663.873263729 | 131738.119  |
| 2035 | 4     | 41062.5    | 4835.108481 | 710.250    | 120,104.291850174 | 125649.6506 |
| 2035 | 5     | 41062.5    | 1158.185741 | 2,394.012  | 120,197.177151066 | 123749.3753 |
| 2035 | 6     | 41062.5    | 154.3278404 | 7,444.007  | 125,653.378757195 | 133251.7139 |
| 2035 | 7     | 41062.5    | 0.523747757 | 15,147.040 | 125,405.093909109 | 140552.6576 |
| 2035 | 8     | 41062.5    | 0           | 17,227.186 | 123,993.707680343 | 141220.8939 |
| 2035 | 9     | 41062.5    | 2.237460399 | 13,817.959 | 128,814.786646684 | 142634.9826 |
| 2035 | 10    | 41062.5    | 373.1377542 | 4,979.797  | 123,496.269221620 | 128849.2036 |
| 2035 | 11    | 41062.5    | 3125.296392 | 661.803    | 118,347.659186817 | 122134.7582 |
| 2035 | 12    | 41062.5    | 8207.620388 | 47.239     | 128,360.034685602 | 136614.894  |
| 2036 | 1     | 41062.5    | 11807.67004 | 13.074     | 137,119.098217755 | 148939.8422 |
| 2036 | 2     | 41062.5    | 13266.46494 | 10.177     | 127,409.055649421 | 140685.6978 |
| 2036 | 3     | 41062.5    | 9821.142571 | 64.011     | 121,552.690499780 | 131437.8439 |
| 2036 | 4     | 41062.5    | 4743.691689 | 710.191    | 119,989.414455901 | 125443.2968 |
| 2036 | 5     | 41062.5    | 1136.268438 | 2,393.770  | 120,083.488629350 | 123613.527  |
| 2036 | 6     | 41062.5    | 151.406499  | 7,443.211  | 125,536.235957817 | 133130.8532 |
| 2036 | 7     | 41062.5    | 0.513825779 | 15,145.192 | 125,288.503088288 | 140434.2086 |
| 2036 | 8     | 41062.5    | 0           | 17,225.007 | 123,881.125813550 | 141106.1331 |
| 2036 | 9     | 41062.5    | 2.195039581 | 13,816.059 | 128,698.486203620 | 142516.74   |
| 2036 | 10    | 41062.5    | 366.0603359 | 4,979.072  | 123,382.345968097 | 128727.4779 |
| 2036 | 11    | 41062.5    | 3065.995513 | 661.701    | 118,234.281900524 | 121961.9788 |
| 2036 | 12    | 41062.5    | 8051.846571 | 47.232     | 128,236.063217956 | 136335.1413 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2037 | 1     | 41062.5    | 11579.45912 | 13.081     | 137,002.218866534 | 148594.7587 |
| 2037 | 2     | 41062.5    | 13010.05998 | 10.183     | 127,304.341886692 | 140324.5844 |
| 2037 | 3     | 41062.5    | 9631.229683 | 64.043     | 121,448.803140307 | 131144.0762 |
| 2037 | 4     | 41062.5    | 4651.931442 | 710.547    | 119,882.244237276 | 125244.7229 |
| 2037 | 5     | 41062.5    | 1114.280561 | 2,394.954  | 119,977.573412296 | 123486.8081 |
| 2037 | 6     | 41062.5    | 148.4742303 | 7,446.772  | 125,426.919677523 | 133022.1658 |
| 2037 | 7     | 41062.5    | 0.503870813 | 15,152.324 | 125,179.814874385 | 140332.643  |
| 2037 | 8     | 41062.5    | 0           | 17,232.806 | 123,775.947732210 | 141008.7533 |
| 2037 | 9     | 41062.5    | 2.152443604 | 13,822.123 | 128,589.778034875 | 142414.0539 |
| 2037 | 10    | 41062.5    | 358.9501008 | 4,981.165  | 123,275.683114828 | 128615.7985 |
| 2037 | 11    | 41062.5    | 3006.39746  | 661.970    | 118,127.998641405 | 121796.3658 |
| 2037 | 12    | 41062.5    | 7895.179899 | 47.250     | 128,119.587834662 | 136062.0175 |
| 2038 | 1     | 41062.5    | 11349.71053 | 13.077     | 136,890.748819165 | 148253.5359 |
| 2038 | 2     | 41062.5    | 12751.44882 | 10.179     | 127,203.865735003 | 139965.4934 |
| 2038 | 3     | 41062.5    | 9439.485072 | 64.018     | 121,348.771051197 | 130852.2744 |
| 2038 | 4     | 41062.5    | 4559.153179 | 710.243    | 119,778.559976571 | 125047.9561 |
| 2038 | 5     | 41062.5    | 1092.020623 | 2,393.848  | 119,874.673685737 | 123360.5425 |
| 2038 | 6     | 41062.5    | 145.5042615 | 7,443.133  | 125,320.532767302 | 132909.1704 |
| 2038 | 7     | 41062.5    | 0.493777785 | 15,144.492 | 125,073.689907686 | 140218.676  |
| 2038 | 8     | 41062.5    | 0           | 17,223.447 | 123,673.117686492 | 140896.5642 |
| 2038 | 9     | 41062.5    | 2.109223629 | 13,814.295 | 128,483.336374828 | 142299.7408 |
| 2038 | 10    | 41062.5    | 351.7351879 | 4,978.240  | 123,171.200882828 | 128501.1758 |
| 2038 | 11    | 41062.5    | 2945.909378 | 661.568    | 118,023.803484763 | 121631.2804 |
| 2038 | 12    | 41062.5    | 7736.163684 | 47.220     | 128,005.356729226 | 135788.7405 |
| 2039 | 1     | 41062.5    | 11125.41297 | 13.086     | 136,781.778198033 | 147920.2769 |
| 2039 | 2     | 41062.5    | 12499.43705 | 10.186     | 127,106.224349156 | 139615.8474 |
| 2039 | 3     | 41062.5    | 9252.879967 | 64.063     | 121,251.971175652 | 130568.914  |
| 2039 | 4     | 41062.5    | 4468.998279 | 710.733    | 119,678.708868196 | 124858.4406 |
| 2039 | 5     | 41062.5    | 1070.422482 | 2,395.492  | 119,776.049570250 | 123241.9644 |
| 2039 | 6     | 41062.5    | 142.6252318 | 7,448.182  | 125,218.858150016 | 132809.665  |
| 2039 | 7     | 41062.5    | 0.484004948 | 15,154.680 | 124,972.628580664 | 140127.7929 |
| 2039 | 8     | 41062.5    | 0           | 17,234.873 | 123,575.449952371 | 140810.3225 |
| 2039 | 9     | 41062.5    | 2.067443676 | 13,823.359 | 128,382.488402512 | 142207.9151 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2039 | 10    | 41062.5    | 344.7646753 | 4,981.459  | 123,072.381487361 | 128398.6051 |
| 2039 | 11    | 41062.5    | 2887.475597 | 661.983    | 117,925.269543223 | 121474.7283 |
| 2039 | 12    | 41062.5    | 7582.664313 | 47.249     | 127,897.583245143 | 135527.497  |
| 2040 | 1     | 41062.5    | 10905.54669 | 13.077     | 136,660.100924041 | 147578.7249 |
| 2040 | 2     | 41062.5    | 12251.60024 | 10.179     | 126,996.148614481 | 139257.9277 |
| 2040 | 3     | 41062.5    | 9068.803737 | 64.013     | 121,141.870358621 | 130274.6874 |
| 2040 | 4     | 41062.5    | 4379.789711 | 710.134    | 119,564.122244479 | 124654.0458 |
| 2040 | 5     | 41062.5    | 1048.983229 | 2,393.308  | 119,661.836194636 | 123104.127  |
| 2040 | 6     | 41062.5    | 139.7603957 | 7,440.951  | 125,100.302116194 | 132681.0132 |
| 2040 | 7     | 41062.5    | 0.474254418 | 15,139.055 | 124,853.901411006 | 139993.4309 |
| 2040 | 8     | 41062.5    | 0           | 17,216.043 | 123,459.907289666 | 140675.9508 |
| 2040 | 9     | 41062.5    | 2.025535402 | 13,807.344 | 128,262.241472913 | 142071.6114 |
| 2040 | 10    | 41062.5    | 337.7545591 | 4,975.370  | 122,953.713712118 | 128266.8387 |
| 2040 | 11    | 41062.5    | 2828.57774  | 661.130    | 117,806.249565171 | 121295.9578 |
| 2040 | 12    | 41062.5    | 7427.494226 | 47.185     | 127,766.362246785 | 135241.0418 |
| 2041 | 1     | 41062.5    | 10686.65158 | 13.079     | 136,538.824151931 | 147238.5547 |
| 2041 | 2     | 41062.5    | 12006.15812 | 10.181     | 126,888.129483320 | 138904.4681 |
| 2041 | 3     | 41062.5    | 8887.474223 | 64.027     | 121,035.503963711 | 129987.0047 |
| 2041 | 4     | 41062.5    | 4292.388128 | 710.310    | 119,455.169809830 | 124457.8678 |
| 2041 | 5     | 41062.5    | 1028.089151 | 2,393.992  | 119,554.905438609 | 122976.9862 |
| 2041 | 6     | 41062.5    | 136.9812628 | 7,443.331  | 124,990.789685149 | 132571.102  |
| 2041 | 7     | 41062.5    | 0.464838966 | 15,144.390 | 124,745.687025382 | 139890.5418 |
| 2041 | 8     | 41062.5    | 0           | 17,222.726 | 123,356.059434790 | 140578.7858 |
| 2041 | 9     | 41062.5    | 1.985455929 | 13,813.141 | 128,155.662766409 | 141970.7891 |
| 2041 | 10    | 41062.5    | 331.0826555 | 4,977.627  | 122,849.987309453 | 128158.6973 |
| 2041 | 11    | 41062.5    | 2772.800059 | 661.454    | 117,703.702417942 | 121137.9562 |
| 2041 | 12    | 41062.5    | 7281.262882 | 47.210     | 127,654.880036373 | 134983.3529 |
| 2042 | 1     | 41062.5    | 10469.56413 | 13.088     | 136,434.665865343 | 146917.3183 |
| 2042 | 2     | 41062.5    | 11762.61528 | 10.188     | 126,795.287160411 | 138568.0905 |
| 2042 | 3     | 41062.5    | 8707.52156  | 64.076     | 120,944.135465966 | 129715.7335 |
| 2042 | 4     | 41062.5    | 4205.643158 | 710.892    | 119,361.658624647 | 124278.1937 |
| 2042 | 5     | 41062.5    | 1007.350163 | 2,396.043  | 119,463.199322415 | 122866.5925 |
| 2042 | 6     | 41062.5    | 134.2221088 | 7,449.936  | 124,896.882527897 | 132481.0405 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2042 | 7     | 41062.5    | 0.455493125 | 15,158.401 | 124,653.049300512 | 139811.9056 |
| 2042 | 8     | 41062.5    | 0           | 17,239.286 | 123,267.242813740 | 140506.5286 |
| 2042 | 9     | 41062.5    | 1.945678716 | 13,826.925 | 128,064.657049302 | 141893.5282 |
| 2042 | 10    | 41062.5    | 324.4621415 | 4,982.788  | 122,761.568863167 | 128068.819  |
| 2042 | 11    | 41062.5    | 2717.482694 | 662.171    | 117,616.553321442 | 120996.2068 |
| 2042 | 12    | 41062.5    | 7136.302664 | 47.263     | 127,560.388070280 | 134743.9539 |
| 2043 | 1     | 41062.5    | 10266.82854 | 13.100     | 136,354.095450011 | 146634.0239 |
| 2043 | 2     | 41062.5    | 11534.84038 | 10.197     | 126,723.104728149 | 138268.1422 |
| 2043 | 3     | 41062.5    | 8538.887143 | 64.133     | 120,872.602042753 | 129475.6222 |
| 2043 | 4     | 41062.5    | 4124.179107 | 711.516    | 119,287.883590480 | 124123.5786 |
| 2043 | 5     | 41062.5    | 987.8333541 | 2,398.136  | 119,390.307073947 | 122776.2764 |
| 2043 | 6     | 41062.5    | 131.6219438 | 7,456.461  | 124,821.880335273 | 132409.9633 |
| 2043 | 7     | 41062.5    | 0.446666792 | 15,171.594 | 124,578.477035413 | 139750.5174 |
| 2043 | 8     | 41062.5    | 0           | 17,254.228 | 123,195.228944050 | 140449.4571 |
| 2043 | 9     | 41062.5    | 1.907971013 | 13,838.921 | 127,990.400186034 | 141831.2295 |
| 2043 | 10    | 41062.5    | 318.1727725 | 4,987.092  | 122,688.858126327 | 127994.1227 |
| 2043 | 11    | 41062.5    | 2664.793128 | 662.739    | 117,544.188713576 | 120871.7211 |
| 2043 | 12    | 41062.5    | 6997.892205 | 47.303     | 127,481.212152980 | 134526.4078 |
| 2044 | 1     | 41062.5    | 10071.13712 | 13.134     | 136,281.522128175 | 146365.7928 |
| 2044 | 2     | 41062.5    | 11315.0763  | 10.223     | 126,658.220671247 | 137983.5203 |
| 2044 | 3     | 41062.5    | 8376.256207 | 64.299     | 120,808.432596845 | 129248.9873 |
| 2044 | 4     | 41062.5    | 4045.686002 | 713.362    | 119,221.977368115 | 123981.0256 |
| 2044 | 5     | 41062.5    | 969.0443329 | 2,404.388  | 119,325.443739308 | 122698.8762 |
| 2044 | 6     | 41062.5    | 129.1196539 | 7,475.971  | 124,755.258508458 | 132360.3493 |
| 2044 | 7     | 41062.5    | 0.438179211 | 15,211.433 | 124,512.467741624 | 139724.3385 |
| 2044 | 8     | 41062.5    | 0           | 17,299.789 | 123,131.761409767 | 140431.5499 |
| 2044 | 9     | 41062.5    | 1.871773545 | 13,875.690 | 127,925.206365153 | 141802.768  |
| 2044 | 10    | 41062.5    | 312.1410467 | 5,000.415  | 122,625.304416336 | 127937.8604 |
| 2044 | 11    | 41062.5    | 2614.319147 | 664.521    | 117,481.269862539 | 120760.1099 |
| 2044 | 12    | 41062.5    | 6865.467347 | 47.431     | 127,412.769909613 | 134325.6687 |
| 2045 | 1     | 41062.5    | 9889.433141 | 13.160     | 136,221.586932457 | 146124.1797 |
| 2045 | 2     | 41062.5    | 11110.73184 | 10.243     | 126,604.247727452 | 137725.223  |
| 2045 | 3     | 41062.5    | 8224.868946 | 64.424     | 120,754.752115430 | 129044.0453 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2045 | 4     | 41062.5    | 3972.475817 | 714.740    | 119,166.294010927 | 123853.5102 |
| 2045 | 5     | 41062.5    | 951.4904046 | 2,408.987  | 119,270.176269607 | 122630.6538 |
| 2045 | 6     | 41062.5    | 126.7785357 | 7,490.143  | 124,698.085952418 | 132315.0079 |
| 2045 | 7     | 41062.5    | 0.430227199 | 15,240.013 | 124,455.421229685 | 139695.8649 |
| 2045 | 8     | 41062.5    | 0           | 17,331.875 | 123,076.339157665 | 140408.2138 |
| 2045 | 9     | 41062.5    | 1.837718497 | 13,901.108 | 127,867.680965208 | 141770.6263 |
| 2045 | 10    | 41062.5    | 306.4540439 | 5,009.446  | 122,568.618732290 | 127884.5183 |
| 2045 | 11    | 41062.5    | 2566.622066 | 665.704    | 117,424.517365630 | 120656.8433 |
| 2045 | 12    | 41062.5    | 6740.040182 | 47.515     | 127,350.330650435 | 134137.8855 |
| 2046 | 1     | 41062.5    | 9712.185568 | 13.208     | 136,166.975317850 | 145892.3693 |
| 2046 | 2     | 41062.5    | 10911.33195 | 10.281     | 126,554.946927764 | 137476.56   |
| 2046 | 3     | 41062.5    | 8076.977687 | 64.659     | 120,705.379157155 | 128847.016  |
| 2046 | 4     | 41062.5    | 3900.921917 | 717.324    | 119,114.907157381 | 123733.153  |
| 2046 | 5     | 41062.5    | 934.3202147 | 2,417.613  | 119,218.922879898 | 122570.8561 |
| 2046 | 6     | 41062.5    | 124.4871823 | 7,516.748  | 124,644.860318826 | 132286.0957 |
| 2046 | 7     | 41062.5    | 0.422439783 | 15,293.725 | 124,402.123552343 | 139696.2705 |
| 2046 | 8     | 41062.5    | 0           | 17,392.463 | 123,024.469997757 | 140416.933  |
| 2046 | 9     | 41062.5    | 1.804342795 | 13,949.236 | 127,813.653583976 | 141764.6943 |
| 2046 | 10    | 41062.5    | 300.880259  | 5,026.654  | 122,515.339550570 | 127842.8735 |
| 2046 | 11    | 41062.5    | 2519.855094 | 667.968    | 117,371.027595699 | 120558.8507 |
| 2046 | 12    | 41062.5    | 6617.037405 | 47.675     | 127,291.396929868 | 133956.1092 |
| 2047 | 1     | 41062.5    | 9535.543901 | 13.246     | 136,117.461411529 | 145666.2511 |
| 2047 | 2     | 41062.5    | 10712.92741 | 10.310     | 126,510.657304788 | 137233.895  |
| 2047 | 3     | 41062.5    | 7930.206751 | 64.843     | 120,661.696628532 | 128656.7466 |
| 2047 | 4     | 41062.5    | 3830.074287 | 719.374    | 119,070.051719124 | 123619.4997 |
| 2047 | 5     | 41062.5    | 917.3625123 | 2,424.551  | 119,174.838746788 | 122516.7524 |
| 2047 | 6     | 41062.5    | 122.2286444 | 7,538.374  | 124,599.594009545 | 132260.1968 |
| 2047 | 7     | 41062.5    | 0.414778598 | 15,337.837 | 124,357.289397053 | 139695.5411 |
| 2047 | 8     | 41062.5    | 0           | 17,442.850 | 122,981.405002448 | 140424.255  |
| 2047 | 9     | 41062.5    | 1.771668833 | 13,989.856 | 127,769.477816536 | 141761.1058 |
| 2047 | 10    | 41062.5    | 295.4354814 | 5,041.355  | 122,472.317141930 | 127809.1072 |
| 2047 | 11    | 41062.5    | 2474.285824 | 669.930    | 117,328.450909239 | 120472.6665 |
| 2047 | 12    | 41062.5    | 6497.456748 | 47.816     | 127,245.092432764 | 133790.3647 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2048 | 1     | 41062.5    | 9363.867763 | 13.276     | 136,079.800974538 | 145456.9451 |
| 2048 | 2     | 41062.5    | 10519.89308 | 10.334     | 126,476.681965191 | 137006.9091 |
| 2048 | 3     | 41062.5    | 7787.170795 | 64.991     | 120,627.762738135 | 128479.9246 |
| 2048 | 4     | 41062.5    | 3760.924422 | 721.000    | 119,034.800769360 | 123516.7255 |
| 2048 | 5     | 41062.5    | 900.7918145 | 2,430.011  | 119,139.900872244 | 122470.7037 |
| 2048 | 6     | 41062.5    | 120.0195764 | 7,555.274  | 124,563.466615093 | 132238.7605 |
| 2048 | 7     | 41062.5    | 0.407278534 | 15,372.084 | 124,321.269740138 | 139693.7611 |
| 2048 | 8     | 41062.5    | 0           | 17,481.619 | 122,946.491648318 | 140428.1104 |
| 2048 | 9     | 41062.5    | 1.739595046 | 14,020.785 | 127,733.284203030 | 141755.8087 |
| 2048 | 10    | 41062.5    | 290.0831062 | 5,052.432  | 122,436.699031613 | 127779.2142 |
| 2048 | 11    | 41062.5    | 2429.442081 | 671.397    | 117,292.933504729 | 120393.7727 |
| 2048 | 12    | 41062.5    | 6379.638275 | 47.920     | 127,206.129568296 | 133633.6876 |
| 2049 | 1     | 41062.5    | 9175.235183 | 13.324     | 136,052.980379109 | 145241.5398 |
| 2049 | 2     | 41062.5    | 10308.50822 | 10.372     | 126,453.458415608 | 136772.3384 |
| 2049 | 3     | 41062.5    | 7631.097613 | 65.232     | 120,605.565343437 | 128301.8952 |
| 2049 | 4     | 41062.5    | 3685.730182 | 723.712    | 119,012.713726558 | 123422.156  |
| 2049 | 5     | 41062.5    | 882.8232036 | 2,439.265  | 119,118.830712990 | 122440.9192 |
| 2049 | 6     | 41062.5    | 117.6306285 | 7,584.379  | 124,542.478977671 | 132244.4887 |
| 2049 | 7     | 41062.5    | 0.399188147 | 15,431.933 | 124,301.081070300 | 139733.4136 |
| 2049 | 8     | 41062.5    | 0           | 17,550.464 | 122,927.697238027 | 140478.1612 |
| 2049 | 9     | 41062.5    | 1.705188364 | 14,076.607 | 127,714.584844440 | 141792.8973 |
| 2049 | 10    | 41062.5    | 284.3593746 | 5,072.792  | 122,419.152162289 | 127776.3037 |
| 2049 | 11    | 41062.5    | 2381.604293 | 674.130    | 117,276.127848449 | 120331.8626 |
| 2049 | 12    | 41062.5    | 6254.26357  | 48.117     | 127,188.430131125 | 133490.8105 |
| 2050 | 1     | 41062.5    | 8996.010522 | 13.389     | 136,045.153852912 | 145054.553  |
| 2050 | 2     | 41062.5    | 10107.20215 | 10.422     | 126,446.531436250 | 136564.1556 |
| 2050 | 3     | 41062.5    | 7482.159188 | 65.549     | 120,598.873450507 | 128146.5812 |
| 2050 | 4     | 41062.5    | 3613.851047 | 727.232    | 119,006.063931637 | 123347.1474 |
| 2050 | 5     | 41062.5    | 865.6128588 | 2,451.149  | 119,112.383233281 | 122429.1448 |
| 2050 | 6     | 41062.5    | 115.3389463 | 7,621.426  | 124,536.048327277 | 132272.8138 |
| 2050 | 7     | 41062.5    | 0.391415492 | 15,507.485 | 124,294.871420031 | 139802.7482 |
| 2050 | 8     | 41062.5    | 0           | 17,636.625 | 122,921.911915133 | 140558.537  |
| 2050 | 9     | 41062.5    | 1.672026712 | 14,145.865 | 127,708.787524415 | 141856.3247 |

Kentucky Power Company  
Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2050 | 10    | 41062.5    | 278.8327957 | 5,097.815  | 122,413.674922233 | 127790.3224 |
| 2050 | 11    | 41062.5    | 2335.355853 | 677.467    | 117,270.937014700 | 120283.7598 |
| 2050 | 12    | 41062.5    | 6132.911323 | 48.356     | 127,183.031666219 | 133364.2987 |
| 2051 | 1     | 41062.5    | 8831.468783 | 13.441     | 136,022.665278158 | 144867.5754 |
| 2051 | 2     | 41062.5    | 9922.407314 | 10.463     | 126,426.494722548 | 136359.3651 |
| 2051 | 3     | 41062.5    | 7345.428844 | 65.808     | 120,579.171286155 | 127990.4078 |
| 2051 | 4     | 41062.5    | 3547.824005 | 730.110    | 118,985.818943953 | 123263.7528 |
| 2051 | 5     | 41062.5    | 849.8071149 | 2,460.875  | 119,092.572547008 | 122403.2543 |
| 2051 | 6     | 41062.5    | 113.2333854 | 7,651.700  | 124,515.721591560 | 132280.6553 |
| 2051 | 7     | 41062.5    | 0.384274932 | 15,569.283 | 124,274.887915624 | 139844.5548 |
| 2051 | 8     | 41062.5    | 0           | 17,706.989 | 122,902.699881735 | 140609.689  |
| 2051 | 9     | 41062.5    | 1.641547864 | 14,202.442 | 127,689.129205213 | 141893.2129 |
| 2051 | 10    | 41062.5    | 273.7524797 | 5,118.249  | 122,394.579583055 | 127786.5812 |
| 2051 | 11    | 41062.5    | 2292.819288 | 680.187    | 117,252.044308709 | 120225.0501 |
| 2051 | 12    | 41062.5    | 6021.284917 | 48.550     | 127,162.610518902 | 133232.4459 |
| 2052 | 1     | 41062.5    | 8670.786834 | 13.496     | 136,003.332080293 | 144687.6145 |
| 2052 | 2     | 41062.5    | 9741.967466 | 10.505     | 126,409.317941219 | 136161.7908 |
| 2052 | 3     | 41062.5    | 7211.861356 | 66.074     | 120,562.177673617 | 127840.1129 |
| 2052 | 4     | 41062.5    | 3483.351751 | 733.072    | 118,968.489871729 | 123184.9136 |
| 2052 | 5     | 41062.5    | 834.3703561 | 2,470.877  | 119,075.582399556 | 122380.83   |
| 2052 | 6     | 41062.5    | 111.1776793 | 7,682.883  | 124,498.400143997 | 132292.4612 |
| 2052 | 7     | 41062.5    | 0.377301056 | 15,632.835 | 124,257.790528659 | 139891.0028 |
| 2052 | 8     | 41062.5    | 0           | 17,779.480 | 122,886.384315276 | 140665.8638 |
| 2052 | 9     | 41062.5    | 1.611791794 | 14,260.725 | 127,672.456583983 | 141934.7931 |
| 2052 | 10    | 41062.5    | 268.7922948 | 5,139.293  | 122,378.387067900 | 127786.4721 |
| 2052 | 11    | 41062.5    | 2251.301869 | 682.991    | 117,236.129295027 | 120170.4224 |
| 2052 | 12    | 41062.5    | 5912.28143  | 48.751     | 127,145.298662130 | 133106.331  |
| 2053 | 1     | 41062.5    | 8513.181918 | 13.550     | 135,985.760895768 | 144512.4931 |
| 2053 | 2     | 41062.5    | 9564.98507  | 10.548     | 126,393.725300601 | 135969.2585 |
| 2053 | 3     | 41062.5    | 7080.854799 | 66.342     | 120,546.757016033 | 127693.9542 |
| 2053 | 4     | 41062.5    | 3420.115781 | 736.060    | 118,952.785209505 | 123108.9611 |
| 2053 | 5     | 41062.5    | 819.229791  | 2,480.968  | 119,060.201095136 | 122360.3992 |
| 2053 | 6     | 41062.5    | 109.1614328 | 7,714.345  | 124,482.739898364 | 132306.2461 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2053 | 7     | 41062.5    | 0.370461122 | 15,696.959 | 124,242.347771603 | 139939.6777 |
| 2053 | 8     | 41062.5    | 0           | 17,852.628 | 122,871.669609051 | 140724.2971 |
| 2053 | 9     | 41062.5    | 1.582607583 | 14,319.540 | 127,657.439575021 | 141978.5624 |
| 2053 | 10    | 41062.5    | 263.9274979 | 5,160.531  | 122,363.819863138 | 127788.278  |
| 2053 | 11    | 41062.5    | 2210.583245 | 685.822    | 117,221.835534886 | 120118.2408 |
| 2053 | 12    | 41062.5    | 5805.377336 | 48.953     | 127,129.765765251 | 132984.0963 |
| 2054 | 1     | 41062.5    | 8358.60938  | 13.605     | 135,969.974630813 | 144342.1895 |
| 2054 | 2     | 41062.5    | 9391.40794  | 10.591     | 126,379.734215485 | 135781.7333 |
| 2054 | 3     | 41062.5    | 6952.370469 | 66.613     | 120,532.926589649 | 127551.9105 |
| 2054 | 4     | 41062.5    | 3358.097001 | 739.076    | 118,938.720957407 | 123035.8936 |
| 2054 | 5     | 41062.5    | 804.3806796 | 2,491.152  | 119,046.441413692 | 122341.9745 |
| 2054 | 6     | 41062.5    | 107.1839938 | 7,746.097  | 124,468.751098864 | 132322.032  |
| 2054 | 7     | 41062.5    | 0.363752854 | 15,761.679 | 124,228.567299422 | 139990.6103 |
| 2054 | 8     | 41062.5    | 0           | 17,926.457 | 122,858.560831581 | 140785.0178 |
| 2054 | 9     | 41062.5    | 1.553985016 | 14,378.906 | 127,644.080977105 | 142024.5407 |
| 2054 | 10    | 41062.5    | 259.1563325 | 5,181.968  | 122,350.877769874 | 127792.002  |
| 2054 | 11    | 41062.5    | 2170.648162 | 688.680    | 117,209.159157691 | 120068.4868 |
| 2054 | 12    | 41062.5    | 5700.530983 | 49.157     | 127,116.003254621 | 132865.6916 |
| 2055 | 1     | 41062.5    | 8207.00917  | 13.661     | 135,955.964182847 | 144176.6345 |
| 2055 | 2     | 41062.5    | 9221.168633 | 10.635     | 126,367.336597483 | 135599.1398 |
| 2055 | 3     | 41062.5    | 6826.358369 | 66.887     | 120,520.678416193 | 127413.9237 |
| 2055 | 4     | 41062.5    | 3297.271288 | 742.119    | 118,926.288967869 | 122965.6792 |
| 2055 | 5     | 41062.5    | 789.8172441 | 2,501.431  | 119,034.295369244 | 122325.5432 |
| 2055 | 6     | 41062.5    | 105.2445929 | 7,778.144  | 124,456.425594656 | 132339.8139 |
| 2055 | 7     | 41062.5    | 0.357173642 | 15,827.002 | 124,216.441076255 | 140043.8002 |
| 2055 | 8     | 41062.5    | 0           | 18,000.976 | 122,847.050302958 | 140848.0267 |
| 2055 | 9     | 41062.5    | 1.525912956 | 14,438.828 | 127,632.372938641 | 142072.7269 |
| 2055 | 10    | 41062.5    | 254.4769418 | 5,203.607  | 122,339.553165848 | 127797.6373 |
| 2055 | 11    | 41062.5    | 2131.481082 | 691.564    | 117,198.092662953 | 120021.1378 |
| 2055 | 12    | 41062.5    | 5597.701551 | 49.364     | 127,104.002990598 | 132751.0681 |
| 2056 | 1     | 41062.5    | 8058.322434 | 13.717     | 135,943.720877352 | 144015.7607 |
| 2056 | 2     | 41062.5    | 9054.201048 | 10.678     | 126,356.524742812 | 135421.4043 |
| 2056 | 3     | 41062.5    | 6702.769502 | 67.163     | 120,510.004900303 | 127279.9373 |

Kentucky Power Company  
 Commercial Energy Model Output

| Year | Month | Add Factor | Heating     | Cooling    | Other             | Total       |
|------|-------|------------|-------------|------------|-------------------|-------------|
| 2056 | 4     | 41062.5    | 3237.614998 | 745.190    | 118,915.481488568 | 122898.2868 |
| 2056 | 5     | 41062.5    | 775.5338222 | 2,511.804  | 119,023.755367051 | 122311.0932 |
| 2056 | 6     | 41062.5    | 103.3424763 | 7,810.489  | 124,445.755638519 | 132359.5868 |
| 2056 | 7     | 41062.5    | 0.350720927 | 15,892.935 | 124,205.961468206 | 140099.2473 |
| 2056 | 8     | 41062.5    | 0           | 18,076.195 | 122,837.130731923 | 140913.3255 |
| 2056 | 9     | 41062.5    | 1.49838049  | 14,499.315 | 127,622.308009826 | 142123.1209 |
| 2056 | 10    | 41062.5    | 249.8875059 | 5,225.451  | 122,329.838823097 | 127805.1774 |
| 2056 | 11    | 41062.5    | 2093.066779 | 694.476    | 117,188.628942921 | 119976.1716 |
| 2056 | 12    | 41062.5    | 5496.849034 | 49.572     | 127,093.757264223 | 132640.178  |
| 2057 | 1     | 41062.5    | 7912.4915   | 13.774     | 135,933.236464347 | 143859.5021 |
| 2057 | 2     | 41062.5    | 8890.44041  | 10.723     | 126,347.291329156 | 135248.4545 |
| 2057 | 3     | 41062.5    | 6581.555849 | 67.441     | 120,500.898826439 | 127149.8961 |
| 2057 | 4     | 41062.5    | 3179.104961 | 748.290    | 118,906.291159267 | 122833.6863 |
| 2057 | 5     | 41062.5    | 761.524865  | 2,522.274  | 119,014.814200497 | 122298.6132 |
| 2057 | 6     | 41062.5    | 101.476905  | 7,843.136  | 124,436.733883681 | 132381.3466 |
| 2057 | 7     | 41062.5    | 0.344392201 | 15,959.487 | 124,197.121240210 | 140156.9522 |
| 2057 | 8     | 41062.5    | 0           | 18,152.121 | 122,828.795212872 | 140980.9162 |
| 2057 | 9     | 41062.5    | 1.471376924 | 14,560.372 | 127,613.879139577 | 142175.7228 |
| 2057 | 10    | 41062.5    | 245.3862416 | 5,247.502  | 122,321.727904968 | 127814.6164 |
| 2057 | 11    | 41062.5    | 2055.39033  | 697.415    | 117,180.761279636 | 119933.5671 |
| 2057 | 12    | 41062.5    | 5397.934229 | 49.782     | 127,085.258794021 | 132532.9748 |

## LONG-TERM INDUSTRIAL

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 821 of 1182

The MEANS Procedure

| Variable | Label      | Mean        |
|----------|------------|-------------|
| year     | year       | 2028.50     |
| month    | month      | 6.5000000   |
| eix_kpc  | BILLED KWH | 174.8827227 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 822 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 1   | 2000 | 1     | 96.5857  |
| 2   | 2000 | 2     | 239.9814 |
| 3   | 2000 | 3     | 178.1322 |
| 4   | 2000 | 4     | 177.0319 |
| 5   | 2000 | 5     | 171.32   |
| 6   | 2000 | 6     | 176.8782 |
| 7   | 2000 | 7     | 175.2005 |
| 8   | 2000 | 8     | 175.8487 |
| 9   | 2000 | 9     | 169.5559 |
| 10  | 2000 | 10    | 164.9528 |
| 11  | 2000 | 11    | 166.955  |
| 12  | 2000 | 12    | 91.3502  |
| 13  | 2001 | 1     | 257.2551 |
| 14  | 2001 | 2     | 153.8066 |
| 15  | 2001 | 3     | 163.7331 |
| 16  | 2001 | 4     | 164.493  |
| 17  | 2001 | 5     | 172.8755 |
| 18  | 2001 | 6     | 168.9733 |
| 19  | 2001 | 7     | 175.6969 |
| 20  | 2001 | 8     | 175.826  |
| 21  | 2001 | 9     | 159.5207 |
| 22  | 2001 | 10    | 167.6823 |
| 23  | 2001 | 11    | 167.3748 |
| 24  | 2001 | 12    | 168.1846 |
| 25  | 2002 | 1     | 163.0547 |
| 26  | 2002 | 2     | 157.6664 |
| 27  | 2002 | 3     | 163.2886 |
| 28  | 2002 | 4     | 174.5769 |
| 29  | 2002 | 5     | 172.5964 |
| 30  | 2002 | 6     | 166.8382 |
| 31  | 2002 | 7     | 176.0262 |
| 32  | 2002 | 8     | 177.4838 |
| 33  | 2002 | 9     | 167.6092 |
| 34  | 2002 | 10    | 173.7344 |
| 35  | 2002 | 11    | 170.7431 |
| 36  | 2002 | 12    | 173.3954 |
| 37  | 2003 | 1     | 162.0759 |
| 38  | 2003 | 2     | 144.1667 |
| 39  | 2003 | 3     | 156.723  |
| 40  | 2003 | 4     | 146.6467 |
| 41  | 2003 | 5     | 154.4638 |
| 42  | 2003 | 6     | 150.4372 |
| 43  | 2003 | 7     | 151.3213 |
| 44  | 2003 | 8     | 161.3528 |
| 45  | 2003 | 9     | 151.9628 |
| 46  | 2003 | 10    | 165.758  |
| 47  | 2003 | 11    | 154.9    |
| 48  | 2003 | 12    | 151.4198 |
| 49  | 2004 | 1     | 150.2265 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 823 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 50  | 2004 | 2     | 152.708  |
| 51  | 2004 | 3     | 176.7512 |
| 52  | 2004 | 4     | 155.4812 |
| 53  | 2004 | 5     | 190.1718 |
| 54  | 2004 | 6     | 179.9617 |
| 55  | 2004 | 7     | 186.8921 |
| 56  | 2004 | 8     | 183.7176 |
| 57  | 2004 | 9     | 163.6366 |
| 58  | 2004 | 10    | 183.6503 |
| 59  | 2004 | 11    | 183.1642 |
| 60  | 2004 | 12    | 195.5    |
| 61  | 2005 | 1     | 189.6027 |
| 62  | 2005 | 2     | 184.252  |
| 63  | 2005 | 3     | 166.0976 |
| 64  | 2005 | 4     | 183.3147 |
| 65  | 2005 | 5     | 184.8925 |
| 66  | 2005 | 6     | 187.828  |
| 67  | 2005 | 7     | 180.5771 |
| 68  | 2005 | 8     | 187.4632 |
| 69  | 2005 | 9     | 186.1975 |
| 70  | 2005 | 10    | 199.0122 |
| 71  | 2005 | 11    | 192.5707 |
| 72  | 2005 | 12    | 200.932  |
| 73  | 2006 | 1     | 190.0371 |
| 74  | 2006 | 2     | 187.4473 |
| 75  | 2006 | 3     | 181.3609 |
| 76  | 2006 | 4     | 182.9056 |
| 77  | 2006 | 5     | 188.3365 |
| 78  | 2006 | 6     | 186.2461 |
| 79  | 2006 | 7     | 179.4359 |
| 80  | 2006 | 8     | 189.2983 |
| 81  | 2006 | 9     | 189.433  |
| 82  | 2006 | 10    | 170.3618 |
| 83  | 2006 | 11    | 179.2338 |
| 84  | 2006 | 12    | 189.0356 |
| 85  | 2007 | 1     | 192.0406 |
| 86  | 2007 | 2     | 159.0628 |
| 87  | 2007 | 3     | 186.9283 |
| 88  | 2007 | 4     | 190.1511 |
| 89  | 2007 | 5     | 190.165  |
| 90  | 2007 | 6     | 191.4638 |
| 91  | 2007 | 7     | 191.4421 |
| 92  | 2007 | 8     | 191.6024 |
| 93  | 2007 | 9     | 158.3397 |
| 94  | 2007 | 10    | 174.8257 |
| 95  | 2007 | 11    | 130.1767 |
| 96  | 2007 | 12    | 190.2448 |
| 97  | 2008 | 1     | 191.7303 |
| 98  | 2008 | 2     | 180.9209 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 824 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 99  | 2008 | 3     | 185.4784 |
| 100 | 2008 | 4     | 180.503  |
| 101 | 2008 | 5     | 194.4632 |
| 102 | 2008 | 6     | 189.1128 |
| 103 | 2008 | 7     | 193.6167 |
| 104 | 2008 | 8     | 190.6955 |
| 105 | 2008 | 9     | 191.561  |
| 106 | 2008 | 10    | 190.0602 |
| 107 | 2008 | 11    | 187.2236 |
| 108 | 2008 | 12    | 183.3511 |
| 109 | 2009 | 1     | 178.4798 |
| 110 | 2009 | 2     | 166.9064 |
| 111 | 2009 | 3     | 186.8112 |
| 112 | 2009 | 4     | 188.0262 |
| 113 | 2009 | 5     | 178.8184 |
| 114 | 2009 | 6     | 179.7588 |
| 115 | 2009 | 7     | 185.2579 |
| 116 | 2009 | 8     | 176.3657 |
| 117 | 2009 | 9     | 179.7113 |
| 118 | 2009 | 10    | 206.7615 |
| 119 | 2009 | 11    | 174.5805 |
| 120 | 2009 | 12    | 192.1277 |
| 121 | 2010 | 1     | 187.7286 |
| 122 | 2010 | 2     | 181.0226 |
| 123 | 2010 | 3     | 176.5991 |
| 124 | 2010 | 4     | 180.2086 |
| 125 | 2010 | 5     | 178.4375 |
| 126 | 2010 | 6     | 202.5519 |
| 127 | 2010 | 7     | 181.6589 |
| 128 | 2010 | 8     | 210.1764 |
| 129 | 2010 | 9     | 191.1023 |
| 130 | 2010 | 10    | 177.5866 |
| 131 | 2010 | 11    | 205.819  |
| 132 | 2010 | 12    | 199.885  |
| 133 | 2011 | 1     | 201.0961 |
| 134 | 2011 | 2     | 193.7141 |
| 135 | 2011 | 3     | 177.9262 |
| 136 | 2011 | 4     | 192.5663 |
| 137 | 2011 | 5     | 192.7699 |
| 138 | 2011 | 6     | 200.8508 |
| 139 | 2011 | 7     | 197.1301 |
| 140 | 2011 | 8     | 185.1926 |
| 141 | 2011 | 9     | 187.6814 |
| 142 | 2011 | 10    | 182.7747 |
| 143 | 2011 | 11    | 189.7456 |
| 144 | 2011 | 12    | 199.0305 |
| 145 | 2012 | 1     | 197.6217 |
| 146 | 2012 | 2     | 187.9472 |
| 147 | 2012 | 3     | 188.0615 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 825 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 148 | 2012 | 4     | 192.6353 |
| 149 | 2012 | 5     | 195.2819 |
| 150 | 2012 | 6     | 192.8064 |
| 151 | 2012 | 7     | 180.1194 |
| 152 | 2012 | 8     | 192.0667 |
| 153 | 2012 | 9     | 187.1749 |
| 154 | 2012 | 10    | 194.8102 |
| 155 | 2012 | 11    | 191.116  |
| 156 | 2012 | 12    | 190.6118 |
| 157 | 2013 | 1     | 198.3459 |
| 158 | 2013 | 2     | 165.6118 |
| 159 | 2013 | 3     | 175.7906 |
| 160 | 2013 | 4     | 190.6073 |
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| 162 | 2013 | 6     | 186.3787 |
| 163 | 2013 | 7     | 189.6882 |
| 164 | 2013 | 8     | 185.6613 |
| 165 | 2013 | 9     | 178.3423 |
| 166 | 2013 | 10    | 175.2521 |
| 167 | 2013 | 11    | 184.2143 |
| 168 | 2013 | 12    | 193.3185 |
| 169 | 2014 | 1     | 194.7378 |
| 170 | 2014 | 2     | 174.3046 |
| 171 | 2014 | 3     | 178.8797 |
| 172 | 2014 | 4     | 186.4871 |
| 173 | 2014 | 5     | 194.0551 |
| 174 | 2014 | 6     | 185.8802 |
| 175 | 2014 | 7     | 184.3423 |
| 176 | 2014 | 8     | 193.5153 |
| 177 | 2014 | 9     | 165.7648 |
| 178 | 2014 | 10    | 162.6614 |
| 179 | 2014 | 11    | 182.8524 |
| 180 | 2014 | 12    | 194.6141 |
| 181 | 2015 | 1     | 197.0836 |
| 182 | 2015 | 2     | 175.859  |
| 183 | 2015 | 3     | 188.1474 |
| 184 | 2015 | 4     | 185.9501 |
| 185 | 2015 | 5     | 185.8286 |
| 186 | 2015 | 6     | 184.6503 |
| 187 | 2015 | 7     | 187.3489 |
| 188 | 2015 | 8     | 170.0669 |
| 189 | 2015 | 9     | 178.1424 |
| 190 | 2015 | 10    | 174.6272 |
| 191 | 2015 | 11    | 168.1423 |
| 192 | 2015 | 12    | 179.2309 |
| 193 | 2016 | 1     | 163.5506 |
| 194 | 2016 | 2     | 162.799  |
| 195 | 2016 | 3     | 178.6663 |
| 196 | 2016 | 4     | 170.2656 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 826 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 197 | 2016 | 5     | 171.1286 |
| 198 | 2016 | 6     | 170.0487 |
| 199 | 2016 | 7     | 164.2589 |
| 200 | 2016 | 8     | 172.4751 |
| 201 | 2016 | 9     | 170.5608 |
| 202 | 2016 | 10    | 169.581  |
| 203 | 2016 | 11    | 163.3348 |
| 204 | 2016 | 12    | 175.661  |
| 205 | 2017 | 1     | 175.031  |
| 206 | 2017 | 2     | 166.2818 |
| 207 | 2017 | 3     | 167.5044 |
| 208 | 2017 | 4     | 170.0184 |
| 209 | 2017 | 5     | 161.0974 |
| 210 | 2017 | 6     | 179.5135 |
| 211 | 2017 | 7     | 172.26   |
| 212 | 2017 | 8     | 174.4949 |
| 213 | 2017 | 9     | 165.8472 |
| 214 | 2017 | 10    | 159.1613 |
| 215 | 2017 | 11    | 161.4583 |
| 216 | 2017 | 12    | 181.097  |
| 217 | 2018 | 1     | 177.8296 |
| 218 | 2018 | 2     | 161.6849 |
| 219 | 2018 | 3     | 169.7577 |
| 220 | 2018 | 4     | 166.1884 |
| 221 | 2018 | 5     | 172.2954 |
| 222 | 2018 | 6     | 169.5113 |
| 223 | 2018 | 7     | 178.2211 |
| 224 | 2018 | 8     | 174.7209 |
| 225 | 2018 | 9     | 171.5007 |
| 226 | 2018 | 10    | 171.1693 |
| 227 | 2018 | 11    | 161.9548 |
| 228 | 2018 | 12    | 177.1488 |
| 229 | 2019 | 1     | 175.2097 |
| 230 | 2019 | 2     | 159.2235 |
| 231 | 2019 | 3     | 163.4111 |
| 232 | 2019 | 4     | 164.6593 |
| 233 | 2019 | 5     | 166.1324 |
| 234 | 2019 | 6     | 167.6401 |
| 235 | 2019 | 7     | 170.1879 |
| 236 | 2019 | 8     | 166.0922 |
| 237 | 2019 | 9     | 165.4967 |
| 238 | 2019 | 10    | 163.3005 |
| 239 | 2019 | 11    | 166.0841 |
| 240 | 2019 | 12    | 162.371  |
| 241 | 2020 | 1     | 162.1882 |
| 242 | 2020 | 2     | 151.0069 |
| 243 | 2020 | 3     | 152.254  |
| 244 | 2020 | 4     | 144.4332 |
| 245 | 2020 | 5     | 145.0615 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 827 of 1182

| Obs | year | month | eix_kpc  |
|-----|------|-------|----------|
| 246 | 2020 | 6     | 138.6726 |
| 247 | 2020 | 7     | 145.2156 |
| 248 | 2020 | 8     | 147.3412 |
| 249 | 2020 | 9     | 144.1141 |
| 250 | 2020 | 10    | 132.4489 |
| 251 | 2020 | 11    | 136.6682 |
| 252 | 2020 | 12    | 146.2437 |
| 253 | 2021 | 1     | 155.7295 |
| 254 | 2021 | 2     | 129.2337 |
| 255 | 2021 | 3     | 155.6403 |
| 256 | 2021 | 4     | 146.5731 |
| 257 | 2021 | 5     | 143.7552 |
| 258 | 2021 | 6     | 151.1427 |
| 259 | 2021 | 7     | 158.6841 |
| 260 | 2021 | 8     | 157.2274 |
| 261 | 2021 | 9     | 154.0972 |
| 262 | 2021 | 10    | 134.1537 |
| 263 | 2021 | 11    | 123.6756 |
| 264 | 2021 | 12    | 156.0669 |
| 265 | 2022 | 1     | 153.9365 |
| 266 | 2022 | 2     | .        |
| 267 | 2022 | 3     | .        |
| 268 | 2022 | 4     | .        |
| 269 | 2022 | 5     | .        |
| 270 | 2022 | 6     | .        |
| 271 | 2022 | 7     | .        |
| 272 | 2022 | 8     | .        |
| 273 | 2022 | 9     | .        |
| 274 | 2022 | 10    | .        |
| 275 | 2022 | 11    | .        |
| 276 | 2022 | 12    | .        |
| 277 | 2023 | 1     | .        |
| 278 | 2023 | 2     | .        |
| 279 | 2023 | 3     | .        |
| 280 | 2023 | 4     | .        |
| 281 | 2023 | 5     | .        |
| 282 | 2023 | 6     | .        |
| 283 | 2023 | 7     | .        |
| 284 | 2023 | 8     | .        |
| 285 | 2023 | 9     | .        |
| 286 | 2023 | 10    | .        |
| 287 | 2023 | 11    | .        |
| 288 | 2023 | 12    | .        |
| 289 | 2024 | 1     | .        |
| 290 | 2024 | 2     | .        |
| 291 | 2024 | 3     | .        |
| 292 | 2024 | 4     | .        |
| 293 | 2024 | 5     | .        |
| 294 | 2024 | 6     | .        |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 828 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 295 | 2024 | 7     | .       |
| 296 | 2024 | 8     | .       |
| 297 | 2024 | 9     | .       |
| 298 | 2024 | 10    | .       |
| 299 | 2024 | 11    | .       |
| 300 | 2024 | 12    | .       |
| 301 | 2025 | 1     | .       |
| 302 | 2025 | 2     | .       |
| 303 | 2025 | 3     | .       |
| 304 | 2025 | 4     | .       |
| 305 | 2025 | 5     | .       |
| 306 | 2025 | 6     | .       |
| 307 | 2025 | 7     | .       |
| 308 | 2025 | 8     | .       |
| 309 | 2025 | 9     | .       |
| 310 | 2025 | 10    | .       |
| 311 | 2025 | 11    | .       |
| 312 | 2025 | 12    | .       |
| 313 | 2026 | 1     | .       |
| 314 | 2026 | 2     | .       |
| 315 | 2026 | 3     | .       |
| 316 | 2026 | 4     | .       |
| 317 | 2026 | 5     | .       |
| 318 | 2026 | 6     | .       |
| 319 | 2026 | 7     | .       |
| 320 | 2026 | 8     | .       |
| 321 | 2026 | 9     | .       |
| 322 | 2026 | 10    | .       |
| 323 | 2026 | 11    | .       |
| 324 | 2026 | 12    | .       |
| 325 | 2027 | 1     | .       |
| 326 | 2027 | 2     | .       |
| 327 | 2027 | 3     | .       |
| 328 | 2027 | 4     | .       |
| 329 | 2027 | 5     | .       |
| 330 | 2027 | 6     | .       |
| 331 | 2027 | 7     | .       |
| 332 | 2027 | 8     | .       |
| 333 | 2027 | 9     | .       |
| 334 | 2027 | 10    | .       |
| 335 | 2027 | 11    | .       |
| 336 | 2027 | 12    | .       |
| 337 | 2028 | 1     | .       |
| 338 | 2028 | 2     | .       |
| 339 | 2028 | 3     | .       |
| 340 | 2028 | 4     | .       |
| 341 | 2028 | 5     | .       |
| 342 | 2028 | 6     | .       |
| 343 | 2028 | 7     | .       |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 829 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 344 | 2028 | 8     | .       |
| 345 | 2028 | 9     | .       |
| 346 | 2028 | 10    | .       |
| 347 | 2028 | 11    | .       |
| 348 | 2028 | 12    | .       |
| 349 | 2029 | 1     | .       |
| 350 | 2029 | 2     | .       |
| 351 | 2029 | 3     | .       |
| 352 | 2029 | 4     | .       |
| 353 | 2029 | 5     | .       |
| 354 | 2029 | 6     | .       |
| 355 | 2029 | 7     | .       |
| 356 | 2029 | 8     | .       |
| 357 | 2029 | 9     | .       |
| 358 | 2029 | 10    | .       |
| 359 | 2029 | 11    | .       |
| 360 | 2029 | 12    | .       |
| 361 | 2030 | 1     | .       |
| 362 | 2030 | 2     | .       |
| 363 | 2030 | 3     | .       |
| 364 | 2030 | 4     | .       |
| 365 | 2030 | 5     | .       |
| 366 | 2030 | 6     | .       |
| 367 | 2030 | 7     | .       |
| 368 | 2030 | 8     | .       |
| 369 | 2030 | 9     | .       |
| 370 | 2030 | 10    | .       |
| 371 | 2030 | 11    | .       |
| 372 | 2030 | 12    | .       |
| 373 | 2031 | 1     | .       |
| 374 | 2031 | 2     | .       |
| 375 | 2031 | 3     | .       |
| 376 | 2031 | 4     | .       |
| 377 | 2031 | 5     | .       |
| 378 | 2031 | 6     | .       |
| 379 | 2031 | 7     | .       |
| 380 | 2031 | 8     | .       |
| 381 | 2031 | 9     | .       |
| 382 | 2031 | 10    | .       |
| 383 | 2031 | 11    | .       |
| 384 | 2031 | 12    | .       |
| 385 | 2032 | 1     | .       |
| 386 | 2032 | 2     | .       |
| 387 | 2032 | 3     | .       |
| 388 | 2032 | 4     | .       |
| 389 | 2032 | 5     | .       |
| 390 | 2032 | 6     | .       |
| 391 | 2032 | 7     | .       |
| 392 | 2032 | 8     | .       |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 830 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 393 | 2032 | 9     | .       |
| 394 | 2032 | 10    | .       |
| 395 | 2032 | 11    | .       |
| 396 | 2032 | 12    | .       |
| 397 | 2033 | 1     | .       |
| 398 | 2033 | 2     | .       |
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| 400 | 2033 | 4     | .       |
| 401 | 2033 | 5     | .       |
| 402 | 2033 | 6     | .       |
| 403 | 2033 | 7     | .       |
| 404 | 2033 | 8     | .       |
| 405 | 2033 | 9     | .       |
| 406 | 2033 | 10    | .       |
| 407 | 2033 | 11    | .       |
| 408 | 2033 | 12    | .       |
| 409 | 2034 | 1     | .       |
| 410 | 2034 | 2     | .       |
| 411 | 2034 | 3     | .       |
| 412 | 2034 | 4     | .       |
| 413 | 2034 | 5     | .       |
| 414 | 2034 | 6     | .       |
| 415 | 2034 | 7     | .       |
| 416 | 2034 | 8     | .       |
| 417 | 2034 | 9     | .       |
| 418 | 2034 | 10    | .       |
| 419 | 2034 | 11    | .       |
| 420 | 2034 | 12    | .       |
| 421 | 2035 | 1     | .       |
| 422 | 2035 | 2     | .       |
| 423 | 2035 | 3     | .       |
| 424 | 2035 | 4     | .       |
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| 426 | 2035 | 6     | .       |
| 427 | 2035 | 7     | .       |
| 428 | 2035 | 8     | .       |
| 429 | 2035 | 9     | .       |
| 430 | 2035 | 10    | .       |
| 431 | 2035 | 11    | .       |
| 432 | 2035 | 12    | .       |
| 433 | 2036 | 1     | .       |
| 434 | 2036 | 2     | .       |
| 435 | 2036 | 3     | .       |
| 436 | 2036 | 4     | .       |
| 437 | 2036 | 5     | .       |
| 438 | 2036 | 6     | .       |
| 439 | 2036 | 7     | .       |
| 440 | 2036 | 8     | .       |
| 441 | 2036 | 9     | .       |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 831 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 442 | 2036 | 10    | .       |
| 443 | 2036 | 11    | .       |
| 444 | 2036 | 12    | .       |
| 445 | 2037 | 1     | .       |
| 446 | 2037 | 2     | .       |
| 447 | 2037 | 3     | .       |
| 448 | 2037 | 4     | .       |
| 449 | 2037 | 5     | .       |
| 450 | 2037 | 6     | .       |
| 451 | 2037 | 7     | .       |
| 452 | 2037 | 8     | .       |
| 453 | 2037 | 9     | .       |
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| 455 | 2037 | 11    | .       |
| 456 | 2037 | 12    | .       |
| 457 | 2038 | 1     | .       |
| 458 | 2038 | 2     | .       |
| 459 | 2038 | 3     | .       |
| 460 | 2038 | 4     | .       |
| 461 | 2038 | 5     | .       |
| 462 | 2038 | 6     | .       |
| 463 | 2038 | 7     | .       |
| 464 | 2038 | 8     | .       |
| 465 | 2038 | 9     | .       |
| 466 | 2038 | 10    | .       |
| 467 | 2038 | 11    | .       |
| 468 | 2038 | 12    | .       |
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| 470 | 2039 | 2     | .       |
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| 480 | 2039 | 12    | .       |
| 481 | 2040 | 1     | .       |
| 482 | 2040 | 2     | .       |
| 483 | 2040 | 3     | .       |
| 484 | 2040 | 4     | .       |
| 485 | 2040 | 5     | .       |
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| 488 | 2040 | 8     | .       |
| 489 | 2040 | 9     | .       |
| 490 | 2040 | 10    | .       |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES  
Kentucky Power 2022 Integrated Resource Plan  
KPSC Case No. 2023-00092  
Volume A - Public Version  
Page 832 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 491 | 2040 | 11    | .       |
| 492 | 2040 | 12    | .       |
| 493 | 2041 | 1     | .       |
| 494 | 2041 | 2     | .       |
| 495 | 2041 | 3     | .       |
| 496 | 2041 | 4     | .       |
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| 498 | 2041 | 6     | .       |
| 499 | 2041 | 7     | .       |
| 500 | 2041 | 8     | .       |
| 501 | 2041 | 9     | .       |
| 502 | 2041 | 10    | .       |
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| 504 | 2041 | 12    | .       |
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| 506 | 2042 | 2     | .       |
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| 508 | 2042 | 4     | .       |
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| 510 | 2042 | 6     | .       |
| 511 | 2042 | 7     | .       |
| 512 | 2042 | 8     | .       |
| 513 | 2042 | 9     | .       |
| 514 | 2042 | 10    | .       |
| 515 | 2042 | 11    | .       |
| 516 | 2042 | 12    | .       |
| 517 | 2043 | 1     | .       |
| 518 | 2043 | 2     | .       |
| 519 | 2043 | 3     | .       |
| 520 | 2043 | 4     | .       |
| 521 | 2043 | 5     | .       |
| 522 | 2043 | 6     | .       |
| 523 | 2043 | 7     | .       |
| 524 | 2043 | 8     | .       |
| 525 | 2043 | 9     | .       |
| 526 | 2043 | 10    | .       |
| 527 | 2043 | 11    | .       |
| 528 | 2043 | 12    | .       |
| 529 | 2044 | 1     | .       |
| 530 | 2044 | 2     | .       |
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| 532 | 2044 | 4     | .       |
| 533 | 2044 | 5     | .       |
| 534 | 2044 | 6     | .       |
| 535 | 2044 | 7     | .       |
| 536 | 2044 | 8     | .       |
| 537 | 2044 | 9     | .       |
| 538 | 2044 | 10    | .       |
| 539 | 2044 | 11    | .       |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES  
Kentucky Power 2022 Integrated Resource Plan  
KPSC Case No. 2023-00092  
Volume A - Public Version  
Page 833 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 540 | 2044 | 12    | .       |
| 541 | 2045 | 1     | .       |
| 542 | 2045 | 2     | .       |
| 543 | 2045 | 3     | .       |
| 544 | 2045 | 4     | .       |
| 545 | 2045 | 5     | .       |
| 546 | 2045 | 6     | .       |
| 547 | 2045 | 7     | .       |
| 548 | 2045 | 8     | .       |
| 549 | 2045 | 9     | .       |
| 550 | 2045 | 10    | .       |
| 551 | 2045 | 11    | .       |
| 552 | 2045 | 12    | .       |
| 553 | 2046 | 1     | .       |
| 554 | 2046 | 2     | .       |
| 555 | 2046 | 3     | .       |
| 556 | 2046 | 4     | .       |
| 557 | 2046 | 5     | .       |
| 558 | 2046 | 6     | .       |
| 559 | 2046 | 7     | .       |
| 560 | 2046 | 8     | .       |
| 561 | 2046 | 9     | .       |
| 562 | 2046 | 10    | .       |
| 563 | 2046 | 11    | .       |
| 564 | 2046 | 12    | .       |
| 565 | 2047 | 1     | .       |
| 566 | 2047 | 2     | .       |
| 567 | 2047 | 3     | .       |
| 568 | 2047 | 4     | .       |
| 569 | 2047 | 5     | .       |
| 570 | 2047 | 6     | .       |
| 571 | 2047 | 7     | .       |
| 572 | 2047 | 8     | .       |
| 573 | 2047 | 9     | .       |
| 574 | 2047 | 10    | .       |
| 575 | 2047 | 11    | .       |
| 576 | 2047 | 12    | .       |
| 577 | 2048 | 1     | .       |
| 578 | 2048 | 2     | .       |
| 579 | 2048 | 3     | .       |
| 580 | 2048 | 4     | .       |
| 581 | 2048 | 5     | .       |
| 582 | 2048 | 6     | .       |
| 583 | 2048 | 7     | .       |
| 584 | 2048 | 8     | .       |
| 585 | 2048 | 9     | .       |
| 586 | 2048 | 10    | .       |
| 587 | 2048 | 11    | .       |
| 588 | 2048 | 12    | .       |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 834 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 589 | 2049 | 1     | .       |
| 590 | 2049 | 2     | .       |
| 591 | 2049 | 3     | .       |
| 592 | 2049 | 4     | .       |
| 593 | 2049 | 5     | .       |
| 594 | 2049 | 6     | .       |
| 595 | 2049 | 7     | .       |
| 596 | 2049 | 8     | .       |
| 597 | 2049 | 9     | .       |
| 598 | 2049 | 10    | .       |
| 599 | 2049 | 11    | .       |
| 600 | 2049 | 12    | .       |
| 601 | 2050 | 1     | .       |
| 602 | 2050 | 2     | .       |
| 603 | 2050 | 3     | .       |
| 604 | 2050 | 4     | .       |
| 605 | 2050 | 5     | .       |
| 606 | 2050 | 6     | .       |
| 607 | 2050 | 7     | .       |
| 608 | 2050 | 8     | .       |
| 609 | 2050 | 9     | .       |
| 610 | 2050 | 10    | .       |
| 611 | 2050 | 11    | .       |
| 612 | 2050 | 12    | .       |
| 613 | 2051 | 1     | .       |
| 614 | 2051 | 2     | .       |
| 615 | 2051 | 3     | .       |
| 616 | 2051 | 4     | .       |
| 617 | 2051 | 5     | .       |
| 618 | 2051 | 6     | .       |
| 619 | 2051 | 7     | .       |
| 620 | 2051 | 8     | .       |
| 621 | 2051 | 9     | .       |
| 622 | 2051 | 10    | .       |
| 623 | 2051 | 11    | .       |
| 624 | 2051 | 12    | .       |
| 625 | 2052 | 1     | .       |
| 626 | 2052 | 2     | .       |
| 627 | 2052 | 3     | .       |
| 628 | 2052 | 4     | .       |
| 629 | 2052 | 5     | .       |
| 630 | 2052 | 6     | .       |
| 631 | 2052 | 7     | .       |
| 632 | 2052 | 8     | .       |
| 633 | 2052 | 9     | .       |
| 634 | 2052 | 10    | .       |
| 635 | 2052 | 11    | .       |
| 636 | 2052 | 12    | .       |
| 637 | 2053 | 1     | .       |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 835 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 638 | 2053 | 2     | .       |
| 639 | 2053 | 3     | .       |
| 640 | 2053 | 4     | .       |
| 641 | 2053 | 5     | .       |
| 642 | 2053 | 6     | .       |
| 643 | 2053 | 7     | .       |
| 644 | 2053 | 8     | .       |
| 645 | 2053 | 9     | .       |
| 646 | 2053 | 10    | .       |
| 647 | 2053 | 11    | .       |
| 648 | 2053 | 12    | .       |
| 649 | 2054 | 1     | .       |
| 650 | 2054 | 2     | .       |
| 651 | 2054 | 3     | .       |
| 652 | 2054 | 4     | .       |
| 653 | 2054 | 5     | .       |
| 654 | 2054 | 6     | .       |
| 655 | 2054 | 7     | .       |
| 656 | 2054 | 8     | .       |
| 657 | 2054 | 9     | .       |
| 658 | 2054 | 10    | .       |
| 659 | 2054 | 11    | .       |
| 660 | 2054 | 12    | .       |
| 661 | 2055 | 1     | .       |
| 662 | 2055 | 2     | .       |
| 663 | 2055 | 3     | .       |
| 664 | 2055 | 4     | .       |
| 665 | 2055 | 5     | .       |
| 666 | 2055 | 6     | .       |
| 667 | 2055 | 7     | .       |
| 668 | 2055 | 8     | .       |
| 669 | 2055 | 9     | .       |
| 670 | 2055 | 10    | .       |
| 671 | 2055 | 11    | .       |
| 672 | 2055 | 12    | .       |
| 673 | 2056 | 1     | .       |
| 674 | 2056 | 2     | .       |
| 675 | 2056 | 3     | .       |
| 676 | 2056 | 4     | .       |
| 677 | 2056 | 5     | .       |
| 678 | 2056 | 6     | .       |
| 679 | 2056 | 7     | .       |
| 680 | 2056 | 8     | .       |
| 681 | 2056 | 9     | .       |
| 682 | 2056 | 10    | .       |
| 683 | 2056 | 11    | .       |
| 684 | 2056 | 12    | .       |
| 685 | 2057 | 1     | .       |
| 686 | 2057 | 2     | .       |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 836 of 1182

| Obs | year | month | eix_kpc |
|-----|------|-------|---------|
| 687 | 2057 | 3     | .       |
| 688 | 2057 | 4     | .       |
| 689 | 2057 | 5     | .       |
| 690 | 2057 | 6     | .       |
| 691 | 2057 | 7     | .       |
| 692 | 2057 | 8     | .       |
| 693 | 2057 | 9     | .       |
| 694 | 2057 | 10    | .       |
| 695 | 2057 | 11    | .       |
| 696 | 2057 | 12    | .       |

KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 837 of 1182

The MEANS Procedure

| Variable | Label                                      | Mean      |
|----------|--|-----------|
| year     | year                                       | 2028.50   |
| month    | month                                      | 6.5000000 |
| gpi_ky   | REAL INDUSTRIAL NATURAL GAS PRICE-KENTUCKY | 4.8532118 |
| LM_KPC   | SERVICE AREA MANUFACTURING EMPLOYMENT      | 5.7248815 |
| d09on    | BINARY VARIABLE-2009 ON                    | 0.8448276 |
| Lfrb324  | FRB IND. PROD.-PETROLEUM, LOG              | 4.5874090 |
| d1       | BINARY VARIABLE-JANUARY                    | 0.0833333 |
| d2       | BINARY VARIABLE-FEBRUARY                   | 0.0833333 |
| d3       | BINARY VARIABLE-MARCH                      | 0.0833333 |
| d4       | BINARY VARIABLE-APRIL                      | 0.0833333 |
| d5       | BINARY VARIABLE-MAY                        | 0.0833333 |
| d6       | BINARY VARIABLE-JUNE                       | 0.0833333 |
| d7       | BINARY VARIABLE-JULY                       | 0.0833333 |
| d8       | BINARY VARIABLE-AUGUST                     | 0.0833333 |
| d9       | BINARY VARIABLE-SEPTEMBER                  | 0.0833333 |
| d10      | BINARY VARIABLE-OCTOBER                    | 0.0833333 |
| d11      | BINARY VARIABLE-NOVEMBER                   | 0.0833333 |
| Jan00    | BINARY VARIABLE-JANUARY 2000               | 0.0014368 |
| Feb00    | BINARY VARIABLE-FEBRUARY 2000              | 0.0014368 |
| Dec00    | BINARY VARIABLE-DECEMBER 2000              | 0.0014368 |
| nov07    | BINARY VARIABLE-NOVEMBER 2007              | 0.0014368 |
| d011     | BINARY VARIABLE-2001 1ST QTR               | 0.0014368 |
| jun15on  | BINARY VARIABLE-JUNE 2015 ON               | 0.7341954 |
| d16on    | BINARY VARIABLE-2016 ON                    | 0.7241379 |
| feb19on  | BINARY VARIABLE-FEBRUARY 2019 ON           | 0.6709770 |























KENTUCKY POWER COMPANY  
MANUFACTURING ENERGY SALES  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 849 of 1182

|       |      | Kentucky Power 2022 Integrated Resource Plan |         |       |   |         |   |   |   |   |   | Volume A - Public Version               |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-------|------|--|---------|-------|---|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
|       |      | EXOGENOUS VARIABLES                          |         |       |   |         |   |   |   |   |   | Page 849 of 1182                        |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|       |      | L  |         |       |   |         |   |   |   |   |   | j f                                     |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|       |      | f  |         |       |   |         |   |   |   |   |   | u e                                     |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|       |      | M d r  |         |       |   |         |   |   |   |   |   | J F D n n d b P                         |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|       |      | _ 0 b  |         |       |   |         |   |   |   |   |   | a e e o d 1 1 1 R                       |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
| O e n |      | K 9 3  |         |       |   |         |   |   |   |   |   | d d n b c v 0 5 6 9 I                   |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
| b a t |      | P o 2  |         |       |   |         |   |   |   |   |   | d d d d d d d d 1 1 0 0 0 0 1 o o o C   |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
| s r h |      | C n 4  |         |       |   |         |   |   |   |   |   | 1 2 3 4 5 6 7 8 9 0 1 0 0 0 7 1 n n n E |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
| 474   | 2039 | 6  | 3.46501 | 4.815 | 1 | 4.62312 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 475   | 2039 | 7  | 3.77679 | 4.807 | 1 | 4.62336 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 476   | 2039 | 8  | 4.08746 | 4.802 | 1 | 4.62365 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 477   | 2039 | 9  | 4.42096 | 4.799 | 1 | 4.62393 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 478   | 2039 | 10   | 5.52718 | 4.792 | 1 | 4.62417 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 479   | 2039 | 11   | 6.07009 | 4.788 | 1 | 4.62432 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 480   | 2039 | 12   | 4.29191 | 4.783 | 1 | 4.62438 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 481   | 2040 | 1  | 3.46101 | 4.776 | 1 | 4.62435 | 1 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 482   | 2040 | 2  | 3.60012 | 4.772 | 1 | 4.62428 | 0 | 1 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 483   | 2040 | 3  | 3.82702 | 4.765 | 1 | 4.62422 | 0 | 0 | 1 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 484   | 2040 | 4  | 3.54444 | 4.760 | 1 | 4.62419 | 0 | 0 | 0 | 1 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 485   | 2040 | 5  | 3.26278 | 4.756 | 1 | 4.62423 | 0 | 0 | 0 | 0 | 1 | 0                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 486   | 2040 | 6  | 3.48105 | 4.749 | 1 | 4.62434 | 0 | 0 | 0 | 0 | 1 | 0                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 487   | 2040 | 7  | 3.79428 | 4.746 | 1 | 4.62452 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 488   | 2040 | 8  | 4.10643 | 4.740 | 1 | 4.62472 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 489   | 2040 | 9  | 4.44156 | 4.734 | 1 | 4.62491 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 490   | 2040 | 10   | 5.55307 | 4.729 | 1 | 4.62507 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 491   | 2040 | 11   | 6.09869 | 4.726 | 1 | 4.62515 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 492   | 2040 | 12   | 4.31224 | 4.721 | 1 | 4.62516 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 493   | 2041 | 1  | 3.46466 | 4.716 | 1 | 4.62510 | 1 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 494   | 2041 | 2  | 3.60411 | 4.709 | 1 | 4.62502 | 0 | 1 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 495   | 2041 | 3  | 3.83148 | 4.705 | 1 | 4.62496 | 0 | 0 | 1 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 496   | 2041 | 4  | 3.54869 | 4.700 | 1 | 4.62493 | 0 | 0 | 0 | 1 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 497   | 2041 | 5  | 3.26682 | 4.693 | 1 | 4.62496 | 0 | 0 | 0 | 1 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 498   | 2041 | 6  | 3.48551 | 4.690 | 1 | 4.62506 | 0 | 0 | 0 | 0 | 1 | 0                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 499   | 2041 | 7  | 3.79932 | 4.683 | 1 | 4.62523 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 500   | 2041 | 8  | 4.11206 | 4.676 | 1 | 4.62543 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 501   | 2041 | 9  | 4.44780 | 4.672 | 1 | 4.62565 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 502   | 2041 | 10   | 5.56103 | 4.666 | 1 | 4.62583 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 503   | 2041 | 11   | 6.10760 | 4.663 | 1 | 4.62596 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 504   | 2041 | 12   | 4.31867 | 4.656 | 1 | 4.62602 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 505   | 2042 | 1  | 3.46198 | 4.650 | 1 | 4.62601 | 1 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 506   | 2042 | 2  | 3.60139 | 4.648 | 1 | 4.62599 | 0 | 1 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 507   | 2042 | 3  | 3.82864 | 4.642 | 1 | 4.62597 | 0 | 0 | 1 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 508   | 2042 | 4  | 3.54609 | 4.637 | 1 | 4.62599 | 0 | 0 | 0 | 1 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 509   | 2042 | 5  | 3.26444 | 4.632 | 1 | 4.62609 | 0 | 0 | 0 | 0 | 1 | 0                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 510   | 2042 | 6  | 3.48298 | 4.626 | 1 | 4.62627 | 0 | 0 | 0 | 0 | 1 | 0                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 511   | 2042 | 7  | 3.79657 | 4.620 | 1 | 4.62653 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 512   | 2042 | 8  | 4.10910 | 4.616 | 1 | 4.62683 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 513   | 2042 | 9  | 4.44461 | 4.610 | 1 | 4.62712 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 514   | 2042 | 10   | 5.55706 | 4.606 | 1 | 4.62738 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 515   | 2042 | 11   | 6.10323 | 4.600 | 1 | 4.62759 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 516   | 2042 | 12   | 4.31555 | 4.593 | 1 | 4.62772 | 0 | 0 | 0 | 0 | 0 | 1                                       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |











KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 855 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model LEIX  
 Dependent Variable LEIX

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 24  | 2.628253       | 0.109511    | 38.22   | <.0001 |
| Error           | 240 | 0.687665       | 0.002865    |         |        |
| Corrected Total | 264 | 3.315918       |             |         |        |

Root MSE 0.05353 R-Square 0.79262  
 Dependent Mean 5.15816 Adj R-Sq 0.77188  
 Coeff Var 1.03774

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                                   |
|-----------|----|--------------------|----------------|---------|---------|--|
| Intercept | 1  | 1.997731           | 0.370531       | 5.39    | <.0001  | Intercept  |
| LPIxGPI36 | 1  | -0.04624           | 0.018787       | -2.46   | 0.0146  | MANUF. ELEC./IND.<br>GAS PRICE RATIO, LOG        |
| LLM       | 1  | 0.170007           | 0.072600       | 2.34    | 0.0200  | SERVICE AREA<br>MANUFACTURING<br>EMPLOYMENT, LOG |
| Lfrb324   | 1  | 0.648345           | 0.069870       | 9.28    | <.0001  | FRB IND.<br>PROD. - PETROLEUM, LOG               |
| d011      | 1  | 0.423255           | 0.055725       | 7.60    | <.0001  | BINARY VARIABLE - 2001<br>1ST QTR                |
| d1        | 1  | -0.01402           | 0.016602       | -0.84   | 0.3993  | BINARY<br>VARIABLE - JANUARY                     |
| d2        | 1  | -0.09060           | 0.016668       | -5.44   | <.0001  | BINARY<br>VARIABLE - FEBRUARY                    |
| d3        | 1  | -0.04304           | 0.016494       | -2.61   | 0.0096  | BINARY<br>VARIABLE - MARCH                       |
| d4        | 1  | -0.03862           | 0.016485       | -2.34   | 0.0200  | BINARY<br>VARIABLE - APRIL                       |
| d5        | 1  | -0.02177           | 0.016479       | -1.32   | 0.1877  | BINARY VARIABLE - MAY                            |
| d6        | 1  | -0.01561           | 0.016449       | -0.95   | 0.3434  | BINARY VARIABLE - JUNE                           |
| d7        | 1  | -0.01561           | 0.016434       | -0.95   | 0.3431  | BINARY VARIABLE - JULY                           |
| d8        | 1  | -0.00793           | 0.016418       | -0.48   | 0.6294  | BINARY<br>VARIABLE - AUGUST                      |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 856 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                      |
|----------|----|--------------------|----------------|---------|---------|-------------------------------------|
| d9       | 1  | -0.04595           | 0.016363       | -2.81   | 0.0054  | BINARY VARIABLE - SEPTEMBER         |
| d10      | 1  | -0.04432           | 0.016352       | -2.71   | 0.0072  | BINARY VARIABLE - OCTOBER           |
| d11      | 1  | -0.04669           | 0.016544       | -2.82   | 0.0052  | BINARY VARIABLE - NOVEMBER          |
| Jan00    | 1  | -0.57659           | 0.056030       | -10.29  | <.0001  | BINARY VARIABLE - JANUARY 2000      |
| Feb00    | 1  | 0.411310           | 0.055895       | 7.36    | <.0001  | BINARY VARIABLE - FEBRUARY 2000     |
| Dec00    | 1  | -0.62575           | 0.055811       | -11.21  | <.0001  | BINARY VARIABLE - DECEMBER 2000     |
| d09on    | 1  | 0.107755           | 0.025457       | 4.23    | <.0001  | BINARY VARIABLE - 2009 ON           |
| nov07    | 1  | -0.32660           | 0.055291       | -5.91   | <.0001  | BINARY VARIABLE - NOVEMBER 2007     |
| jun15on  | 1  | -0.03659           | 0.022127       | -1.65   | 0.0996  | BINARY VARIABLE - JUNE 2015 ON      |
| d16on    | 1  | -0.07254           | 0.023436       | -3.10   | 0.0022  | BINARY VARIABLE - 2016 ON           |
| feb19on  | 1  | -0.04375           | 0.015723       | -2.78   | 0.0058  | BINARY VARIABLE - FEBRUARY 2019 ON  |
| sep21on  | 1  | -0.10583           | 0.026604       | -3.98   | <.0001  | BINARY VARIABLE - SEPTEMBER 2021 ON |

Durbin-Watson 1.217789  
 Number of Observations 265  
 First-Order Autocorrelation 0.39019

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 857 of 1182

| time         |       | Residual Values<br>Sum |
|--------------|-------|------------------------|
| 2000.000000  |       | -0.000000              |
| 2000.0833333 |       | 0.000000               |
| 2000.1666667 | ***** | 0.064807               |
| 2000.2500000 | ***** | 0.052865               |
| 2000.3333333 |       | 0.001897               |
| 2000.4166667 | ***** | 0.028830               |
| 2000.5000000 | ****  | 0.022150               |
| 2000.5833333 | ****  | 0.022071               |
| 2000.6666667 | ***** | 0.028269               |
| 2000.7500000 | *     | 0.003386               |
| 2000.8333333 | ****  | 0.021534               |
| 2000.9166667 |       | 0.000000               |
| 2001.0000000 |       | -0.000000              |
| 2001.0833333 | ***   | -0.016270              |
| 2001.1666667 | *     | -0.003553              |
| 2001.2500000 | *     | -0.005634              |
| 2001.3333333 | ***** | 0.026965               |
| 2001.4166667 |       | -0.002244              |
| 2001.5000000 | ***** | 0.037213               |
| 2001.5833333 | ***** | 0.029864               |
| 2001.6666667 | ***** | -0.031685              |
| 2001.7500000 | **    | 0.011783               |
| 2001.8333333 | *     | 0.005490               |
| 2001.9166667 | ***** | -0.044425              |
| 2002.0000000 | ***** | -0.070237              |
| 2002.0833333 | ***** | -0.033747              |
| 2002.1666667 | ***** | -0.049494              |
| 2002.2500000 | **    | 0.011800               |
| 2002.3333333 | ***   | -0.014944              |
| 2002.4166667 | ***** | -0.050490              |
| 2002.5000000 | *     | 0.005515               |
| 2002.5833333 | **    | 0.008202               |
| 2002.6666667 | **    | -0.010833              |
| 2002.7500000 | ****  | 0.022350               |
| 2002.8333333 | *     | 0.005761               |
| 2002.9166667 | ***** | -0.025616              |
| 2003.0000000 | ***** | -0.077497              |
| 2003.0833333 | ***** | -0.113260              |
| 2003.1666667 | ***** | -0.070826              |
| 2003.2500000 | ***** | -0.133299              |
| 2003.3333333 | ***** | -0.090902              |
| 2003.4166667 | ***** | -0.119361              |
| 2003.5000000 | ***** | -0.113197              |
| 2003.5833333 | ***** | -0.060195              |
| 2003.6666667 | ***** | -0.089517              |
| 2003.7500000 | ***   | -0.012785              |
| 2003.8333333 | ***** | -0.085066              |
| 2003.9166667 | ***** | -0.158532              |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 858 of 1182

|             |       |           |
|-------------|-------|-----------|
| 2004.000000 | ***** | -0.153454 |
| 2004.083333 | ***** | -0.062329 |
| 2004.166667 | ***** | 0.032426  |
| 2004.250000 | ***** | -0.105654 |
| 2004.333333 | ***** | 0.073376  |
| 2004.416667 | **    | 0.008145  |
| 2004.500000 | ***** | 0.041830  |
| 2004.583333 | **    | 0.011978  |
| 2004.666667 | ***** | -0.075046 |
| 2004.750000 | ***** | 0.030702  |
| 2004.833333 | ***** | 0.023734  |
| 2004.916667 | ***** | 0.039420  |
| 2005.000000 | ***** | 0.022625  |
| 2005.083333 | ***** | 0.069089  |
| 2005.166667 | ***** | -0.086161 |
| 2005.250000 | *     | 0.004603  |
| 2005.333333 |       | -0.002447 |
| 2005.416667 | ***   | 0.014782  |
| 2005.500000 | ***   | -0.012855 |
| 2005.583333 | ***** | 0.028968  |
| 2005.666667 | ***** | 0.068120  |
| 2005.750000 | ***** | 0.135735  |
| 2005.833333 | ***** | 0.102101  |
| 2005.916667 | ***** | 0.089827  |
| 2006.000000 | ***** | 0.039051  |
| 2006.083333 | ***** | 0.096333  |
| 2006.166667 | ***   | 0.017405  |
| 2006.250000 | ***** | 0.024508  |
| 2006.333333 | ***** | 0.035583  |
| 2006.416667 | **    | 0.009712  |
| 2006.500000 | ***** | -0.038759 |
| 2006.583333 |       | -0.001341 |
| 2006.666667 | ***** | 0.038451  |
| 2006.750000 | ***** | -0.063944 |
| 2006.833333 | *     | -0.006927 |
| 2006.916667 | *     | -0.003070 |
| 2007.000000 | ****  | 0.021543  |
| 2007.083333 | ***** | -0.093931 |
| 2007.166667 | ****  | 0.020591  |
| 2007.250000 | ***** | 0.036504  |
| 2007.333333 | ****  | 0.022435  |
| 2007.416667 | ****  | 0.024458  |
| 2007.500000 | ****  | 0.023250  |
| 2007.583333 | ***   | 0.015613  |
| 2007.666667 | ***** | -0.136707 |
| 2007.750000 | ***** | -0.036975 |
| 2007.833333 |       | -0.000000 |
| 2007.916667 | **    | 0.010681  |
| 2008.000000 | ***** | 0.036838  |
| 2008.083333 | ***** | 0.056860  |
| 2008.166667 | ***** | 0.033407  |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 859 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2008.2500000 |       | *     | 0.002901  |
| 2008.3333333 |       | ***** | 0.067199  |
| 2008.4166667 |       | ***** | 0.049152  |
| 2008.5000000 |       | ***** | 0.091345  |
| 2008.5833333 |       | ***** | 0.078597  |
| 2008.6666667 |       | ***** | 0.116209  |
| 2008.7500000 |       | ***** | 0.095677  |
| 2008.8333333 |       | ***** | 0.076532  |
| 2008.9166667 |       | ***   | 0.014166  |
| 2009.0000000 | ***** |       | -0.093539 |
| 2009.0833333 | ***** |       | -0.073180 |
| 2009.1666667 |       | *     | -0.003719 |
| 2009.2500000 |       | *     | -0.003058 |
| 2009.3333333 | ***** |       | -0.071842 |
| 2009.4166667 | ***** |       | -0.072260 |
| 2009.5000000 | ***** |       | -0.039538 |
| 2009.5833333 | ***** |       | -0.091901 |
| 2009.6666667 | ***** |       | -0.030369 |
| 2009.7500000 |       | ***** | 0.113554  |
| 2009.8333333 | ***** |       | -0.046969 |
| 2009.9166667 |       | **    | 0.010371  |
| 2010.0000000 |       | *     | 0.006672  |
| 2010.0833333 |       | ***** | 0.047400  |
| 2010.1666667 | ***** |       | -0.032825 |
| 2010.2500000 | ***** |       | -0.027388 |
| 2010.3333333 | ***** |       | -0.062430 |
| 2010.4166667 |       | ***** | 0.056294  |
| 2010.5000000 | ***** |       | -0.050567 |
| 2010.5833333 |       | ***** | 0.090521  |
| 2010.6666667 |       | ***** | 0.032555  |
| 2010.7500000 | ***** |       | -0.043793 |
| 2010.8333333 |       | ***** | 0.104972  |
| 2010.9166667 |       | ***** | 0.029417  |
| 2011.0000000 |       | ***** | 0.051375  |
| 2011.0833333 |       | ***** | 0.092617  |
| 2011.1666667 | ***** |       | -0.039112 |
| 2011.2500000 |       | ***** | 0.034386  |
| 2011.3333333 |       | ***   | 0.015234  |
| 2011.4166667 |       | ***** | 0.044025  |
| 2011.5000000 |       | ***   | 0.018867  |
| 2011.5833333 | ***** |       | -0.054504 |
| 2011.6666667 |       |       | -0.002294 |
| 2011.7500000 | ***** |       | -0.026196 |
| 2011.8333333 |       | ***   | 0.018129  |
| 2011.9166667 |       | ***   | 0.022144  |
| 2012.0000000 |       | ***** | 0.031923  |
| 2012.0833333 |       | ***** | 0.060823  |
| 2012.1666667 |       | ***   | 0.017729  |
| 2012.2500000 |       | ***** | 0.041244  |
| 2012.3333333 |       | ***** | 0.041671  |
| 2012.4166667 |       | ***** | 0.025349  |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 860 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2012.500000  | ***** | -0.041309 |
| 2012.5833333 | ***   | 0.015684  |
| 2012.6666667 | ***** | 0.028214  |
| 2012.7500000 | ***** | 0.064196  |
| 2012.8333333 | ***** | 0.042532  |
| 2012.9166667 | ***   | -0.013995 |
| 2013.0000000 | ***** | 0.032157  |
| 2013.0833333 | ***** | -0.076244 |
| 2013.1666667 | ***** | -0.064597 |
| 2013.2500000 | ***   | 0.013467  |
| 2013.3333333 | ***** | -0.023489 |
| 2013.4166667 | ***** | -0.032170 |
| 2013.5000000 | ***   | -0.017275 |
| 2013.5833333 | ***** | -0.048854 |
| 2013.6666667 | ***** | -0.051219 |
| 2013.7500000 | ***** | -0.068705 |
| 2013.8333333 | ***   | -0.013616 |
| 2013.9166667 | **    | -0.008241 |
| 2014.0000000 | ****  | 0.017762  |
| 2014.0833333 | ***   | -0.013874 |
| 2014.1666667 | ***** | -0.029830 |
| 2014.2500000 | **    | 0.010778  |
| 2014.3333333 | ***** | 0.036760  |
| 2014.4166667 | **    | -0.010416 |
| 2014.5000000 | ***   | -0.016697 |
| 2014.5833333 | ***** | 0.028544  |
| 2014.6666667 | ***** | -0.083673 |
| 2014.7500000 | ***** | -0.098879 |
| 2014.8333333 | ***** | 0.024576  |
| 2014.9166667 | ***** | 0.041251  |
| 2015.0000000 | ***** | 0.068177  |
| 2015.0833333 | ***** | 0.031548  |
| 2015.1666667 | ***** | 0.053015  |
| 2015.2500000 | ***** | 0.039639  |
| 2015.3333333 | ***** | 0.022998  |
| 2015.4166667 | ***** | 0.045023  |
| 2015.5000000 | ***** | 0.055847  |
| 2015.5833333 | ***** | -0.053579 |
| 2015.6666667 | ****  | 0.024857  |
| 2015.7500000 |       | -0.001210 |
| 2015.8333333 | ***** | -0.041683 |
| 2015.9166667 | ***** | -0.029255 |
| 2016.0000000 | ***** | -0.038490 |
| 2016.0833333 | ***** | 0.031319  |
| 2016.1666667 | ***** | 0.077099  |
| 2016.2500000 | ****  | 0.025939  |
| 2016.3333333 | ***   | 0.014377  |
| 2016.4166667 |       | -0.002282 |
| 2016.5000000 | ***** | -0.041911 |
| 2016.5833333 | *     | -0.004478 |
| 2016.6666667 | ****  | 0.021100  |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 861 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2016.7500000 |       | ***   | 0.015544  |
| 2016.8333333 |       | ***   | -0.016215 |
| 2016.9166667 |       | **    | 0.012105  |
| 2017.0000000 |       | ****  | 0.021735  |
| 2017.0833333 |       | ***** | 0.041792  |
| 2017.1666667 |       | **    | -0.010396 |
| 2017.2500000 |       | ***   | -0.013081 |
| 2017.3333333 | ***** |       | -0.088687 |
| 2017.4166667 |       | ****  | 0.020709  |
| 2017.5000000 |       | **    | -0.007956 |
| 2017.5833333 |       | *     | 0.006086  |
| 2017.6666667 |       | **    | -0.009366 |
| 2017.7500000 | ***** |       | -0.060822 |
| 2017.8333333 | ***** |       | -0.050910 |
| 2017.9166667 |       | ****  | 0.019812  |
| 2018.0000000 |       | ****  | 0.021988  |
| 2018.0833333 |       | **    | 0.009636  |
| 2018.1666667 |       | **    | 0.012459  |
| 2018.2500000 |       | ***   | -0.015577 |
| 2018.3333333 |       |       | 0.000480  |
| 2018.4166667 |       | ***** | -0.024120 |
| 2018.5000000 |       | ***** | 0.024429  |
| 2018.5833333 |       | *     | -0.003613 |
| 2018.6666667 |       | ***   | 0.017064  |
| 2018.7500000 |       | ***   | 0.014972  |
| 2018.8333333 | ***** |       | -0.036652 |
| 2018.9166667 |       | *     | 0.006222  |
| 2019.0000000 |       | **    | 0.009687  |
| 2019.0833333 |       | ***** | 0.035354  |
| 2019.1666667 |       | ***   | 0.016445  |
| 2019.2500000 |       | ****  | 0.020953  |
| 2019.3333333 |       | **    | 0.010700  |
| 2019.4166667 |       | *     | 0.005910  |
| 2019.5000000 |       | ***   | 0.014165  |
| 2019.5833333 |       | ***   | -0.016714 |
| 2019.6666667 |       | ***** | 0.030354  |
| 2019.7500000 |       | ***** | 0.029940  |
| 2019.8333333 |       | ***** | 0.053317  |
| 2019.9166667 | ***** |       | -0.027586 |
| 2020.0000000 | ***** |       | -0.024624 |
| 2020.0833333 |       | *     | -0.003579 |
| 2020.1666667 |       | ***   | 0.013079  |
| 2020.2500000 |       | ***** | 0.034743  |
| 2020.3333333 |       | ***** | 0.081283  |
| 2020.4166667 |       | ***** | 0.030714  |
| 2020.5000000 |       | ***** | 0.038449  |
| 2020.5833333 |       | *     | 0.005460  |
| 2020.6666667 |       | *     | 0.005982  |
| 2020.7500000 | ***** |       | -0.079300 |
| 2020.8333333 | ***** |       | -0.041553 |
| 2020.9166667 | ***** |       | -0.024002 |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 862 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2021.0000000 |       | ***** | 0.040834  |
| 2021.0833333 | ***** |       | -0.086356 |
| 2021.1666667 |       | ***** | 0.032052  |
| 2021.2500000 | ***** |       | -0.050638 |
| 2021.3333333 | ***** |       | -0.096216 |
| 2021.4166667 | ***** |       | -0.049760 |
| 2021.5000000 |       | *     | 0.007003  |
| 2021.5833333 |       | *     | -0.006407 |
| 2021.6666667 |       | ***** | 0.109535  |
| 2021.7500000 | ***** |       | -0.045229 |
| 2021.8333333 | ***** |       | -0.139088 |
| 2021.9166667 |       | ***** | 0.039306  |
| 2022.0000000 |       | ***** | 0.035475  |



Residual Values

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES ACTUAL AND FORECAST  
 Kentucky Power 2022 Integrated Resource Plan  
 KPSC Case No. 2023-00092  
 Volume A - Public Version  
 Page 863 of 1182

| year | ENERGY SALES | GROWTH RATE | BASE ENERGY | ADDITIONS |
|------|--------------|-------------|-------------|-----------|
| 2000 | 1983.793     | .           | 1983.79     | 0         |
| 2001 | 2095.422     | 5.6         | 2095.42     | 0         |
| 2002 | 2037.013     | -2.8        | 2037.01     | 0         |
| 2003 | 1851.228     | -9.1        | 1851.23     | 0         |
| 2004 | 2101.861     | 13.5        | 2101.86     | 0         |
| 2005 | 2242.74      | 6.7         | 2242.74     | 0         |
| 2006 | 2213.132     | -1.3        | 2213.13     | 0         |
| 2007 | 2146.443     | -3.0        | 2146.44     | 0         |
| 2008 | 2258.717     | 5.2         | 2258.72     | 0         |
| 2009 | 2193.605     | -2.9        | 2193.61     | 0         |
| 2010 | 2272.777     | 3.6         | 2272.78     | 0         |
| 2011 | 2300.478     | 1.2         | 2300.48     | 0         |
| 2012 | 2290.253     | -0.4        | 2290.25     | 0         |
| 2013 | 2209.836     | -3.5        | 2209.84     | 0         |
| 2014 | 2198.095     | -0.5        | 2198.09     | 0         |
| 2015 | 2175.078     | -1.0        | 2175.08     | 0         |
| 2016 | 2032.33      | -6.6        | 2032.33     | 0         |
| 2017 | 2033.765     | 0.1         | 2033.77     | 0         |
| 2018 | 2051.983     | 0.9         | 2051.98     | 0         |
| 2019 | 1989.809     | -3.0        | 1989.81     | 0         |
| 2020 | 1745.648     | -12.3       | 1745.65     | 0         |
| 2021 | 1765.98      | 1.2         | 1765.98     | 0         |
| 2022 | 1773.613     | 0.4         | 1773.61     | 0         |
| 2023 | 1779.794     | 0.3         | 1779.79     | 0         |
| 2024 | 1778.394     | -0.1        | 1778.39     | 0         |
| 2025 | 1767.944     | -0.6        | 1767.94     | 0         |
| 2026 | 1756.234     | -0.7        | 1756.23     | 0         |
| 2027 | 1746.657     | -0.5        | 1746.66     | 0         |
| 2028 | 1741.025     | -0.3        | 1741.02     | 0         |
| 2029 | 1739.151     | -0.1        | 1739.15     | 0         |
| 2030 | 1738.726     | 0.0         | 1738.73     | 0         |
| 2031 | 1737.768     | -0.1        | 1737.77     | 0         |
| 2032 | 1735.796     | -0.1        | 1735.80     | 0         |
| 2033 | 1733.878     | -0.1        | 1733.88     | 0         |
| 2034 | 1731.766     | -0.1        | 1731.77     | 0         |
| 2035 | 1729.473     | -0.1        | 1729.47     | 0         |
| 2036 | 1726.694     | -0.2        | 1726.69     | 0         |
| 2037 | 1722.953     | -0.2        | 1722.95     | 0         |
| 2038 | 1720.075     | -0.2        | 1720.08     | 0         |
| 2039 | 1718.196     | -0.1        | 1718.20     | 0         |
| 2040 | 1715.872     | -0.1        | 1715.87     | 0         |
| 2041 | 1713.018     | -0.2        | 1713.02     | 0         |
| 2042 | 1710.635     | -0.1        | 1710.64     | 0         |
| 2043 | 1708.882     | -0.1        | 1708.88     | 0         |
| 2044 | 1706.924     | -0.1        | 1706.92     | 0         |
| 2045 | 1704.958     | -0.1        | 1704.96     | 0         |
| 2046 | 1702.904     | -0.1        | 1702.90     | 0         |

KENTUCKY POWER COMPANY  
 MANUFACTURING ENERGY SALES  
 ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 864 of 1182

| year | ENERGY SALES | GROWTH RATE | BASE ENERGY | ADDITIONS |
|------|--------------|-------------|-------------|-----------|
| 2047 | 1700.07      | -0.2        | 1700.07     | 0         |
| 2048 | 1696.874     | -0.2        | 1696.87     | 0         |
| 2049 | 1693.805     | -0.2        | 1693.81     | 0         |
| 2050 | 1690.844     | -0.2        | 1690.84     | 0         |
| 2051 | 1687.82      | -0.2        | 1687.82     | 0         |
| 2052 | 1684.963     | -0.2        | 1684.96     | 0         |
| 2053 | 1682.154     | -0.2        | 1682.15     | 0         |
| 2054 | 1679.361     | -0.2        | 1679.36     | 0         |
| 2055 | 1676.583     | -0.2        | 1676.58     | 0         |
| 2056 | 1673.821     | -0.2        | 1673.82     | 0         |
| 2057 | 1671.073     | -0.2        | 1671.07     | 0         |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 865 of 1182

The MEANS Procedure

| Variable | Label      | Mean       |
|----------|------------|------------|
| YEAR     | Year       | 2024.00    |
| MONTH    | Month      | 6.5000000  |
| eim_kpc  | BILLED KWH | 72.1361129 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 866 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 1   | 1991 | 1     | 100.959 |
| 2   | 1991 | 2     | 96.584  |
| 3   | 1991 | 3     | 101.568 |
| 4   | 1991 | 4     | 80.727  |
| 5   | 1991 | 5     | 79.507  |
| 6   | 1991 | 6     | 74.023  |
| 7   | 1991 | 7     | 68.911  |
| 8   | 1991 | 8     | 81.209  |
| 9   | 1991 | 9     | 77.303  |
| 10  | 1991 | 10    | 91.054  |
| 11  | 1991 | 11    | 98.104  |
| 12  | 1991 | 12    | 89.934  |
| 13  | 1992 | 1     | 95.55   |
| 14  | 1992 | 2     | 93.839  |
| 15  | 1992 | 3     | 101.599 |
| 16  | 1992 | 4     | 83.335  |
| 17  | 1992 | 5     | 86.019  |
| 18  | 1992 | 6     | 79.052  |
| 19  | 1992 | 7     | 70.209  |
| 20  | 1992 | 8     | 83.37   |
| 21  | 1992 | 9     | 78.493  |
| 22  | 1992 | 10    | 92.909  |
| 23  | 1992 | 11    | 98.326  |
| 24  | 1992 | 12    | 94.756  |
| 25  | 1993 | 1     | 95.406  |
| 26  | 1993 | 2     | 95.78   |
| 27  | 1993 | 3     | 94.861  |
| 28  | 1993 | 4     | 84.263  |
| 29  | 1993 | 5     | 87.13   |
| 30  | 1993 | 6     | 83.606  |
| 31  | 1993 | 7     | 73.267  |
| 32  | 1993 | 8     | 92.045  |
| 33  | 1993 | 9     | 79.528  |
| 34  | 1993 | 10    | 97.183  |
| 35  | 1993 | 11    | 97.2    |
| 36  | 1993 | 12    | 104.274 |
| 37  | 1994 | 1     | 91.723  |
| 38  | 1994 | 2     | 92.397  |
| 39  | 1994 | 3     | 104.694 |
| 40  | 1994 | 4     | 88.911  |
| 41  | 1994 | 5     | 93.444  |
| 42  | 1994 | 6     | 86.784  |
| 43  | 1994 | 7     | 73.243  |
| 44  | 1994 | 8     | 90.893  |
| 45  | 1994 | 9     | 84.663  |
| 46  | 1994 | 10    | 97.832  |
| 47  | 1994 | 11    | 97.881  |
| 48  | 1994 | 12    | 103.9   |
| 49  | 1995 | 1     | 102.964 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 867 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 50  | 1995 | 2     | 105.988  |
| 51  | 1995 | 3     | 103.948  |
| 52  | 1995 | 4     | 89.673   |
| 53  | 1995 | 5     | 89.515   |
| 54  | 1995 | 6     | 85.16    |
| 55  | 1995 | 7     | 71.927   |
| 56  | 1995 | 8     | 87.848   |
| 57  | 1995 | 9     | 80.346   |
| 58  | 1995 | 10    | 93.618   |
| 59  | 1995 | 11    | 92.724   |
| 60  | 1995 | 12    | 70.205   |
| 61  | 1996 | 1     | 77.95387 |
| 62  | 1996 | 2     | 103.9298 |
| 63  | 1996 | 3     | 124.4635 |
| 64  | 1996 | 4     | 98.33572 |
| 65  | 1996 | 5     | 79.12167 |
| 66  | 1996 | 6     | 83.37279 |
| 67  | 1996 | 7     | 75.89704 |
| 68  | 1996 | 8     | 82.00609 |
| 69  | 1996 | 9     | 84.54816 |
| 70  | 1996 | 10    | 89.34102 |
| 71  | 1996 | 11    | 93.25423 |
| 72  | 1996 | 12    | 107.3754 |
| 73  | 1997 | 1     | 106.1674 |
| 74  | 1997 | 2     | 98.97518 |
| 75  | 1997 | 3     | 93.21221 |
| 76  | 1997 | 4     | 95.42031 |
| 77  | 1997 | 5     | 85.69284 |
| 78  | 1997 | 6     | 82.70721 |
| 79  | 1997 | 7     | 72.22689 |
| 80  | 1997 | 8     | 83.52348 |
| 81  | 1997 | 9     | 81.06522 |
| 82  | 1997 | 10    | 88.65184 |
| 83  | 1997 | 11    | 91.69201 |
| 84  | 1997 | 12    | 104.3091 |
| 85  | 1998 | 1     | 102.8979 |
| 86  | 1998 | 2     | 93.63465 |
| 87  | 1998 | 3     | 101.4568 |
| 88  | 1998 | 4     | 96.97054 |
| 89  | 1998 | 5     | 85.82632 |
| 90  | 1998 | 6     | 79.83072 |
| 91  | 1998 | 7     | 80.81526 |
| 92  | 1998 | 8     | 85.29517 |
| 93  | 1998 | 9     | 89.30097 |
| 94  | 1998 | 10    | 85.52618 |
| 95  | 1998 | 11    | 95.17848 |
| 96  | 1998 | 12    | 128.5964 |
| 97  | 1999 | 1     | 108.0186 |
| 98  | 1999 | 2     | 68.66917 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 868 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 99  | 1999 | 3     | 102.0266 |
| 100 | 1999 | 4     | 88.77698 |
| 101 | 1999 | 5     | 77.05097 |
| 102 | 1999 | 6     | 80.65232 |
| 103 | 1999 | 7     | 79.7579  |
| 104 | 1999 | 8     | 81.67579 |
| 105 | 1999 | 9     | 90.11362 |
| 106 | 1999 | 10    | 83.20526 |
| 107 | 1999 | 11    | 92.81029 |
| 108 | 1999 | 12    | 101.0518 |
| 109 | 2000 | 1     | 99.01423 |
| 110 | 2000 | 2     | 94.45969 |
| 111 | 2000 | 3     | 91.62786 |
| 112 | 2000 | 4     | 87.87582 |
| 113 | 2000 | 5     | 86.05116 |
| 114 | 2000 | 6     | 84.60195 |
| 115 | 2000 | 7     | 74.38625 |
| 116 | 2000 | 8     | 75.58774 |
| 117 | 2000 | 9     | 94.53516 |
| 118 | 2000 | 10    | 87.25979 |
| 119 | 2000 | 11    | 88.67174 |
| 120 | 2000 | 12    | 100.1992 |
| 121 | 2001 | 1     | 106.471  |
| 122 | 2001 | 2     | 102.0158 |
| 123 | 2001 | 3     | 99.79966 |
| 124 | 2001 | 4     | 97.09157 |
| 125 | 2001 | 5     | 89.23784 |
| 126 | 2001 | 6     | 93.43264 |
| 127 | 2001 | 7     | 81.25867 |
| 128 | 2001 | 8     | 84.97676 |
| 129 | 2001 | 9     | 87.97366 |
| 130 | 2001 | 10    | 91.33512 |
| 131 | 2001 | 11    | 97.93234 |
| 132 | 2001 | 12    | 99.98147 |
| 133 | 2002 | 1     | 115.2338 |
| 134 | 2002 | 2     | 107.9956 |
| 135 | 2002 | 3     | 102.6585 |
| 136 | 2002 | 4     | 97.52882 |
| 137 | 2002 | 5     | 89.21191 |
| 138 | 2002 | 6     | 74.5973  |
| 139 | 2002 | 7     | 80.67338 |
| 140 | 2002 | 8     | 85.34224 |
| 141 | 2002 | 9     | 87.63202 |
| 142 | 2002 | 10    | 87.64465 |
| 143 | 2002 | 11    | 89.80377 |
| 144 | 2002 | 12    | 101.756  |
| 145 | 2003 | 1     | 103.9288 |
| 146 | 2003 | 2     | 98.68114 |
| 147 | 2003 | 3     | 100.3492 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 869 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 148 | 2003 | 4     | 85.39487 |
| 149 | 2003 | 5     | 84.79943 |
| 150 | 2003 | 6     | 84.56019 |
| 151 | 2003 | 7     | 78.92941 |
| 152 | 2003 | 8     | 82.53522 |
| 153 | 2003 | 9     | 86.45587 |
| 154 | 2003 | 10    | 86.96065 |
| 155 | 2003 | 11    | 92.62556 |
| 156 | 2003 | 12    | 98.61108 |
| 157 | 2004 | 1     | 100.4676 |
| 158 | 2004 | 2     | 99.8061  |
| 159 | 2004 | 3     | 96.22331 |
| 160 | 2004 | 4     | 94.65702 |
| 161 | 2004 | 5     | 86.30594 |
| 162 | 2004 | 6     | 83.51984 |
| 163 | 2004 | 7     | 76.92519 |
| 164 | 2004 | 8     | 83.03046 |
| 165 | 2004 | 9     | 80.82713 |
| 166 | 2004 | 10    | 84.52747 |
| 167 | 2004 | 11    | 86.78979 |
| 168 | 2004 | 12    | 97.20134 |
| 169 | 2005 | 1     | 98.95571 |
| 170 | 2005 | 2     | 98.12897 |
| 171 | 2005 | 3     | 104.3626 |
| 172 | 2005 | 4     | 91.97927 |
| 173 | 2005 | 5     | 85.67108 |
| 174 | 2005 | 6     | 92.28061 |
| 175 | 2005 | 7     | 77.4401  |
| 176 | 2005 | 8     | 81.72998 |
| 177 | 2005 | 9     | 85.47393 |
| 178 | 2005 | 10    | 83.80043 |
| 179 | 2005 | 11    | 92.18736 |
| 180 | 2005 | 12    | 109.5176 |
| 181 | 2006 | 1     | 100.4476 |
| 182 | 2006 | 2     | 101.211  |
| 183 | 2006 | 3     | 101.4244 |
| 184 | 2006 | 4     | 93.84795 |
| 185 | 2006 | 5     | 84.70125 |
| 186 | 2006 | 6     | 87.67726 |
| 187 | 2006 | 7     | 78.48968 |
| 188 | 2006 | 8     | 82.98024 |
| 189 | 2006 | 9     | 89.06848 |
| 190 | 2006 | 10    | 87.69699 |
| 191 | 2006 | 11    | 95.03823 |
| 192 | 2006 | 12    | 100.8929 |
| 193 | 2007 | 1     | 95.46715 |
| 194 | 2007 | 2     | 102.1168 |
| 195 | 2007 | 3     | 95.19584 |
| 196 | 2007 | 4     | 90.24897 |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 870 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 197 | 2007 | 5     | 83.95004 |
| 198 | 2007 | 6     | 80.13579 |
| 199 | 2007 | 7     | 73.12316 |
| 200 | 2007 | 8     | 77.78405 |
| 201 | 2007 | 9     | 80.71474 |
| 202 | 2007 | 10    | 79.4499  |
| 203 | 2007 | 11    | 86.23904 |
| 204 | 2007 | 12    | 90.81579 |
| 205 | 2008 | 1     | 98.16826 |
| 206 | 2008 | 2     | 96.07293 |
| 207 | 2008 | 3     | 92.16852 |
| 208 | 2008 | 4     | 90.69174 |
| 209 | 2008 | 5     | 85.78084 |
| 210 | 2008 | 6     | 83.7846  |
| 211 | 2008 | 7     | 76.43998 |
| 212 | 2008 | 8     | 81.76287 |
| 213 | 2008 | 9     | 83.36639 |
| 214 | 2008 | 10    | 84.26411 |
| 215 | 2008 | 11    | 92.78908 |
| 216 | 2008 | 12    | 101.2511 |
| 217 | 2009 | 1     | 103.8165 |
| 218 | 2009 | 2     | 100.5127 |
| 219 | 2009 | 3     | 98.9621  |
| 220 | 2009 | 4     | 91.0149  |
| 221 | 2009 | 5     | 80.69829 |
| 222 | 2009 | 6     | 75.55801 |
| 223 | 2009 | 7     | 67.03683 |
| 224 | 2009 | 8     | 70.59886 |
| 225 | 2009 | 9     | 76.00072 |
| 226 | 2009 | 10    | 76.3624  |
| 227 | 2009 | 11    | 79.66078 |
| 228 | 2009 | 12    | 86.03809 |
| 229 | 2010 | 1     | 88.28184 |
| 230 | 2010 | 2     | 90.67571 |
| 231 | 2010 | 3     | 87.60719 |
| 232 | 2010 | 4     | 84.81032 |
| 233 | 2010 | 5     | 88.67911 |
| 234 | 2010 | 6     | 78.01446 |
| 235 | 2010 | 7     | 72.15536 |
| 236 | 2010 | 8     | 69.97036 |
| 237 | 2010 | 9     | 73.14796 |
| 238 | 2010 | 10    | 75.94689 |
| 239 | 2010 | 11    | 79.20071 |
| 240 | 2010 | 12    | 90.51848 |
| 241 | 2011 | 1     | 90.825   |
| 242 | 2011 | 2     | 87.99581 |
| 243 | 2011 | 3     | 84.22178 |
| 244 | 2011 | 4     | 80.40873 |
| 245 | 2011 | 5     | 76.74738 |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 871 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 246 | 2011 | 6     | 79.49369 |
| 247 | 2011 | 7     | 72.42958 |
| 248 | 2011 | 8     | 72.5754  |
| 249 | 2011 | 9     | 76.23073 |
| 250 | 2011 | 10    | 71.12652 |
| 251 | 2011 | 11    | 82.28946 |
| 252 | 2011 | 12    | 87.50144 |
| 253 | 2012 | 1     | 85.43714 |
| 254 | 2012 | 2     | 85.10615 |
| 255 | 2012 | 3     | 77.67679 |
| 256 | 2012 | 4     | 69.83142 |
| 257 | 2012 | 5     | 64.98253 |
| 258 | 2012 | 6     | 62.42109 |
| 259 | 2012 | 7     | 51.55809 |
| 260 | 2012 | 8     | 53.14382 |
| 261 | 2012 | 9     | 55.79761 |
| 262 | 2012 | 10    | 53.45102 |
| 263 | 2012 | 11    | 58.01086 |
| 264 | 2012 | 12    | 61.9607  |
| 265 | 2013 | 1     | 64.97626 |
| 266 | 2013 | 2     | 67.17776 |
| 267 | 2013 | 3     | 64.23484 |
| 268 | 2013 | 4     | 62.44188 |
| 269 | 2013 | 5     | 54.43852 |
| 270 | 2013 | 6     | 50.88608 |
| 271 | 2013 | 7     | 48.00306 |
| 272 | 2013 | 8     | 51.21968 |
| 273 | 2013 | 9     | 51.5112  |
| 274 | 2013 | 10    | 48.4603  |
| 275 | 2013 | 11    | 50.26028 |
| 276 | 2013 | 12    | 57.23695 |
| 277 | 2014 | 1     | 57.83786 |
| 278 | 2014 | 2     | 56.71688 |
| 279 | 2014 | 3     | 57.45931 |
| 280 | 2014 | 4     | 53.18138 |
| 281 | 2014 | 5     | 50.05405 |
| 282 | 2014 | 6     | 48.01928 |
| 283 | 2014 | 7     | 43.19406 |
| 284 | 2014 | 8     | 45.89738 |
| 285 | 2014 | 9     | 46.65688 |
| 286 | 2014 | 10    | 46.49716 |
| 287 | 2014 | 11    | 51.35572 |
| 288 | 2014 | 12    | 56.9766  |
| 289 | 2015 | 1     | 57.16899 |
| 290 | 2015 | 2     | 52.96046 |
| 291 | 2015 | 3     | 52.4966  |
| 292 | 2015 | 4     | 50.76371 |
| 293 | 2015 | 5     | 44.45613 |
| 294 | 2015 | 6     | 43.34808 |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 872 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 295 | 2015 | 7     | 38.85504 |
| 296 | 2015 | 8     | 39.16827 |
| 297 | 2015 | 9     | 39.33776 |
| 298 | 2015 | 10    | 38.77151 |
| 299 | 2015 | 11    | 40.52312 |
| 300 | 2015 | 12    | 38.6796  |
| 301 | 2016 | 1     | 40.8571  |
| 302 | 2016 | 2     | 36.92073 |
| 303 | 2016 | 3     | 36.49833 |
| 304 | 2016 | 4     | 32.86612 |
| 305 | 2016 | 5     | 26.97334 |
| 306 | 2016 | 6     | 26.36284 |
| 307 | 2016 | 7     | 23.44261 |
| 308 | 2016 | 8     | 24.73878 |
| 309 | 2016 | 9     | 25.81531 |
| 310 | 2016 | 10    | 26.40473 |
| 311 | 2016 | 11    | 29.07746 |
| 312 | 2016 | 12    | 35.77722 |
| 313 | 2017 | 1     | 36.81145 |
| 314 | 2017 | 2     | 35.50279 |
| 315 | 2017 | 3     | 34.32992 |
| 316 | 2017 | 4     | 31.12433 |
| 317 | 2017 | 5     | 28.63457 |
| 318 | 2017 | 6     | 28.56352 |
| 319 | 2017 | 7     | 26.94967 |
| 320 | 2017 | 8     | 27.91946 |
| 321 | 2017 | 9     | 28.04221 |
| 322 | 2017 | 10    | 27.52315 |
| 323 | 2017 | 11    | 29.20825 |
| 324 | 2017 | 12    | 35.23819 |
| 325 | 2018 | 1     | 34.75617 |
| 326 | 2018 | 2     | 32.87611 |
| 327 | 2018 | 3     | 31.67338 |
| 328 | 2018 | 4     | 31.5198  |
| 329 | 2018 | 5     | 28.28968 |
| 330 | 2018 | 6     | 27.68719 |
| 331 | 2018 | 7     | 24.35534 |
| 332 | 2018 | 8     | 26.06865 |
| 333 | 2018 | 9     | 26.72765 |
| 334 | 2018 | 10    | 26.02902 |
| 335 | 2018 | 11    | 28.76146 |
| 336 | 2018 | 12    | 33.48811 |
| 337 | 2019 | 1     | 33.09704 |
| 338 | 2019 | 2     | 31.95405 |
| 339 | 2019 | 3     | 31.78086 |
| 340 | 2019 | 4     | 30.13422 |
| 341 | 2019 | 5     | 26.79694 |
| 342 | 2019 | 6     | 25.20533 |
| 343 | 2019 | 7     | 23.75737 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 873 of 1182

| Obs | YEAR | MONTH | eim_kpc  |
|-----|------|-------|----------|
| 344 | 2019 | 8     | 24.44301 |
| 345 | 2019 | 9     | 25.57236 |
| 346 | 2019 | 10    | 22.25676 |
| 347 | 2019 | 11    | 19.11996 |
| 348 | 2019 | 12    | 30.61429 |
| 349 | 2020 | 1     | 25.38712 |
| 350 | 2020 | 2     | 23.32601 |
| 351 | 2020 | 3     | 20.8404  |
| 352 | 2020 | 4     | 16.31883 |
| 353 | 2020 | 5     | 15.93503 |
| 354 | 2020 | 6     | 14.50054 |
| 355 | 2020 | 7     | 13.53139 |
| 356 | 2020 | 8     | 15.62393 |
| 357 | 2020 | 9     | 15.91021 |
| 358 | 2020 | 10    | 16.02067 |
| 359 | 2020 | 11    | 15.93294 |
| 360 | 2020 | 12    | 18.59335 |
| 361 | 2021 | 1     | 19.82859 |
| 362 | 2021 | 2     | 17.22934 |
| 363 | 2021 | 3     | 19.98087 |
| 364 | 2021 | 4     | 17.81757 |
| 365 | 2021 | 5     | 17.1399  |
| 366 | 2021 | 6     | 16.69472 |
| 367 | 2021 | 7     | 15.36282 |
| 368 | 2021 | 8     | 15.38217 |
| 369 | 2021 | 9     | 16.02277 |
| 370 | 2021 | 10    | 16.80267 |
| 371 | 2021 | 11    | 18.26645 |
| 372 | 2021 | 12    | 21.12849 |
| 373 | 2022 | 1     | 21.63411 |
| 374 | 2022 | 2     | .        |
| 375 | 2022 | 3     | .        |
| 376 | 2022 | 4     | .        |
| 377 | 2022 | 5     | .        |
| 378 | 2022 | 6     | .        |
| 379 | 2022 | 7     | .        |
| 380 | 2022 | 8     | .        |
| 381 | 2022 | 9     | .        |
| 382 | 2022 | 10    | .        |
| 383 | 2022 | 11    | .        |
| 384 | 2022 | 12    | .        |
| 385 | 2023 | 1     | .        |
| 386 | 2023 | 2     | .        |
| 387 | 2023 | 3     | .        |
| 388 | 2023 | 4     | .        |
| 389 | 2023 | 5     | .        |
| 390 | 2023 | 6     | .        |
| 391 | 2023 | 7     | .        |
| 392 | 2023 | 8     | .        |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 874 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 393 | 2023 | 9     | .       |
| 394 | 2023 | 10    | .       |
| 395 | 2023 | 11    | .       |
| 396 | 2023 | 12    | .       |
| 397 | 2024 | 1     | .       |
| 398 | 2024 | 2     | .       |
| 399 | 2024 | 3     | .       |
| 400 | 2024 | 4     | .       |
| 401 | 2024 | 5     | .       |
| 402 | 2024 | 6     | .       |
| 403 | 2024 | 7     | .       |
| 404 | 2024 | 8     | .       |
| 405 | 2024 | 9     | .       |
| 406 | 2024 | 10    | .       |
| 407 | 2024 | 11    | .       |
| 408 | 2024 | 12    | .       |
| 409 | 2025 | 1     | .       |
| 410 | 2025 | 2     | .       |
| 411 | 2025 | 3     | .       |
| 412 | 2025 | 4     | .       |
| 413 | 2025 | 5     | .       |
| 414 | 2025 | 6     | .       |
| 415 | 2025 | 7     | .       |
| 416 | 2025 | 8     | .       |
| 417 | 2025 | 9     | .       |
| 418 | 2025 | 10    | .       |
| 419 | 2025 | 11    | .       |
| 420 | 2025 | 12    | .       |
| 421 | 2026 | 1     | .       |
| 422 | 2026 | 2     | .       |
| 423 | 2026 | 3     | .       |
| 424 | 2026 | 4     | .       |
| 425 | 2026 | 5     | .       |
| 426 | 2026 | 6     | .       |
| 427 | 2026 | 7     | .       |
| 428 | 2026 | 8     | .       |
| 429 | 2026 | 9     | .       |
| 430 | 2026 | 10    | .       |
| 431 | 2026 | 11    | .       |
| 432 | 2026 | 12    | .       |
| 433 | 2027 | 1     | .       |
| 434 | 2027 | 2     | .       |
| 435 | 2027 | 3     | .       |
| 436 | 2027 | 4     | .       |
| 437 | 2027 | 5     | .       |
| 438 | 2027 | 6     | .       |
| 439 | 2027 | 7     | .       |
| 440 | 2027 | 8     | .       |
| 441 | 2027 | 9     | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 875 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 442 | 2027 | 10    | .       |
| 443 | 2027 | 11    | .       |
| 444 | 2027 | 12    | .       |
| 445 | 2028 | 1     | .       |
| 446 | 2028 | 2     | .       |
| 447 | 2028 | 3     | .       |
| 448 | 2028 | 4     | .       |
| 449 | 2028 | 5     | .       |
| 450 | 2028 | 6     | .       |
| 451 | 2028 | 7     | .       |
| 452 | 2028 | 8     | .       |
| 453 | 2028 | 9     | .       |
| 454 | 2028 | 10    | .       |
| 455 | 2028 | 11    | .       |
| 456 | 2028 | 12    | .       |
| 457 | 2029 | 1     | .       |
| 458 | 2029 | 2     | .       |
| 459 | 2029 | 3     | .       |
| 460 | 2029 | 4     | .       |
| 461 | 2029 | 5     | .       |
| 462 | 2029 | 6     | .       |
| 463 | 2029 | 7     | .       |
| 464 | 2029 | 8     | .       |
| 465 | 2029 | 9     | .       |
| 466 | 2029 | 10    | .       |
| 467 | 2029 | 11    | .       |
| 468 | 2029 | 12    | .       |
| 469 | 2030 | 1     | .       |
| 470 | 2030 | 2     | .       |
| 471 | 2030 | 3     | .       |
| 472 | 2030 | 4     | .       |
| 473 | 2030 | 5     | .       |
| 474 | 2030 | 6     | .       |
| 475 | 2030 | 7     | .       |
| 476 | 2030 | 8     | .       |
| 477 | 2030 | 9     | .       |
| 478 | 2030 | 10    | .       |
| 479 | 2030 | 11    | .       |
| 480 | 2030 | 12    | .       |
| 481 | 2031 | 1     | .       |
| 482 | 2031 | 2     | .       |
| 483 | 2031 | 3     | .       |
| 484 | 2031 | 4     | .       |
| 485 | 2031 | 5     | .       |
| 486 | 2031 | 6     | .       |
| 487 | 2031 | 7     | .       |
| 488 | 2031 | 8     | .       |
| 489 | 2031 | 9     | .       |
| 490 | 2031 | 10    | .       |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 876 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 491 | 2031 | 11    | .       |
| 492 | 2031 | 12    | .       |
| 493 | 2032 | 1     | .       |
| 494 | 2032 | 2     | .       |
| 495 | 2032 | 3     | .       |
| 496 | 2032 | 4     | .       |
| 497 | 2032 | 5     | .       |
| 498 | 2032 | 6     | .       |
| 499 | 2032 | 7     | .       |
| 500 | 2032 | 8     | .       |
| 501 | 2032 | 9     | .       |
| 502 | 2032 | 10    | .       |
| 503 | 2032 | 11    | .       |
| 504 | 2032 | 12    | .       |
| 505 | 2033 | 1     | .       |
| 506 | 2033 | 2     | .       |
| 507 | 2033 | 3     | .       |
| 508 | 2033 | 4     | .       |
| 509 | 2033 | 5     | .       |
| 510 | 2033 | 6     | .       |
| 511 | 2033 | 7     | .       |
| 512 | 2033 | 8     | .       |
| 513 | 2033 | 9     | .       |
| 514 | 2033 | 10    | .       |
| 515 | 2033 | 11    | .       |
| 516 | 2033 | 12    | .       |
| 517 | 2034 | 1     | .       |
| 518 | 2034 | 2     | .       |
| 519 | 2034 | 3     | .       |
| 520 | 2034 | 4     | .       |
| 521 | 2034 | 5     | .       |
| 522 | 2034 | 6     | .       |
| 523 | 2034 | 7     | .       |
| 524 | 2034 | 8     | .       |
| 525 | 2034 | 9     | .       |
| 526 | 2034 | 10    | .       |
| 527 | 2034 | 11    | .       |
| 528 | 2034 | 12    | .       |
| 529 | 2035 | 1     | .       |
| 530 | 2035 | 2     | .       |
| 531 | 2035 | 3     | .       |
| 532 | 2035 | 4     | .       |
| 533 | 2035 | 5     | .       |
| 534 | 2035 | 6     | .       |
| 535 | 2035 | 7     | .       |
| 536 | 2035 | 8     | .       |
| 537 | 2035 | 9     | .       |
| 538 | 2035 | 10    | .       |
| 539 | 2035 | 11    | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 877 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 540 | 2035 | 12    | .       |
| 541 | 2036 | 1     | .       |
| 542 | 2036 | 2     | .       |
| 543 | 2036 | 3     | .       |
| 544 | 2036 | 4     | .       |
| 545 | 2036 | 5     | .       |
| 546 | 2036 | 6     | .       |
| 547 | 2036 | 7     | .       |
| 548 | 2036 | 8     | .       |
| 549 | 2036 | 9     | .       |
| 550 | 2036 | 10    | .       |
| 551 | 2036 | 11    | .       |
| 552 | 2036 | 12    | .       |
| 553 | 2037 | 1     | .       |
| 554 | 2037 | 2     | .       |
| 555 | 2037 | 3     | .       |
| 556 | 2037 | 4     | .       |
| 557 | 2037 | 5     | .       |
| 558 | 2037 | 6     | .       |
| 559 | 2037 | 7     | .       |
| 560 | 2037 | 8     | .       |
| 561 | 2037 | 9     | .       |
| 562 | 2037 | 10    | .       |
| 563 | 2037 | 11    | .       |
| 564 | 2037 | 12    | .       |
| 565 | 2038 | 1     | .       |
| 566 | 2038 | 2     | .       |
| 567 | 2038 | 3     | .       |
| 568 | 2038 | 4     | .       |
| 569 | 2038 | 5     | .       |
| 570 | 2038 | 6     | .       |
| 571 | 2038 | 7     | .       |
| 572 | 2038 | 8     | .       |
| 573 | 2038 | 9     | .       |
| 574 | 2038 | 10    | .       |
| 575 | 2038 | 11    | .       |
| 576 | 2038 | 12    | .       |
| 577 | 2039 | 1     | .       |
| 578 | 2039 | 2     | .       |
| 579 | 2039 | 3     | .       |
| 580 | 2039 | 4     | .       |
| 581 | 2039 | 5     | .       |
| 582 | 2039 | 6     | .       |
| 583 | 2039 | 7     | .       |
| 584 | 2039 | 8     | .       |
| 585 | 2039 | 9     | .       |
| 586 | 2039 | 10    | .       |
| 587 | 2039 | 11    | .       |
| 588 | 2039 | 12    | .       |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 878 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 589 | 2040 | 1     | .       |
| 590 | 2040 | 2     | .       |
| 591 | 2040 | 3     | .       |
| 592 | 2040 | 4     | .       |
| 593 | 2040 | 5     | .       |
| 594 | 2040 | 6     | .       |
| 595 | 2040 | 7     | .       |
| 596 | 2040 | 8     | .       |
| 597 | 2040 | 9     | .       |
| 598 | 2040 | 10    | .       |
| 599 | 2040 | 11    | .       |
| 600 | 2040 | 12    | .       |
| 601 | 2041 | 1     | .       |
| 602 | 2041 | 2     | .       |
| 603 | 2041 | 3     | .       |
| 604 | 2041 | 4     | .       |
| 605 | 2041 | 5     | .       |
| 606 | 2041 | 6     | .       |
| 607 | 2041 | 7     | .       |
| 608 | 2041 | 8     | .       |
| 609 | 2041 | 9     | .       |
| 610 | 2041 | 10    | .       |
| 611 | 2041 | 11    | .       |
| 612 | 2041 | 12    | .       |
| 613 | 2042 | 1     | .       |
| 614 | 2042 | 2     | .       |
| 615 | 2042 | 3     | .       |
| 616 | 2042 | 4     | .       |
| 617 | 2042 | 5     | .       |
| 618 | 2042 | 6     | .       |
| 619 | 2042 | 7     | .       |
| 620 | 2042 | 8     | .       |
| 621 | 2042 | 9     | .       |
| 622 | 2042 | 10    | .       |
| 623 | 2042 | 11    | .       |
| 624 | 2042 | 12    | .       |
| 625 | 2043 | 1     | .       |
| 626 | 2043 | 2     | .       |
| 627 | 2043 | 3     | .       |
| 628 | 2043 | 4     | .       |
| 629 | 2043 | 5     | .       |
| 630 | 2043 | 6     | .       |
| 631 | 2043 | 7     | .       |
| 632 | 2043 | 8     | .       |
| 633 | 2043 | 9     | .       |
| 634 | 2043 | 10    | .       |
| 635 | 2043 | 11    | .       |
| 636 | 2043 | 12    | .       |
| 637 | 2044 | 1     | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 879 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 638 | 2044 | 2     | .       |
| 639 | 2044 | 3     | .       |
| 640 | 2044 | 4     | .       |
| 641 | 2044 | 5     | .       |
| 642 | 2044 | 6     | .       |
| 643 | 2044 | 7     | .       |
| 644 | 2044 | 8     | .       |
| 645 | 2044 | 9     | .       |
| 646 | 2044 | 10    | .       |
| 647 | 2044 | 11    | .       |
| 648 | 2044 | 12    | .       |
| 649 | 2045 | 1     | .       |
| 650 | 2045 | 2     | .       |
| 651 | 2045 | 3     | .       |
| 652 | 2045 | 4     | .       |
| 653 | 2045 | 5     | .       |
| 654 | 2045 | 6     | .       |
| 655 | 2045 | 7     | .       |
| 656 | 2045 | 8     | .       |
| 657 | 2045 | 9     | .       |
| 658 | 2045 | 10    | .       |
| 659 | 2045 | 11    | .       |
| 660 | 2045 | 12    | .       |
| 661 | 2046 | 1     | .       |
| 662 | 2046 | 2     | .       |
| 663 | 2046 | 3     | .       |
| 664 | 2046 | 4     | .       |
| 665 | 2046 | 5     | .       |
| 666 | 2046 | 6     | .       |
| 667 | 2046 | 7     | .       |
| 668 | 2046 | 8     | .       |
| 669 | 2046 | 9     | .       |
| 670 | 2046 | 10    | .       |
| 671 | 2046 | 11    | .       |
| 672 | 2046 | 12    | .       |
| 673 | 2047 | 1     | .       |
| 674 | 2047 | 2     | .       |
| 675 | 2047 | 3     | .       |
| 676 | 2047 | 4     | .       |
| 677 | 2047 | 5     | .       |
| 678 | 2047 | 6     | .       |
| 679 | 2047 | 7     | .       |
| 680 | 2047 | 8     | .       |
| 681 | 2047 | 9     | .       |
| 682 | 2047 | 10    | .       |
| 683 | 2047 | 11    | .       |
| 684 | 2047 | 12    | .       |
| 685 | 2048 | 1     | .       |
| 686 | 2048 | 2     | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 880 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 687 | 2048 | 3     | .       |
| 688 | 2048 | 4     | .       |
| 689 | 2048 | 5     | .       |
| 690 | 2048 | 6     | .       |
| 691 | 2048 | 7     | .       |
| 692 | 2048 | 8     | .       |
| 693 | 2048 | 9     | .       |
| 694 | 2048 | 10    | .       |
| 695 | 2048 | 11    | .       |
| 696 | 2048 | 12    | .       |
| 697 | 2049 | 1     | .       |
| 698 | 2049 | 2     | .       |
| 699 | 2049 | 3     | .       |
| 700 | 2049 | 4     | .       |
| 701 | 2049 | 5     | .       |
| 702 | 2049 | 6     | .       |
| 703 | 2049 | 7     | .       |
| 704 | 2049 | 8     | .       |
| 705 | 2049 | 9     | .       |
| 706 | 2049 | 10    | .       |
| 707 | 2049 | 11    | .       |
| 708 | 2049 | 12    | .       |
| 709 | 2050 | 1     | .       |
| 710 | 2050 | 2     | .       |
| 711 | 2050 | 3     | .       |
| 712 | 2050 | 4     | .       |
| 713 | 2050 | 5     | .       |
| 714 | 2050 | 6     | .       |
| 715 | 2050 | 7     | .       |
| 716 | 2050 | 8     | .       |
| 717 | 2050 | 9     | .       |
| 718 | 2050 | 10    | .       |
| 719 | 2050 | 11    | .       |
| 720 | 2050 | 12    | .       |
| 721 | 2051 | 1     | .       |
| 722 | 2051 | 2     | .       |
| 723 | 2051 | 3     | .       |
| 724 | 2051 | 4     | .       |
| 725 | 2051 | 5     | .       |
| 726 | 2051 | 6     | .       |
| 727 | 2051 | 7     | .       |
| 728 | 2051 | 8     | .       |
| 729 | 2051 | 9     | .       |
| 730 | 2051 | 10    | .       |
| 731 | 2051 | 11    | .       |
| 732 | 2051 | 12    | .       |
| 733 | 2052 | 1     | .       |
| 734 | 2052 | 2     | .       |
| 735 | 2052 | 3     | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 881 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 736 | 2052 | 4     | .       |
| 737 | 2052 | 5     | .       |
| 738 | 2052 | 6     | .       |
| 739 | 2052 | 7     | .       |
| 740 | 2052 | 8     | .       |
| 741 | 2052 | 9     | .       |
| 742 | 2052 | 10    | .       |
| 743 | 2052 | 11    | .       |
| 744 | 2052 | 12    | .       |
| 745 | 2053 | 1     | .       |
| 746 | 2053 | 2     | .       |
| 747 | 2053 | 3     | .       |
| 748 | 2053 | 4     | .       |
| 749 | 2053 | 5     | .       |
| 750 | 2053 | 6     | .       |
| 751 | 2053 | 7     | .       |
| 752 | 2053 | 8     | .       |
| 753 | 2053 | 9     | .       |
| 754 | 2053 | 10    | .       |
| 755 | 2053 | 11    | .       |
| 756 | 2053 | 12    | .       |
| 757 | 2054 | 1     | .       |
| 758 | 2054 | 2     | .       |
| 759 | 2054 | 3     | .       |
| 760 | 2054 | 4     | .       |
| 761 | 2054 | 5     | .       |
| 762 | 2054 | 6     | .       |
| 763 | 2054 | 7     | .       |
| 764 | 2054 | 8     | .       |
| 765 | 2054 | 9     | .       |
| 766 | 2054 | 10    | .       |
| 767 | 2054 | 11    | .       |
| 768 | 2054 | 12    | .       |
| 769 | 2055 | 1     | .       |
| 770 | 2055 | 2     | .       |
| 771 | 2055 | 3     | .       |
| 772 | 2055 | 4     | .       |
| 773 | 2055 | 5     | .       |
| 774 | 2055 | 6     | .       |
| 775 | 2055 | 7     | .       |
| 776 | 2055 | 8     | .       |
| 777 | 2055 | 9     | .       |
| 778 | 2055 | 10    | .       |
| 779 | 2055 | 11    | .       |
| 780 | 2055 | 12    | .       |
| 781 | 2056 | 1     | .       |
| 782 | 2056 | 2     | .       |
| 783 | 2056 | 3     | .       |
| 784 | 2056 | 4     | .       |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 882 of 1182

| Obs | YEAR | MONTH | eim_kpc |
|-----|------|-------|---------|
| 785 | 2056 | 5     | .       |
| 786 | 2056 | 6     | .       |
| 787 | 2056 | 7     | .       |
| 788 | 2056 | 8     | .       |
| 789 | 2056 | 9     | .       |
| 790 | 2056 | 10    | .       |
| 791 | 2056 | 11    | .       |
| 792 | 2056 | 12    | .       |
| 793 | 2057 | 1     | .       |
| 794 | 2057 | 2     | .       |
| 795 | 2057 | 3     | .       |
| 796 | 2057 | 4     | .       |
| 797 | 2057 | 5     | .       |
| 798 | 2057 | 6     | .       |
| 799 | 2057 | 7     | .       |
| 800 | 2057 | 8     | .       |
| 801 | 2057 | 9     | .       |
| 802 | 2057 | 10    | .       |
| 803 | 2057 | 11    | .       |
| 804 | 2057 | 12    | .       |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 883 of 1182

The MEANS Procedure

| Variable | Label                            | Mean       |
|----------|----------------------------------|------------|
| YEAR     | Year                             | 2024.00    |
| MONTH    | Month                            | 6.5000000  |
| qc_kye   | EASTERN KENTUCKY COAL PRODUCTION | 3397228.71 |
| d05on    | BINARY VARIABLE-2005 ON          | 0.7910448  |
| aug15on  | BINARY VARIABLE-AUGUST 2015 ON   | 0.6330846  |
| may16on  | BINARY VARIABLE-MAY 2016 ON      | 0.6218905  |
| d1       | BINARY VARIABLE-1ST QTR          | 0.0833333  |
| d2       | BINARY VARIABLE-2ND QTR          | 0.0833333  |
| d3       | BINARY VARIABLE-3RD QTR          | 0.0833333  |
| d4       | BINARY VARIABLE-APRIL            | 0.0833333  |
| d5       | BINARY VARIABLE-MAY              | 0.0833333  |
| d6       | BINARY VARIABLE-JUNE             | 0.0833333  |
| d7       | BINARY VARIABLE-JULY             | 0.0833333  |
| d8       | BINARY VARIABLE-AUGUST           | 0.0833333  |
| d9       | BINARY VARIABLE-SEPTEMBER        | 0.0833333  |
| d10      | BINARY VARIABLE-OCTOBER          | 0.0833333  |
| d11      | BINARY VARIABLE-NOVEMBER         | 0.0833333  |
| d954     | BINARY VARIABLE-1995 4TH QTR     | 0.0012438  |
| d064on   | BINARY VARIABLE- 2006 4TH QTR ON | 0.7649254  |
| Ju112on  | BINARY VARIABLE-JULY 2012 ON     | 0.6791045  |
| oct13on  | BINARY VARIABLE-OCTOBER 2013 ON  | 0.6604478  |
| d17on    | BINARY VARIABLE-2017 ON          | 0.6119403  |
| feb99    | BINARY VARIABLE-FEBRUARY 1999    | 0.0012438  |
| dec95    | BINARY VARIABLE-DECEMBER 1995    | 0.0012438  |
| jan96    | BINARY VARIABLE-JANUARY 1996     | 0.0012438  |
| dec98    | BINARY VARIABLE-DECEMBER 1998    | 0.0012438  |
| feb18on  | BINARY VARIABLE-FEBRUARY 2018 ON | 0.5957711  |
| oct19on  | BINARY VARIABLE-OCTOBER 2019 ON  | 0.5708955  |
| apr20on  | BINARY VARIABLE-APRIL 2020 ON    | 0.5634328  |





























KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 898 of 1182

| Obs | YEAR | MONTH | qc_kye  | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|---------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 323 | 2017 | 11    | 1546546 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 324 | 2017 | 12    | 1519483 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 325 | 2018 | 1     | 1483205 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 326 | 2018 | 2     | 1442454 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 327 | 2018 | 3     | 1567742 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 328 | 2018 | 4     | 1392623 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 329 | 2018 | 5     | 1468547 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 330 | 2018 | 6     | 1477212 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 331 | 2018 | 7     | 1337163 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 332 | 2018 | 8     | 1472188 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 333 | 2018 | 9     | 1325947 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 334 | 2018 | 10    | 1419201 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 335 | 2018 | 11    | 1340803 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 336 | 2018 | 12    | 1353953 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 337 | 2019 | 1     | 1446925 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 338 | 2019 | 2     | 1281625 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 339 | 2019 | 3     | 1223442 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 340 | 2019 | 4     | 1274192 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 341 | 2019 | 5     | 1287686 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 342 | 2019 | 6     | 1180375 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 343 | 2019 | 7     | 1110345 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 344 | 2019 | 8     | 1199174 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 345 | 2019 | 9     | 1101493 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 323 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CONFID. |
| 324 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CONFID. |
| 325 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | CONFID. |
| 326 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 327 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 328 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 329 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 330 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 331 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 332 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 333 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 334 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 335 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 336 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 337 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 338 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 339 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 340 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 341 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 342 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 343 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 344 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |
| 345 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 899 of 1182

| Obs | YEAR | MONTH | qc_kye | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|--------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 346 | 2019 | 10    | 965369 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 347 | 2019 | 11    | 910448 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 348 | 2019 | 12    | 890212 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 349 | 2020 | 1     | 890517 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 350 | 2020 | 2     | 758667 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 351 | 2020 | 3     | 737566 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 352 | 2020 | 4     | 601625 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 353 | 2020 | 5     | 569766 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 354 | 2020 | 6     | 605626 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 355 | 2020 | 7     | 654004 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 356 | 2020 | 8     | 719155 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 357 | 2020 | 9     | 683119 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 358 | 2020 | 10    | 699232 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 359 | 2020 | 11    | 689235 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 360 | 2020 | 12    | 696359 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 361 | 2021 | 1     | 798695 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 362 | 2021 | 2     | 672231 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 363 | 2021 | 3     | 836946 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 364 | 2021 | 4     | 839619 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 365 | 2021 | 5     | 901027 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 366 | 2021 | 6     | 904120 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 367 | 2021 | 7     | 831962 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 368 | 2021 | 8     | 858847 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 346 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 347 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 348 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 349 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 350 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 351 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | CONFID. |
| 352 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 353 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 354 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 355 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 356 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 357 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 358 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 359 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 360 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 361 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 362 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 363 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 364 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 365 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 366 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 367 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 368 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 900 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 369 | 2021 | 9     | 854048     | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 370 | 2021 | 10    | 809533.558 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 371 | 2021 | 11    | 805476.079 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 372 | 2021 | 12    | 807274.371 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 373 | 2022 | 1     | 864723.243 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 374 | 2022 | 2     | 828283.549 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 375 | 2022 | 3     | 871364.769 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 376 | 2022 | 4     | 839058.733 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 377 | 2022 | 5     | 862990.388 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 378 | 2022 | 6     | 878734.021 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 379 | 2022 | 7     | 859629.146 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 380 | 2022 | 8     | 874437.488 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 381 | 2022 | 9     | 859393.785 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 382 | 2022 | 10    | 807933.835 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 383 | 2022 | 11    | 803901.027 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 384 | 2022 | 12    | 805694.189 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 385 | 2023 | 1     | 858408.15  | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 386 | 2023 | 2     | 827838.045 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 387 | 2023 | 3     | 867686.535 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 388 | 2023 | 4     | 835579.641 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 389 | 2023 | 5     | 859485.025 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 390 | 2023 | 6     | 875772.298 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 391 | 2023 | 7     | 855245.574 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 369 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 370 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 371 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 372 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 373 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 374 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 375 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 376 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 377 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 378 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 379 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 380 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 381 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 382 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 383 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 384 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 385 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 386 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 387 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 388 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 389 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 390 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 391 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 901 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 392 | 2023 | 8     | 871685.51  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 393 | 2023 | 9     | 854579.766 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 394 | 2023 | 10    | 807887.771 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 395 | 2023 | 11    | 803572.791 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 396 | 2023 | 12    | 806046.203 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 397 | 2024 | 1     | 871380.7   | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 398 | 2024 | 2     | 837383.153 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 399 | 2024 | 3     | 880805.779 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 400 | 2024 | 4     | 847187.579 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 401 | 2024 | 5     | 872234.9   | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 402 | 2024 | 6     | 888678.837 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 403 | 2024 | 7     | 867474.712 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 404 | 2024 | 8     | 884168.098 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 405 | 2024 | 9     | 867192.118 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 406 | 2024 | 10    | 816689.671 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 407 | 2024 | 11    | 812260.762 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 408 | 2024 | 12    | 814709.005 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 409 | 2025 | 1     | 856550.91  | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 410 | 2025 | 2     | 825148.828 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 411 | 2025 | 3     | 864960.745 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 412 | 2025 | 4     | 833236.035 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 413 | 2025 | 5     | 856813.697 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 414 | 2025 | 6     | 872884.055 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 392 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 393 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 394 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 395 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 396 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 397 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 398 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 399 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 400 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 401 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 402 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 403 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 404 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 405 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 406 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 407 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 408 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 409 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 410 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 411 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 412 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 413 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 414 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 902 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 415 | 2025 | 7     | 853002.323 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 416 | 2025 | 8     | 868856.027 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 417 | 2025 | 9     | 852358.8   | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 418 | 2025 | 10    | 805292.18  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 419 | 2025 | 11    | 801099.602 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 420 | 2025 | 12    | 803366.364 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 421 | 2026 | 1     | 875784.335 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 422 | 2026 | 2     | 842525.466 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 423 | 2026 | 3     | 886491.098 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 424 | 2026 | 4     | 852112.047 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 425 | 2026 | 5     | 877790.795 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 426 | 2026 | 6     | 894570.186 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 427 | 2026 | 7     | 872337.13  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 428 | 2026 | 8     | 889915.718 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 429 | 2026 | 9     | 872074.887 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 430 | 2026 | 10    | 821595.519 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 431 | 2026 | 11    | 816974     | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 432 | 2026 | 12    | 819717.866 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 433 | 2027 | 1     | 869127.051 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 434 | 2027 | 2     | 836859.96  | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 435 | 2027 | 3     | 879256.018 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 436 | 2027 | 4     | 845756.911 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 437 | 2027 | 5     | 870747.757 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 415 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 416 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 417 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 418 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 419 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 420 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 421 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 422 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 423 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 424 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 425 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 426 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 427 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 428 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 429 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 430 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 431 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 432 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 433 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 434 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 435 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 436 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 437 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 903 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 438 | 2027 | 6     | 887331.887 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 439 | 2027 | 7     | 865773.512 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 440 | 2027 | 8     | 882896.117 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 441 | 2027 | 9     | 865358.152 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 442 | 2027 | 10    | 816305.918 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 443 | 2027 | 11    | 811805.611 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 444 | 2027 | 12    | 814438.724 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 445 | 2028 | 1     | 861308.505 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 446 | 2028 | 2     | 830421.017 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 447 | 2028 | 3     | 870906.314 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 448 | 2028 | 4     | 838406.155 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 449 | 2028 | 5     | 862621.872 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 450 | 2028 | 6     | 879010.048 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 451 | 2028 | 7     | 858146.745 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 452 | 2028 | 8     | 874829.372 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 453 | 2028 | 9     | 857540.234 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 454 | 2028 | 10    | 810308.98  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 455 | 2028 | 11    | 805932.657 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 456 | 2028 | 12    | 808471.558 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 457 | 2029 | 1     | 860068.738 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 458 | 2029 | 2     | 829293.363 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 459 | 2029 | 3     | 869514.693 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 460 | 2029 | 4     | 837185.762 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 438 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 439 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 440 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 441 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 442 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 443 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 444 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 445 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 446 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 447 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 448 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 449 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 450 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 451 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 452 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 453 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 454 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 455 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 456 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 457 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 458 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 459 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 460 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 904 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 461 | 2029 | 5     | 861265.762 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 462 | 2029 | 6     | 877607.3   | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 463 | 2029 | 7     | 856897.82  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 464 | 2029 | 8     | 873466.769 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 465 | 2029 | 9     | 856267.31  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 466 | 2029 | 10    | 809250.282 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 467 | 2029 | 11    | 804902.097 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 468 | 2029 | 12    | 807409.219 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 469 | 2030 | 1     | 858538.617 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 470 | 2030 | 2     | 827790.085 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 471 | 2030 | 3     | 867725.904 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 472 | 2030 | 4     | 835622.137 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 473 | 2030 | 5     | 859520.905 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 474 | 2030 | 6     | 875788.521 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 475 | 2030 | 7     | 855314.931 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 476 | 2030 | 8     | 871697.334 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 477 | 2030 | 9     | 854661.325 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 478 | 2030 | 10    | 807830.992 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 479 | 2030 | 11    | 803526.463 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 480 | 2030 | 12    | 805976.655 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 481 | 2031 | 1     | 866452.014 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 482 | 2031 | 2     | 834541.344 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 483 | 2031 | 3     | 876323.787 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 461 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 462 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 463 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 464 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 465 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 466 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 467 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 468 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 469 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 470 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 471 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 472 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 473 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 474 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 475 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 476 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 477 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 478 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 479 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 480 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 481 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 482 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 483 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 905 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 484 | 2031 | 4     | 843182.028 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 485 | 2031 | 5     | 867892.449 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 486 | 2031 | 6     | 884392.275 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 487 | 2031 | 7     | 863120.8   | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 488 | 2031 | 8     | 880043.908 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 489 | 2031 | 9     | 862646.614 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 490 | 2031 | 10    | 814137.643 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 491 | 2031 | 11    | 809689.195 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 492 | 2031 | 12    | 812271.45  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 493 | 2032 | 1     | 858422.427 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 494 | 2032 | 2     | 828503.792 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 495 | 2032 | 3     | 868121.738 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 496 | 2032 | 4     | 835930.197 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 497 | 2032 | 5     | 859918.878 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 498 | 2032 | 6     | 876302.891 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 499 | 2032 | 7     | 855503.008 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 500 | 2032 | 8     | 872216.369 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 501 | 2032 | 9     | 854799.555 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 502 | 2032 | 10    | 808558.892 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 503 | 2032 | 11    | 804191.051 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 504 | 2032 | 12    | 806768.903 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 505 | 2033 | 1     | 845106.415 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 506 | 2033 | 2     | 816987.46  | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 484 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 485 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 486 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 487 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 488 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 489 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 490 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 491 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 492 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 493 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 494 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 495 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 496 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 497 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 498 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 499 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 500 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 501 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 502 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 503 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 504 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 505 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 506 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 906 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 507 | 2033 | 3     | 853576.574 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 508 | 2033 | 4     | 823133.661 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 509 | 2033 | 5     | 845751.34  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 510 | 2033 | 6     | 861725.626 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 511 | 2033 | 7     | 842313.963 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 512 | 2033 | 8     | 858066.85  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 513 | 2033 | 9     | 841320.593 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 514 | 2033 | 10    | 797785.843 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 515 | 2033 | 11    | 793670.053 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 516 | 2033 | 12    | 796004.897 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 517 | 2034 | 1     | 845661.654 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 518 | 2034 | 2     | 817252.937 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 519 | 2034 | 3     | 854044.965 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 520 | 2034 | 4     | 823556.574 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 521 | 2034 | 5     | 846204.347 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 522 | 2034 | 6     | 862164.064 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 523 | 2034 | 7     | 842783.975 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 524 | 2034 | 8     | 858487.274 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 525 | 2034 | 9     | 841815.097 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 526 | 2034 | 10    | 798018.273 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 527 | 2034 | 11    | 793909.294 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 528 | 2034 | 12    | 796219.953 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 529 | 2035 | 1     | 841017.046 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 507 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 508 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 509 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 510 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 511 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 512 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 513 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 514 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 515 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 516 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 517 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 518 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 519 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 520 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 521 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 522 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 523 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 524 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 525 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 526 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 527 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 528 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 529 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 907 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 530 | 2035 | 2     | 813721.618 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 531 | 2035 | 3     | 849289.091 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 532 | 2035 | 4     | 819344.566 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 533 | 2035 | 5     | 841578.591 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 534 | 2035 | 6     | 857467.905 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 535 | 2035 | 7     | 838365.347 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 536 | 2035 | 8     | 853939.622 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 537 | 2035 | 9     | 837267.949 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 538 | 2035 | 10    | 794750.052 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 539 | 2035 | 11    | 790689.211 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 540 | 2035 | 12    | 792993.636 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 541 | 2036 | 1     | 837656.712 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 542 | 2036 | 2     | 810605.537 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 543 | 2036 | 3     | 845491.507 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 544 | 2036 | 4     | 816009.01  | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 545 | 2036 | 5     | 837875.485 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 546 | 2036 | 6     | 853631.905 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 547 | 2036 | 7     | 834960.433 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 548 | 2036 | 8     | 850209.732 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 549 | 2036 | 9     | 833802.946 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 550 | 2036 | 10    | 791818.241 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 551 | 2036 | 11    | 787837.026 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 552 | 2036 | 12    | 790047.922 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 530 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 531 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 532 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 533 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 534 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 535 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 536 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 537 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 538 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 539 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 540 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 541 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 542 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 543 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 544 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 545 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 546 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 547 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 548 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 549 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 550 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 551 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 552 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 908 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 553 | 2037 | 1     | 837258.164 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 554 | 2037 | 2     | 810110.047 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 555 | 2037 | 3     | 844960.77  | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 556 | 2037 | 4     | 815548.687 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 557 | 2037 | 5     | 837356.078 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 558 | 2037 | 6     | 853078.307 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 559 | 2037 | 7     | 834509.869 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 560 | 2037 | 8     | 849668.484 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 561 | 2037 | 9     | 833352.59  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 562 | 2037 | 10    | 791343.271 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 563 | 2037 | 11    | 787381.584 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 564 | 2037 | 12    | 789561.359 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 565 | 2038 | 1     | 835983.002 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 566 | 2038 | 2     | 809374.808 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 567 | 2038 | 3     | 843806.103 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 568 | 2038 | 4     | 814513.035 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 569 | 2038 | 5     | 836236.661 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 570 | 2038 | 6     | 851974.129 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 571 | 2038 | 7     | 833383.964 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 572 | 2038 | 8     | 848605.177 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 573 | 2038 | 9     | 832177.963 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 574 | 2038 | 10    | 790682.515 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 575 | 2038 | 11    | 786715.089 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 553 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 554 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 555 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 556 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 557 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 558 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 559 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 560 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 561 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 562 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 563 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 564 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 565 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 566 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 567 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 568 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 569 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 570 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 571 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 572 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 573 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 574 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 575 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 909 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 576 | 2038 | 12    | 788930.713 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 577 | 2039 | 1     | 833078.363 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 578 | 2039 | 2     | 806584.259 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 579 | 2039 | 3     | 840464.096 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 580 | 2039 | 4     | 811580.547 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 581 | 2039 | 5     | 832976.052 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 582 | 2039 | 6     | 848584.912 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 583 | 2039 | 7     | 830405.27  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 584 | 2039 | 8     | 845306.982 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 585 | 2039 | 9     | 829153.266 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 586 | 2039 | 10    | 788049.791 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 587 | 2039 | 11    | 784158.679 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 588 | 2039 | 12    | 786278.435 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 589 | 2040 | 1     | 828600.363 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 590 | 2040 | 2     | 802939.615 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 591 | 2040 | 3     | 835734.509 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 592 | 2040 | 4     | 807398.201 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 593 | 2040 | 5     | 828370.81  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 594 | 2040 | 6     | 843878.201 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 595 | 2040 | 7     | 826057.646 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 596 | 2040 | 8     | 840741.129 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 597 | 2040 | 9     | 824696.86  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 598 | 2040 | 10    | 784654.954 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 576 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 577 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 578 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 579 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 580 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 581 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 582 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 583 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 584 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 585 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 586 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 587 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 588 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 589 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 590 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 591 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 592 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 593 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 594 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 595 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 596 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 597 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 598 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 910 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 599 | 2040 | 11    | 780828.438 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 600 | 2040 | 12    | 782905.594 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 601 | 2041 | 1     | 821054.062 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 602 | 2041 | 2     | 796652.997 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 603 | 2041 | 3     | 827679.392 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 604 | 2041 | 4     | 800277.432 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 605 | 2041 | 5     | 820524.254 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 606 | 2041 | 6     | 835840.796 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 607 | 2041 | 7     | 818678.713 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 608 | 2041 | 8     | 832939.25  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 609 | 2041 | 9     | 817143.982 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 610 | 2041 | 10    | 778786.628 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 611 | 2041 | 11    | 775079.673 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 612 | 2041 | 12    | 777063.363 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 613 | 2042 | 1     | 818723.805 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 614 | 2042 | 2     | 794896.101 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 615 | 2042 | 3     | 825311.244 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 616 | 2042 | 4     | 798173.58  | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 617 | 2042 | 5     | 818220.056 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 618 | 2042 | 6     | 833504.904 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 619 | 2042 | 7     | 816468.76  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 620 | 2042 | 8     | 830676.067 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 621 | 2042 | 9     | 814869.844 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 599 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 600 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 601 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 602 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 603 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 604 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 605 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 606 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 607 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 608 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 609 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 610 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 611 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 612 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 613 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 614 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 615 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 616 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 617 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 618 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 619 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 620 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 621 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 911 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 622 | 2042 | 10    | 777160.687 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 623 | 2042 | 11    | 773475.666 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 624 | 2042 | 12    | 775460.192 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 625 | 2043 | 1     | 816117.863 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 626 | 2043 | 2     | 792402.416 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 627 | 2043 | 3     | 822327.521 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 628 | 2043 | 4     | 795549.757 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 629 | 2043 | 5     | 815308.145 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 630 | 2043 | 6     | 830480.588 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 631 | 2043 | 7     | 813801.69  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 632 | 2043 | 8     | 827731.713 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 633 | 2043 | 9     | 812161.885 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 634 | 2043 | 10    | 774807.301 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 635 | 2043 | 11    | 771189.009 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 636 | 2043 | 12    | 773090.472 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 637 | 2044 | 1     | 816102.997 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 638 | 2044 | 2     | 792400.481 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 639 | 2044 | 3     | 822318.318 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 640 | 2044 | 4     | 795541.092 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 641 | 2044 | 5     | 815299.342 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 642 | 2044 | 6     | 830472.936 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 643 | 2044 | 7     | 813791.025 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 644 | 2044 | 8     | 827724.543 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 622 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 623 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 624 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 625 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 626 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 627 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 628 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 629 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 630 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 631 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 632 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 633 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 634 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 635 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 636 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 637 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 638 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 639 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 640 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 641 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 642 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 643 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 644 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 912 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 645 | 2044 | 9     | 812150.273 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 646 | 2044 | 10    | 774806.305 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 647 | 2044 | 11    | 771187.41  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 648 | 2044 | 12    | 773090.356 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 649 | 2045 | 1     | 816223.852 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 650 | 2045 | 2     | 792568.636 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 651 | 2045 | 3     | 822490.053 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 652 | 2045 | 4     | 795689.697 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 653 | 2045 | 5     | 815467.706 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 654 | 2045 | 6     | 830654.161 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 655 | 2045 | 7     | 813934.149 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 656 | 2045 | 8     | 827902.18  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 657 | 2045 | 9     | 812292.237 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 658 | 2045 | 10    | 774968.557 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 659 | 2045 | 11    | 771342.372 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 660 | 2045 | 12    | 773257.52  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 661 | 2046 | 1     | 815846.058 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 662 | 2046 | 2     | 792111.863 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 663 | 2046 | 3     | 821997.024 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 664 | 2046 | 4     | 795260.486 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 665 | 2046 | 5     | 814985.153 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 666 | 2046 | 6     | 830141.448 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 667 | 2046 | 7     | 813512.248 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 645 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 646 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 647 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 648 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 649 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 650 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 651 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 652 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 653 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 654 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 655 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 656 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 657 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 658 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 659 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 660 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 661 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 662 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 663 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 664 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 665 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 666 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 667 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 913 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 668 | 2046 | 8     | 827400.831 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 669 | 2046 | 9     | 811869.958 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 670 | 2046 | 10    | 774531.02  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 671 | 2046 | 11    | 770922.114 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 672 | 2046 | 12    | 772810.081 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 673 | 2047 | 1     | 815684.329 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 674 | 2047 | 2     | 791925.873 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 675 | 2047 | 3     | 821792.047 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 676 | 2047 | 4     | 795081.645 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 677 | 2047 | 5     | 814784.651 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 678 | 2047 | 6     | 829929.429 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 679 | 2047 | 7     | 813335.174 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 680 | 2047 | 8     | 827193.695 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 681 | 2047 | 9     | 811692.168 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 682 | 2047 | 10    | 774353.37  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 683 | 2047 | 11    | 770751.097 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 684 | 2047 | 12    | 772628.949 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 685 | 2048 | 1     | 816229.42  | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 686 | 2048 | 2     | 792625.681 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 687 | 2048 | 3     | 822529.313 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 688 | 2048 | 4     | 795721.825 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 689 | 2048 | 5     | 815506.769 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 690 | 2048 | 6     | 830701.004 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 668 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 669 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 670 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 671 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 672 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 673 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 674 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 675 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 676 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 677 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 678 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 679 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 680 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 681 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 682 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 683 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 684 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 685 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 686 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 687 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 688 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 689 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 690 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 914 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 691 | 2048 | 7     | 813958.993 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 692 | 2048 | 8     | 827948.965 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 693 | 2048 | 9     | 812314.162 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 694 | 2048 | 10    | 775025.892 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 695 | 2048 | 11    | 771395.427 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 696 | 2048 | 12    | 773318.983 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 697 | 2049 | 1     | 816342.136 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 698 | 2049 | 2     | 792783.646 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 699 | 2049 | 3     | 822690.206 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 700 | 2049 | 4     | 795861.003 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 701 | 2049 | 5     | 815664.517 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 702 | 2049 | 6     | 830870.915 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 703 | 2049 | 7     | 814092.897 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 704 | 2049 | 8     | 828115.53  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 705 | 2049 | 9     | 812446.918 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 706 | 2049 | 10    | 775178.363 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 707 | 2049 | 11    | 771541.006 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 708 | 2049 | 12    | 773476.125 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 709 | 2050 | 1     | 816642.3   | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 710 | 2050 | 2     | 793176.598 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 711 | 2050 | 3     | 823101.062 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 712 | 2050 | 4     | 796217.428 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 713 | 2050 | 5     | 816067.019 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 691 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 692 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 693 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 694 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 695 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 696 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 697 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 698 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 699 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 700 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 701 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 702 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 703 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 704 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 705 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 706 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 707 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 708 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 709 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 710 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 711 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 712 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 713 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 915 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 714 | 2050 | 6     | 831301.77  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 715 | 2050 | 7     | 814439.228 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 716 | 2050 | 8     | 828537.413 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 717 | 2050 | 9     | 812791.807 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 718 | 2050 | 10    | 775556.367 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 719 | 2050 | 11    | 771902.87  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 720 | 2050 | 12    | 773864.378 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 721 | 2051 | 1     | 816945.175 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 722 | 2051 | 2     | 793573.002 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 723 | 2051 | 3     | 823515.588 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 724 | 2051 | 4     | 796577.024 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 725 | 2051 | 5     | 816473.112 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 726 | 2051 | 6     | 831736.466 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 727 | 2051 | 7     | 814788.651 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 728 | 2051 | 8     | 828963.05  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 729 | 2051 | 9     | 813139.783 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 730 | 2051 | 10    | 775937.68  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 731 | 2051 | 11    | 772267.901 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 732 | 2051 | 12    | 774256.027 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 733 | 2052 | 1     | 817250.783 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 734 | 2052 | 2     | 793972.887 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 735 | 2052 | 3     | 823933.816 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 736 | 2052 | 4     | 796939.818 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 714 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 715 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 716 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 717 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 718 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 719 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 720 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 721 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 722 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 723 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 724 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 725 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 726 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 727 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 728 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 729 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 730 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 731 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 732 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 733 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 734 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 735 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 736 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 916 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 737 | 2052 | 5     | 816882.827 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 738 | 2052 | 6     | 832175.035 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 739 | 2052 | 7     | 815141.193 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 740 | 2052 | 8     | 829392.474 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 741 | 2052 | 9     | 813490.873 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 742 | 2052 | 10    | 776322.331 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 743 | 2052 | 11    | 772636.125 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 744 | 2052 | 12    | 774651.103 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 745 | 2053 | 1     | 817559.146 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 746 | 2053 | 2     | 794376.282 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 747 | 2053 | 3     | 824355.779 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 748 | 2053 | 4     | 797305.839 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 749 | 2053 | 5     | 817296.197 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 750 | 2053 | 6     | 832617.513 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 751 | 2053 | 7     | 815496.881 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 752 | 2053 | 8     | 829825.717 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 753 | 2053 | 9     | 813845.104 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 754 | 2053 | 10    | 776710.349 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 755 | 2053 | 11    | 773007.571 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 756 | 2053 | 12    | 775049.635 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 757 | 2054 | 1     | 817870.29  | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 758 | 2054 | 2     | 794783.22  | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 759 | 2054 | 3     | 824781.508 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 737 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 738 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 739 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 740 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 741 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 742 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 743 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 744 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 745 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 746 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 747 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 748 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 749 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 750 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 751 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 752 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 753 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 754 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 755 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 756 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 757 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 758 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 759 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 917 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 760 | 2054 | 4     | 797675.113 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 761 | 2054 | 5     | 817713.253 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 762 | 2054 | 6     | 833063.933 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 763 | 2054 | 7     | 815855.741 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 764 | 2054 | 8     | 830262.813 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 765 | 2054 | 9     | 814202.502 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 766 | 2054 | 10    | 777101.763 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 767 | 2054 | 11    | 773382.267 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 768 | 2054 | 12    | 775451.654 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 769 | 2055 | 1     | 818184.235 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 770 | 2055 | 2     | 795193.729 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 771 | 2055 | 3     | 825211.037 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 772 | 2055 | 4     | 798047.669 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 773 | 2055 | 5     | 818134.026 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 774 | 2055 | 6     | 833514.328 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 775 | 2055 | 7     | 816217.801 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 776 | 2055 | 8     | 830703.796 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 777 | 2055 | 9     | 814563.095 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 778 | 2055 | 10    | 777496.602 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 779 | 2055 | 11    | 773760.239 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 780 | 2055 | 12    | 775857.189 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 781 | 2056 | 1     | 818501.007 | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 782 | 2056 | 2     | 795607.842 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 760 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 761 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 762 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 763 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 764 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 765 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 766 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 767 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 768 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 769 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 770 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 771 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 772 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 773 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 774 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 775 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 776 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 777 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 778 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 779 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 780 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 781 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 782 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 EXOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 918 of 1182

| Obs | YEAR | MONTH | qc_kye     | d05on | aug15on | may16on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 |
|-----|------|-------|------------|-------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|
| 783 | 2056 | 3     | 825644.399 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 784 | 2056 | 4     | 798423.534 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 785 | 2056 | 5     | 818558.55  | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 786 | 2056 | 6     | 833968.735 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 787 | 2056 | 7     | 816583.087 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 788 | 2056 | 8     | 831148.699 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 789 | 2056 | 9     | 814926.909 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 790 | 2056 | 10    | 777894.896 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 791 | 2056 | 11    | 774141.517 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 792 | 2056 | 12    | 776266.271 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 793 | 2057 | 1     | 818820.63  | 1     | 1       | 1       | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 794 | 2057 | 2     | 796025.589 | 1     | 1       | 1       | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 795 | 2057 | 3     | 826081.627 | 1     | 1       | 1       | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 796 | 2057 | 4     | 798802.738 | 1     | 1       | 1       | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |
| 797 | 2057 | 5     | 818986.856 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   |
| 798 | 2057 | 6     | 834427.188 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   |
| 799 | 2057 | 7     | 816951.628 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   |
| 800 | 2057 | 8     | 831597.556 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   |
| 801 | 2057 | 9     | 815293.973 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   |
| 802 | 2057 | 10    | 778296.676 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   |
| 803 | 2057 | 11    | 774526.129 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   |
| 804 | 2057 | 12    | 776678.931 | 1     | 1       | 1       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   |

Obs d954 d064on Jul12on oct13on d17on feb99 dec95 jan96 dec98 feb18on oct19on apr20on PRICE

|     |   |   |   |   |   |   |   |   |   |   |   |   |         |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 783 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 784 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 785 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 786 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 787 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 788 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 789 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 790 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 791 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 792 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 793 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 794 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 795 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 796 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 797 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 798 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 799 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONDID. |
| 800 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 801 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 802 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 803 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |
| 804 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | CONFID. |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 919 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model LEIM  
 Dependent Variable LEIM

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 28  | 105.5288       | 3.768884    | 1709.76 | <.0001 |
| Error           | 344 | 0.758289       | 0.002204    |         |        |
| Corrected Total | 372 | 106.2870       |             |         |        |

Root MSE 0.04695 R-Square 0.99287  
 Dependent Mean 4.16611 Adj R-Sq 0.99228  
 Coeff Var 1.12696

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                              |
|-----------|----|--------------------|----------------|---------|---------|---|
| Intercept | 1  | 0.882404           | 0.323213       | 2.73    | 0.0067  | Intercept                                   |
| LQC       | 1  | 0.287332           | 0.020231       | 14.20   | <.0001  | EASTERN KENTUCKY COAL PRODUCTION, LOG       |
| LPIM36    | 1  | -0.21417           | 0.023605       | -9.07   | <.0001  | MINE PWR ELEC PRICE, 36-MONTH MVNG AVE, LOG |
| d954      | 1  | 0.054565           | 0.047846       | 1.14    | 0.2549  | BINARY VARIABLE-1995 4TH QTR                |
| d1        | 1  | -0.00759           | 0.012188       | -0.62   | 0.5339  | BINARY VARIABLE-1ST QTR                     |
| d2        | 1  | -0.01962           | 0.012275       | -1.60   | 0.1109  | BINARY VARIABLE-2ND QTR                     |
| d3        | 1  | -0.04876           | 0.012242       | -3.98   | <.0001  | BINARY VARIABLE-3RD QTR                     |
| d4        | 1  | -0.10928           | 0.012176       | -8.97   | <.0001  | BINARY VARIABLE-APRIL                       |
| d5        | 1  | -0.17668           | 0.012172       | -14.51  | <.0001  | BINARY VARIABLE-MAY                         |
| d6        | 1  | -0.21241           | 0.012175       | -17.45  | <.0001  | BINARY VARIABLE-JUNE                        |
| d7        | 1  | -0.28225           | 0.012203       | -23.13  | <.0001  | BINARY VARIABLE-JULY                        |
| d8        | 1  | -0.22957           | 0.012249       | -18.74  | <.0001  | BINARY VARIABLE-AUGUST                      |
| d9        | 1  | -0.19634           | 0.012179       | -16.12  | <.0001  | BINARY VARIABLE-SEPTEMBER                   |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES MODEL ESTIMATION  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 920 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                     |
|----------|----|--------------------|----------------|---------|---------|------------------------------------|
| d10      | 1  | -0.17603           | 0.012289       | -14.32  | <.0001  | BINARY VARIABLE - OCTOBER          |
| d11      | 1  | -0.10561           | 0.012132       | -8.71   | <.0001  | BINARY VARIABLE - NOVEMBER         |
| d05on    | 1  | 0.039096           | 0.011503       | 3.40    | 0.0008  | BINARY VARIABLE - 2005 ON          |
| d064on   | 1  | 0.010362           | 0.013831       | 0.75    | 0.4543  | BINARY VARIABLE - 2006 4TH QTR ON  |
| Ju112on  | 1  | -0.16063           | 0.018781       | -8.55   | <.0001  | BINARY VARIABLE - JULY 2012 ON     |
| oct13on  | 1  | -0.09081           | 0.016161       | -5.62   | <.0001  | BINARY VARIABLE - OCTOBER 2013 ON  |
| aug15on  | 1  | -0.15172           | 0.021300       | -7.12   | <.0001  | BINARY VARIABLE - AUGUST 2015 ON   |
| may16on  | 1  | -0.18243           | 0.023588       | -7.73   | <.0001  | BINARY VARIABLE - MAY 2016 ON      |
| d17on    | 1  | 0.059491           | 0.021295       | 2.79    | 0.0055  | BINARY VARIABLE - 2017 ON          |
| feb99    | 1  | -0.41596           | 0.047915       | -8.68   | <.0001  | BINARY VARIABLE - FEBRUARY 1999    |
| dec95    | 1  | -0.37063           | 0.047865       | -7.74   | <.0001  | BINARY VARIABLE - DECEMBER 1995    |
| jan96    | 1  | -0.23089           | 0.047876       | -4.82   | <.0001  | BINARY VARIABLE - JANUARY 1996     |
| dec98    | 1  | 0.226962           | 0.047887       | 4.74    | <.0001  | BINARY VARIABLE - DECEMBER 1998    |
| feb18on  | 1  | -0.01708           | 0.017041       | -1.00   | 0.3170  | BINARY VARIABLE - FEBRUARY 2018 ON |
| oct19on  | 1  | -0.14627           | 0.023910       | -6.12   | <.0001  | BINARY VARIABLE - OCTOBER 2019 ON  |
| apr20on  | 1  | -0.19442           | 0.021962       | -8.85   | <.0001  | BINARY VARIABLE - APRIL 2020 ON    |

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
MODEL ESTIMATION

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 921 of 1182

The SYSLIN Procedure  
Ordinary Least Squares Estimation

|                             |          |
|-----------------------------|----------|
| Durbin-Watson               | 1.920956 |
| Number of Observations      | 373      |
| First-Order Autocorrelation | 0.034818 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 922 of 1182

| time         |       | Residual Values |
|--------------|-------|-----------------|
|              |       | Sum             |
| 1991.000000  | ***   | 0.025284        |
| 1991.0833333 | *     | 0.005750        |
| 1991.1666667 | ***** | 0.073188        |
| 1991.2500000 | ***** | -0.058880       |
| 1991.3333333 | **    | -0.023551       |
| 1991.4166667 | ***** | -0.047557       |
| 1991.5000000 | ***** | -0.062030       |
| 1991.5833333 |       | 0.002418        |
| 1991.6666667 | ***** | -0.051916       |
| 1991.7500000 | ***** | 0.046624        |
| 1991.8333333 | ***** | 0.099417        |
| 1991.9166667 | ***** | -0.084812       |
| 1992.0000000 | ***** | -0.046995       |
| 1992.0833333 | ***   | -0.030947       |
| 1992.1666667 | ***** | 0.054629        |
| 1992.2500000 | ***** | -0.067992       |
| 1992.3333333 | ****  | 0.036227        |
| 1992.4166667 | *     | -0.012874       |
| 1992.5000000 | ***** | -0.064056       |
| 1992.5833333 | ****  | 0.036924        |
| 1992.6666667 | ***** | -0.061023       |
| 1992.7500000 | ***** | 0.078078        |
| 1992.8333333 | ***** | 0.090087        |
| 1992.9166667 | ***** | -0.054114       |
| 1993.0000000 | ***** | -0.056968       |
| 1993.0833333 | **    | -0.016673       |
| 1993.1666667 |       | 0.003651        |
| 1993.2500000 | ***** | -0.073198       |
| 1993.3333333 | ****  | 0.040602        |
| 1993.4166667 | *     | 0.008721        |
| 1993.5000000 | ****  | -0.040765       |
| 1993.5833333 | ***** | 0.106846        |
| 1993.6666667 | ***** | -0.074307       |
| 1993.7500000 | ***** | 0.118929        |
| 1993.8333333 | ***** | 0.056116        |
| 1993.9166667 | ***   | 0.027657        |
| 1994.0000000 | ****  | -0.042762       |
| 1994.0833333 | ***** | -0.080207       |
| 1994.1666667 | ***   | 0.029020        |
| 1994.2500000 | ***** | -0.054242       |
| 1994.3333333 | ***** | 0.076621        |
| 1994.4166667 | ***   | 0.031188        |
| 1994.5000000 | ***** | -0.046170       |
| 1994.5833333 | ***** | 0.060916        |
| 1994.6666667 | ****  | -0.035477       |
| 1994.7500000 | ***** | 0.100298        |
| 1994.8333333 | ****  | 0.041561        |
| 1994.9166667 | **    | -0.015673       |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 923 of 1182

|              |       |           |
|--------------|-------|-----------|
| 1995.000000  | *     | -0.006592 |
| 1995.0833333 | ***** | 0.049021  |
| 1995.1666667 | **    | 0.017153  |
| 1995.2500000 | *     | -0.010484 |
| 1995.3333333 | ****  | 0.037517  |
| 1995.4166667 | *     | 0.012940  |
| 1995.5000000 | ***** | -0.052444 |
| 1995.5833333 | ***** | 0.049270  |
| 1995.6666667 | ***** | -0.052240 |
| 1995.7500000 |       | -0.000000 |
| 1995.8333333 | **    | -0.019353 |
| 1995.9166667 |       | 0.000000  |
| 1996.0000000 |       | 0.000000  |
| 1996.0833333 | ***** | 0.063402  |
| 1996.1666667 | ***** | 0.165861  |
| 1996.2500000 | ***** | 0.060221  |
| 1996.3333333 | ***** | -0.091180 |
| 1996.4166667 |       | -0.001133 |
| 1996.5000000 | *     | -0.014960 |
| 1996.5833333 | ***   | -0.025168 |
| 1996.6666667 |       | -0.001759 |
| 1996.7500000 |       | 0.004068  |
| 1996.8333333 |       | 0.003055  |
| 1996.9166667 | ****  | 0.043584  |
| 1997.0000000 | *     | 0.012082  |
| 1997.0833333 | ****  | -0.041793 |
| 1997.1666667 | ***** | -0.079740 |
| 1997.2500000 | *     | 0.005602  |
| 1997.3333333 | ***** | -0.054407 |
| 1997.4166667 | *     | -0.011776 |
| 1997.5000000 | ***** | -0.069331 |
| 1997.5833333 | *     | 0.008187  |
| 1997.6666667 | ***** | -0.075949 |
| 1997.7500000 | **    | -0.023589 |
| 1997.8333333 | *     | -0.014319 |
| 1997.9166667 | *     | -0.014206 |
| 1998.0000000 | ****  | -0.038353 |
| 1998.0833333 | ***** | -0.078331 |
| 1998.1666667 | *     | -0.013375 |
| 1998.2500000 | ****  | 0.037437  |
| 1998.3333333 | **    | -0.018939 |
| 1998.4166667 | ***** | -0.056370 |
| 1998.5000000 | ***   | 0.025723  |
| 1998.5833333 | *     | 0.014382  |
| 1998.6666667 | *     | 0.014972  |
| 1998.7500000 | ***** | -0.045284 |
| 1998.8333333 | *     | 0.014038  |
| 1998.9166667 |       | 0.000000  |
| 1999.0000000 | ***   | 0.025428  |
| 1999.0833333 |       | 0.000000  |
| 1999.1666667 | *     | -0.007278 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 924 of 1182

|              |       |           |
|--------------|-------|-----------|
| 1999.2500000 | ****  | -0.043592 |
| 1999.3333333 | ***** | -0.114156 |
| 1999.4166667 | ****  | -0.036143 |
| 1999.5000000 | ***** | 0.049983  |
| 1999.5833333 | ***   | -0.027826 |
| 1999.6666667 | ***   | 0.030013  |
| 1999.7500000 | ***** | -0.050387 |
| 1999.8333333 | *     | -0.005085 |
| 1999.9166667 | ***   | -0.029466 |
| 2000.0000000 | ***   | -0.033073 |
| 2000.0833333 | ***** | -0.080203 |
| 2000.1666667 | ***** | -0.122286 |
| 2000.2500000 | ***   | -0.031188 |
| 2000.3333333 | **    | -0.018671 |
| 2000.4166667 | *     | -0.009066 |
| 2000.5000000 | *     | -0.013041 |
| 2000.5833333 | ***** | -0.097468 |
| 2000.6666667 | ***** | 0.116463  |
| 2000.7500000 |       | 0.000385  |
| 2000.8333333 | ****  | -0.036501 |
| 2000.9166667 |       | 0.004510  |
| 2001.0000000 | **    | 0.023144  |
| 2001.0833333 | **    | 0.015628  |
| 2001.1666667 | **    | -0.024183 |
| 2001.2500000 | ****  | 0.036318  |
| 2001.3333333 |       | 0.003788  |
| 2001.4166667 | ***** | 0.085155  |
| 2001.5000000 | ***** | 0.050869  |
| 2001.5833333 | *     | -0.011696 |
| 2001.6666667 | **    | 0.022410  |
| 2001.7500000 | *     | 0.005888  |
| 2001.8333333 | ***   | 0.025311  |
| 2001.9166667 | ****  | -0.039527 |
| 2002.0000000 | ***** | 0.075282  |
| 2002.0833333 | ***** | 0.053885  |
| 2002.1666667 | ***   | 0.025091  |
| 2002.2500000 | ***** | 0.056002  |
| 2002.3333333 | ***   | 0.029794  |
| 2002.4166667 | ***** | -0.094650 |
| 2002.5000000 | ***** | 0.058799  |
| 2002.5833333 | ***   | 0.027945  |
| 2002.6666667 | ***   | 0.027694  |
| 2002.7500000 | **    | 0.018304  |
| 2002.8333333 |       | 0.001303  |
| 2002.9166667 | *     | 0.012775  |
| 2003.0000000 | *     | 0.010202  |
| 2003.0833333 | *     | 0.005938  |
| 2003.1666667 | ***   | 0.032529  |
| 2003.2500000 | ***** | -0.066108 |
| 2003.3333333 |       | -0.003561 |
| 2003.4166667 | ****  | 0.040998  |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 925 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2003.5000000 | ****  | 0.035752  |
| 2003.5833333 | ***   | 0.031365  |
| 2003.6666667 | ****  | 0.035703  |
| 2003.7500000 | **    | 0.018424  |
| 2003.8333333 | ***** | 0.060028  |
| 2003.9166667 | **    | -0.024600 |
| 2004.0000000 |       | -0.001062 |
| 2004.0833333 | **    | 0.024566  |
| 2004.1666667 | ***   | -0.026128 |
| 2004.2500000 | ****  | 0.035920  |
| 2004.3333333 | ****  | 0.038780  |
| 2004.4166667 | *     | 0.010225  |
| 2004.5000000 | **    | 0.023354  |
| 2004.5833333 | ****  | 0.041741  |
| 2004.6666667 | *     | -0.013288 |
| 2004.7500000 | **    | 0.019871  |
| 2004.8333333 | ***   | -0.034563 |
| 2004.9166667 | ***   | -0.027776 |
| 2005.0000000 | ****  | -0.037843 |
| 2005.0833333 | ***   | -0.025886 |
| 2005.1666667 | **    | 0.024019  |
| 2005.2500000 | ***   | -0.029440 |
| 2005.3333333 | ***   | -0.026793 |
| 2005.4166667 | ***** | 0.061069  |
| 2005.5000000 |       | 0.003685  |
| 2005.5833333 | **    | -0.024328 |
| 2005.6666667 |       | -0.002114 |
| 2005.7500000 | ***   | -0.034578 |
| 2005.8333333 | **    | -0.021048 |
| 2005.9166667 | ***** | 0.063439  |
| 2006.0000000 | ***** | -0.048410 |
| 2006.0833333 | *     | 0.008619  |
| 2006.1666667 | *     | -0.013267 |
| 2006.2500000 | **    | 0.018975  |
| 2006.3333333 | ****  | -0.038689 |
| 2006.4166667 | **    | 0.023424  |
| 2006.5000000 | ***   | 0.030222  |
| 2006.5833333 |       | 0.000603  |
| 2006.6666667 | ***** | 0.068342  |
| 2006.7500000 | *     | 0.005750  |
| 2006.8333333 | ****  | 0.036681  |
| 2006.9166667 | *     | 0.006287  |
| 2007.0000000 | ***** | -0.074401 |
| 2007.0833333 | ****  | 0.040146  |
| 2007.1666667 | ***   | -0.030789 |
| 2007.2500000 |       | 0.000900  |
| 2007.3333333 | **    | -0.022589 |
| 2007.4166667 | ***   | -0.032582 |
| 2007.5000000 | **    | -0.022895 |
| 2007.5833333 | ***** | -0.046053 |
| 2007.6666667 |       | -0.002274 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 926 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2007.7500000 | ***** | -0.069811 |
| 2007.8333333 | ***** | -0.046246 |
| 2007.9166667 | ***** | -0.083769 |
| 2008.0000000 | ****  | -0.036700 |
| 2008.0833333 | ***   | -0.031980 |
| 2008.1666667 | ***** | -0.046273 |
| 2008.2500000 | *     | -0.007069 |
| 2008.3333333 |       | 0.000903  |
| 2008.4166667 | ***   | 0.029678  |
| 2008.5000000 |       | -0.002053 |
| 2008.5833333 | *     | 0.013644  |
| 2008.6666667 |       | -0.002564 |
| 2008.7500000 | **    | -0.022919 |
| 2008.8333333 | ***** | 0.050263  |
| 2008.9166667 | *     | 0.009321  |
| 2009.0000000 | ****  | 0.042138  |
| 2009.0833333 | ****  | 0.041052  |
| 2009.1666667 | ***   | 0.031382  |
| 2009.2500000 | ***** | 0.055988  |
| 2009.3333333 | ****  | 0.035531  |
| 2009.4166667 | **    | -0.020295 |
| 2009.5000000 | ***** | -0.046199 |
| 2009.5833333 | ****  | -0.039830 |
| 2009.6666667 |       | -0.001060 |
| 2009.7500000 | *     | 0.005533  |
| 2009.8333333 |       | 0.001896  |
| 2009.9166667 | ****  | -0.039638 |
| 2010.0000000 |       | -0.003312 |
| 2010.0833333 | ****  | 0.040216  |
| 2010.1666667 | **    | -0.023275 |
| 2010.2500000 | **    | 0.021373  |
| 2010.3333333 | ***** | 0.167565  |
| 2010.4166667 | ***** | 0.046769  |
| 2010.5000000 | ***** | 0.062508  |
| 2010.5833333 | ***   | -0.033360 |
| 2010.6666667 | **    | -0.020140 |
| 2010.7500000 | **    | 0.017974  |
| 2010.8333333 | **    | -0.024214 |
| 2010.9166667 |       | -0.000616 |
| 2011.0000000 | **    | 0.018702  |
| 2011.0833333 | *     | 0.013889  |
| 2011.1666667 | ***   | -0.033260 |
| 2011.2500000 |       | 0.002610  |
| 2011.3333333 | **    | 0.020841  |
| 2011.4166667 | ***** | 0.085453  |
| 2011.5000000 | ***** | 0.092651  |
| 2011.5833333 |       | 0.000473  |
| 2011.6666667 | ****  | 0.035038  |
| 2011.7500000 | **    | -0.024108 |
| 2011.8333333 | ****  | 0.040825  |
| 2011.9166667 |       | -0.003897 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES MODEL RESIDUALS  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 927 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2012.0000000 | *     | -0.006874 |
| 2012.0833333 | **    | 0.021387  |
| 2012.1666667 | ***** | -0.053769 |
| 2012.2500000 | ****  | -0.038368 |
| 2012.3333333 | ***** | -0.054620 |
| 2012.4166667 | ***** | -0.047565 |
| 2012.5000000 | **    | 0.020789  |
| 2012.5833333 | **    | -0.018614 |
| 2012.6666667 | ***   | 0.034915  |
| 2012.7500000 | ****  | -0.037807 |
| 2012.8333333 | **    | -0.015787 |
| 2012.9166667 | ***** | -0.045350 |
| 2013.0000000 |       | 0.000763  |
| 2013.0833333 | ***** | 0.064733  |
| 2013.1666667 | **    | 0.023872  |
| 2013.2500000 | ***** | 0.064382  |
| 2013.3333333 | **    | -0.019804 |
| 2013.4166667 | ****  | -0.043191 |
| 2013.5000000 |       | -0.003547 |
| 2013.5833333 | *     | -0.011384 |
| 2013.6666667 | *     | -0.013969 |
| 2013.7500000 |       | -0.003032 |
| 2013.8333333 | ****  | -0.037650 |
| 2013.9166667 |       | -0.004641 |
| 2014.0000000 | *     | 0.010881  |
| 2014.0833333 | ***   | 0.030638  |
| 2014.1666667 | ***   | 0.031852  |
| 2014.2500000 | *     | -0.007649 |
| 2014.3333333 |       | -0.003311 |
| 2014.4166667 | *     | 0.008362  |
| 2014.5000000 | **    | -0.021078 |
| 2014.5833333 | **    | -0.020859 |
| 2014.6666667 | ***   | -0.025971 |
| 2014.7500000 | **    | -0.018110 |
| 2014.8333333 | **    | 0.024705  |
| 2014.9166667 | *     | 0.006955  |
| 2015.0000000 | ***   | 0.026071  |
| 2015.0833333 | *     | 0.013178  |
| 2015.1666667 |       | -0.001789 |
| 2015.2500000 | ***   | 0.028643  |
| 2015.3333333 | **    | -0.018038 |
| 2015.4166667 | *     | 0.006631  |
| 2015.5000000 | ***   | -0.025789 |
| 2015.5833333 | ***** | 0.059881  |
| 2015.6666667 | ***** | 0.048150  |
| 2015.7500000 | ****  | 0.043300  |
| 2015.8333333 | ***** | 0.045543  |
| 2015.9166667 | ***** | -0.081769 |
| 2016.0000000 | *     | 0.007050  |
| 2016.0833333 | ***** | -0.065588 |
| 2016.1666667 | ****  | -0.036918 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 928 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2016.2500000 | **    | -0.019649 |
| 2016.3333333 | *     | 0.007532  |
| 2016.4166667 | *     | -0.011732 |
| 2016.5000000 |       | 0.000663  |
| 2016.5833333 | ***   | -0.026242 |
| 2016.6666667 |       | -0.000864 |
| 2016.7500000 | ***** | -0.052184 |
| 2016.8333333 | **    | -0.018954 |
| 2016.9166667 | ***** | 0.101781  |
| 2017.0000000 | ****  | 0.036299  |
| 2017.0833333 | ***   | 0.031073  |
| 2017.1666667 | ***   | 0.026773  |
| 2017.2500000 | *     | 0.007025  |
| 2017.3333333 | ***   | -0.025349 |
| 2017.4166667 | *     | -0.009354 |
| 2017.5000000 | ***** | 0.053876  |
| 2017.5833333 | *     | 0.005334  |
| 2017.6666667 | *     | 0.009061  |
| 2017.7500000 | ***** | -0.076272 |
| 2017.8333333 | ***** | -0.078519 |
| 2017.9166667 | *     | 0.009181  |
| 2018.0000000 | *     | 0.010872  |
| 2018.0833333 | *     | -0.005698 |
| 2018.1666667 | ****  | -0.036951 |
| 2018.2500000 | ***** | 0.054112  |
| 2018.3333333 |       | 0.001000  |
| 2018.4166667 | *     | 0.014998  |
| 2018.5000000 | *     | -0.013595 |
| 2018.5833333 | ***   | -0.025600 |
| 2018.6666667 |       | -0.003155 |
| 2018.7500000 | ***** | -0.069137 |
| 2018.8333333 | **    | -0.022468 |
| 2018.9166667 | **    | 0.022006  |
| 2019.0000000 |       | -0.000631 |
| 2019.0833333 | *     | 0.010963  |
| 2019.1666667 | ***** | 0.048083  |
| 2019.2500000 | ****  | 0.044085  |
| 2019.3333333 | *     | -0.008509 |
| 2019.4166667 | *     | -0.009900 |
| 2019.5000000 | **    | 0.017996  |
| 2019.5833333 | ***   | -0.027457 |
| 2019.6666667 | *     | 0.009858  |
| 2019.7500000 | ***   | 0.034101  |
| 2019.8333333 | ***** | -0.170843 |
| 2019.9166667 | ***** | 0.200489  |
| 2020.0000000 | **    | 0.021811  |
| 2020.0833333 |       | -0.004839 |
| 2020.1666667 | ***** | -0.080718 |
| 2020.2500000 | *     | -0.010545 |
| 2020.3333333 | ***** | 0.049509  |
| 2020.4166667 | ***   | -0.026647 |

KENTUCKY POWER COMPANY  
 MINE POWER ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 929 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2020.5000000 | ***** | -0.045742 |
| 2020.5833333 | **    | 0.017650  |
| 2020.6666667 | **    | 0.017973  |
| 2020.7500000 |       | -0.002598 |
| 2020.8333333 | ***** | -0.072801 |
| 2020.9166667 | ***   | -0.026908 |
| 2021.0000000 | *     | 0.007372  |
| 2021.0833333 | ***** | -0.071939 |
| 2021.1666667 | ****  | 0.042896  |
| 2021.2500000 | *     | -0.011190 |
| 2021.3333333 |       | -0.004040 |
| 2021.4166667 | *     | 0.005223  |
| 2021.5000000 | **    | 0.016822  |
| 2021.5833333 | ****  | -0.041695 |
| 2021.6666667 | ***   | -0.032524 |
| 2021.7500000 | *     | 0.012289  |
| 2021.8333333 | ***   | 0.027523  |
| 2021.9166667 | ***** | 0.068775  |
| 2022.0000000 | ***** | 0.080596  |

-0.1      0      0.1      0.2

Residual Values

KENTUCKY POWER COMPANY  
MINE POWER ENERGY SALES  
ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 930 of 1182

| Year | ENERGY SALES | GROWTH RATE | BASE ENERGY | ADDITIONS |
|------|--------------|-------------|-------------|-----------|
| 1984 | 851.19       | .           | 851.19      | 0         |
| 1985 | 890.554      | 4.6         | 890.55      | 0         |
| 1986 | 881.696      | -1.0        | 881.70      | 0         |
| 1987 | 902.84       | 2.4         | 902.84      | 0         |
| 1988 | 911.859      | 1.0         | 911.86      | 0         |
| 1989 | 984.603      | 8.0         | 984.60      | 0         |
| 1990 | 1041.789     | 5.8         | 1041.79     | 0         |
| 1991 | 1039.883     | -0.2        | 1039.88     | 0         |
| 1992 | 1057.457     | 1.7         | 1057.46     | 0         |
| 1993 | 1084.543     | 2.6         | 1084.54     | 0         |
| 1994 | 1106.365     | 2.0         | 1106.37     | 0         |
| 1995 | 1073.916     | -2.9        | 1073.92     | 0         |
| 1996 | 1099.599     | 2.4         | 1099.60     | 0         |
| 1997 | 1083.644     | -1.5        | 1083.64     | 0         |
| 1998 | 1125.329     | 3.8         | 1125.33     | 0         |
| 1999 | 1053.809     | -6.4        | 1053.81     | 0         |
| 2000 | 1064.271     | 1.0         | 1064.27     | 0         |
| 2001 | 1131.507     | 6.3         | 1131.51     | 0         |
| 2002 | 1120.078     | -1.0        | 1120.08     | 0         |
| 2003 | 1083.831     | -3.2        | 1083.83     | 0         |
| 2004 | 1070.281     | -1.3        | 1070.28     | 0         |
| 2005 | 1101.528     | 2.9         | 1101.53     | 0         |
| 2006 | 1103.476     | 0.2         | 1103.48     | 0         |
| 2007 | 1035.241     | -6.2        | 1035.24     | 0         |
| 2008 | 1066.54      | 3.0         | 1066.54     | 0         |
| 2009 | 1006.26      | -5.7        | 1006.26     | 0         |
| 2010 | 979.0084     | -2.7        | 979.01      | 0         |
| 2011 | 961.8455     | -1.8        | 961.85      | 0         |
| 2012 | 779.3772     | -19.0       | 779.38      | 0         |
| 2013 | 670.8468     | -13.9       | 670.85      | 0         |
| 2014 | 613.8466     | -8.5        | 613.85      | 0         |
| 2015 | 536.5293     | -12.6       | 536.53      | 0         |
| 2016 | 365.7345     | -31.8       | 365.73      | 0         |
| 2017 | 369.8475     | 1.1         | 369.85      | 0         |
| 2018 | 352.2326     | -4.8        | 352.23      | 0         |
| 2019 | 324.7322     | -7.8        | 324.73      | 0         |
| 2020 | 211.9204     | -34.7       | 211.92      | 0         |
| 2021 | 211.6564     | -0.1        | 211.66      | 0         |
| 2022 | 212.3641     | 0.3         | 212.36      | 0         |
| 2023 | 209.2205     | -1.5        | 209.22      | 0         |
| 2024 | 209.8219     | 0.3         | 209.82      | 0         |
| 2025 | 209.8931     | 0.0         | 209.89      | 0         |
| 2026 | 212.1241     | 1.1         | 212.12      | 0         |
| 2027 | 212.3422     | 0.1         | 212.34      | 0         |
| 2028 | 212.1967     | -0.1        | 212.20      | 0         |
| 2029 | 212.2374     | 0.0         | 212.24      | 0         |
| 2030 | 211.9537     | -0.1        | 211.95      | 0         |

**KENTUCKY POWER COMPANY**  
**MINE POWER ENERGY SALES**  
**ACTUAL AND FORECAST**

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 931 of 1182

| Year | ENERGY SALES | GROWTH RATE | BASE ENERGY | ADDITIONS |
|------|--------------|-------------|-------------|-----------|
| 2031 | 212.1729     | 0.1         | 212.173     | 0         |
| 2032 | 211.3611     | -0.4        | 211.361     | 0         |
| 2033 | 210.2993     | -0.5        | 210.299     | 0         |
| 2034 | 210.3684     | 0.0         | 210.368     | 0         |
| 2035 | 210.1991     | -0.1        | 210.199     | 0         |
| 2036 | 210.138      | 0.0         | 210.138     | 0         |
| 2037 | 210.3106     | 0.1         | 210.311     | 0         |
| 2038 | 210.4318     | 0.1         | 210.432     | 0         |
| 2039 | 210.3476     | 0.0         | 210.348     | 0         |
| 2040 | 210.092      | -0.1        | 210.092     | 0         |
| 2041 | 209.5454     | -0.3        | 209.545     | 0         |
| 2042 | 209.361      | -0.1        | 209.361     | 0         |
| 2043 | 209.1807     | -0.1        | 209.181     | 0         |
| 2044 | 209.2745     | 0.0         | 209.275     | 0         |
| 2045 | 209.4173     | 0.1         | 209.417     | 0         |
| 2046 | 209.4969     | 0.0         | 209.497     | 0         |
| 2047 | 209.5487     | 0.0         | 209.549     | 0         |
| 2048 | 209.611      | 0.0         | 209.611     | 0         |
| 2049 | 209.6184     | 0.0         | 209.618     | 0         |
| 2050 | 209.6615     | 0.0         | 209.661     | 0         |
| 2051 | 209.7362     | 0.0         | 209.736     | 0         |
| 2052 | 209.8373     | 0.0         | 209.837     | 0         |
| 2053 | 209.9452     | 0.1         | 209.945     | 0         |
| 2054 | 210.0529     | 0.1         | 210.053     | 0         |
| 2055 | 210.1608     | 0.1         | 210.161     | 0         |
| 2056 | 210.2689     | 0.1         | 210.269     | 0         |
| 2057 | 210.3774     | 0.1         | 210.377     | 0         |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 932 of 1182

## LONG-TERM OTHER RETAIL

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 933 of 1182

The MEANS Procedure

| Variable | Label                      | Mean      |
|----------|----------------------------|-----------|
| YEAR     | YEAR                       | 2027.50   |
| MONTH    | MONTH                      | 6.5000000 |
| eu_kpc   | ENERGY SALES, OTHER RETAIL | 0.8743124 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 934 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 1   | 1998 | 1     | 1.06283 |
| 2   | 1998 | 2     | 0.90689 |
| 3   | 1998 | 3     | 0.90137 |
| 4   | 1998 | 4     | 0.80129 |
| 5   | 1998 | 5     | 0.73849 |
| 6   | 1998 | 6     | 0.67940 |
| 7   | 1998 | 7     | 0.71559 |
| 8   | 1998 | 8     | 0.77118 |
| 9   | 1998 | 9     | 0.84374 |
| 10  | 1998 | 10    | 0.95099 |
| 11  | 1998 | 11    | 1.00279 |
| 12  | 1998 | 12    | 1.10940 |
| 13  | 1999 | 1     | 1.09189 |
| 14  | 1999 | 2     | 0.93642 |
| 15  | 1999 | 3     | 0.93171 |
| 16  | 1999 | 4     | 0.81922 |
| 17  | 1999 | 5     | 0.74254 |
| 18  | 1999 | 6     | 0.69313 |
| 19  | 1999 | 7     | 0.72939 |
| 20  | 1999 | 8     | 0.79972 |
| 21  | 1999 | 9     | 0.84976 |
| 22  | 1999 | 10    | 0.97333 |
| 23  | 1999 | 11    | 1.01448 |
| 24  | 1999 | 12    | 1.11025 |
| 25  | 2000 | 1     | 1.10428 |
| 26  | 2000 | 2     | 0.93844 |
| 27  | 2000 | 3     | 0.93904 |
| 28  | 2000 | 4     | 0.81786 |
| 29  | 2000 | 5     | 0.75552 |
| 30  | 2000 | 6     | 0.70590 |
| 31  | 2000 | 7     | 0.74451 |
| 32  | 2000 | 8     | 0.80354 |
| 33  | 2000 | 9     | 0.89005 |
| 34  | 2000 | 10    | 0.97379 |
| 35  | 2000 | 11    | 1.02940 |
| 36  | 2000 | 12    | 1.12982 |
| 37  | 2001 | 1     | 1.12228 |
| 38  | 2001 | 2     | 0.96951 |
| 39  | 2001 | 3     | 0.96180 |
| 40  | 2001 | 4     | 0.85041 |
| 41  | 2001 | 5     | 0.78588 |
| 42  | 2001 | 6     | 0.73587 |
| 43  | 2001 | 7     | 0.75816 |
| 44  | 2001 | 8     | 0.82713 |
| 45  | 2001 | 9     | 0.89998 |
| 46  | 2001 | 10    | 1.00416 |
| 47  | 2001 | 11    | 1.10660 |
| 48  | 2001 | 12    | 1.17100 |
| 49  | 2002 | 1     | 1.16263 |
| 50  | 2002 | 2     | 0.99117 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 935 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 51  | 2002 | 3     | 0.98106 |
| 52  | 2002 | 4     | 0.88009 |
| 53  | 2002 | 5     | 0.79392 |
| 54  | 2002 | 6     | 0.74173 |
| 55  | 2002 | 7     | 0.77879 |
| 56  | 2002 | 8     | 0.83947 |
| 57  | 2002 | 9     | 0.91337 |
| 58  | 2002 | 10    | 1.02456 |
| 59  | 2002 | 11    | 1.08125 |
| 60  | 2002 | 12    | 1.16199 |
| 61  | 2003 | 1     | 1.17123 |
| 62  | 2003 | 2     | 0.99112 |
| 63  | 2003 | 3     | 0.97869 |
| 64  | 2003 | 4     | 0.86715 |
| 65  | 2003 | 5     | 0.79894 |
| 66  | 2003 | 6     | 0.74214 |
| 67  | 2003 | 7     | 0.76475 |
| 68  | 2003 | 8     | 0.82577 |
| 69  | 2003 | 9     | 0.90270 |
| 70  | 2003 | 10    | 1.00978 |
| 71  | 2003 | 11    | 1.04978 |
| 72  | 2003 | 12    | 1.12278 |
| 73  | 2004 | 1     | 1.18553 |
| 74  | 2004 | 2     | 0.97821 |
| 75  | 2004 | 3     | 0.96943 |
| 76  | 2004 | 4     | 0.86591 |
| 77  | 2004 | 5     | 0.75731 |
| 78  | 2004 | 6     | 0.72494 |
| 79  | 2004 | 7     | 0.74666 |
| 80  | 2004 | 8     | 0.80951 |
| 81  | 2004 | 9     | 0.88595 |
| 82  | 2004 | 10    | 0.99674 |
| 83  | 2004 | 11    | 1.05173 |
| 84  | 2004 | 12    | 1.15778 |
| 85  | 2005 | 1     | 1.14509 |
| 86  | 2005 | 2     | 0.96673 |
| 87  | 2005 | 3     | 0.95597 |
| 88  | 2005 | 4     | 0.79365 |
| 89  | 2005 | 5     | 0.68565 |
| 90  | 2005 | 6     | 0.61691 |
| 91  | 2005 | 7     | 0.63775 |
| 92  | 2005 | 8     | 0.71522 |
| 93  | 2005 | 9     | 0.69408 |
| 94  | 2005 | 10    | 0.80116 |
| 95  | 2005 | 11    | 1.10808 |
| 96  | 2005 | 12    | 1.02658 |
| 97  | 2006 | 1     | 1.02473 |
| 98  | 2006 | 2     | 0.88870 |
| 99  | 2006 | 3     | 0.85814 |
| 100 | 2006 | 4     | 0.74208 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 936 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 101 | 2006 | 5     | 0.65944 |
| 102 | 2006 | 6     | 0.60989 |
| 103 | 2006 | 7     | 0.63599 |
| 104 | 2006 | 8     | 0.71112 |
| 105 | 2006 | 9     | 0.78463 |
| 106 | 2006 | 10    | 0.90938 |
| 107 | 2006 | 11    | 0.95315 |
| 108 | 2006 | 12    | 1.03998 |
| 109 | 2007 | 1     | 1.03907 |
| 110 | 2007 | 2     | 0.88329 |
| 111 | 2007 | 3     | 0.86910 |
| 112 | 2007 | 4     | 0.75104 |
| 113 | 2007 | 5     | 0.67656 |
| 114 | 2007 | 6     | 0.56317 |
| 115 | 2007 | 7     | 0.52923 |
| 116 | 2007 | 8     | 0.45746 |
| 117 | 2007 | 9     | 1.26935 |
| 118 | 2007 | 10    | 0.97625 |
| 119 | 2007 | 11    | 0.91156 |
| 120 | 2007 | 12    | 1.08929 |
| 121 | 2008 | 1     | 1.09992 |
| 122 | 2008 | 2     | 0.93914 |
| 123 | 2008 | 3     | 0.89712 |
| 124 | 2008 | 4     | 0.81564 |
| 125 | 2008 | 5     | 0.64535 |
| 126 | 2008 | 6     | 0.57509 |
| 127 | 2008 | 7     | 0.74351 |
| 128 | 2008 | 8     | 0.77127 |
| 129 | 2008 | 9     | 0.74077 |
| 130 | 2008 | 10    | 0.98584 |
| 131 | 2008 | 11    | 0.83755 |
| 132 | 2008 | 12    | 1.24351 |
| 133 | 2009 | 1     | 0.97388 |
| 134 | 2009 | 2     | 0.91854 |
| 135 | 2009 | 3     | 0.98697 |
| 136 | 2009 | 4     | 0.74234 |
| 137 | 2009 | 5     | 0.65794 |
| 138 | 2009 | 6     | 0.68685 |
| 139 | 2009 | 7     | 0.62025 |
| 140 | 2009 | 8     | 0.67780 |
| 141 | 2009 | 9     | 0.91464 |
| 142 | 2009 | 10    | 0.97426 |
| 143 | 2009 | 11    | 0.99548 |
| 144 | 2009 | 12    | 1.08904 |
| 145 | 2010 | 1     | 0.90176 |
| 146 | 2010 | 2     | 1.10020 |
| 147 | 2010 | 3     | 0.90418 |
| 148 | 2010 | 4     | 0.78206 |
| 149 | 2010 | 5     | 0.70602 |
| 150 | 2010 | 6     | 0.51642 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 937 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 151 | 2010 | 7     | 0.86112 |
| 152 | 2010 | 8     | 0.74246 |
| 153 | 2010 | 9     | 0.78680 |
| 154 | 2010 | 10    | 0.94067 |
| 155 | 2010 | 11    | 1.02789 |
| 156 | 2010 | 12    | 1.04487 |
| 157 | 2011 | 1     | 0.99313 |
| 158 | 2011 | 2     | 0.76130 |
| 159 | 2011 | 3     | 1.03511 |
| 160 | 2011 | 4     | 1.01992 |
| 161 | 2011 | 5     | 0.70972 |
| 162 | 2011 | 6     | 0.65768 |
| 163 | 2011 | 7     | 0.63162 |
| 164 | 2011 | 8     | 0.70843 |
| 165 | 2011 | 9     | 0.85429 |
| 166 | 2011 | 10    | 1.07382 |
| 167 | 2011 | 11    | 1.02643 |
| 168 | 2011 | 12    | 1.11911 |
| 169 | 2012 | 1     | 1.11217 |
| 170 | 2012 | 2     | 0.94644 |
| 171 | 2012 | 3     | 0.93148 |
| 172 | 2012 | 4     | 0.79984 |
| 173 | 2012 | 5     | 0.71781 |
| 174 | 2012 | 6     | 0.65138 |
| 175 | 2012 | 7     | 0.68631 |
| 176 | 2012 | 8     | 0.74673 |
| 177 | 2012 | 9     | 0.83680 |
| 178 | 2012 | 10    | 0.96215 |
| 179 | 2012 | 11    | 1.01882 |
| 180 | 2012 | 12    | 1.11477 |
| 181 | 2013 | 1     | 1.12156 |
| 182 | 2013 | 2     | 0.94954 |
| 183 | 2013 | 3     | 0.93768 |
| 184 | 2013 | 4     | 0.81063 |
| 185 | 2013 | 5     | 0.72150 |
| 186 | 2013 | 6     | 0.66015 |
| 187 | 2013 | 7     | 0.69067 |
| 188 | 2013 | 8     | 0.75943 |
| 189 | 2013 | 9     | 0.84255 |
| 190 | 2013 | 10    | 0.96308 |
| 191 | 2013 | 11    | 1.02411 |
| 192 | 2013 | 12    | 1.12866 |
| 193 | 2014 | 1     | 1.12371 |
| 194 | 2014 | 2     | 0.94637 |
| 195 | 2014 | 3     | 0.93496 |
| 196 | 2014 | 4     | 0.79414 |
| 197 | 2014 | 5     | 0.71816 |
| 198 | 2014 | 6     | 0.65203 |
| 199 | 2014 | 7     | 0.67857 |
| 200 | 2014 | 8     | 0.75921 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 938 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 201 | 2014 | 9     | 0.81406 |
| 202 | 2014 | 10    | 0.95426 |
| 203 | 2014 | 11    | 1.01998 |
| 204 | 2014 | 12    | 1.12341 |
| 205 | 2015 | 1     | 1.11828 |
| 206 | 2015 | 2     | 0.94193 |
| 207 | 2015 | 3     | 0.92944 |
| 208 | 2015 | 4     | 0.80254 |
| 209 | 2015 | 5     | 0.70880 |
| 210 | 2015 | 6     | 0.65070 |
| 211 | 2015 | 7     | 0.68061 |
| 212 | 2015 | 8     | 0.75715 |
| 213 | 2015 | 9     | 0.83588 |
| 214 | 2015 | 10    | 0.96441 |
| 215 | 2015 | 11    | 1.01406 |
| 216 | 2015 | 12    | 1.11120 |
| 217 | 2016 | 1     | 1.11100 |
| 218 | 2016 | 2     | 0.93575 |
| 219 | 2016 | 3     | 0.91891 |
| 220 | 2016 | 4     | 0.79284 |
| 221 | 2016 | 5     | 0.70234 |
| 222 | 2016 | 6     | 0.63900 |
| 223 | 2016 | 7     | 0.67242 |
| 224 | 2016 | 8     | 0.74992 |
| 225 | 2016 | 9     | 0.84495 |
| 226 | 2016 | 10    | 0.95187 |
| 227 | 2016 | 11    | 1.01353 |
| 228 | 2016 | 12    | 1.10875 |
| 229 | 2017 | 1     | 1.11191 |
| 230 | 2017 | 2     | 0.93929 |
| 231 | 2017 | 3     | 0.92836 |
| 232 | 2017 | 4     | 0.79274 |
| 233 | 2017 | 5     | 0.70932 |
| 234 | 2017 | 6     | 0.64537 |
| 235 | 2017 | 7     | 0.67916 |
| 236 | 2017 | 8     | 0.75169 |
| 237 | 2017 | 9     | 0.83663 |
| 238 | 2017 | 10    | 0.95486 |
| 239 | 2017 | 11    | 1.01703 |
| 240 | 2017 | 12    | 1.12373 |
| 241 | 2018 | 1     | 1.11305 |
| 242 | 2018 | 2     | 0.97159 |
| 243 | 2018 | 3     | 0.94691 |
| 244 | 2018 | 4     | 0.82048 |
| 245 | 2018 | 5     | 0.71856 |
| 246 | 2018 | 6     | 0.66100 |
| 247 | 2018 | 7     | 0.69188 |
| 248 | 2018 | 8     | 0.76605 |
| 249 | 2018 | 9     | 0.84324 |
| 250 | 2018 | 10    | 0.95196 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 939 of 1182

| Obs | YEAR | MONTH | eu_kpc  |
|-----|------|-------|---------|
| 251 | 2018 | 11    | 1.01150 |
| 252 | 2018 | 12    | 1.11497 |
| 253 | 2019 | 1     | 1.10820 |
| 254 | 2019 | 2     | 0.94250 |
| 255 | 2019 | 3     | 0.92083 |
| 256 | 2019 | 4     | 0.78932 |
| 257 | 2019 | 5     | 0.70564 |
| 258 | 2019 | 6     | 0.64362 |
| 259 | 2019 | 7     | 0.67625 |
| 260 | 2019 | 8     | 0.75307 |
| 261 | 2019 | 9     | 0.82761 |
| 262 | 2019 | 10    | 0.94324 |
| 263 | 2019 | 11    | 1.00937 |
| 264 | 2019 | 12    | 1.10988 |
| 265 | 2020 | 1     | 1.10791 |
| 266 | 2020 | 2     | 0.93282 |
| 267 | 2020 | 3     | 0.92111 |
| 268 | 2020 | 4     | 0.78441 |
| 269 | 2020 | 5     | 0.70182 |
| 270 | 2020 | 6     | 0.58484 |
| 271 | 2020 | 7     | 0.61977 |
| 272 | 2020 | 8     | 0.69258 |
| 273 | 2020 | 9     | 0.75998 |
| 274 | 2020 | 10    | 0.77828 |
| 275 | 2020 | 11    | 0.91903 |
| 276 | 2020 | 12    | 1.00310 |
| 277 | 2021 | 1     | 1.00059 |
| 278 | 2021 | 2     | 0.84817 |
| 279 | 2021 | 3     | 0.84249 |
| 280 | 2021 | 4     | 0.71157 |
| 281 | 2021 | 5     | 0.63571 |
| 282 | 2021 | 6     | 0.57938 |
| 283 | 2021 | 7     | 0.61214 |
| 284 | 2021 | 8     | 0.68433 |
| 285 | 2021 | 9     | 0.75046 |
| 286 | 2021 | 10    | 0.85836 |
| 287 | 2021 | 11    | 0.90827 |
| 288 | 2021 | 12    | 0.99355 |
| 289 | 2022 | 1     | 0.98308 |
| 290 | 2022 | 2     | .       |
| 291 | 2022 | 3     | .       |
| 292 | 2022 | 4     | .       |
| 293 | 2022 | 5     | .       |
| 294 | 2022 | 6     | .       |
| 295 | 2022 | 7     | .       |
| 296 | 2022 | 8     | .       |
| 297 | 2022 | 9     | .       |
| 298 | 2022 | 10    | .       |
| 299 | 2022 | 11    | .       |
| 300 | 2022 | 12    | .       |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 940 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 301 | 2023 | 1     | .      |
| 302 | 2023 | 2     | .      |
| 303 | 2023 | 3     | .      |
| 304 | 2023 | 4     | .      |
| 305 | 2023 | 5     | .      |
| 306 | 2023 | 6     | .      |
| 307 | 2023 | 7     | .      |
| 308 | 2023 | 8     | .      |
| 309 | 2023 | 9     | .      |
| 310 | 2023 | 10    | .      |
| 311 | 2023 | 11    | .      |
| 312 | 2023 | 12    | .      |
| 313 | 2024 | 1     | .      |
| 314 | 2024 | 2     | .      |
| 315 | 2024 | 3     | .      |
| 316 | 2024 | 4     | .      |
| 317 | 2024 | 5     | .      |
| 318 | 2024 | 6     | .      |
| 319 | 2024 | 7     | .      |
| 320 | 2024 | 8     | .      |
| 321 | 2024 | 9     | .      |
| 322 | 2024 | 10    | .      |
| 323 | 2024 | 11    | .      |
| 324 | 2024 | 12    | .      |
| 325 | 2025 | 1     | .      |
| 326 | 2025 | 2     | .      |
| 327 | 2025 | 3     | .      |
| 328 | 2025 | 4     | .      |
| 329 | 2025 | 5     | .      |
| 330 | 2025 | 6     | .      |
| 331 | 2025 | 7     | .      |
| 332 | 2025 | 8     | .      |
| 333 | 2025 | 9     | .      |
| 334 | 2025 | 10    | .      |
| 335 | 2025 | 11    | .      |
| 336 | 2025 | 12    | .      |
| 337 | 2026 | 1     | .      |
| 338 | 2026 | 2     | .      |
| 339 | 2026 | 3     | .      |
| 340 | 2026 | 4     | .      |
| 341 | 2026 | 5     | .      |
| 342 | 2026 | 6     | .      |
| 343 | 2026 | 7     | .      |
| 344 | 2026 | 8     | .      |
| 345 | 2026 | 9     | .      |
| 346 | 2026 | 10    | .      |
| 347 | 2026 | 11    | .      |
| 348 | 2026 | 12    | .      |
| 349 | 2027 | 1     | .      |
| 350 | 2027 | 2     | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 941 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 351 | 2027 | 3     | .      |
| 352 | 2027 | 4     | .      |
| 353 | 2027 | 5     | .      |
| 354 | 2027 | 6     | .      |
| 355 | 2027 | 7     | .      |
| 356 | 2027 | 8     | .      |
| 357 | 2027 | 9     | .      |
| 358 | 2027 | 10    | .      |
| 359 | 2027 | 11    | .      |
| 360 | 2027 | 12    | .      |
| 361 | 2028 | 1     | .      |
| 362 | 2028 | 2     | .      |
| 363 | 2028 | 3     | .      |
| 364 | 2028 | 4     | .      |
| 365 | 2028 | 5     | .      |
| 366 | 2028 | 6     | .      |
| 367 | 2028 | 7     | .      |
| 368 | 2028 | 8     | .      |
| 369 | 2028 | 9     | .      |
| 370 | 2028 | 10    | .      |
| 371 | 2028 | 11    | .      |
| 372 | 2028 | 12    | .      |
| 373 | 2029 | 1     | .      |
| 374 | 2029 | 2     | .      |
| 375 | 2029 | 3     | .      |
| 376 | 2029 | 4     | .      |
| 377 | 2029 | 5     | .      |
| 378 | 2029 | 6     | .      |
| 379 | 2029 | 7     | .      |
| 380 | 2029 | 8     | .      |
| 381 | 2029 | 9     | .      |
| 382 | 2029 | 10    | .      |
| 383 | 2029 | 11    | .      |
| 384 | 2029 | 12    | .      |
| 385 | 2030 | 1     | .      |
| 386 | 2030 | 2     | .      |
| 387 | 2030 | 3     | .      |
| 388 | 2030 | 4     | .      |
| 389 | 2030 | 5     | .      |
| 390 | 2030 | 6     | .      |
| 391 | 2030 | 7     | .      |
| 392 | 2030 | 8     | .      |
| 393 | 2030 | 9     | .      |
| 394 | 2030 | 10    | .      |
| 395 | 2030 | 11    | .      |
| 396 | 2030 | 12    | .      |
| 397 | 2031 | 1     | .      |
| 398 | 2031 | 2     | .      |
| 399 | 2031 | 3     | .      |
| 400 | 2031 | 4     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 942 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 401 | 2031 | 5     | .      |
| 402 | 2031 | 6     | .      |
| 403 | 2031 | 7     | .      |
| 404 | 2031 | 8     | .      |
| 405 | 2031 | 9     | .      |
| 406 | 2031 | 10    | .      |
| 407 | 2031 | 11    | .      |
| 408 | 2031 | 12    | .      |
| 409 | 2032 | 1     | .      |
| 410 | 2032 | 2     | .      |
| 411 | 2032 | 3     | .      |
| 412 | 2032 | 4     | .      |
| 413 | 2032 | 5     | .      |
| 414 | 2032 | 6     | .      |
| 415 | 2032 | 7     | .      |
| 416 | 2032 | 8     | .      |
| 417 | 2032 | 9     | .      |
| 418 | 2032 | 10    | .      |
| 419 | 2032 | 11    | .      |
| 420 | 2032 | 12    | .      |
| 421 | 2033 | 1     | .      |
| 422 | 2033 | 2     | .      |
| 423 | 2033 | 3     | .      |
| 424 | 2033 | 4     | .      |
| 425 | 2033 | 5     | .      |
| 426 | 2033 | 6     | .      |
| 427 | 2033 | 7     | .      |
| 428 | 2033 | 8     | .      |
| 429 | 2033 | 9     | .      |
| 430 | 2033 | 10    | .      |
| 431 | 2033 | 11    | .      |
| 432 | 2033 | 12    | .      |
| 433 | 2034 | 1     | .      |
| 434 | 2034 | 2     | .      |
| 435 | 2034 | 3     | .      |
| 436 | 2034 | 4     | .      |
| 437 | 2034 | 5     | .      |
| 438 | 2034 | 6     | .      |
| 439 | 2034 | 7     | .      |
| 440 | 2034 | 8     | .      |
| 441 | 2034 | 9     | .      |
| 442 | 2034 | 10    | .      |
| 443 | 2034 | 11    | .      |
| 444 | 2034 | 12    | .      |
| 445 | 2035 | 1     | .      |
| 446 | 2035 | 2     | .      |
| 447 | 2035 | 3     | .      |
| 448 | 2035 | 4     | .      |
| 449 | 2035 | 5     | .      |
| 450 | 2035 | 6     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 943 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 451 | 2035 | 7     | .      |
| 452 | 2035 | 8     | .      |
| 453 | 2035 | 9     | .      |
| 454 | 2035 | 10    | .      |
| 455 | 2035 | 11    | .      |
| 456 | 2035 | 12    | .      |
| 457 | 2036 | 1     | .      |
| 458 | 2036 | 2     | .      |
| 459 | 2036 | 3     | .      |
| 460 | 2036 | 4     | .      |
| 461 | 2036 | 5     | .      |
| 462 | 2036 | 6     | .      |
| 463 | 2036 | 7     | .      |
| 464 | 2036 | 8     | .      |
| 465 | 2036 | 9     | .      |
| 466 | 2036 | 10    | .      |
| 467 | 2036 | 11    | .      |
| 468 | 2036 | 12    | .      |
| 469 | 2037 | 1     | .      |
| 470 | 2037 | 2     | .      |
| 471 | 2037 | 3     | .      |
| 472 | 2037 | 4     | .      |
| 473 | 2037 | 5     | .      |
| 474 | 2037 | 6     | .      |
| 475 | 2037 | 7     | .      |
| 476 | 2037 | 8     | .      |
| 477 | 2037 | 9     | .      |
| 478 | 2037 | 10    | .      |
| 479 | 2037 | 11    | .      |
| 480 | 2037 | 12    | .      |
| 481 | 2038 | 1     | .      |
| 482 | 2038 | 2     | .      |
| 483 | 2038 | 3     | .      |
| 484 | 2038 | 4     | .      |
| 485 | 2038 | 5     | .      |
| 486 | 2038 | 6     | .      |
| 487 | 2038 | 7     | .      |
| 488 | 2038 | 8     | .      |
| 489 | 2038 | 9     | .      |
| 490 | 2038 | 10    | .      |
| 491 | 2038 | 11    | .      |
| 492 | 2038 | 12    | .      |
| 493 | 2039 | 1     | .      |
| 494 | 2039 | 2     | .      |
| 495 | 2039 | 3     | .      |
| 496 | 2039 | 4     | .      |
| 497 | 2039 | 5     | .      |
| 498 | 2039 | 6     | .      |
| 499 | 2039 | 7     | .      |
| 500 | 2039 | 8     | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 944 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 501 | 2039 | 9     | .      |
| 502 | 2039 | 10    | .      |
| 503 | 2039 | 11    | .      |
| 504 | 2039 | 12    | .      |
| 505 | 2040 | 1     | .      |
| 506 | 2040 | 2     | .      |
| 507 | 2040 | 3     | .      |
| 508 | 2040 | 4     | .      |
| 509 | 2040 | 5     | .      |
| 510 | 2040 | 6     | .      |
| 511 | 2040 | 7     | .      |
| 512 | 2040 | 8     | .      |
| 513 | 2040 | 9     | .      |
| 514 | 2040 | 10    | .      |
| 515 | 2040 | 11    | .      |
| 516 | 2040 | 12    | .      |
| 517 | 2041 | 1     | .      |
| 518 | 2041 | 2     | .      |
| 519 | 2041 | 3     | .      |
| 520 | 2041 | 4     | .      |
| 521 | 2041 | 5     | .      |
| 522 | 2041 | 6     | .      |
| 523 | 2041 | 7     | .      |
| 524 | 2041 | 8     | .      |
| 525 | 2041 | 9     | .      |
| 526 | 2041 | 10    | .      |
| 527 | 2041 | 11    | .      |
| 528 | 2041 | 12    | .      |
| 529 | 2042 | 1     | .      |
| 530 | 2042 | 2     | .      |
| 531 | 2042 | 3     | .      |
| 532 | 2042 | 4     | .      |
| 533 | 2042 | 5     | .      |
| 534 | 2042 | 6     | .      |
| 535 | 2042 | 7     | .      |
| 536 | 2042 | 8     | .      |
| 537 | 2042 | 9     | .      |
| 538 | 2042 | 10    | .      |
| 539 | 2042 | 11    | .      |
| 540 | 2042 | 12    | .      |
| 541 | 2043 | 1     | .      |
| 542 | 2043 | 2     | .      |
| 543 | 2043 | 3     | .      |
| 544 | 2043 | 4     | .      |
| 545 | 2043 | 5     | .      |
| 546 | 2043 | 6     | .      |
| 547 | 2043 | 7     | .      |
| 548 | 2043 | 8     | .      |
| 549 | 2043 | 9     | .      |
| 550 | 2043 | 10    | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 945 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 551 | 2043 | 11    | .      |
| 552 | 2043 | 12    | .      |
| 553 | 2044 | 1     | .      |
| 554 | 2044 | 2     | .      |
| 555 | 2044 | 3     | .      |
| 556 | 2044 | 4     | .      |
| 557 | 2044 | 5     | .      |
| 558 | 2044 | 6     | .      |
| 559 | 2044 | 7     | .      |
| 560 | 2044 | 8     | .      |
| 561 | 2044 | 9     | .      |
| 562 | 2044 | 10    | .      |
| 563 | 2044 | 11    | .      |
| 564 | 2044 | 12    | .      |
| 565 | 2045 | 1     | .      |
| 566 | 2045 | 2     | .      |
| 567 | 2045 | 3     | .      |
| 568 | 2045 | 4     | .      |
| 569 | 2045 | 5     | .      |
| 570 | 2045 | 6     | .      |
| 571 | 2045 | 7     | .      |
| 572 | 2045 | 8     | .      |
| 573 | 2045 | 9     | .      |
| 574 | 2045 | 10    | .      |
| 575 | 2045 | 11    | .      |
| 576 | 2045 | 12    | .      |
| 577 | 2046 | 1     | .      |
| 578 | 2046 | 2     | .      |
| 579 | 2046 | 3     | .      |
| 580 | 2046 | 4     | .      |
| 581 | 2046 | 5     | .      |
| 582 | 2046 | 6     | .      |
| 583 | 2046 | 7     | .      |
| 584 | 2046 | 8     | .      |
| 585 | 2046 | 9     | .      |
| 586 | 2046 | 10    | .      |
| 587 | 2046 | 11    | .      |
| 588 | 2046 | 12    | .      |
| 589 | 2047 | 1     | .      |
| 590 | 2047 | 2     | .      |
| 591 | 2047 | 3     | .      |
| 592 | 2047 | 4     | .      |
| 593 | 2047 | 5     | .      |
| 594 | 2047 | 6     | .      |
| 595 | 2047 | 7     | .      |
| 596 | 2047 | 8     | .      |
| 597 | 2047 | 9     | .      |
| 598 | 2047 | 10    | .      |
| 599 | 2047 | 11    | .      |
| 600 | 2047 | 12    | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 946 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 601 | 2048 | 1     | .      |
| 602 | 2048 | 2     | .      |
| 603 | 2048 | 3     | .      |
| 604 | 2048 | 4     | .      |
| 605 | 2048 | 5     | .      |
| 606 | 2048 | 6     | .      |
| 607 | 2048 | 7     | .      |
| 608 | 2048 | 8     | .      |
| 609 | 2048 | 9     | .      |
| 610 | 2048 | 10    | .      |
| 611 | 2048 | 11    | .      |
| 612 | 2048 | 12    | .      |
| 613 | 2049 | 1     | .      |
| 614 | 2049 | 2     | .      |
| 615 | 2049 | 3     | .      |
| 616 | 2049 | 4     | .      |
| 617 | 2049 | 5     | .      |
| 618 | 2049 | 6     | .      |
| 619 | 2049 | 7     | .      |
| 620 | 2049 | 8     | .      |
| 621 | 2049 | 9     | .      |
| 622 | 2049 | 10    | .      |
| 623 | 2049 | 11    | .      |
| 624 | 2049 | 12    | .      |
| 625 | 2050 | 1     | .      |
| 626 | 2050 | 2     | .      |
| 627 | 2050 | 3     | .      |
| 628 | 2050 | 4     | .      |
| 629 | 2050 | 5     | .      |
| 630 | 2050 | 6     | .      |
| 631 | 2050 | 7     | .      |
| 632 | 2050 | 8     | .      |
| 633 | 2050 | 9     | .      |
| 634 | 2050 | 10    | .      |
| 635 | 2050 | 11    | .      |
| 636 | 2050 | 12    | .      |
| 637 | 2051 | 1     | .      |
| 638 | 2051 | 2     | .      |
| 639 | 2051 | 3     | .      |
| 640 | 2051 | 4     | .      |
| 641 | 2051 | 5     | .      |
| 642 | 2051 | 6     | .      |
| 643 | 2051 | 7     | .      |
| 644 | 2051 | 8     | .      |
| 645 | 2051 | 9     | .      |
| 646 | 2051 | 10    | .      |
| 647 | 2051 | 11    | .      |
| 648 | 2051 | 12    | .      |
| 649 | 2052 | 1     | .      |
| 650 | 2052 | 2     | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ENDOGENOUS VARIABLES

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 947 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 651 | 2052 | 3     | .      |
| 652 | 2052 | 4     | .      |
| 653 | 2052 | 5     | .      |
| 654 | 2052 | 6     | .      |
| 655 | 2052 | 7     | .      |
| 656 | 2052 | 8     | .      |
| 657 | 2052 | 9     | .      |
| 658 | 2052 | 10    | .      |
| 659 | 2052 | 11    | .      |
| 660 | 2052 | 12    | .      |
| 661 | 2053 | 1     | .      |
| 662 | 2053 | 2     | .      |
| 663 | 2053 | 3     | .      |
| 664 | 2053 | 4     | .      |
| 665 | 2053 | 5     | .      |
| 666 | 2053 | 6     | .      |
| 667 | 2053 | 7     | .      |
| 668 | 2053 | 8     | .      |
| 669 | 2053 | 9     | .      |
| 670 | 2053 | 10    | .      |
| 671 | 2053 | 11    | .      |
| 672 | 2053 | 12    | .      |
| 673 | 2054 | 1     | .      |
| 674 | 2054 | 2     | .      |
| 675 | 2054 | 3     | .      |
| 676 | 2054 | 4     | .      |
| 677 | 2054 | 5     | .      |
| 678 | 2054 | 6     | .      |
| 679 | 2054 | 7     | .      |
| 680 | 2054 | 8     | .      |
| 681 | 2054 | 9     | .      |
| 682 | 2054 | 10    | .      |
| 683 | 2054 | 11    | .      |
| 684 | 2054 | 12    | .      |
| 685 | 2055 | 1     | .      |
| 686 | 2055 | 2     | .      |
| 687 | 2055 | 3     | .      |
| 688 | 2055 | 4     | .      |
| 689 | 2055 | 5     | .      |
| 690 | 2055 | 6     | .      |
| 691 | 2055 | 7     | .      |
| 692 | 2055 | 8     | .      |
| 693 | 2055 | 9     | .      |
| 694 | 2055 | 10    | .      |
| 695 | 2055 | 11    | .      |
| 696 | 2055 | 12    | .      |
| 697 | 2056 | 1     | .      |
| 698 | 2056 | 2     | .      |
| 699 | 2056 | 3     | .      |
| 700 | 2056 | 4     | .      |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ENDOGENOUS VARIABLES

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 948 of 1182

| Obs | YEAR | MONTH | eu_kpc |
|-----|------|-------|--------|
| 701 | 2056 | 5     | .      |
| 702 | 2056 | 6     | .      |
| 703 | 2056 | 7     | .      |
| 704 | 2056 | 8     | .      |
| 705 | 2056 | 9     | .      |
| 706 | 2056 | 10    | .      |
| 707 | 2056 | 11    | .      |
| 708 | 2056 | 12    | .      |
| 709 | 2057 | 1     | .      |
| 710 | 2057 | 2     | .      |
| 711 | 2057 | 3     | .      |
| 712 | 2057 | 4     | .      |
| 713 | 2057 | 5     | .      |
| 714 | 2057 | 6     | .      |
| 715 | 2057 | 7     | .      |
| 716 | 2057 | 8     | .      |
| 717 | 2057 | 9     | .      |
| 718 | 2057 | 10    | .      |
| 719 | 2057 | 11    | .      |
| 720 | 2057 | 12    | .      |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 949 of 1182

The MEANS Procedure

| Variable | Label                           | Mean        |
|----------|---------------------------------|-------------|
| YEAR     | YEAR                            | 2027.50     |
| MONTH    | MONTH                           | 6.5000000   |
| L_KPC    | SERVICE AREA EMPLOYMENT         | 122.4939562 |
| d052on   | BINARY VARIABLE-2005 2ND QTR ON | 0.8791667   |
| d1       | BINARY VARIABLE-JANUARY         | 0.0833333   |
| d2       | BINARY VARIABLE-FEBRUARY        | 0.0833333   |
| d3       | BINARY VARIABLE-MARCH           | 0.0833333   |
| d4       | BINARY VARIABLE-APRIL           | 0.0833333   |
| d5       | BINARY VARIABLE-MAY             | 0.0833333   |
| d6       | BINARY VARIABLE-JUNE            | 0.0833333   |
| d7       | BINARY VARIABLE-JULY            | 0.0833333   |
| d8       | BINARY VARIABLE-AUGUST          | 0.0833333   |
| d9       | BINARY VARIABLE-SEPTEMBER       | 0.0833333   |
| d10      | BINARY VARIABLE-OCTOBER         | 0.0833333   |
| d11      | BINARY VARIABLE-NOVEMBER        | 0.0833333   |
| sep07    | BINARY VARIABLE-SEPTEMBER 2007  | 0.0013889   |
| aug07    | BINARY VARIABLE-AUGUST 2007     | 0.0013889   |
| jan11on  | BINARY VARIABLE-JANUARY 2011 ON | 0.7833333   |







KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 953 of 1182

| Obs | YEAR | MONTH | L_KPC   | d052on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | sep07 | aug07 | jan11on |
|-----|------|-------|---------|--------|----|----|----|----|----|----|----|----|----|-----|-----|-------|-------|---------|
| 151 | 2010 | 7     | 139.956 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 0       |
| 152 | 2010 | 8     | 140.037 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 0       |
| 153 | 2010 | 9     | 140.120 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 0       |
| 154 | 2010 | 10    | 140.205 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 0       |
| 155 | 2010 | 11    | 140.284 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 0       |
| 156 | 2010 | 12    | 140.361 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 0       |
| 157 | 2011 | 1     | 140.427 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 158 | 2011 | 2     | 140.474 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 159 | 2011 | 3     | 140.503 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 160 | 2011 | 4     | 140.517 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 161 | 2011 | 5     | 140.503 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 162 | 2011 | 6     | 140.463 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 163 | 2011 | 7     | 140.391 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 164 | 2011 | 8     | 140.284 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 165 | 2011 | 9     | 140.147 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 166 | 2011 | 10    | 139.981 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 167 | 2011 | 11    | 139.786 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 168 | 2011 | 12    | 139.564 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 169 | 2012 | 1     | 139.309 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 170 | 2012 | 2     | 139.039 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 171 | 2012 | 3     | 138.743 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 172 | 2012 | 4     | 138.421 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 173 | 2012 | 5     | 138.078 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 174 | 2012 | 6     | 137.718 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 175 | 2012 | 7     | 137.337 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 176 | 2012 | 8     | 136.930 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 177 | 2012 | 9     | 136.521 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 178 | 2012 | 10    | 136.102 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 179 | 2012 | 11    | 135.677 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 180 | 2012 | 12    | 135.252 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 181 | 2013 | 1     | 134.830 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 182 | 2013 | 2     | 134.432 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 183 | 2013 | 3     | 134.049 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 184 | 2013 | 4     | 133.665 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 185 | 2013 | 5     | 133.304 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 186 | 2013 | 6     | 132.969 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 187 | 2013 | 7     | 132.661 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 188 | 2013 | 8     | 132.380 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 189 | 2013 | 9     | 132.130 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 190 | 2013 | 10    | 131.910 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 191 | 2013 | 11    | 131.712 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 192 | 2013 | 12    | 131.543 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 193 | 2014 | 1     | 131.393 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 194 | 2014 | 2     | 131.267 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 195 | 2014 | 3     | 131.165 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 196 | 2014 | 4     | 131.072 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 197 | 2014 | 5     | 131.001 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 198 | 2014 | 6     | 130.941 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 199 | 2014 | 7     | 130.893 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 200 | 2014 | 8     | 130.858 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 954 of 1182

| Obs | YEAR | MONTH | L_KPC   | d052on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | sep07 | aug07 | jan11on |
|-----|------|-------|---------|--------|----|----|----|----|----|----|----|----|----|-----|-----|-------|-------|---------|
| 201 | 2014 | 9     | 130.824 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 202 | 2014 | 10    | 130.786 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 203 | 2014 | 11    | 130.738 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 204 | 2014 | 12    | 130.670 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 205 | 2015 | 1     | 130.578 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 206 | 2015 | 2     | 130.461 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 207 | 2015 | 3     | 130.305 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 208 | 2015 | 4     | 130.100 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 209 | 2015 | 5     | 129.845 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 210 | 2015 | 6     | 129.528 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 211 | 2015 | 7     | 129.148 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 212 | 2015 | 8     | 128.698 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 213 | 2015 | 9     | 128.207 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 214 | 2015 | 10    | 127.686 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 215 | 2015 | 11    | 127.146 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 216 | 2015 | 12    | 126.601 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 217 | 2016 | 1     | 126.061 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 218 | 2016 | 2     | 125.563 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 219 | 2016 | 3     | 125.108 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 220 | 2016 | 4     | 124.700 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 221 | 2016 | 5     | 124.363 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 222 | 2016 | 6     | 124.111 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 223 | 2016 | 7     | 123.958 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 224 | 2016 | 8     | 123.905 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 225 | 2016 | 9     | 123.936 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 226 | 2016 | 10    | 124.033 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 227 | 2016 | 11    | 124.178 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 228 | 2016 | 12    | 124.359 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 229 | 2017 | 1     | 124.554 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 230 | 2017 | 2     | 124.741 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 231 | 2017 | 3     | 124.912 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 232 | 2017 | 4     | 125.052 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 233 | 2017 | 5     | 125.141 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 234 | 2017 | 6     | 125.163 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 235 | 2017 | 7     | 125.102 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 236 | 2017 | 8     | 124.947 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 237 | 2017 | 9     | 124.731 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 238 | 2017 | 10    | 124.465 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 239 | 2017 | 11    | 124.163 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 240 | 2017 | 12    | 123.849 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 241 | 2018 | 1     | 123.534 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 242 | 2018 | 2     | 123.249 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 243 | 2018 | 3     | 123.001 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 244 | 2018 | 4     | 122.801 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 245 | 2018 | 5     | 122.671 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 246 | 2018 | 6     | 122.632 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 247 | 2018 | 7     | 122.702 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 248 | 2018 | 8     | 122.879 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 249 | 2018 | 9     | 123.130 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 250 | 2018 | 10    | 123.439 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |









KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 959 of 1182

| Obs | YEAR | MONTH | L_KPC   | d052on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | sep07 | aug07 | jan11on |
|-----|------|-------|---------|--------|----|----|----|----|----|----|----|----|----|-----|-----|-------|-------|---------|
| 451 | 2035 | 7     | 115.619 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 452 | 2035 | 8     | 115.577 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 453 | 2035 | 9     | 115.533 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 454 | 2035 | 10    | 115.490 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 455 | 2035 | 11    | 115.446 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 456 | 2035 | 12    | 115.399 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 457 | 2036 | 1     | 115.353 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 458 | 2036 | 2     | 115.309 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 459 | 2036 | 3     | 115.262 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 460 | 2036 | 4     | 115.217 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 461 | 2036 | 5     | 115.173 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 462 | 2036 | 6     | 115.126 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 463 | 2036 | 7     | 115.078 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 464 | 2036 | 8     | 115.031 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 465 | 2036 | 9     | 114.981 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 466 | 2036 | 10    | 114.935 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 467 | 2036 | 11    | 114.890 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 468 | 2036 | 12    | 114.845 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 469 | 2037 | 1     | 114.797 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 470 | 2037 | 2     | 114.750 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 471 | 2037 | 3     | 114.703 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 472 | 2037 | 4     | 114.658 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 473 | 2037 | 5     | 114.610 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 474 | 2037 | 6     | 114.564 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 475 | 2037 | 7     | 114.519 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 476 | 2037 | 8     | 114.471 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 477 | 2037 | 9     | 114.425 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 478 | 2037 | 10    | 114.380 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 479 | 2037 | 11    | 114.335 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 480 | 2037 | 12    | 114.290 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 481 | 2038 | 1     | 114.244 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 482 | 2038 | 2     | 114.202 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 483 | 2038 | 3     | 114.156 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 484 | 2038 | 4     | 114.113 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 485 | 2038 | 5     | 114.071 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 486 | 2038 | 6     | 114.025 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 487 | 2038 | 7     | 113.979 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 488 | 2038 | 8     | 113.936 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 489 | 2038 | 9     | 113.891 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 490 | 2038 | 10    | 113.847 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 491 | 2038 | 11    | 113.804 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 492 | 2038 | 12    | 113.759 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 493 | 2039 | 1     | 113.716 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 494 | 2039 | 2     | 113.674 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 495 | 2039 | 3     | 113.632 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 496 | 2039 | 4     | 113.588 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 497 | 2039 | 5     | 113.546 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 498 | 2039 | 6     | 113.504 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 499 | 2039 | 7     | 113.465 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 500 | 2039 | 8     | 113.422 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 960 of 1182

| Obs | YEAR | MONTH | L_KPC   | d052on | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | sep07 | aug07 | jan11on |
|-----|------|-------|---------|--------|----|----|----|----|----|----|----|----|----|-----|-----|-------|-------|---------|
| 501 | 2039 | 9     | 113.380 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 502 | 2039 | 10    | 113.338 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 503 | 2039 | 11    | 113.297 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 504 | 2039 | 12    | 113.257 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 505 | 2040 | 1     | 113.216 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 506 | 2040 | 2     | 113.178 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 507 | 2040 | 3     | 113.138 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 508 | 2040 | 4     | 113.099 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 509 | 2040 | 5     | 113.061 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 510 | 2040 | 6     | 113.024 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 511 | 2040 | 7     | 112.983 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 512 | 2040 | 8     | 112.948 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 513 | 2040 | 9     | 112.910 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 514 | 2040 | 10    | 112.873 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 515 | 2040 | 11    | 112.836 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 516 | 2040 | 12    | 112.798 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 517 | 2041 | 1     | 112.763 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 518 | 2041 | 2     | 112.728 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 519 | 2041 | 3     | 112.693 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 520 | 2041 | 4     | 112.656 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 521 | 2041 | 5     | 112.621 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 522 | 2041 | 6     | 112.586 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 523 | 2041 | 7     | 112.550 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 524 | 2041 | 8     | 112.514 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 525 | 2041 | 9     | 112.479 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 526 | 2041 | 10    | 112.443 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 527 | 2041 | 11    | 112.406 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 528 | 2041 | 12    | 112.375 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 529 | 2042 | 1     | 112.336 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 530 | 2042 | 2     | 112.303 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 531 | 2042 | 3     | 112.268 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 532 | 2042 | 4     | 112.230 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 533 | 2042 | 5     | 112.198 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 534 | 2042 | 6     | 112.160 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 535 | 2042 | 7     | 112.125 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 536 | 2042 | 8     | 112.089 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 537 | 2042 | 9     | 112.052 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 538 | 2042 | 10    | 112.015 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |
| 539 | 2042 | 11    | 111.981 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0     | 1       |
| 540 | 2042 | 12    | 111.944 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 541 | 2043 | 1     | 111.905 | 1      | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 542 | 2043 | 2     | 111.874 | 1      | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 543 | 2043 | 3     | 111.838 | 1      | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 544 | 2043 | 4     | 111.803 | 1      | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 545 | 2043 | 5     | 111.764 | 1      | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 546 | 2043 | 6     | 111.729 | 1      | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 547 | 2043 | 7     | 111.694 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0     | 1       |
| 548 | 2043 | 8     | 111.657 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0     | 1       |
| 549 | 2043 | 9     | 111.620 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0     | 1       |
| 550 | 2043 | 10    | 111.589 | 1      | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0     | 1       |









KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES  
 MODEL ESTIMATION

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 965 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model eu\_kpc  
 Dependent Variable eu\_kpc  
 Label ENERGY SALES, OTHER RETAIL

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 20  | 6.932014       | 0.346601    | 174.23  | <.0001 |
| Error           | 268 | 0.533132       | 0.001989    |         |        |
| Corrected Total | 288 | 7.465146       |             |         |        |

Root MSE 0.04460 R-Square 0.92858  
 Dependent Mean 0.87431 Adj R-Sq 0.92325  
 Coeff Var 5.10133

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label               |
|-----------|----|--------------------|----------------|---------|---------|------------------------------|
| Intercept | 1  | 1.003881           | 0.642465       | 1.56    | 0.1193  | Intercept                    |
| LL        | 1  | 0.029597           | 0.129483       | 0.23    | 0.8194  | SERVICE AREA EMPLOYMENT, LOG |
| d1        | 1  | -0.02601           | 0.012753       | -2.04   | 0.0424  | BINARY VARIABLE - JANUARY    |
| d2        | 1  | -0.17434           | 0.012910       | -13.50  | <.0001  | BINARY VARIABLE - FEBRUARY   |
| d3        | 1  | -0.18012           | 0.012920       | -13.94  | <.0001  | BINARY VARIABLE - MARCH      |
| d4        | 1  | -0.29944           | 0.012895       | -23.22  | <.0001  | BINARY VARIABLE - APRIL      |
| d5        | 1  | -0.39502           | 0.012893       | -30.64  | <.0001  | BINARY VARIABLE - MAY        |
| d6        | 1  | -0.45555           | 0.012883       | -35.36  | <.0001  | BINARY VARIABLE - JUNE       |
| d7        | 1  | -0.41518           | 0.012880       | -32.23  | <.0001  | BINARY VARIABLE - JULY       |
| d8        | 1  | -0.35008           | 0.013018       | -26.89  | <.0001  | BINARY VARIABLE - AUGUST     |
| d9        | 1  | -0.27483           | 0.013017       | -21.11  | <.0001  | BINARY VARIABLE - SEPTEMBER  |
| d10       | 1  | -0.15296           | 0.012876       | -11.88  | <.0001  | BINARY VARIABLE - OCTOBER    |
| d11       | 1  | -0.09983           | 0.012876       | -7.75   | <.0001  | BINARY VARIABLE - NOVEMBER   |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 EXOGENOUS VARIABLES  
 MODEL ESTIMATION

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 966 of 1182

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                     |
|----------|----|--------------------|----------------|---------|---------|------------------------------------|
| sep07    | 1  | 0.469667           | 0.045855       | 10.24   | <.0001  | BINARY VARIABLE - SEPTEMBER 2007   |
| aug07    | 1  | -0.26695           | 0.045848       | -5.82   | <.0001  | BINARY VARIABLE - AUGUST 2007      |
| d052on   | 1  | -0.07690           | 0.007350       | -10.46  | <.0001  | BINARY VARIABLE - 2005 2ND QTR ON  |
| jan11on  | 1  | 0.042986           | 0.012554       | 3.42    | 0.0007  | BINARY VARIABLE - JANUARY 2011 ON  |
| mar16on  | 1  | -0.00300           | 0.014190       | -0.21   | 0.8327  | BINARY VARIABLE - MARCH 2016 ON    |
| apr18on  | 1  | 0.006221           | 0.016790       | 0.37    | 0.7113  | BINARY VARIABLE - APRIL 2018 ON    |
| feb19on  | 1  | -0.01271           | 0.018153       | -0.70   | 0.4845  | BINARY VARIABLE - FEBRUARY 2019 ON |
| jun20on  | 1  | -0.08312           | 0.016107       | -5.16   | <.0001  | BINARY VARIABLE - JUNE 2020 ON     |

Durbin-Watson 2.012991  
 Number of Observations 289  
 First-Order Autocorrelation -0.0101

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES MODEL RESIDUALS  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 967 of 1182

| time         |       | Residual Values<br>Sum |
|--------------|-------|------------------------|
| 1998.000000  | ***** | -0.061184              |
| 1998.0833333 | ***** | -0.068881              |
| 1998.1666667 | ***** | -0.068686              |
| 1998.2500000 | ***** | -0.049513              |
| 1998.3333333 | **    | -0.016792              |
| 1998.4166667 | **    | -0.015404              |
| 1998.5000000 | **    | -0.019617              |
| 1998.5833333 | ***   | -0.029160              |
| 1998.6666667 | ***   | -0.031865              |
| 1998.7500000 | ***** | -0.046501              |
| 1998.8333333 | ***** | -0.047832              |
| 1998.9166667 | ****  | -0.041047              |
| 1999.0000000 | ***   | -0.032541              |
| 1999.0833333 | ****  | -0.039680              |
| 1999.1666667 | ****  | -0.038596              |
| 1999.2500000 | ***   | -0.031751              |
| 1999.3333333 | *     | -0.012845              |
| 1999.4166667 |       | -0.001714              |
| 1999.5000000 | *     | -0.005810              |
| 1999.5833333 |       | -0.000581              |
| 1999.6666667 | ***   | -0.025784              |
| 1999.7500000 | **    | -0.024095              |
| 1999.8333333 | ****  | -0.036082              |
| 1999.9166667 | ****  | -0.040160              |
| 2000.0000000 | **    | -0.020133              |
| 2000.0833333 | ****  | -0.037674              |
| 2000.1666667 | ***   | -0.031316              |
| 2000.2500000 | ***   | -0.033203              |
| 2000.3333333 |       | -0.000004              |
| 2000.4166667 | *     | 0.010881               |
| 2000.5000000 | *     | 0.009076               |
| 2000.5833333 |       | 0.002954               |
| 2000.6666667 | *     | 0.014184               |
| 2000.7500000 | **    | -0.024003              |
| 2000.8333333 | **    | -0.021571              |
| 2000.9166667 | **    | -0.021031              |
| 2001.0000000 |       | -0.002609              |
| 2001.0833333 | *     | -0.007101              |
| 2001.1666667 | *     | -0.009076              |
| 2001.2500000 |       | -0.001190              |
| 2001.3333333 | ***   | 0.029810               |
| 2001.4166667 | ****  | 0.040304               |
| 2001.5000000 | **    | 0.022183               |
| 2001.5833333 | ***   | 0.026025               |
| 2001.6666667 | **    | 0.023609               |
| 2001.7500000 | *     | 0.005897               |
| 2001.8333333 | ***** | 0.055195               |
| 2001.9166667 | **    | 0.019758               |
| 2002.0000000 | ****  | 0.037395               |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 MODEL RESIDUALS

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 968 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2002.0833333 | *     | 0.014266  |
| 2002.1666667 | *     | 0.009941  |
| 2002.2500000 | ***   | 0.028294  |
| 2002.3333333 | ****  | 0.037714  |
| 2002.4166667 | ***** | 0.046078  |
| 2002.5000000 | ****  | 0.042792  |
| 2002.5833333 | ****  | 0.038397  |
| 2002.6666667 | ****  | 0.037077  |
| 2002.7500000 | ***   | 0.026425  |
| 2002.8333333 | ***   | 0.030019  |
| 2002.9166667 | *     | 0.010959  |
| 2003.0000000 | ***** | 0.046250  |
| 2003.0833333 | *     | 0.014500  |
| 2003.1666667 | *     | 0.007882  |
| 2003.2500000 | **    | 0.015693  |
| 2003.3333333 | ****  | 0.043090  |
| 2003.4166667 | ***** | 0.046860  |
| 2003.5000000 | ***   | 0.029118  |
| 2003.5833333 | ***   | 0.025056  |
| 2003.6666667 | ***   | 0.026763  |
| 2003.7500000 | *     | 0.011983  |
| 2003.8333333 |       | -0.001130 |
| 2003.9166667 | ***   | -0.027957 |
| 2004.0000000 | ***** | 0.060803  |
| 2004.0833333 |       | 0.001805  |
| 2004.1666667 |       | -0.001190 |
| 2004.2500000 | *     | 0.014589  |
| 2004.3333333 |       | 0.001549  |
| 2004.4166667 | ***   | 0.029692  |
| 2004.5000000 | *     | 0.011013  |
| 2004.5833333 | *     | 0.008718  |
| 2004.6666667 | *     | 0.009874  |
| 2004.7500000 |       | -0.001257 |
| 2004.8333333 |       | 0.000560  |
| 2004.9166667 | *     | 0.006727  |
| 2005.0000000 | **    | 0.020002  |
| 2005.0833333 | *     | -0.010087 |
| 2005.1666667 | **    | -0.015109 |
| 2005.2500000 | **    | 0.018740  |
| 2005.3333333 | *     | 0.006273  |
| 2005.4166667 |       | -0.001982 |
| 2005.5000000 | **    | -0.021554 |
| 2005.5833333 | *     | -0.009223 |
| 2005.6666667 | ***** | -0.105638 |
| 2005.7500000 | ***** | -0.120467 |
| 2005.8333333 | ***** | 0.133298  |
| 2005.9166667 | ***** | -0.048052 |
| 2006.0000000 | **    | -0.023910 |
| 2006.0833333 | *     | -0.011627 |
| 2006.1666667 | ****  | -0.036402 |
| 2006.2500000 | ***   | -0.033156 |
| 2006.3333333 | **    | -0.020211 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES MODEL RESIDUALS

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 969 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2006.4166667 | *     | -0.009222 |
| 2006.5000000 | **    | -0.023475 |
| 2006.5833333 | *     | -0.013428 |
| 2006.6666667 | **    | -0.015139 |
| 2006.7500000 | *     | -0.012235 |
| 2006.8333333 | **    | -0.021572 |
| 2006.9166667 | ***   | -0.034547 |
| 2007.0000000 | *     | -0.009423 |
| 2007.0833333 | **    | -0.016855 |
| 2007.1666667 | ***   | -0.025245 |
| 2007.2500000 | **    | -0.023976 |
| 2007.3333333 |       | -0.002873 |
| 2007.4166667 | ***** | -0.055732 |
| 2007.5000000 | ***** | -0.130050 |
| 2007.5833333 |       | 0.000000  |
| 2007.6666667 |       | 0.000000  |
| 2007.7500000 | ***** | 0.054663  |
| 2007.8333333 | ***** | -0.063185 |
| 2007.9166667 | *     | 0.014674  |
| 2008.0000000 | ***** | 0.051293  |
| 2008.0833333 | ****  | 0.038805  |
| 2008.1666667 |       | 0.002557  |
| 2008.2500000 | ****  | 0.040395  |
| 2008.3333333 | ***   | -0.034314 |
| 2008.4166667 | ****  | -0.044007 |
| 2008.5000000 | ***** | 0.084084  |
| 2008.5833333 | ***** | 0.046800  |
| 2008.6666667 | ***** | -0.058863 |
| 2008.7500000 | ***** | 0.064429  |
| 2008.8333333 | ***** | -0.136890 |
| 2008.9166667 | ***** | 0.169345  |
| 2009.0000000 | ***** | -0.074159 |
| 2009.0833333 | **    | 0.018934  |
| 2009.1666667 | ***** | 0.093264  |
| 2009.2500000 | ***   | -0.031937 |
| 2009.3333333 | **    | -0.020651 |
| 2009.4166667 | ***** | 0.068886  |
| 2009.5000000 | ****  | -0.038008 |
| 2009.5833333 | ***** | -0.045488 |
| 2009.6666667 | ***** | 0.116168  |
| 2009.7500000 | ***** | 0.053954  |
| 2009.8333333 | **    | 0.022083  |
| 2009.9166667 | **    | 0.015834  |
| 2010.0000000 | ***** | -0.145416 |
| 2010.0833333 | ***** | 0.201349  |
| 2010.1666667 | *     | 0.011118  |
| 2010.2500000 | *     | 0.008312  |
| 2010.3333333 | ***   | 0.027836  |
| 2010.4166667 | ***** | -0.101242 |
| 2010.5000000 | ***** | 0.203067  |
| 2010.5833333 | **    | 0.019292  |
| 2010.6666667 | *     | -0.011630 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 MODEL RESIDUALS

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 970 of 1182

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2010.7500000 |       | **    | 0.020352  |
| 2010.8333333 |       | ***** | 0.054422  |
| 2010.9166667 |       | ***   | -0.028442 |
| 2011.0000000 |       | ***** | -0.097174 |
| 2011.0833333 | ***** |       | -0.180692 |
| 2011.1666667 |       | ***** | 0.098898  |
| 2011.2500000 |       | ***** | 0.203026  |
| 2011.3333333 |       | *     | -0.011597 |
| 2011.4166667 |       |       | -0.003089 |
| 2011.5000000 |       | ***** | -0.069511 |
| 2011.5833333 |       | ***** | -0.057777 |
| 2011.6666667 |       | *     | 0.012868  |
| 2011.7500000 |       | ***** | 0.110556  |
| 2011.8333333 |       | *     | 0.010079  |
| 2011.9166667 |       |       | 0.002983  |
| 2012.0000000 |       | **    | 0.022109  |
| 2012.0833333 |       |       | 0.004758  |
| 2012.1666667 |       |       | -0.004353 |
| 2012.2500000 |       | **    | -0.016609 |
| 2012.3333333 |       |       | -0.002994 |
| 2012.4166667 |       | *     | -0.008804 |
| 2012.5000000 |       | *     | -0.014165 |
| 2012.5833333 |       | **    | -0.018760 |
| 2012.6666667 |       |       | -0.003844 |
| 2012.7500000 |       |       | -0.000278 |
| 2012.8333333 |       |       | 0.003354  |
| 2012.9166667 |       |       | -0.000436 |
| 2013.0000000 |       | ***   | 0.032466  |
| 2013.0833333 |       | *     | 0.008853  |
| 2013.1666667 |       |       | 0.002858  |
| 2013.2500000 |       |       | -0.004787 |
| 2013.3333333 |       |       | 0.001745  |
| 2013.4166667 |       |       | 0.001005  |
| 2013.5000000 |       | *     | -0.008776 |
| 2013.5833333 |       | *     | -0.005060 |
| 2013.6666667 |       |       | 0.002869  |
| 2013.7500000 |       |       | 0.001578  |
| 2013.8333333 |       | *     | 0.009527  |
| 2013.9166667 |       | *     | 0.014278  |
| 2014.0000000 |       | ****  | 0.035380  |
| 2014.0833333 |       | *     | 0.006391  |
| 2014.1666667 |       |       | 0.000789  |
| 2014.2500000 |       | **    | -0.020700 |
| 2014.3333333 |       |       | -0.001083 |
| 2014.4166667 |       | *     | -0.006668 |
| 2014.5000000 |       | **    | -0.020483 |
| 2014.5833333 |       |       | -0.004941 |
| 2014.6666667 |       | ***   | -0.025321 |
| 2014.7500000 |       | *     | -0.006987 |
| 2014.8333333 |       | *     | 0.005617  |
| 2014.9166667 |       | *     | 0.009227  |
| 2015.0000000 |       | ***   | 0.030131  |

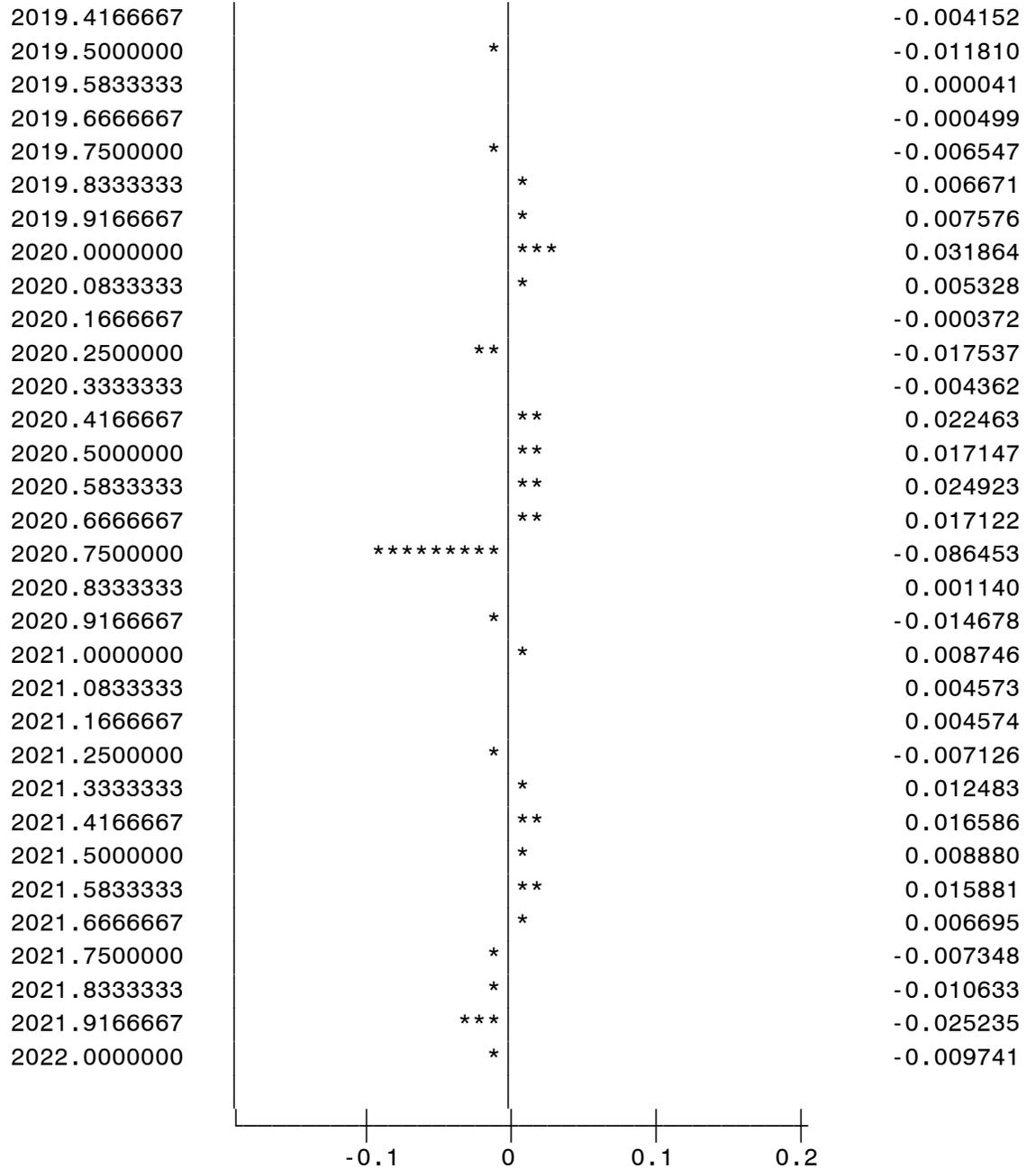
KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES MODEL RESIDUALS

Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 971 of 1182

|              |      |           |
|--------------|------|-----------|
| 2015.0833333 |      | 0.002130  |
| 2015.1666667 |      | -0.004542 |
| 2015.2500000 | *    | -0.012073 |
| 2015.3333333 | *    | -0.010175 |
| 2015.4166667 | *    | -0.007669 |
| 2015.5000000 | **   | -0.018041 |
| 2015.5833333 | *    | -0.006504 |
| 2015.6666667 |      | -0.002902 |
| 2015.7500000 |      | 0.003872  |
| 2015.8333333 |      | 0.000518  |
| 2015.9166667 |      | -0.002044 |
| 2016.0000000 | **   | 0.023890  |
| 2016.0833333 |      | -0.002918 |
| 2016.1666667 | *    | -0.010864 |
| 2016.2500000 | **   | -0.017524 |
| 2016.3333333 | *    | -0.012361 |
| 2016.4166667 | **   | -0.015111 |
| 2016.5000000 | **   | -0.022025 |
| 2016.5833333 | *    | -0.009614 |
| 2016.6666667 | *    | 0.010164  |
| 2016.7500000 |      | -0.004811 |
| 2016.8333333 |      | 0.003686  |
| 2016.9166667 |      | -0.000966 |
| 2017.0000000 | ***  | 0.028154  |
| 2017.0833333 |      | 0.003818  |
| 2017.1666667 |      | -0.001367 |
| 2017.2500000 | **   | -0.017701 |
| 2017.3333333 | *    | -0.005569 |
| 2017.4166667 | *    | -0.008984 |
| 2017.5000000 | **   | -0.015558 |
| 2017.5833333 | *    | -0.008090 |
| 2017.6666667 |      | 0.001663  |
| 2017.7500000 |      | -0.001927 |
| 2017.8333333 | *    | 0.007193  |
| 2017.9166667 | *    | 0.014138  |
| 2018.0000000 | ***  | 0.029546  |
| 2018.0833333 | **** | 0.036474  |
| 2018.1666667 | **   | 0.017638  |
| 2018.2500000 |      | 0.004354  |
| 2018.3333333 |      | -0.001956 |
| 2018.4166667 |      | 0.001026  |
| 2018.5000000 | *    | -0.008479 |
| 2018.5833333 |      | 0.000539  |
| 2018.6666667 |      | 0.002428  |
| 2018.7500000 | *    | -0.010800 |
| 2018.8333333 |      | -0.004467 |
| 2018.9166667 |      | -0.000905 |
| 2019.0000000 | **   | 0.018261  |
| 2019.0833333 | *    | 0.013530  |
| 2019.1666667 |      | -0.002399 |
| 2019.2500000 | *    | -0.014621 |
| 2019.3333333 |      | -0.002711 |

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 MODEL RESIDUALS

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 972 of 1182



Residual Values

KENTUCKY POWER COMPANY  
 OTHER ULTIMATE ENERGY SALES  
 ACTUAL AND FORECAST

Kentucky Power 2022 Integrated Resource Plan  
 KPSC Case No. 2023-00092  
 Volume A - Public Version  
 Page 973 of 1182

| YEAR | ENERGY SALES | GROWTH RATE |
|------|--------------|-------------|
| 1998 | 10.4840      | .           |
| 1999 | 10.6918      | 2.0         |
| 2000 | 10.8321      | 1.3         |
| 2001 | 11.1928      | 3.3         |
| 2002 | 11.3500      | 1.4         |
| 2003 | 11.2248      | -1.1        |
| 2004 | 11.1297      | -0.8        |
| 2005 | 10.1469      | -8.8        |
| 2006 | 9.8172       | -3.2        |
| 2007 | 10.0154      | 2.0         |
| 2008 | 10.2947      | 2.8         |
| 2009 | 10.2380      | -0.6        |
| 2010 | 10.3145      | 0.7         |
| 2011 | 10.5905      | 2.7         |
| 2012 | 10.5247      | -0.6        |
| 2013 | 10.6096      | 0.8         |
| 2014 | 10.5189      | -0.9        |
| 2015 | 10.5150      | 0.0         |
| 2016 | 10.4413      | -0.7        |
| 2017 | 10.4901      | 0.5         |
| 2018 | 10.6112      | 1.2         |
| 2019 | 10.4295      | -1.7        |
| 2020 | 9.8057       | -6.0        |
| 2021 | 9.4250       | -3.9        |
| 2022 | 9.3949       | -0.3        |
| 2023 | 9.4073       | 0.1         |
| 2024 | 9.4077       | 0.0         |
| 2025 | 9.4068       | 0.0         |
| 2026 | 9.4055       | 0.0         |
| 2027 | 9.4041       | 0.0         |
| 2028 | 9.4028       | 0.0         |
| 2029 | 9.4015       | 0.0         |
| 2030 | 9.3999       | 0.0         |
| 2031 | 9.3983       | 0.0         |
| 2032 | 9.3966       | 0.0         |
| 2033 | 9.3951       | 0.0         |
| 2034 | 9.3937       | 0.0         |
| 2035 | 9.3922       | 0.0         |
| 2036 | 9.3906       | 0.0         |
| 2037 | 9.3888       | 0.0         |
| 2038 | 9.3871       | 0.0         |
| 2039 | 9.3855       | 0.0         |
| 2040 | 9.3840       | 0.0         |
| 2041 | 9.3827       | 0.0         |
| 2042 | 9.3813       | 0.0         |
| 2043 | 9.3799       | 0.0         |
| 2044 | 9.3786       | 0.0         |
| 2045 | 9.3773       | 0.0         |

KENTUCKY POWER COMPANY  
OTHER ULTIMATE ENERGY SALES  
ACTUAL AND FORECAST

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 974 of 1182

| YEAR | ENERGY SALES | GROWTH RATE |
|------|--------------|-------------|
| 2046 | 9.37595      | 0           |
| 2047 | 9.37449      | 0           |
| 2048 | 9.37300      | 0           |
| 2049 | 9.37146      | 0           |
| 2050 | 9.36984      | 0           |
| 2051 | 9.36817      | 0           |
| 2052 | 9.36648      | 0           |
| 2053 | 9.36479      | 0           |
| 2054 | 9.36310      | 0           |
| 2055 | 9.36141      | 0           |
| 2056 | 9.35972      | 0           |
| 2057 | 9.35804      | 0           |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 975 of 1182

## LONG-TERM MUNICIPALS

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 976 of 1182

**CONFIDENTIAL**

**SEE CONFIDENTIAL SECTION**

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 977 of 1182

## DSM/ENERGY EFFICIENCY

| Kentucky Power Company            |       |  | Monthly DSM Included in Load Forecast |        |
|-----------------------------------|-------|--|---------------------------------------|--------|
| Peak Demand (MW) and Energy (MWh) |       |  | Peak                                  |        |
| Year                              | Month |  | Demand                                | Energy |
| 2022                              | 7     |  | 0.0                                   | 0.0    |
| 2022                              | 8     |  | 0.0                                   | 0.0    |
| 2022                              | 9     |  | 0.0                                   | 0.0    |
| 2022                              | 10    |  | 0.0                                   | 0.0    |
| 2022                              | 11    |  | 0.0                                   | 0.0    |
| 2022                              | 12    |  | 0.0                                   | 0.0    |
| 2023                              | 1     |  | 0.0                                   | 0.0    |
| 2023                              | 2     |  | 0.0                                   | 0.0    |
| 2023                              | 3     |  | 0.0                                   | 0.0    |
| 2023                              | 4     |  | 0.0                                   | 0.0    |
| 2023                              | 5     |  | 0.0                                   | 0.0    |
| 2023                              | 6     |  | 0.0                                   | 0.0    |
| 2023                              | 7     |  | 0.0                                   | 0.0    |
| 2023                              | 8     |  | 0.0                                   | 0.0    |
| 2023                              | 9     |  | 0.0                                   | 0.0    |
| 2023                              | 10    |  | 0.0                                   | 0.0    |
| 2023                              | 11    |  | 0.0                                   | 0.0    |
| 2023                              | 12    |  | 0.0                                   | 0.0    |
| 2024                              | 1     |  | 0.0                                   | 0.0    |
| 2024                              | 2     |  | 0.0                                   | 0.0    |
| 2024                              | 3     |  | 0.0                                   | 0.0    |
| 2024                              | 4     |  | 0.0                                   | 0.0    |
| 2024                              | 5     |  | 0.0                                   | 0.0    |
| 2024                              | 6     |  | 0.0                                   | 0.0    |
| 2024                              | 7     |  | 0.0                                   | 0.0    |
| 2024                              | 8     |  | 0.0                                   | 0.0    |
| 2024                              | 9     |  | 0.0                                   | 0.0    |

| Kentucky Power Company            |       |  | Monthly DSM Included in Load Forecast |        |
|-----------------------------------|-------|--|---------------------------------------|--------|
| Peak Demand (MW) and Energy (MWh) |       |  | Peak Demand                           | Energy |
| Year                              | Month |  |                                       |        |
| 2024                              | 10    |  | 0.0                                   | 0.0    |
| 2024                              | 11    |  | 0.0                                   | 0.0    |
| 2024                              | 12    |  | 0.0                                   | 0.0    |
| 2025                              | 1     |  | 0.0                                   | 0.0    |
| 2025                              | 2     |  | 0.0                                   | 0.0    |
| 2025                              | 3     |  | 0.0                                   | 0.0    |
| 2025                              | 4     |  | 0.0                                   | 0.0    |
| 2025                              | 5     |  | 0.0                                   | 0.0    |
| 2025                              | 6     |  | 0.0                                   | 0.0    |
| 2025                              | 7     |  | 0.0                                   | 0.0    |
| 2025                              | 8     |  | 0.0                                   | 0.0    |
| 2025                              | 9     |  | 0.0                                   | 0.0    |
| 2025                              | 10    |  | 0.0                                   | 0.0    |
| 2025                              | 11    |  | 0.0                                   | 0.0    |
| 2025                              | 12    |  | 0.0                                   | 0.0    |
| 2026                              | 1     |  | 0.0                                   | 0.0    |
| 2026                              | 2     |  | 0.0                                   | 0.0    |
| 2026                              | 3     |  | 0.0                                   | 0.0    |
| 2026                              | 4     |  | 0.0                                   | 0.0    |
| 2026                              | 5     |  | 0.0                                   | 0.0    |
| 2026                              | 6     |  | 0.0                                   | 0.0    |
| 2026                              | 7     |  | 0.0                                   | 0.0    |
| 2026                              | 8     |  | 0.0                                   | 0.0    |
| 2026                              | 9     |  | 0.0                                   | 0.0    |
| 2026                              | 10    |  | 0.0                                   | 0.0    |
| 2026                              | 11    |  | 0.0                                   | 0.0    |
| 2026                              | 12    |  | 0.0                                   | 0.0    |

| Kentucky Power Company            |       |  | Monthly DSM Included in Load Forecast |        |
|-----------------------------------|-------|--|---------------------------------------|--------|
| Peak Demand (MW) and Energy (MWh) |       |  | Peak Demand                           | Energy |
| Year                              | Month |  |                                       |        |
| 2027                              | 1     |  | 0.0                                   | 0.0    |
| 2027                              | 2     |  | 0.0                                   | 0.0    |
| 2027                              | 3     |  | 0.0                                   | 0.0    |
| 2027                              | 4     |  | 0.0                                   | 0.0    |
| 2027                              | 5     |  | 0.0                                   | 0.0    |
| 2027                              | 6     |  | 0.0                                   | 0.0    |
| 2027                              | 7     |  | 0.0                                   | 0.0    |
| 2027                              | 8     |  | 0.0                                   | 0.0    |
| 2027                              | 9     |  | 0.0                                   | 0.0    |
| 2027                              | 10    |  | 0.0                                   | 0.0    |
| 2027                              | 11    |  | 0.0                                   | 0.0    |
| 2027                              | 12    |  | 0.0                                   | 0.0    |
| 2028                              | 1     |  | 0.0                                   | 0.0    |
| 2028                              | 2     |  | 0.0                                   | 0.0    |
| 2028                              | 3     |  | 0.0                                   | 0.0    |
| 2028                              | 4     |  | 0.0                                   | 0.0    |
| 2028                              | 5     |  | 0.0                                   | 0.0    |
| 2028                              | 6     |  | 0.0                                   | 0.0    |
| 2028                              | 7     |  | 0.0                                   | 0.0    |
| 2028                              | 8     |  | 0.0                                   | 0.0    |
| 2028                              | 9     |  | 0.0                                   | 0.0    |
| 2028                              | 10    |  | 0.0                                   | 0.0    |
| 2028                              | 11    |  | 0.0                                   | 0.0    |
| 2028                              | 12    |  | 0.0                                   | 0.0    |
| 2029                              | 1     |  | 0.0                                   | 0.0    |
| 2029                              | 2     |  | 0.0                                   | 0.0    |
| 2029                              | 3     |  | 0.0                                   | 0.0    |

| Kentucky Power Company            |       |  | Monthly DSM Included in Load Forecast |        |
|-----------------------------------|-------|--|---------------------------------------|--------|
| Peak Demand (MW) and Energy (MWh) |       |  | Peak Demand                           | Energy |
| Year                              | Month |  |                                       |        |
| 2029                              | 4     |  | 0.0                                   | 0.0    |
| 2029                              | 5     |  | 0.0                                   | 0.0    |
| 2029                              | 6     |  | 0.0                                   | 0.0    |
| 2029                              | 7     |  | 0.0                                   | 0.0    |
| 2029                              | 8     |  | 0.0                                   | 0.0    |
| 2029                              | 9     |  | 0.0                                   | 0.0    |
| 2029                              | 10    |  | 0.0                                   | 0.0    |
| 2029                              | 11    |  | 0.0                                   | 0.0    |
| 2029                              | 12    |  | 0.0                                   | 0.0    |
| 2030                              | 1     |  | 0.0                                   | 0.0    |
| 2030                              | 2     |  | 0.0                                   | 0.0    |
| 2030                              | 3     |  | 0.0                                   | 0.0    |
| 2030                              | 4     |  | 0.0                                   | 0.0    |
| 2030                              | 5     |  | 0.0                                   | 0.0    |
| 2030                              | 6     |  | 0.0                                   | 0.0    |
| 2030                              | 7     |  | 0.0                                   | 0.0    |
| 2030                              | 8     |  | 0.0                                   | 0.0    |
| 2030                              | 9     |  | 0.0                                   | 0.0    |
| 2030                              | 10    |  | 0.0                                   | 0.0    |
| 2030                              | 11    |  | 0.0                                   | 0.0    |
| 2030                              | 12    |  | 0.0                                   | 0.0    |
| 2031                              | 1     |  | 0.0                                   | 0.0    |
| 2031                              | 2     |  | 0.0                                   | 0.0    |
| 2031                              | 3     |  | 0.0                                   | 0.0    |
| 2031                              | 4     |  | 0.0                                   | 0.0    |
| 2031                              | 5     |  | 0.0                                   | 0.0    |
| 2031                              | 6     |  | 0.0                                   | 0.0    |

| Kentucky Power Company            |       |  | Monthly DSM Included in Load Forecast |        |
|-----------------------------------|-------|--|---------------------------------------|--------|
| Peak Demand (MW) and Energy (MWh) |       |  | Peak Demand                           | Energy |
| Year                              | Month |  |                                       |        |
| 2031                              | 7     |  | 0.0                                   | 0.0    |
| 2031                              | 8     |  | 0.0                                   | 0.0    |
| 2031                              | 9     |  | 0.0                                   | 0.0    |
| 2031                              | 10    |  | 0.0                                   | 0.0    |
| 2031                              | 11    |  | 0.0                                   | 0.0    |
| 2031                              | 12    |  | 0.0                                   | 0.0    |
| 2032                              | 1     |  | 0.0                                   | 0.0    |
| 2032                              | 2     |  | 0.0                                   | 0.0    |
| 2032                              | 3     |  | 0.0                                   | 0.0    |
| 2032                              | 4     |  | 0.0                                   | 0.0    |
| 2032                              | 5     |  | 0.0                                   | 0.0    |
| 2032                              | 6     |  | 0.0                                   | 0.0    |
| 2032                              | 7     |  | 0.0                                   | 0.0    |
| 2032                              | 8     |  | 0.0                                   | 0.0    |
| 2032                              | 9     |  | 0.0                                   | 0.0    |
| 2032                              | 10    |  | 0.0                                   | 0.0    |
| 2032                              | 11    |  | 0.0                                   | 0.0    |
| 2032                              | 12    |  | 0.0                                   | 0.0    |
| 2033                              | 1     |  | 0.0                                   | 0.0    |
| 2033                              | 2     |  | 0.0                                   | 0.0    |
| 2033                              | 3     |  | 0.0                                   | 0.0    |
| 2033                              | 4     |  | 0.0                                   | 0.0    |
| 2033                              | 5     |  | 0.0                                   | 0.0    |
| 2033                              | 6     |  | 0.0                                   | 0.0    |
| 2033                              | 7     |  | 0.0                                   | 0.0    |
| 2033                              | 8     |  | 0.0                                   | 0.0    |
| 2033                              | 9     |  | 0.0                                   | 0.0    |

| Kentucky Power Company                |       |                  | Peak         | Energy |
|---------------------------------------|-------|------------------|--------------|--------|
| Monthly DSM Included in Load Forecast |       |                  | Demand       |        |
| Year                                  | Month | Peak Demand (MW) | Energy (MWh) |        |
| 2033                                  | 10    | 0.0              | 0.0          | 0.0    |
| 2033                                  | 11    | 0.0              | 0.0          | 0.0    |
| 2033                                  | 12    | 0.0              | 0.0          | 0.0    |
| 2034                                  | 1     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 2     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 3     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 4     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 5     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 6     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 7     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 8     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 9     | 0.0              | 0.0          | 0.0    |
| 2034                                  | 10    | 0.0              | 0.0          | 0.0    |
| 2034                                  | 11    | 0.0              | 0.0          | 0.0    |
| 2034                                  | 12    | 0.0              | 0.0          | 0.0    |
| 2035                                  | 1     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 2     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 3     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 4     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 5     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 6     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 7     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 8     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 9     | 0.0              | 0.0          | 0.0    |
| 2035                                  | 10    | 0.0              | 0.0          | 0.0    |
| 2035                                  | 11    | 0.0              | 0.0          | 0.0    |
| 2035                                  | 12    | 0.0              | 0.0          | 0.0    |

**Kentucky Power Company**  
**Monthly DSM Included in Load Forecast**  
**Peak Demand (MW) and Energy (MWh)**

| Year | Month | Peak   |        |
|------|-------|--------|--------|
|      |       | Demand | Energy |
| 2036 | 1     | 0.0    | 0.0    |
| 2036 | 2     | 0.0    | 0.0    |
| 2036 | 3     | 0.0    | 0.0    |
| 2036 | 4     | 0.0    | 0.0    |
| 2036 | 5     | 0.0    | 0.0    |
| 2036 | 6     | 0.0    | 0.0    |
| 2036 | 7     | 0.0    | 0.0    |
| 2036 | 8     | 0.0    | 0.0    |
| 2036 | 9     | 0.0    | 0.0    |
| 2036 | 10    | 0.0    | 0.0    |
| 2036 | 11    | 0.0    | 0.0    |
| 2036 | 12    | 0.0    | 0.0    |
| 2037 | 1     | 0.0    | 0.0    |
| 2037 | 2     | 0.0    | 0.0    |
| 2037 | 3     | 0.0    | 0.0    |
| 2037 | 4     | 0.0    | 0.0    |
| 2037 | 5     | 0.0    | 0.0    |
| 2037 | 6     | 0.0    | 0.0    |
| 2037 | 7     | 0.0    | 0.0    |
| 2037 | 8     | 0.0    | 0.0    |
| 2037 | 9     | 0.0    | 0.0    |
| 2037 | 10    | 0.0    | 0.0    |
| 2037 | 11    | 0.0    | 0.0    |
| 2037 | 12    | 0.0    | 0.0    |

\*Demand coincident with Company's monthly peak demand.

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 985 of 1182

PEAK DEMAND

Kentucky Power Company  
Peak Demand Models by Sector  
Model Input Glossary

Variable-Hourly Load  
CDD65-Cooling Degree Days based on 65 Degrees F  
CDD70-Cooling Degree Days based on 70 Degrees F  
CDD65WkEnd-Cooling Degree Days based on 65 Degrees F, Weekends  
CDD70WkEnd-Cooling Degree Days based on 75 Degrees F, Weekends  
Summer Fuzzy-Summer Days Variable  
Winter Fuzzy-Winter Days Variable  
HLight-Hours of Sunlight  
DST-Daylight Savings Time  
HDD50-Heating Degree Days based on 50 Degrees F  
HDD55-Heating Degree Days based on 55 Degrees F  
HDD65-Heating Degree Days based on 65 Degrees F  
HDD65WkEnd-Heating Degree Days based on 65 Degrees F  
Weekend-Binary Variable for Weekends  
January-Binary Variable January  
February-Binary Variable February  
March-Binary Variable March  
April-Binary Variable April  
May-Binary Variable May  
June-Binary Variable June  
July-Binary Variable July  
August-Binary Variable August  
September-Binary Variable September  
October-Binary Variable October  
November-Binary Variable November  
WkDay-Week Day Binary Variable  
WkEnd- Week End Binary Variable  
MajorHolidays-Binary Variable for Major Holidays  
Constant-Intercept  
TWT-Tuesday, Wednesday and Thursday Binary Variable  
Monday-Binary Variable Monday

**Kentucky Power Company  
 Summer Peak Demand (MW) Forecast by Sector**

| Summer | Kentucky Power Total | Other       |            |            |                  |
|--------|----------------------|-------------|------------|------------|------------------|
|        |                      | Residential | Commercial | Industrial | Retail Wholesale |
| 2023   | 817                  | 362         | 220        | 221        | 1 13             |
| 2024   | 1,029                | 415         | 343        | 255        | 2 15             |
| 2025   | 1,026                | 412         | 343        | 255        | 2 15             |
| 2026   | 1,006                | 409         | 342        | 253        | 2 0              |
| 2027   | 1,002                | 407         | 342        | 252        | 2 0              |
| 2028   | 996                  | 403         | 341        | 251        | 2 0              |
| 2029   | 994                  | 400         | 340        | 251        | 2 0              |
| 2030   | 991                  | 398         | 340        | 251        | 2 0              |
| 2031   | 988                  | 396         | 339        | 251        | 2 0              |
| 2032   | 983                  | 394         | 338        | 250        | 2 0              |
| 2033   | 984                  | 394         | 338        | 250        | 2 0              |
| 2034   | 844                  | 337         | 290        | 216        | 1 0              |
| 2035   | 979                  | 390         | 337        | 250        | 2 0              |
| 2036   | 975                  | 389         | 336        | 249        | 2 0              |
| 2037   | 975                  | 388         | 337        | 249        | 2 0              |

**Kentucky Power Company  
 Winter Peak Demand (MW) Forecast by Sector**

| Winter  | Kentucky Power Total | Other       |            |            |                  |
|---------|----------------------|-------------|------------|------------|------------------|
|         |                      | Residential | Commercial | Industrial | Retail Wholesale |
| 2022/23 | 1,230                | 651         | 259        | 299        | 2 18             |
| 2023/24 | 1,289                | 641         | 330        | 298        | 2 18             |
| 2024/25 | 1,283                | 636         | 330        | 298        | 2 18             |
| 2025/26 | 1,256                | 629         | 328        | 296        | 2 0              |
| 2026/27 | 1,247                | 624         | 326        | 295        | 3 0              |
| 2027/28 | 1,235                | 616         | 323        | 293        | 2 0              |
| 2028/29 | 1,231                | 613         | 322        | 294        | 2 0              |
| 2029/30 | 1,223                | 607         | 320        | 293        | 2 0              |
| 2030/31 | 1,217                | 603         | 318        | 293        | 2 0              |
| 2031/32 | 1,206                | 596         | 316        | 292        | 2 0              |
| 2032/33 | 1,205                | 583         | 331        | 289        | 2 0              |
| 2033/34 | 1,198                | 590         | 313        | 292        | 2 0              |
| 2034/35 | 1,193                | 576         | 327        | 288        | 2 0              |
| 2035/36 | 1,185                | 571         | 325        | 287        | 2 0              |
| 2036/37 | 1,183                | 569         | 325        | 287        | 2 0              |
| 2037/38 | 1,178                | 566         | 323        | 287        | 2 0              |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Cooling Peak Demand Model Coefficients      Page 989 of 1182

| Variable | CDD65 | CDD70  | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST    |
|----------|-------|--------|------------|------------|-------------|-------------|--------|--------|
| Hour1    | 2.386 | 0.107  | -0.614     | 0.539      | 18.612      | -4.606      | 0.477  | -1.485 |
| Hour2    | 1.809 | 0.284  | -0.093     | 0.136      | 17.137      | -3.752      | 0.394  | -1.495 |
| Hour3    | 1.579 | 0.370  | -0.263     | 0.267      | 14.735      | -2.856      | 0.304  | -1.344 |
| Hour4    | 1.378 | 0.403  | -0.253     | 0.233      | 12.989      | -2.403      | 0.258  | -1.232 |
| Hour5    | 1.197 | 0.427  | -0.202     | 0.194      | 11.711      | -2.076      | 0.227  | -1.210 |
| Hour6    | 1.055 | 0.428  | -0.250     | 0.223      | 10.295      | -1.651      | 0.182  | -1.025 |
| Hour7    | 0.880 | 0.441  | -0.155     | 0.151      | 9.002       | -1.379      | 0.154  | -0.942 |
| Hour8    | 0.881 | 0.338  | -0.177     | 0.177      | 8.669       | -1.374      | 0.149  | -0.795 |
| Hour9    | 1.110 | 0.013  | -0.486     | 0.397      | 8.173       | -2.230      | 0.232  | -0.816 |
| Hour10   | 1.113 | 0.104  | 0.022      | 0.003      | 9.160       | -2.843      | 0.292  | -0.848 |
| Hour11   | 1.250 | 0.258  | 0.477      | -0.338     | 12.355      | -3.523      | 0.363  | -1.028 |
| Hour12   | 1.626 | 0.296  | 0.540      | -0.378     | 15.536      | -4.679      | 0.484  | -1.401 |
| Hour13   | 2.056 | 0.283  | 0.696      | -0.442     | 19.228      | -6.352      | 0.660  | -1.914 |
| Hour14   | 2.500 | 0.238  | 0.838      | -0.535     | 22.992      | -8.245      | 0.863  | -2.627 |
| Hour15   | 2.900 | 0.059  | 1.130      | -0.749     | 25.971      | -10.343     | 1.083  | -3.158 |
| Hour16   | 3.336 | -0.153 | 1.284      | -0.887     | 29.414      | -11.907     | 1.240  | -3.310 |
| Hour17   | 3.803 | -0.407 | 1.471      | -1.078     | 33.301      | -12.880     | 1.333  | -2.879 |
| Hour18   | 4.226 | -0.676 | 1.295      | -1.017     | 35.624      | -12.832     | 1.321  | -1.694 |
| Hour19   | 4.530 | -0.829 | 0.561      | -0.411     | 35.123      | -11.770     | 1.204  | -0.552 |
| Hour20   | 4.453 | -0.739 | -0.063     | 0.095      | 32.222      | -11.367     | 1.162  | -1.280 |
| Hour21   | 4.003 | -0.421 | -0.204     | 0.255      | 29.068      | -10.151     | 1.037  | -2.015 |
| Hour22   | 3.595 | -0.204 | -0.349     | 0.322      | 26.801      | -8.394      | 0.861  | -2.076 |
| Hour23   | 3.198 | -0.047 | -0.379     | 0.369      | 24.233      | -7.172      | 0.736  | -1.880 |
| Hour24   | 2.742 | 0.088  | -0.418     | 0.412      | 21.562      | -5.928      | 0.613  | -1.804 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version  
 Residential Cooling Peak Demand Model Standard Errors Page 990 of 1182

| Variable | CDD65 | CDD70 | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-------|-------|------------|------------|-------------|-------------|--------|-------|
| Hour1    | 0.023 | 0.033 | 0.030      | 0.052      | 0.094       | 0.093       | 0.009  | 0.103 |
| Hour2    | 0.020 | 0.028 | 0.026      | 0.046      | 0.082       | 0.081       | 0.008  | 0.090 |
| Hour3    | 0.018 | 0.025 | 0.023      | 0.040      | 0.072       | 0.071       | 0.007  | 0.079 |
| Hour4    | 0.016 | 0.022 | 0.021      | 0.036      | 0.064       | 0.063       | 0.006  | 0.070 |
| Hour5    | 0.014 | 0.020 | 0.019      | 0.033      | 0.058       | 0.058       | 0.006  | 0.064 |
| Hour6    | 0.013 | 0.018 | 0.017      | 0.029      | 0.051       | 0.051       | 0.005  | 0.057 |
| Hour7    | 0.011 | 0.016 | 0.015      | 0.025      | 0.046       | 0.045       | 0.005  | 0.050 |
| Hour8    | 0.010 | 0.015 | 0.014      | 0.024      | 0.042       | 0.042       | 0.004  | 0.047 |
| Hour9    | 0.010 | 0.015 | 0.014      | 0.024      | 0.042       | 0.042       | 0.004  | 0.046 |
| Hour10   | 0.012 | 0.017 | 0.016      | 0.027      | 0.048       | 0.048       | 0.005  | 0.053 |
| Hour11   | 0.015 | 0.022 | 0.020      | 0.035      | 0.062       | 0.061       | 0.006  | 0.068 |
| Hour12   | 0.019 | 0.027 | 0.026      | 0.044      | 0.079       | 0.078       | 0.008  | 0.087 |
| Hour13   | 0.024 | 0.035 | 0.032      | 0.055      | 0.099       | 0.098       | 0.010  | 0.109 |
| Hour14   | 0.029 | 0.042 | 0.039      | 0.067      | 0.120       | 0.119       | 0.012  | 0.132 |
| Hour15   | 0.034 | 0.048 | 0.045      | 0.077      | 0.138       | 0.137       | 0.014  | 0.151 |
| Hour16   | 0.038 | 0.054 | 0.050      | 0.087      | 0.155       | 0.154       | 0.016  | 0.170 |
| Hour17   | 0.042 | 0.060 | 0.056      | 0.097      | 0.173       | 0.172       | 0.017  | 0.190 |
| Hour18   | 0.045 | 0.064 | 0.060      | 0.103      | 0.184       | 0.183       | 0.019  | 0.203 |
| Hour19   | 0.045 | 0.064 | 0.060      | 0.103      | 0.184       | 0.183       | 0.019  | 0.203 |
| Hour20   | 0.042 | 0.061 | 0.056      | 0.097      | 0.174       | 0.172       | 0.018  | 0.191 |
| Hour21   | 0.038 | 0.055 | 0.051      | 0.088      | 0.157       | 0.155       | 0.016  | 0.172 |
| Hour22   | 0.034 | 0.049 | 0.045      | 0.079      | 0.140       | 0.139       | 0.014  | 0.154 |
| Hour23   | 0.031 | 0.044 | 0.041      | 0.071      | 0.126       | 0.125       | 0.013  | 0.139 |
| Hour24   | 0.027 | 0.038 | 0.036      | 0.062      | 0.110       | 0.109       | 0.011  | 0.121 |

KPSC Case No. 2023-00092

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Cooling Peak Demand Model t-Statistics  
Page 991 of 1182

| Variable | CDD65   | CDD70   | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|---------|---------|------------|------------|-------------|-------------|--------|---------|
| Hour1    | 104.007 | 3.275   | -20.245    | 10.280     | 198.630     | -49.531     | 50.335 | -14.405 |
| Hour2    | 90.478  | 9.962   | -3.514     | 2.977      | 209.790     | -46.279     | 47.689 | -16.634 |
| Hour3    | 90.139  | 14.835  | -11.353    | 6.681      | 205.944     | -40.212     | 41.981 | -17.071 |
| Hour4    | 88.144  | 18.114  | -12.238    | 6.522      | 203.443     | -37.924     | 39.937 | -17.545 |
| Hour5    | 83.890  | 20.986  | -10.690    | 5.956      | 200.945     | -35.900     | 38.522 | -18.868 |
| Hour6    | 83.932  | 23.915  | -15.035    | 7.746      | 200.432     | -32.383     | 35.025 | -18.147 |
| Hour7    | 78.901  | 27.760  | -10.517    | 5.939      | 197.611     | -30.507     | 33.539 | -18.797 |
| Hour8    | 84.672  | 22.799  | -12.860    | 7.439      | 204.036     | -32.585     | 34.705 | -17.009 |
| Hour9    | 107.434 | 0.880   | -35.568    | 16.834     | 193.715     | -53.255     | 54.444 | -17.591 |
| Hour10   | 94.566  | 6.176   | 1.390      | 0.110      | 190.487     | -59.579     | 60.028 | -16.022 |
| Hour11   | 82.689  | 11.985  | 23.867     | -9.796     | 200.095     | -57.498     | 58.105 | -15.130 |
| Hour12   | 84.312  | 10.776  | 21.183     | -8.579     | 197.198     | -59.844     | 60.758 | -16.169 |
| Hour13   | 84.797  | 8.203   | 21.706     | -7.982     | 194.124     | -64.619     | 65.915 | -17.564 |
| Hour14   | 85.191  | 5.704   | 21.597     | -7.977     | 191.827     | -69.311     | 71.171 | -19.923 |
| Hour15   | 86.044  | 1.236   | 25.349     | -9.719     | 188.644     | -75.697     | 77.813 | -20.851 |
| Hour16   | 87.935  | -2.837  | 25.593     | -10.230    | 189.796     | -77.417     | 79.154 | -19.416 |
| Hour17   | 89.871  | -6.759  | 26.267     | -11.148    | 192.633     | -75.071     | 76.246 | -15.136 |
| Hour18   | 93.733  | -10.532 | 21.706     | -9.868     | 193.422     | -70.203     | 70.928 | -8.359  |
| Hour19   | 100.379 | -12.901 | 9.400      | -3.985     | 190.511     | -64.325     | 64.601 | -2.723  |
| Hour20   | 104.807 | -12.214 | -1.122     | 0.973      | 185.635     | -65.986     | 66.209 | -6.703  |
| Hour21   | 104.444 | -7.716  | -4.025     | 2.914      | 185.662     | -65.330     | 65.498 | -11.701 |
| Hour22   | 104.619 | -4.167  | -7.678     | 4.097      | 190.945     | -60.261     | 60.652 | -13.446 |
| Hour23   | 103.630 | -1.067  | -9.272     | 5.231      | 192.221     | -57.325     | 57.768 | -13.554 |
| Hour24   | 101.732 | 2.304   | -11.735    | 6.693      | 195.846     | -54.255     | 55.093 | -14.893 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Residential Cooling Peak Demand Model Statistics

Volume A - Public Version  
 Page 992 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE    | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|---------|------|-------|-------|---------|
| Hour1  | 1826 | 1818 | 0.998  | 0.051 | 1.006  | 0.611 | 13.28%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1818 | 0.998  | 0.064 | 0.877  | 0.547 | 16.96%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1818 | 0.998  | 0.084 | 0.768  | 0.487 | 34.04%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1818 | 0.998  | 0.095 | 0.685  | 0.441 | 39.93%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1818 | 0.998  | 0.112 | 0.626  | 0.415 | 498.09% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1818 | 0.998  | 0.115 | 0.551  | 0.367 | 46.24%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1818 | 0.998  | 0.124 | 0.489  | 0.331 | 63.29%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1818 | 0.998  | 0.107 | 0.456  | 0.298 | 109.82% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1818 | 0.998  | 0.069 | 0.453  | 0.285 | 17.49%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1818 | 0.998  | 0.048 | 0.516  | 0.323 | 30.62%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1818 | 0.998  | 0.046 | 0.663  | 0.406 | 17.99%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1818 | 0.998  | 0.045 | 0.846  | 0.517 | 64.38%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1818 | 0.998  | 0.044 | 1.063  | 0.647 | 24.53%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1818 | 0.998  | 0.046 | 1.287  | 0.788 | 19.56%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1818 | 0.998  | 0.041 | 1.478  | 0.899 | 29.62%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1818 | 0.998  | 0.036 | 1.664  | 1.007 | 27.27%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1818 | 0.998  | 0.033 | 1.856  | 1.121 | 37.52%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1818 | 0.998  | 0.031 | 1.977  | 1.207 | 20.64%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1818 | 0.998  | 0.031 | 1.979  | 1.219 | 25.84%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1818 | 0.998  | 0.032 | 1.864  | 1.150 | 13.70%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1818 | 0.998  | 0.035 | 1.681  | 1.033 | 16.94%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1818 | 0.998  | 0.037 | 1.507  | 0.913 | 34.58%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1818 | 0.998  | 0.040 | 1.354  | 0.817 | 13.03%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1818 | 0.998  | 0.046 | 1.182  | 0.716 | 16.84%  | 0    | 0.000 | 0.00% | 0.000   |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Heating Peak Demand Model Statistics      Page 993 of 1182

| Variable | HDD50 | HDD55  | HDD65 | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST    |
|----------|-------|--------|-------|------------|-------------|-------------|--------|--------|
| Hour1    | 2.956 | -1.516 | 1.976 | 0.006      | -7.791      | 54.452      | 0.146  | 6.536  |
| Hour2    | 2.559 | -1.167 | 2.093 | -0.109     | -13.186     | 57.128      | 0.569  | 6.233  |
| Hour3    | 2.497 | -1.154 | 2.207 | -0.086     | -15.746     | 57.204      | 0.657  | 7.662  |
| Hour4    | 2.486 | -1.073 | 2.284 | -0.095     | -18.576     | 58.443      | 0.808  | 8.536  |
| Hour5    | 2.535 | -1.142 | 2.485 | -0.117     | -20.622     | 60.727      | 0.902  | 9.499  |
| Hour6    | 2.378 | -1.124 | 2.694 | -0.165     | -22.073     | 61.841      | 0.922  | 10.921 |
| Hour7    | 1.838 | -0.725 | 2.883 | -0.335     | -24.545     | 67.046      | 0.929  | 13.567 |
| Hour8    | 1.477 | -0.477 | 2.709 | 0.072      | -23.427     | 66.770      | 0.631  | 16.704 |
| Hour9    | 1.480 | -0.532 | 2.488 | 0.523      | -18.103     | 64.663      | 0.159  | 17.580 |
| Hour10   | 2.041 | -0.911 | 2.194 | 0.566      | -11.093     | 61.543      | 0.123  | 10.528 |
| Hour11   | 2.730 | -1.312 | 1.893 | 0.176      | -6.476      | 56.823      | 0.079  | 5.963  |
| Hour12   | 3.245 | -1.672 | 1.619 | -0.086     | -3.168      | 51.050      | -0.025 | 3.832  |
| Hour13   | 3.650 | -1.968 | 1.407 | -0.174     | -1.755      | 46.514      | -0.121 | 3.653  |
| Hour14   | 3.704 | -2.010 | 1.216 | -0.109     | -1.086      | 42.954      | -0.159 | 3.461  |
| Hour15   | 3.728 | -2.077 | 1.128 | -0.098     | -0.339      | 39.953      | -0.181 | 3.024  |
| Hour16   | 3.896 | -2.246 | 1.102 | -0.084     | 0.182       | 38.632      | -0.191 | 2.653  |
| Hour17   | 4.032 | -2.344 | 1.249 | -0.255     | 0.606       | 41.589      | -0.227 | 2.811  |
| Hour18   | 4.182 | -2.430 | 1.470 | -0.359     | 0.837       | 47.310      | -0.262 | 3.195  |
| Hour19   | 3.678 | -2.167 | 1.598 | -0.342     | 0.418       | 47.020      | -0.256 | 3.588  |
| Hour20   | 3.274 | -1.896 | 1.597 | -0.269     | -1.356      | 45.924      | -0.229 | 5.004  |
| Hour21   | 2.929 | -1.711 | 1.727 | -0.211     | -1.961      | 47.283      | -0.354 | 7.375  |
| Hour22   | 2.870 | -1.645 | 1.836 | -0.142     | -3.175      | 50.625      | -0.374 | 8.961  |
| Hour23   | 2.678 | -1.443 | 1.859 | -0.057     | -4.472      | 51.987      | -0.205 | 7.983  |
| Hour24   | 2.605 | -1.306 | 1.890 | -0.027     | -5.783      | 53.475      | -0.103 | 7.953  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version  
 Residential Heating Peak Demand Model Statistics Page 994 of 1182

| Variable | HDD50 | HDD55 | HDD65 | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-------|-------|-------|------------|-------------|-------------|--------|-------|
| Hour1    | 0.086 | 0.107 | 0.040 | 0.010      | 0.308       | 0.347       | 0.036  | 0.365 |
| Hour2    | 0.093 | 0.116 | 0.044 | 0.011      | 0.336       | 0.378       | 0.039  | 0.398 |
| Hour3    | 0.096 | 0.120 | 0.045 | 0.012      | 0.347       | 0.390       | 0.040  | 0.411 |
| Hour4    | 0.101 | 0.126 | 0.047 | 0.012      | 0.364       | 0.409       | 0.042  | 0.431 |
| Hour5    | 0.107 | 0.133 | 0.050 | 0.013      | 0.385       | 0.433       | 0.044  | 0.457 |
| Hour6    | 0.111 | 0.138 | 0.052 | 0.013      | 0.399       | 0.449       | 0.046  | 0.473 |
| Hour7    | 0.118 | 0.147 | 0.055 | 0.014      | 0.425       | 0.477       | 0.049  | 0.503 |
| Hour8    | 0.115 | 0.143 | 0.054 | 0.014      | 0.414       | 0.465       | 0.048  | 0.490 |
| Hour9    | 0.108 | 0.134 | 0.050 | 0.013      | 0.387       | 0.436       | 0.045  | 0.459 |
| Hour10   | 0.098 | 0.123 | 0.046 | 0.012      | 0.354       | 0.398       | 0.041  | 0.420 |
| Hour11   | 0.087 | 0.108 | 0.041 | 0.010      | 0.312       | 0.350       | 0.036  | 0.369 |
| Hour12   | 0.074 | 0.093 | 0.035 | 0.009      | 0.268       | 0.302       | 0.031  | 0.318 |
| Hour13   | 0.066 | 0.082 | 0.031 | 0.008      | 0.237       | 0.267       | 0.027  | 0.281 |
| Hour14   | 0.060 | 0.075 | 0.028 | 0.007      | 0.215       | 0.242       | 0.025  | 0.255 |
| Hour15   | 0.055 | 0.069 | 0.026 | 0.007      | 0.199       | 0.224       | 0.023  | 0.236 |
| Hour16   | 0.053 | 0.066 | 0.025 | 0.006      | 0.192       | 0.216       | 0.022  | 0.227 |
| Hour17   | 0.057 | 0.071 | 0.027 | 0.007      | 0.205       | 0.231       | 0.024  | 0.243 |
| Hour18   | 0.065 | 0.080 | 0.030 | 0.008      | 0.233       | 0.262       | 0.027  | 0.276 |
| Hour19   | 0.066 | 0.082 | 0.031 | 0.008      | 0.237       | 0.266       | 0.027  | 0.281 |
| Hour20   | 0.066 | 0.082 | 0.031 | 0.008      | 0.236       | 0.266       | 0.027  | 0.280 |
| Hour21   | 0.068 | 0.085 | 0.032 | 0.008      | 0.245       | 0.275       | 0.028  | 0.290 |
| Hour22   | 0.073 | 0.091 | 0.034 | 0.009      | 0.264       | 0.297       | 0.030  | 0.313 |
| Hour23   | 0.077 | 0.096 | 0.036 | 0.009      | 0.278       | 0.312       | 0.032  | 0.329 |
| Hour24   | 0.081 | 0.101 | 0.038 | 0.010      | 0.291       | 0.327       | 0.034  | 0.345 |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Heating Peak Demand Model Statistics      Page 995 of 1182

| Variable | HDD50  | HDD55   | HDD65  | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight  | DST    |
|----------|--------|---------|--------|------------|-------------|-------------|---------|--------|
| Hour1    | 34.546 | -14.218 | 49.275 | 0.550      | -25.266     | 157.095     | 4.092   | 17.885 |
| Hour2    | 27.446 | -10.044 | 47.911 | -9.730     | -39.246     | 151.263     | 14.672  | 15.653 |
| Hour3    | 25.926 | -9.616  | 48.902 | -7.419     | -45.371     | 146.632     | 16.419  | 18.629 |
| Hour4    | 24.627 | -8.527  | 48.282 | -7.836     | -51.069     | 142.936     | 19.250  | 19.802 |
| Hour5    | 23.716 | -8.570  | 49.613 | -9.143     | -53.533     | 140.241     | 20.299  | 20.807 |
| Hour6    | 21.468 | -8.145  | 51.883 | -12.368    | -55.289     | 137.802     | 20.014  | 23.081 |
| Hour7    | 15.592 | -4.935  | 52.189 | -23.678    | -57.790     | 140.428     | 18.964  | 26.953 |
| Hour8    | 12.860 | -3.333  | 50.329 | 5.234      | -56.608     | 143.526     | 13.229  | 34.056 |
| Hour9    | 13.764 | -3.973  | 49.389 | 40.451     | -46.725     | 148.477     | 3.565   | 38.287 |
| Hour10   | 20.757 | -7.438  | 47.615 | 47.879     | -31.304     | 154.494     | 2.999   | 25.068 |
| Hour11   | 31.553 | -12.170 | 46.690 | 16.912     | -20.774     | 162.154     | 2.194   | 16.141 |
| Hour12   | 43.569 | -18.015 | 46.388 | -9.587     | -11.803     | 169.180     | -0.814  | 12.044 |
| Hour13   | 55.388 | -23.962 | 45.551 | -22.006    | -7.391      | 174.267     | -4.427  | 12.980 |
| Hour14   | 61.947 | -26.977 | 43.390 | -15.226    | -5.038      | 177.328     | -6.394  | 13.553 |
| Hour15   | 67.440 | -30.148 | 43.542 | -14.789    | -1.700      | 178.430     | -7.894  | 12.811 |
| Hour16   | 73.147 | -33.833 | 44.134 | -13.178    | 0.947       | 179.056     | -8.638  | 11.662 |
| Hour17   | 70.825 | -33.039 | 46.812 | -37.198    | 2.956       | 180.363     | -9.584  | 11.562 |
| Hour18   | 64.760 | -30.199 | 48.568 | -46.196    | 3.598       | 180.849     | -9.760  | 11.584 |
| Hour19   | 55.965 | -26.459 | 51.880 | -43.223    | 1.763       | 176.597     | -9.387  | 12.781 |
| Hour20   | 49.941 | -23.216 | 51.971 | -34.082    | -5.740      | 172.953     | -8.394  | 17.874 |
| Hour21   | 43.082 | -20.200 | 54.208 | -25.861    | -8.004      | 171.676     | -12.521 | 25.399 |
| Hour22   | 39.196 | -18.026 | 53.495 | -16.187    | -12.035     | 170.688     | -12.292 | 28.655 |
| Hour23   | 34.741 | -15.024 | 51.449 | -6.143     | -16.100     | 166.491     | -6.406  | 24.248 |
| Hour24   | 32.262 | -12.974 | 49.941 | -2.822     | -19.872     | 163.479     | -3.074  | 23.060 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Residential Heating Peak Demand Model Statistics

Volume A - Public Version  
 Page 996 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE   | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|--------|------|-------|-------|---------|
| Hour1  | 1826 | 1818 | 0.996  | 0.080 | 3.476  | 1.745 | 4.28%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1818 | 0.996  | 0.073 | 3.788  | 1.929 | 6.95%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1818 | 0.996  | 0.073 | 3.913  | 2.007 | 6.49%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1818 | 0.996  | 0.072 | 4.101  | 2.117 | 10.74% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1818 | 0.996  | 0.072 | 4.343  | 2.249 | 5.09%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1818 | 0.996  | 0.071 | 4.501  | 2.339 | 5.61%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1818 | 0.995  | 0.067 | 4.789  | 2.500 | 16.31% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1818 | 0.995  | 0.068 | 4.666  | 2.439 | 3.76%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1818 | 0.996  | 0.077 | 4.368  | 2.261 | 3.76%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1818 | 0.996  | 0.082 | 3.995  | 2.029 | 3.97%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1818 | 0.996  | 0.080 | 3.515  | 1.755 | 4.67%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1818 | 0.996  | 0.083 | 3.026  | 1.488 | 5.88%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1818 | 0.996  | 0.088 | 2.677  | 1.303 | 8.37%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1818 | 0.996  | 0.093 | 2.429  | 1.174 | 16.75% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1818 | 0.996  | 0.096 | 2.246  | 1.080 | 58.97% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1818 | 0.996  | 0.100 | 2.164  | 1.037 | 34.65% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1818 | 0.996  | 0.099 | 2.313  | 1.129 | 18.94% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1818 | 0.996  | 0.096 | 2.624  | 1.290 | 8.09%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1818 | 0.996  | 0.088 | 2.670  | 1.297 | 8.93%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1818 | 0.996  | 0.085 | 2.663  | 1.307 | 5.51%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1818 | 0.996  | 0.083 | 2.762  | 1.367 | 6.87%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1818 | 0.996  | 0.081 | 2.975  | 1.481 | 5.96%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1818 | 0.996  | 0.079 | 3.132  | 1.564 | 4.65%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1818 | 0.996  | 0.079 | 3.281  | 1.644 | 4.31%  | 0    | 0.000 | 0.00% | 0.000   |

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Residential Lighting Peak Demand Model Coefficients  
Page 997 of 1182

| Variable | Constant | WeekEnd | January | February | March  | April  | May     | June    | July    | August  |
|----------|----------|---------|---------|----------|--------|--------|---------|---------|---------|---------|
| Hour1    | 13.842   | 0.042   | 0.406   | 0.292    | 0.139  | 0.197  | 0.614   | -0.471  | -1.050  | -1.012  |
| Hour2    | 9.333    | -0.628  | 0.289   | 0.260    | 0.194  | 0.280  | 0.896   | 0.236   | -0.232  | -0.289  |
| Hour3    | 6.490    | -0.766  | 0.208   | 0.102    | -0.024 | -0.134 | 0.104   | -0.353  | -0.675  | -0.675  |
| Hour4    | 4.788    | -0.351  | 0.148   | 0.105    | 0.040  | 0.048  | 0.298   | -0.046  | -0.298  | -0.302  |
| Hour5    | 3.840    | -0.050  | 0.114   | 0.048    | -0.028 | -0.068 | -0.039  | -0.344  | -0.506  | -0.472  |
| Hour6    | 4.573    | 0.396   | 0.125   | 0.110    | 0.080  | 0.169  | 0.284   | -0.100  | -0.275  | -0.248  |
| Hour7    | 6.923    | 0.968   | 0.181   | 0.133    | 0.064  | 0.191  | 0.204   | -0.417  | -0.658  | -0.568  |
| Hour8    | 9.721    | 1.034   | 0.262   | -0.031   | -0.337 | -0.552 | -1.157  | -2.068  | -2.371  | -2.098  |
| Hour9    | 10.694   | 0.422   | 0.305   | -0.094   | -0.495 | -0.932 | -1.683  | -2.646  | -2.983  | -2.688  |
| Hour10   | 9.424    | -1.346  | 0.309   | -0.105   | -0.503 | -1.180 | -1.680  | -2.401  | -2.727  | -2.573  |
| Hour11   | 8.045    | -1.000  | 0.260   | -0.102   | -0.453 | -1.025 | -1.506  | -2.137  | -2.415  | -2.261  |
| Hour12   | 6.680    | -0.800  | 0.215   | -0.099   | -0.408 | -0.884 | -1.310  | -1.840  | -2.087  | -1.941  |
| Hour13   | 5.715    | -0.691  | 0.184   | -0.044   | -0.271 | -0.610 | -0.841  | -1.282  | -1.507  | -1.413  |
| Hour14   | 5.604    | -0.543  | 0.177   | -0.038   | -0.254 | -0.562 | -0.798  | -1.240  | -1.454  | -1.357  |
| Hour15   | 5.487    | -0.549  | 0.174   | -0.056   | -0.287 | -0.615 | -0.893  | -1.329  | -1.544  | -1.433  |
| Hour16   | 5.555    | -0.678  | 0.179   | -0.111   | -0.397 | -0.831 | -1.259  | -1.707  | -1.918  | -1.773  |
| Hour17   | 6.620    | -0.799  | 0.213   | -0.230   | -0.654 | -1.354 | -2.202  | -2.766  | -2.964  | -2.723  |
| Hour18   | 9.324    | -0.701  | 0.291   | -0.562   | -1.369 | -2.698 | -4.714  | -5.612  | -5.802  | -5.256  |
| Hour19   | 16.917   | -0.158  | 0.502   | -1.279   | -2.962 | -5.647 | -10.286 | -12.080 | -12.317 | -11.054 |
| Hour20   | 26.069   | -0.231  | 0.773   | -2.106   | -4.817 | -9.197 | -16.796 | -19.602 | -19.907 | -17.863 |
| Hour21   | 30.722   | 0.175   | 0.901   | -1.564   | -3.897 | -7.524 | -13.711 | -16.782 | -17.326 | -15.596 |
| Hour22   | 31.209   | 0.454   | 0.909   | -0.075   | -1.054 | -2.194 | -3.751  | -6.444  | -7.408  | -6.776  |
| Hour23   | 27.827   | 0.633   | 0.806   | 0.566    | 0.283  | 0.325  | 0.872   | -1.360  | -2.363  | -2.269  |
| Hour24   | 20.733   | 0.536   | 0.599   | 0.543    | 0.440  | 0.699  | 1.502   | -0.130  | -0.929  | -0.941  |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version

Residential Lighting Peak Demand Model Coefficients Page 998 of 1182

| Variable | September | October | November | December | WinterFuzzy | HLight |
|----------|-----------|---------|----------|----------|-------------|--------|
| Hour1    | -0.486    | -0.233  | 0.172    | 0.000    | 0.023       | 0.021  |
| Hour2    | 0.130     | 0.106   | 0.355    | 0.000    | -0.018      | 0.053  |
| Hour3    | -0.291    | -0.192  | 0.151    | 0.000    | -0.034      | 0.052  |
| Hour4    | -0.046    | -0.012  | 0.144    | 0.000    | 0.000       | 0.040  |
| Hour5    | -0.290    | -0.166  | -0.001   | 0.000    | 0.006       | 0.013  |
| Hour6    | -0.130    | -0.033  | 0.022    | 0.000    | 0.035       | -0.008 |
| Hour7    | -0.404    | -0.158  | -0.086   | 0.000    | 0.083       | -0.023 |
| Hour8    | -1.679    | -0.954  | -0.478   | 0.000    | 0.100       | -0.012 |
| Hour9    | -2.122    | -1.279  | -0.536   | 0.000    | 0.049       | 0.004  |
| Hour10   | -1.916    | -1.289  | -0.275   | 0.000    | -0.114      | 0.036  |
| Hour11   | -1.697    | -1.126  | -0.276   | 0.000    | -0.079      | 0.032  |
| Hour12   | -1.444    | -0.946  | -0.248   | 0.000    | -0.050      | 0.039  |
| Hour13   | -1.011    | -0.665  | -0.131   | 0.000    | -0.043      | 0.034  |
| Hour14   | -0.983    | -0.638  | -0.142   | 0.000    | -0.033      | 0.028  |
| Hour15   | -1.042    | -0.674  | -0.166   | 0.000    | -0.028      | 0.034  |
| Hour16   | -1.325    | -0.863  | -0.250   | 0.000    | -0.035      | 0.040  |
| Hour17   | -2.155    | -1.409  | -0.501   | 0.000    | -0.056      | 0.033  |
| Hour18   | -4.353    | -2.805  | -1.226   | 0.000    | -0.045      | 0.033  |
| Hour19   | -9.353    | -5.945  | -2.880   | 0.000    | 0.016       | 0.034  |
| Hour20   | -15.181   | -9.664  | -4.710   | 0.000    | 0.013       | 0.040  |
| Hour21   | -13.136   | -8.320  | -3.907   | 0.000    | 0.009       | -0.007 |
| Hour22   | -5.288    | -3.248  | -1.135   | 0.000    | 0.014       | -0.030 |
| Hour23   | -1.403    | -0.758  | 0.141    | 0.000    | 0.010       | -0.054 |
| Hour24   | -0.360    | -0.112  | 0.339    | 0.000    | 0.023       | -0.032 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Volume A - Public Version  
 Residential Lighting Peak Demand Model Standard Errors  
 Page 999 of 1182

| Variable | Constant | WeekEnd | January | February | March | April | May   | June  | July  | August | September |
|----------|----------|---------|---------|----------|-------|-------|-------|-------|-------|--------|-----------|
| Hour1    | 2.059    | 0.116   | 0.262   | 0.366    | 0.563 | 0.741 | 0.931 | 1.027 | 0.978 | 0.818  | 0.638     |
| Hour2    | 1.468    | 0.083   | 0.187   | 0.261    | 0.402 | 0.529 | 0.664 | 0.732 | 0.697 | 0.583  | 0.455     |
| Hour3    | 0.992    | 0.056   | 0.126   | 0.176    | 0.271 | 0.357 | 0.449 | 0.495 | 0.471 | 0.394  | 0.307     |
| Hour4    | 0.762    | 0.043   | 0.097   | 0.135    | 0.208 | 0.274 | 0.345 | 0.380 | 0.362 | 0.303  | 0.236     |
| Hour5    | 0.564    | 0.032   | 0.072   | 0.100    | 0.154 | 0.203 | 0.255 | 0.281 | 0.268 | 0.224  | 0.175     |
| Hour6    | 0.677    | 0.038   | 0.086   | 0.120    | 0.185 | 0.244 | 0.306 | 0.338 | 0.322 | 0.269  | 0.210     |
| Hour7    | 1.007    | 0.057   | 0.128   | 0.179    | 0.276 | 0.363 | 0.456 | 0.503 | 0.479 | 0.400  | 0.312     |
| Hour8    | 1.325    | 0.075   | 0.169   | 0.235    | 0.362 | 0.477 | 0.599 | 0.661 | 0.629 | 0.526  | 0.410     |
| Hour9    | 1.423    | 0.080   | 0.181   | 0.253    | 0.389 | 0.512 | 0.643 | 0.710 | 0.676 | 0.565  | 0.441     |
| Hour10   | 1.220    | 0.069   | 0.155   | 0.217    | 0.334 | 0.440 | 0.552 | 0.609 | 0.580 | 0.485  | 0.378     |
| Hour11   | 1.045    | 0.059   | 0.133   | 0.186    | 0.286 | 0.376 | 0.473 | 0.521 | 0.497 | 0.415  | 0.324     |
| Hour12   | 0.887    | 0.050   | 0.113   | 0.157    | 0.242 | 0.319 | 0.401 | 0.442 | 0.421 | 0.352  | 0.275     |
| Hour13   | 0.780    | 0.044   | 0.099   | 0.139    | 0.213 | 0.281 | 0.353 | 0.389 | 0.371 | 0.310  | 0.242     |
| Hour14   | 0.763    | 0.043   | 0.097   | 0.136    | 0.209 | 0.275 | 0.345 | 0.381 | 0.362 | 0.303  | 0.236     |
| Hour15   | 0.750    | 0.042   | 0.095   | 0.133    | 0.205 | 0.270 | 0.339 | 0.374 | 0.356 | 0.298  | 0.232     |
| Hour16   | 0.739    | 0.042   | 0.094   | 0.131    | 0.202 | 0.266 | 0.334 | 0.369 | 0.351 | 0.294  | 0.229     |
| Hour17   | 0.806    | 0.045   | 0.103   | 0.143    | 0.220 | 0.290 | 0.364 | 0.402 | 0.383 | 0.320  | 0.249     |
| Hour18   | 1.026    | 0.058   | 0.131   | 0.182    | 0.281 | 0.370 | 0.464 | 0.512 | 0.487 | 0.408  | 0.318     |
| Hour19   | 1.771    | 0.100   | 0.226   | 0.315    | 0.484 | 0.638 | 0.801 | 0.883 | 0.841 | 0.703  | 0.548     |
| Hour20   | 2.660    | 0.150   | 0.339   | 0.473    | 0.728 | 0.958 | 1.203 | 1.327 | 1.264 | 1.056  | 0.824     |
| Hour21   | 3.406    | 0.192   | 0.434   | 0.605    | 0.932 | 1.227 | 1.540 | 1.699 | 1.618 | 1.353  | 1.055     |
| Hour22   | 4.125    | 0.233   | 0.525   | 0.733    | 1.128 | 1.486 | 1.866 | 2.058 | 1.960 | 1.638  | 1.277     |
| Hour23   | 3.960    | 0.223   | 0.504   | 0.703    | 1.083 | 1.426 | 1.791 | 1.976 | 1.881 | 1.573  | 1.226     |
| Hour24   | 3.036    | 0.171   | 0.387   | 0.539    | 0.830 | 1.093 | 1.373 | 1.515 | 1.442 | 1.206  | 0.940     |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version

Residential Lighting Peak Demand Model Standard Errors Page 1000 of 1182

| Variable | October | November | December | WinterFuzzy | HLight |
|----------|---------|----------|----------|-------------|--------|
| Hour1    | 0.509   | 0.285    | 0.000    | 0.449       | 0.195  |
| Hour2    | 0.363   | 0.204    | 0.000    | 0.320       | 0.139  |
| Hour3    | 0.245   | 0.138    | 0.000    | 0.217       | 0.094  |
| Hour4    | 0.188   | 0.106    | 0.000    | 0.166       | 0.072  |
| Hour5    | 0.140   | 0.078    | 0.000    | 0.123       | 0.053  |
| Hour6    | 0.168   | 0.094    | 0.000    | 0.148       | 0.064  |
| Hour7    | 0.249   | 0.140    | 0.000    | 0.220       | 0.095  |
| Hour8    | 0.328   | 0.184    | 0.000    | 0.289       | 0.125  |
| Hour9    | 0.352   | 0.197    | 0.000    | 0.310       | 0.135  |
| Hour10   | 0.302   | 0.169    | 0.000    | 0.266       | 0.115  |
| Hour11   | 0.259   | 0.145    | 0.000    | 0.228       | 0.099  |
| Hour12   | 0.219   | 0.123    | 0.000    | 0.193       | 0.084  |
| Hour13   | 0.193   | 0.108    | 0.000    | 0.170       | 0.074  |
| Hour14   | 0.189   | 0.106    | 0.000    | 0.166       | 0.072  |
| Hour15   | 0.185   | 0.104    | 0.000    | 0.164       | 0.071  |
| Hour16   | 0.183   | 0.102    | 0.000    | 0.161       | 0.070  |
| Hour17   | 0.199   | 0.112    | 0.000    | 0.176       | 0.076  |
| Hour18   | 0.254   | 0.142    | 0.000    | 0.224       | 0.097  |
| Hour19   | 0.438   | 0.246    | 0.000    | 0.386       | 0.168  |
| Hour20   | 0.658   | 0.369    | 0.000    | 0.580       | 0.252  |
| Hour21   | 0.842   | 0.472    | 0.000    | 0.743       | 0.322  |
| Hour22   | 1.020   | 0.572    | 0.000    | 0.900       | 0.390  |
| Hour23   | 0.980   | 0.549    | 0.000    | 0.864       | 0.375  |
| Hour24   | 0.751   | 0.421    | 0.000    | 0.662       | 0.287  |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Lighting Peak Demand Model t-Statistics      Page 1001 of 1182

| Variable | Constant | WeekEnd | January | February | March  | April  | May     | June    | July    | August  |
|----------|----------|---------|---------|----------|--------|--------|---------|---------|---------|---------|
| Hour1    | 6.723    | 0.360   | 1.549   | 0.797    | 0.246  | 0.266  | 0.659   | -0.458  | -1.074  | -1.237  |
| Hour2    | 6.358    | -7.586  | 1.544   | 0.996    | 0.483  | 0.529  | 1.349   | 0.322   | -0.332  | -0.495  |
| Hour3    | 6.541    | -13.684 | 1.647   | 0.576    | -0.089 | -0.374 | 0.232   | -0.712  | -1.433  | -1.713  |
| Hour4    | 6.287    | -8.163  | 1.530   | 0.773    | 0.190  | 0.176  | 0.866   | -0.122  | -0.824  | -1.000  |
| Hour5    | 6.806    | -1.576  | 1.587   | 0.478    | -0.180 | -0.333 | -0.151  | -1.223  | -1.887  | -2.108  |
| Hour6    | 6.750    | 10.372  | 1.454   | 0.915    | 0.434  | 0.691  | 0.927   | -0.296  | -0.854  | -0.923  |
| Hour7    | 6.872    | 17.022  | 1.415   | 0.743    | 0.232  | 0.526  | 0.447   | -0.830  | -1.375  | -1.420  |
| Hour8    | 7.339    | 13.828  | 1.554   | -0.133   | -0.930 | -1.157 | -1.932  | -3.129  | -3.768  | -3.989  |
| Hour9    | 7.517    | 5.255   | 1.683   | -0.371   | -1.273 | -1.819 | -2.615  | -3.728  | -4.414  | -4.757  |
| Hour10   | 7.722    | -19.542 | 1.986   | -0.484   | -1.506 | -2.685 | -3.043  | -3.944  | -4.703  | -5.308  |
| Hour11   | 7.696    | -16.956 | 1.953   | -0.552   | -1.586 | -2.724 | -3.185  | -4.097  | -4.863  | -5.447  |
| Hour12   | 7.535    | -15.986 | 1.903   | -0.630   | -1.684 | -2.770 | -3.267  | -4.161  | -4.957  | -5.514  |
| Hour13   | 7.322    | -15.693 | 1.851   | -0.316   | -1.271 | -2.169 | -2.383  | -3.292  | -4.065  | -4.559  |
| Hour14   | 7.346    | -12.620 | 1.825   | -0.282   | -1.217 | -2.047 | -2.313  | -3.257  | -4.012  | -4.479  |
| Hour15   | 7.321    | -12.984 | 1.822   | -0.423   | -1.402 | -2.277 | -2.633  | -3.554  | -4.335  | -4.815  |
| Hour16   | 7.515    | -16.253 | 1.899   | -0.844   | -1.965 | -3.121 | -3.765  | -4.629  | -5.462  | -6.038  |
| Hour17   | 8.216    | -17.573 | 2.078   | -1.607   | -2.970 | -4.668 | -6.042  | -6.881  | -7.743  | -8.509  |
| Hour18   | 9.087    | -12.102 | 2.224   | -3.085   | -4.878 | -7.301 | -10.157 | -10.964 | -11.904 | -12.898 |
| Hour19   | 9.552    | -1.578  | 2.224   | -4.066   | -6.115 | -8.854 | -12.841 | -13.673 | -14.640 | -15.716 |
| Hour20   | 9.800    | -1.538  | 2.281   | -4.458   | -6.621 | -9.600 | -13.960 | -14.772 | -15.753 | -16.908 |
| Hour21   | 9.020    | 0.908   | 2.078   | -2.586   | -4.184 | -6.134 | -8.901  | -9.877  | -10.709 | -11.530 |
| Hour22   | 7.565    | 1.951   | 1.731   | -0.103   | -0.935 | -1.477 | -2.010  | -3.131  | -3.780  | -4.136  |
| Hour23   | 7.027    | 2.834   | 1.598   | 0.804    | 0.261  | 0.228  | 0.487   | -0.688  | -1.256  | -1.443  |
| Hour24   | 6.829    | 3.130   | 1.548   | 1.008    | 0.530  | 0.639  | 1.093   | -0.086  | -0.644  | -0.781  |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version  
 Residential Lighting Peak Demand Model t-Statistics Page 1002 of 1182

| Variable | September | October | November | December | WinterFuzzy | HLight |
|----------|-----------|---------|----------|----------|-------------|--------|
| Hour1    | -0.762    | -0.457  | 0.602    | 0.000    | 0.051       | 0.108  |
| Hour2    | 0.286     | 0.291   | 1.746    | 0.000    | -0.056      | 0.383  |
| Hour3    | -0.947    | -0.782  | 1.096    | 0.000    | -0.157      | 0.552  |
| Hour4    | -0.193    | -0.066  | 1.361    | 0.000    | 0.000       | 0.551  |
| Hour5    | -1.662    | -1.188  | -0.013   | 0.000    | 0.051       | 0.235  |
| Hour6    | -0.618    | -0.195  | 0.230    | 0.000    | 0.235       | -0.125 |
| Hour7    | -1.296    | -0.633  | -0.619   | 0.000    | 0.376       | -0.237 |
| Hour8    | -4.093    | -2.911  | -2.606   | 0.000    | 0.347       | -0.096 |
| Hour9    | -4.817    | -3.636  | -2.718   | 0.000    | 0.157       | 0.029  |
| Hour10   | -5.070    | -4.270  | -1.626   | 0.000    | -0.428      | 0.312  |
| Hour11   | -5.244    | -4.355  | -1.905   | 0.000    | -0.348      | 0.325  |
| Hour12   | -5.259    | -4.315  | -2.014   | 0.000    | -0.261      | 0.462  |
| Hour13   | -4.185    | -3.446  | -1.215   | 0.000    | -0.253      | 0.461  |
| Hour14   | -4.161    | -3.383  | -1.342   | 0.000    | -0.199      | 0.384  |
| Hour15   | -4.491    | -3.635  | -1.601   | 0.000    | -0.170      | 0.473  |
| Hour16   | -5.789    | -4.718  | -2.439   | 0.000    | -0.218      | 0.578  |
| Hour17   | -8.638    | -7.069  | -4.487   | 0.000    | -0.316      | 0.438  |
| Hour18   | -13.699   | -11.051 | -8.619   | 0.000    | -0.200      | 0.342  |
| Hour19   | -17.055   | -13.571 | -11.730  | 0.000    | 0.042       | 0.205  |
| Hour20   | -18.430   | -14.688 | -12.773  | 0.000    | 0.023       | 0.159  |
| Hour21   | -12.455   | -9.876  | -8.275   | 0.000    | 0.013       | -0.021 |
| Hour22   | -4.140    | -3.183  | -1.985   | 0.000    | 0.016       | -0.077 |
| Hour23   | -1.144    | -0.774  | 0.257    | 0.000    | 0.011       | -0.144 |
| Hour24   | -0.383    | -0.149  | 0.806    | 0.000    | 0.034       | -0.110 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Residential Lighting Peak Demand Model Statistics  
Volume A - Public Version  
Page 1003 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE   | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|--------|------|-------|-------|---------|
| Hour1  | 1826 | 1810 | 0.041  | 0.002 | 2.242  | 1.725 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1810 | 0.058  | 0.003 | 1.598  | 1.230 | 11.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1810 | 0.122  | 0.006 | 1.080  | 0.830 | 11.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1810 | 0.060  | 0.004 | 0.829  | 0.638 | 11.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1810 | 0.078  | 0.003 | 0.614  | 0.473 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1810 | 0.096  | 0.005 | 0.738  | 0.567 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1810 | 0.201  | 0.009 | 1.097  | 0.842 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1810 | 0.340  | 0.007 | 1.442  | 1.103 | 11.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1810 | 0.343  | 0.004 | 1.549  | 1.185 | 11.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1810 | 0.405  | 0.010 | 1.329  | 1.014 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1810 | 0.400  | 0.008 | 1.138  | 0.869 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1810 | 0.391  | 0.008 | 0.965  | 0.737 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1810 | 0.313  | 0.008 | 0.850  | 0.650 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1810 | 0.294  | 0.006 | 0.831  | 0.636 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1810 | 0.317  | 0.006 | 0.816  | 0.625 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1810 | 0.425  | 0.008 | 0.805  | 0.614 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1810 | 0.603  | 0.010 | 0.877  | 0.662 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1810 | 0.780  | 0.008 | 1.117  | 0.820 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1810 | 0.847  | 0.006 | 1.928  | 1.376 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1810 | 0.866  | 0.007 | 2.896  | 2.038 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1810 | 0.752  | 0.005 | 3.708  | 2.742 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1810 | 0.281  | 0.003 | 4.492  | 3.441 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1810 | 0.066  | 0.003 | 4.312  | 3.317 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1810 | 0.039  | 0.003 | 3.306  | 2.544 | 11.60% | 0    | 0.000 | 0.00% | 0.000   |

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Residential Other Peak Demand Model Coefficients  
Page 1004 of 1182

| Variable | HDD50 | HDD55  | HDD65  | CDD65  | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay   |
|----------|-------|--------|--------|--------|--------|------------|------------|------------|---------|
| Hour1    | 1.807 | 2.762  | 0.754  | 1.683  | 2.565  | 2.166      | 0.100      | -2.251     | 119.814 |
| Hour2    | 2.775 | -0.179 | 1.501  | 1.245  | 2.185  | 0.228      | 0.508      | -0.031     | 136.076 |
| Hour3    | 2.441 | 0.093  | 1.679  | 0.526  | 2.377  | 0.936      | 0.558      | -1.008     | 145.247 |
| Hour4    | 2.144 | 0.009  | 1.985  | 0.251  | 2.324  | 1.702      | 0.733      | -2.001     | 135.423 |
| Hour5    | 2.043 | -0.064 | 2.069  | 0.139  | 2.031  | 1.603      | 0.758      | -1.842     | 134.590 |
| Hour6    | 2.180 | -0.327 | 2.302  | 0.016  | 1.932  | 1.817      | 0.774      | -1.992     | 153.184 |
| Hour7    | 2.380 | -0.382 | 2.235  | -0.376 | 2.043  | 2.493      | 0.960      | -2.483     | 170.472 |
| Hour8    | 2.272 | -0.459 | 2.503  | -0.805 | 2.509  | 3.826      | 0.827      | -3.521     | 218.716 |
| Hour9    | 2.595 | -0.706 | 2.823  | -1.433 | 2.992  | 3.144      | 0.387      | -2.707     | 162.318 |
| Hour10   | 1.355 | 1.190  | 2.456  | -1.047 | 3.291  | 1.198      | 0.060      | -1.222     | 182.662 |
| Hour11   | 1.308 | 1.221  | 2.406  | 0.236  | 3.152  | 0.446      | 0.185      | -0.565     | 166.546 |
| Hour12   | 1.997 | 0.903  | 2.183  | 1.379  | 3.686  | -0.515     | 0.022      | 0.182      | 155.230 |
| Hour13   | 1.322 | 2.625  | 0.969  | 2.466  | 4.164  | -0.229     | 0.038      | -0.503     | 129.547 |
| Hour14   | 2.211 | 2.586  | 0.395  | 3.425  | 4.646  | 1.196      | 0.143      | -2.614     | 97.577  |
| Hour15   | 1.661 | 4.301  | -0.823 | 4.881  | 3.688  | 1.040      | -0.071     | -2.450     | 75.338  |
| Hour16   | 2.669 | 3.805  | -1.377 | 5.815  | 3.164  | 1.084      | -0.134     | -2.892     | 71.188  |
| Hour17   | 2.464 | 4.641  | -2.246 | 6.412  | 2.385  | 1.746      | 0.072      | -3.919     | 82.168  |
| Hour18   | 2.187 | 5.529  | -2.929 | 7.045  | 0.634  | 0.318      | 0.034      | -1.272     | 107.740 |
| Hour19   | 3.034 | 4.544  | -2.440 | 7.615  | -0.931 | 1.204      | 0.130      | -1.929     | 114.583 |
| Hour20   | 3.602 | 3.621  | -1.791 | 6.842  | -0.817 | 0.708      | -0.062     | -1.032     | 105.221 |
| Hour21   | 2.910 | 4.275  | -1.828 | 5.649  | 0.046  | 1.675      | 0.112      | -2.194     | 136.551 |
| Hour22   | 2.621 | 3.947  | -1.189 | 4.585  | 1.097  | 2.236      | 0.137      | -2.943     | 151.401 |
| Hour23   | 2.679 | 2.946  | -0.379 | 4.477  | 0.370  | 2.128      | 0.218      | -2.489     | 143.866 |
| Hour24   | 2.149 | 3.308  | -0.171 | 3.257  | 1.074  | 1.639      | 0.202      | -1.889     | 138.535 |

Kpsc Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Residential Other Peak Demand Model Coefficients Page 1005 of 1182

| Variable | WkEnd   | MajorHolidays | January | February | March   | April   | May     | June    | July   | August  |
|----------|---------|---------------|---------|----------|---------|---------|---------|---------|--------|---------|
| Hour1    | 117.030 | 17.870        | -9.359  | -23.139  | -20.248 | -21.566 | -13.287 | 9.379   | 24.270 | 12.382  |
| Hour2    | 135.452 | -0.582        | 2.790   | -11.308  | -10.504 | -9.959  | -6.651  | 6.509   | 27.674 | 14.496  |
| Hour3    | 142.277 | 1.059         | 5.717   | -6.605   | 0.032   | 2.907   | 5.021   | 16.819  | 37.860 | 25.165  |
| Hour4    | 129.248 | 0.627         | 3.201   | -4.680   | 3.356   | 5.070   | 3.672   | 17.744  | 36.907 | 26.342  |
| Hour5    | 127.250 | 1.010         | 3.091   | -5.221   | 5.358   | 6.600   | 3.399   | 17.877  | 34.605 | 26.522  |
| Hour6    | 142.909 | 0.555         | 1.566   | -3.865   | 10.790  | 14.718  | 10.438  | 23.820  | 37.535 | 29.293  |
| Hour7    | 146.578 | 2.946         | 3.062   | -1.053   | 17.335  | 21.068  | 13.882  | 29.631  | 40.963 | 34.699  |
| Hour8    | 167.260 | 2.261         | 6.367   | 5.558    | 27.217  | 27.147  | 21.387  | 34.605  | 44.653 | 39.891  |
| Hour9    | 129.999 | -1.035        | -0.326  | -3.546   | 14.972  | 16.435  | 3.995   | 17.478  | 31.158 | 27.285  |
| Hour10   | 181.671 | 2.115         | -5.703  | -8.339   | 8.721   | 15.043  | 8.075   | 22.915  | 34.028 | 20.883  |
| Hour11   | 179.633 | 6.770         | -1.936  | -12.460  | -5.906  | -5.188  | -6.284  | 13.346  | 24.686 | 11.185  |
| Hour12   | 175.870 | 21.393        | -1.199  | -14.835  | -16.615 | -18.196 | -13.528 | 6.589   | 23.330 | 4.641   |
| Hour13   | 151.686 | 22.492        | -0.430  | -19.256  | -28.074 | -27.846 | -18.857 | -1.725  | 17.216 | -0.161  |
| Hour14   | 118.535 | 20.986        | 0.935   | -18.544  | -32.387 | -33.917 | -21.974 | -8.266  | 10.624 | -1.661  |
| Hour15   | 97.419  | 14.919        | 0.350   | -22.896  | -40.955 | -38.952 | -29.033 | -18.625 | 3.366  | -4.589  |
| Hour16   | 91.062  | 9.742         | -5.727  | -30.070  | -49.226 | -46.101 | -37.148 | -31.002 | -7.703 | -13.925 |
| Hour17   | 96.379  | 6.200         | -7.097  | -37.092  | -57.978 | -53.216 | -40.594 | -30.601 | -8.835 | -16.513 |
| Hour18   | 117.405 | 6.956         | -6.459  | -36.153  | -55.150 | -45.281 | -24.540 | -9.759  | 10.602 | 3.604   |
| Hour19   | 117.917 | 1.684         | -12.810 | -44.262  | -68.029 | -55.114 | -32.631 | -9.534  | 13.053 | 4.916   |
| Hour20   | 109.758 | 8.611         | -11.727 | -40.496  | -62.554 | -52.551 | -29.331 | -2.958  | 17.001 | 10.225  |
| Hour21   | 136.571 | 14.562        | -9.678  | -29.841  | -46.453 | -43.330 | -19.736 | 10.881  | 27.943 | 18.732  |
| Hour22   | 147.935 | 13.127        | -11.391 | -31.512  | -41.476 | -37.553 | -21.801 | 1.834   | 17.843 | 13.254  |
| Hour23   | 135.621 | 14.595        | -14.485 | -34.102  | -36.293 | -31.671 | -18.074 | 5.950   | 21.440 | 17.131  |
| Hour24   | 134.063 | 15.223        | -12.452 | -28.199  | -33.352 | -29.962 | -21.070 | 2.187   | 18.163 | 5.117   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Residential Other Peak Demand Model Coefficients Page 1006 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|---------|
| Hour1    | -8.539    | -14.077 | -13.774  | 0.000    | -9.767      | -38.275     | 1.229  | -23.943 |
| Hour2    | -6.332    | -12.209 | -8.405   | 0.000    | 2.780       | -31.059     | -2.059 | -22.449 |
| Hour3    | 2.913     | -3.664  | -0.060   | 0.000    | 5.069       | -32.269     | -3.999 | -23.657 |
| Hour4    | 6.799     | -1.629  | 2.393    | 0.000    | 2.555       | -34.767     | -3.555 | -24.337 |
| Hour5    | 7.974     | -1.356  | 4.986    | 0.000    | 2.003       | -37.885     | -3.411 | -27.045 |
| Hour6    | 9.136     | 0.704   | 6.867    | 0.000    | 5.836       | -38.691     | -5.448 | -26.004 |
| Hour7    | 17.506    | 5.546   | 9.855    | 0.000    | 1.878       | -45.355     | -5.709 | -31.113 |
| Hour8    | 23.544    | 8.883   | 13.397   | 0.000    | -5.727      | -48.193     | -7.244 | -32.911 |
| Hour9    | 14.198    | 5.489   | 8.053    | 0.000    | -8.976      | -38.480     | -2.026 | -32.813 |
| Hour10   | 1.776     | -0.974  | 2.540    | 0.000    | -6.641      | -31.140     | -4.913 | -14.126 |
| Hour11   | -11.888   | -11.965 | -5.021   | 0.000    | -10.883     | -25.117     | -3.555 | 0.421   |
| Hour12   | -19.544   | -22.017 | -13.949  | 0.000    | -9.289      | -26.817     | -2.336 | 2.063   |
| Hour13   | -24.020   | -24.554 | -17.746  | 0.000    | -8.759      | -18.012     | 0.072  | 5.716   |
| Hour14   | -18.591   | -21.539 | -21.245  | 0.000    | -8.396      | -15.396     | 2.916  | 6.006   |
| Hour15   | -18.451   | -22.373 | -22.066  | 0.000    | -10.041     | -12.297     | 5.514  | 4.900   |
| Hour16   | -22.264   | -24.595 | -24.950  | 0.000    | -8.349      | -10.317     | 7.187  | -0.202  |
| Hour17   | -24.780   | -26.954 | -29.110  | 0.000    | -14.701     | -13.626     | 7.815  | -3.737  |
| Hour18   | -9.057    | -18.082 | -22.601  | 0.000    | -20.632     | -20.735     | 6.551  | -13.659 |
| Hour19   | -9.995    | -26.165 | -22.226  | 0.000    | -25.912     | -21.818     | 7.053  | -17.335 |
| Hour20   | -6.960    | -22.657 | -18.085  | 0.000    | -22.887     | -22.543     | 7.620  | -26.169 |
| Hour21   | -2.514    | -10.997 | -17.735  | 0.000    | -26.673     | -28.903     | 4.621  | -32.853 |
| Hour22   | -0.687    | -13.387 | -18.881  | 0.000    | -24.975     | -25.637     | 2.117  | -20.535 |
| Hour23   | -4.098    | -14.049 | -19.018  | 0.000    | -23.563     | -26.957     | 2.326  | -22.208 |
| Hour24   | -17.151   | -23.085 | -19.716  | 0.000    | -15.557     | -34.654     | 1.747  | -19.398 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Residential Other Peak Demand Model Standard Errors Page 1007 of 1182

| Variable | HDD50 | HDD55 | HDD65 | CDD65 | CDD70 | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay  |
|----------|-------|-------|-------|-------|-------|------------|------------|------------|--------|
| Hour1    | 0.273 | 0.368 | 0.163 | 0.309 | 0.410 | 0.443      | 0.061      | 0.646      | 11.515 |
| Hour2    | 0.268 | 0.362 | 0.160 | 0.304 | 0.402 | 0.435      | 0.060      | 0.634      | 11.300 |
| Hour3    | 0.267 | 0.360 | 0.160 | 0.302 | 0.401 | 0.433      | 0.059      | 0.632      | 11.254 |
| Hour4    | 0.270 | 0.364 | 0.161 | 0.306 | 0.405 | 0.438      | 0.060      | 0.639      | 11.381 |
| Hour5    | 0.277 | 0.373 | 0.166 | 0.314 | 0.416 | 0.449      | 0.062      | 0.655      | 11.672 |
| Hour6    | 0.282 | 0.381 | 0.169 | 0.320 | 0.424 | 0.458      | 0.063      | 0.668      | 11.898 |
| Hour7    | 0.298 | 0.402 | 0.178 | 0.337 | 0.447 | 0.483      | 0.066      | 0.705      | 12.557 |
| Hour8    | 0.311 | 0.420 | 0.186 | 0.352 | 0.467 | 0.505      | 0.069      | 0.736      | 13.118 |
| Hour9    | 0.305 | 0.411 | 0.182 | 0.345 | 0.458 | 0.495      | 0.068      | 0.722      | 12.854 |
| Hour10   | 0.298 | 0.402 | 0.178 | 0.338 | 0.447 | 0.483      | 0.066      | 0.705      | 12.561 |
| Hour11   | 0.287 | 0.388 | 0.172 | 0.326 | 0.431 | 0.466      | 0.064      | 0.680      | 12.116 |
| Hour12   | 0.273 | 0.368 | 0.163 | 0.309 | 0.410 | 0.443      | 0.061      | 0.646      | 11.507 |
| Hour13   | 0.268 | 0.361 | 0.160 | 0.303 | 0.402 | 0.434      | 0.060      | 0.633      | 11.284 |
| Hour14   | 0.269 | 0.362 | 0.161 | 0.304 | 0.403 | 0.436      | 0.060      | 0.636      | 11.324 |
| Hour15   | 0.271 | 0.366 | 0.162 | 0.307 | 0.407 | 0.440      | 0.060      | 0.642      | 11.431 |
| Hour16   | 0.278 | 0.375 | 0.166 | 0.315 | 0.418 | 0.452      | 0.062      | 0.659      | 11.734 |
| Hour17   | 0.292 | 0.394 | 0.175 | 0.331 | 0.438 | 0.474      | 0.065      | 0.691      | 12.315 |
| Hour18   | 0.307 | 0.414 | 0.184 | 0.348 | 0.461 | 0.498      | 0.068      | 0.726      | 12.941 |
| Hour19   | 0.313 | 0.422 | 0.187 | 0.354 | 0.470 | 0.508      | 0.070      | 0.740      | 13.190 |
| Hour20   | 0.308 | 0.415 | 0.184 | 0.349 | 0.462 | 0.499      | 0.068      | 0.728      | 12.975 |
| Hour21   | 0.300 | 0.405 | 0.179 | 0.340 | 0.450 | 0.487      | 0.067      | 0.710      | 12.649 |
| Hour22   | 0.300 | 0.404 | 0.179 | 0.340 | 0.450 | 0.486      | 0.067      | 0.709      | 12.637 |
| Hour23   | 0.297 | 0.401 | 0.178 | 0.336 | 0.446 | 0.482      | 0.066      | 0.703      | 12.516 |
| Hour24   | 0.285 | 0.384 | 0.170 | 0.322 | 0.427 | 0.462      | 0.063      | 0.673      | 11.993 |

Kpsc Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Residential Other Peak Demand Model Standard Errors Page 1008 of 1182

| Variable | WkEnd  | MajorHolidays | January | February | March | April | May   | June  | July  | August |
|----------|--------|---------------|---------|----------|-------|-------|-------|-------|-------|--------|
| Hour1    | 11.577 | 2.045         | 1.280   | 1.908    | 2.966 | 3.852 | 4.641 | 4.932 | 4.693 | 3.974  |
| Hour2    | 11.360 | 2.007         | 1.256   | 1.873    | 2.910 | 3.780 | 4.554 | 4.840 | 4.606 | 3.899  |
| Hour3    | 11.314 | 1.999         | 1.251   | 1.865    | 2.898 | 3.765 | 4.536 | 4.820 | 4.587 | 3.884  |
| Hour4    | 11.442 | 2.022         | 1.265   | 1.886    | 2.931 | 3.807 | 4.587 | 4.875 | 4.639 | 3.927  |
| Hour5    | 11.734 | 2.073         | 1.297   | 1.934    | 3.006 | 3.905 | 4.704 | 4.999 | 4.757 | 4.028  |
| Hour6    | 11.962 | 2.114         | 1.322   | 1.972    | 3.064 | 3.980 | 4.795 | 5.096 | 4.850 | 4.106  |
| Hour7    | 12.624 | 2.230         | 1.395   | 2.081    | 3.234 | 4.201 | 5.061 | 5.378 | 5.118 | 4.333  |
| Hour8    | 13.188 | 2.330         | 1.458   | 2.174    | 3.378 | 4.388 | 5.287 | 5.619 | 5.347 | 4.527  |
| Hour9    | 12.922 | 2.283         | 1.428   | 2.130    | 3.310 | 4.300 | 5.180 | 5.506 | 5.239 | 4.436  |
| Hour10   | 12.628 | 2.231         | 1.396   | 2.082    | 3.235 | 4.202 | 5.062 | 5.380 | 5.120 | 4.334  |
| Hour11   | 12.181 | 2.152         | 1.346   | 2.008    | 3.120 | 4.053 | 4.883 | 5.190 | 4.939 | 4.181  |
| Hour12   | 11.569 | 2.044         | 1.279   | 1.907    | 2.964 | 3.849 | 4.638 | 4.929 | 4.690 | 3.971  |
| Hour13   | 11.345 | 2.004         | 1.254   | 1.870    | 2.906 | 3.775 | 4.548 | 4.833 | 4.600 | 3.894  |
| Hour14   | 11.384 | 2.011         | 1.258   | 1.877    | 2.916 | 3.788 | 4.564 | 4.850 | 4.615 | 3.908  |
| Hour15   | 11.492 | 2.030         | 1.270   | 1.894    | 2.944 | 3.824 | 4.607 | 4.896 | 4.659 | 3.945  |
| Hour16   | 11.797 | 2.084         | 1.304   | 1.945    | 3.022 | 3.925 | 4.729 | 5.026 | 4.783 | 4.049  |
| Hour17   | 12.380 | 2.187         | 1.369   | 2.041    | 3.172 | 4.120 | 4.963 | 5.275 | 5.019 | 4.250  |
| Hour18   | 13.010 | 2.299         | 1.438   | 2.145    | 3.333 | 4.329 | 5.215 | 5.543 | 5.275 | 4.466  |
| Hour19   | 13.260 | 2.343         | 1.466   | 2.186    | 3.397 | 4.412 | 5.316 | 5.649 | 5.376 | 4.551  |
| Hour20   | 13.044 | 2.305         | 1.442   | 2.150    | 3.342 | 4.340 | 5.229 | 5.557 | 5.289 | 4.477  |
| Hour21   | 12.717 | 2.247         | 1.406   | 2.096    | 3.258 | 4.231 | 5.098 | 5.418 | 5.156 | 4.365  |
| Hour22   | 12.705 | 2.245         | 1.404   | 2.094    | 3.255 | 4.228 | 5.093 | 5.413 | 5.151 | 4.361  |
| Hour23   | 12.583 | 2.223         | 1.391   | 2.074    | 3.223 | 4.187 | 5.044 | 5.361 | 5.102 | 4.319  |
| Hour24   | 12.057 | 2.130         | 1.333   | 1.988    | 3.089 | 4.012 | 4.833 | 5.137 | 4.888 | 4.139  |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Other Peak Demand Model Standard Errors      Page 1009 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|-------|
| Hour1    | 3.345     | 2.635   | 1.383    | 0.000    | 2.186       | 2.201       | 1.099  | 1.686 |
| Hour2    | 3.282     | 2.586   | 1.357    | 0.000    | 2.145       | 2.160       | 1.078  | 1.655 |
| Hour3    | 3.269     | 2.576   | 1.352    | 0.000    | 2.136       | 2.151       | 1.074  | 1.648 |
| Hour4    | 3.306     | 2.605   | 1.367    | 0.000    | 2.160       | 2.176       | 1.086  | 1.667 |
| Hour5    | 3.390     | 2.671   | 1.402    | 0.000    | 2.216       | 2.231       | 1.114  | 1.709 |
| Hour6    | 3.456     | 2.723   | 1.429    | 0.000    | 2.259       | 2.275       | 1.135  | 1.742 |
| Hour7    | 3.647     | 2.874   | 1.508    | 0.000    | 2.384       | 2.400       | 1.198  | 1.839 |
| Hour8    | 3.810     | 3.002   | 1.575    | 0.000    | 2.490       | 2.508       | 1.252  | 1.921 |
| Hour9    | 3.734     | 2.942   | 1.544    | 0.000    | 2.440       | 2.457       | 1.226  | 1.882 |
| Hour10   | 3.649     | 2.875   | 1.509    | 0.000    | 2.384       | 2.401       | 1.198  | 1.839 |
| Hour11   | 3.519     | 2.773   | 1.455    | 0.000    | 2.300       | 2.316       | 1.156  | 1.774 |
| Hour12   | 3.342     | 2.633   | 1.382    | 0.000    | 2.184       | 2.200       | 1.098  | 1.685 |
| Hour13   | 3.278     | 2.583   | 1.355    | 0.000    | 2.142       | 2.157       | 1.077  | 1.653 |
| Hour14   | 3.289     | 2.591   | 1.360    | 0.000    | 2.149       | 2.165       | 1.080  | 1.658 |
| Hour15   | 3.320     | 2.616   | 1.373    | 0.000    | 2.170       | 2.185       | 1.091  | 1.674 |
| Hour16   | 3.408     | 2.685   | 1.409    | 0.000    | 2.227       | 2.243       | 1.120  | 1.718 |
| Hour17   | 3.577     | 2.818   | 1.479    | 0.000    | 2.338       | 2.354       | 1.175  | 1.803 |
| Hour18   | 3.759     | 2.962   | 1.554    | 0.000    | 2.457       | 2.474       | 1.235  | 1.895 |
| Hour19   | 3.831     | 3.018   | 1.584    | 0.000    | 2.504       | 2.521       | 1.258  | 1.932 |
| Hour20   | 3.769     | 2.969   | 1.558    | 0.000    | 2.463       | 2.480       | 1.238  | 1.900 |
| Hour21   | 3.674     | 2.895   | 1.519    | 0.000    | 2.401       | 2.418       | 1.207  | 1.852 |
| Hour22   | 3.671     | 2.892   | 1.518    | 0.000    | 2.399       | 2.416       | 1.206  | 1.851 |
| Hour23   | 3.636     | 2.864   | 1.503    | 0.000    | 2.376       | 2.393       | 1.194  | 1.833 |
| Hour24   | 3.484     | 2.745   | 1.440    | 0.000    | 2.277       | 2.293       | 1.144  | 1.756 |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Residential Other Peak Demand Model t-Statistics      Page 1010 of 1182

| Variable | HDD50  | HDD55  | HDD65   | CDD65  | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay  |
|----------|--------|--------|---------|--------|--------|------------|------------|------------|--------|
| Hour1    | 6.613  | 7.495  | 4.618   | 5.439  | 6.255  | 4.888      | 1.643      | -3.483     | 10.405 |
| Hour2    | 10.351 | -0.495 | 9.364   | 4.099  | 5.430  | 0.523      | 8.515      | -0.049     | 12.042 |
| Hour3    | 9.140  | 0.257  | 10.513  | 1.740  | 5.932  | 2.160      | 9.397      | -1.595     | 12.906 |
| Hour4    | 7.938  | 0.026  | 12.291  | 0.820  | 5.734  | 3.885      | 12.205     | -3.132     | 11.899 |
| Hour5    | 7.378  | -0.171 | 12.494  | 0.442  | 4.887  | 3.568      | 12.306     | -2.811     | 11.531 |
| Hour6    | 7.723  | -0.859 | 13.638  | 0.050  | 4.559  | 3.968      | 12.334     | -2.982     | 12.874 |
| Hour7    | 7.988  | -0.952 | 12.547  | -1.114 | 4.569  | 5.157      | 14.488     | -3.522     | 13.576 |
| Hour8    | 7.300  | -1.093 | 13.450  | -2.285 | 5.372  | 7.578      | 11.954     | -4.781     | 16.673 |
| Hour9    | 8.510  | -1.715 | 15.482  | -4.150 | 6.538  | 6.354      | 5.709      | -3.751     | 12.628 |
| Hour10   | 4.545  | 2.960  | 13.781  | -3.101 | 7.359  | 2.478      | 0.906      | -1.733     | 14.542 |
| Hour11   | 4.551  | 3.148  | 13.994  | 0.724  | 7.306  | 0.956      | 2.892      | -0.831     | 13.746 |
| Hour12   | 7.315  | 2.453  | 13.369  | 4.459  | 8.996  | -1.164     | 0.354      | 0.281      | 13.490 |
| Hour13   | 4.938  | 7.270  | 6.049   | 8.131  | 10.362 | -0.526     | 0.645      | -0.794     | 11.480 |
| Hour14   | 8.228  | 7.137  | 2.460   | 11.257 | 11.524 | 2.744      | 2.392      | -4.112     | 8.617  |
| Hour15   | 6.123  | 11.758 | -5.073  | 15.892 | 9.062  | 2.364      | -1.169     | -3.818     | 6.591  |
| Hour16   | 9.586  | 10.135 | -8.274  | 18.443 | 7.572  | 2.400      | -2.162     | -4.391     | 6.067  |
| Hour17   | 8.432  | 11.779 | -12.856 | 19.379 | 5.440  | 3.685      | 1.103      | -5.669     | 6.672  |
| Hour18   | 7.124  | 13.353 | -15.950 | 20.261 | 1.376  | 0.639      | 0.496      | -1.751     | 8.326  |
| Hour19   | 9.696  | 10.767 | -13.041 | 21.485 | -1.982 | 2.371      | 1.862      | -2.606     | 8.687  |
| Hour20   | 11.702 | 8.721  | -9.729  | 19.626 | -1.768 | 1.417      | -0.910     | -1.417     | 8.110  |
| Hour21   | 9.695  | 10.562 | -10.184 | 16.621 | 0.102  | 3.440      | 1.673      | -3.091     | 10.796 |
| Hour22   | 8.742  | 9.760  | -6.634  | 13.502 | 2.437  | 4.597      | 2.051      | -4.148     | 11.980 |
| Hour23   | 9.022  | 7.355  | -2.132  | 13.311 | 0.829  | 4.418      | 3.305      | -3.542     | 11.494 |
| Hour24   | 7.552  | 8.619  | -1.004  | 10.107 | 2.515  | 3.550      | 3.191      | -2.806     | 11.551 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Residential Other Peak Demand Model t-Statistics  
Page 1011 of 1182

| Variable | WkEnd  | MajorHolidays | January | February | March   | April   | May    | June   | July   | August |
|----------|--------|---------------|---------|----------|---------|---------|--------|--------|--------|--------|
| Hour1    | 10.109 | 8.737         | -7.314  | -12.125  | -6.828  | -5.598  | -2.863 | 1.902  | 5.171  | 3.116  |
| Hour2    | 11.923 | -0.290        | 2.221   | -6.038   | -3.609  | -2.635  | -1.461 | 1.345  | 6.008  | 3.718  |
| Hour3    | 12.575 | 0.530         | 4.571   | -3.541   | 0.011   | 0.772   | 1.107  | 3.489  | 8.254  | 6.480  |
| Hour4    | 11.296 | 0.310         | 2.531   | -2.481   | 1.145   | 1.332   | 0.800  | 3.640  | 7.956  | 6.707  |
| Hour5    | 10.844 | 0.487         | 2.383   | -2.699   | 1.783   | 1.690   | 0.723  | 3.576  | 7.274  | 6.585  |
| Hour6    | 11.947 | 0.263         | 1.184   | -1.960   | 3.521   | 3.698   | 2.177  | 4.674  | 7.740  | 7.134  |
| Hour7    | 11.611 | 1.321         | 2.194   | -0.506   | 5.360   | 5.015   | 2.743  | 5.509  | 8.004  | 8.008  |
| Hour8    | 12.683 | 0.970         | 4.367   | 2.556    | 8.056   | 6.186   | 4.045  | 6.159  | 8.351  | 8.812  |
| Hour9    | 10.060 | -0.453        | -0.229  | -1.664   | 4.523   | 3.822   | 0.771  | 3.175  | 5.947  | 6.151  |
| Hour10   | 14.387 | 0.948         | -4.085  | -4.006   | 2.696   | 3.580   | 1.595  | 4.259  | 6.646  | 4.818  |
| Hour11   | 14.747 | 3.145         | -1.438  | -6.205   | -1.893  | -1.280  | -1.287 | 2.572  | 4.999  | 2.675  |
| Hour12   | 15.202 | 10.466        | -0.937  | -7.779   | -5.606  | -4.727  | -2.917 | 1.337  | 4.974  | 1.169  |
| Hour13   | 13.371 | 11.221        | -0.343  | -10.296  | -9.660  | -7.376  | -4.146 | -0.357 | 3.743  | -0.041 |
| Hour14   | 10.412 | 10.434        | 0.743   | -9.881   | -11.106 | -8.954  | -4.815 | -1.704 | 2.302  | -0.425 |
| Hour15   | 8.477  | 7.348         | 0.275   | -12.086  | -13.912 | -10.186 | -6.302 | -3.804 | 0.723  | -1.163 |
| Hour16   | 7.719  | 4.674         | -4.392  | -15.462  | -16.289 | -11.744 | -7.855 | -6.168 | -1.611 | -3.439 |
| Hour17   | 7.785  | 2.835         | -5.186  | -18.174  | -18.281 | -12.918 | -8.179 | -5.802 | -1.760 | -3.886 |
| Hour18   | 9.024  | 3.026         | -4.491  | -16.856  | -16.548 | -10.460 | -4.705 | -1.761 | 2.010  | 0.807  |
| Hour19   | 8.893  | 0.719         | -8.739  | -20.248  | -20.027 | -12.491 | -6.139 | -1.688 | 2.428  | 1.080  |
| Hour20   | 8.414  | 3.736         | -8.133  | -18.832  | -18.720 | -12.107 | -5.609 | -0.532 | 3.215  | 2.284  |
| Hour21   | 10.740 | 6.481         | -6.885  | -14.235  | -14.260 | -10.240 | -3.872 | 2.008  | 5.420  | 4.291  |
| Hour22   | 11.644 | 5.848         | -8.111  | -15.045  | -12.744 | -8.883  | -4.281 | 0.339  | 3.464  | 3.039  |
| Hour23   | 10.778 | 6.565         | -10.414 | -16.440  | -11.259 | -7.564  | -3.583 | 1.110  | 4.203  | 3.966  |
| Hour24   | 11.119 | 7.146         | -9.343  | -14.187  | -10.798 | -7.468  | -4.359 | 0.426  | 3.716  | 1.236  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Residential Other Peak Demand Model t-Statistics Page 1012 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|---------|
| Hour1    | -2.553    | -5.342  | -9.960   | 0.000    | -4.468      | -17.387     | 1.118  | -14.198 |
| Hour2    | -1.929    | -4.721  | -6.194   | 0.000    | 1.296       | -14.378     | -1.910 | -13.566 |
| Hour3    | 0.891     | -1.422  | -0.044   | 0.000    | 2.373       | -14.999     | -3.725 | -14.354 |
| Hour4    | 2.057     | -0.626  | 1.751    | 0.000    | 1.183       | -15.980     | -3.274 | -14.602 |
| Hour5    | 2.352     | -0.508  | 3.557    | 0.000    | 0.904       | -16.979     | -3.063 | -15.823 |
| Hour6    | 2.643     | 0.259   | 4.805    | 0.000    | 2.584       | -17.010     | -4.799 | -14.924 |
| Hour7    | 4.800     | 1.930   | 6.535    | 0.000    | 0.788       | -18.894     | -4.766 | -16.920 |
| Hour8    | 6.179     | 2.959   | 8.504    | 0.000    | -2.300      | -19.218     | -5.788 | -17.132 |
| Hour9    | 3.803     | 1.866   | 5.217    | 0.000    | -3.679      | -15.660     | -1.652 | -17.432 |
| Hour10   | 0.487     | -0.339  | 1.684    | 0.000    | -2.785      | -12.968     | -4.100 | -7.680  |
| Hour11   | -3.378    | -4.315  | -3.451   | 0.000    | -4.732      | -10.844     | -3.075 | 0.237   |
| Hour12   | -5.847    | -8.361  | -10.094  | 0.000    | -4.253      | -12.191     | -2.128 | 1.224   |
| Hour13   | -7.328    | -9.508  | -13.094  | 0.000    | -4.089      | -8.349      | 0.067  | 3.459   |
| Hour14   | -5.652    | -8.312  | -15.622  | 0.000    | -3.906      | -7.112      | 2.699  | 3.622   |
| Hour15   | -5.557    | -8.552  | -16.074  | 0.000    | -4.627      | -5.627      | 5.056  | 2.927   |
| Hour16   | -6.532    | -9.159  | -17.705  | 0.000    | -3.748      | -4.599      | 6.419  | -0.117  |
| Hour17   | -6.928    | -9.564  | -19.683  | 0.000    | -6.289      | -5.788      | 6.651  | -2.072  |
| Hour18   | -2.409    | -6.105  | -14.542  | 0.000    | -8.399      | -8.381      | 5.306  | -7.207  |
| Hour19   | -2.609    | -8.668  | -14.031  | 0.000    | -10.350     | -8.653      | 5.605  | -8.975  |
| Hour20   | -1.847    | -7.630  | -11.606  | 0.000    | -9.292      | -9.088      | 6.156  | -13.773 |
| Hour21   | -0.684    | -3.799  | -11.674  | 0.000    | -11.109     | -11.953     | 3.829  | -17.736 |
| Hour22   | -0.187    | -4.629  | -12.441  | 0.000    | -10.411     | -10.612     | 1.756  | -11.096 |
| Hour23   | -1.127    | -4.905  | -12.652  | 0.000    | -9.918      | -11.266     | 1.948  | -12.116 |
| Hour24   | -4.923    | -8.411  | -13.688  | 0.000    | -6.833      | -15.115     | 1.527  | -11.045 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Residential Other Peak Demand Model Statistics  
Page 1013 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD    | MAPE  | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|--------|-------|------|-------|-------|---------|
| Hour1  | 1826 | 1799 | 0.943  | 0.086 | 10.709 | 8.252  | 6.07% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1799 | 0.927  | 0.081 | 10.509 | 7.966  | 6.64% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1799 | 0.931  | 0.086 | 10.466 | 7.805  | 6.89% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1799 | 0.930  | 0.088 | 10.584 | 7.776  | 7.18% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1799 | 0.925  | 0.088 | 10.854 | 7.879  | 7.49% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1799 | 0.926  | 0.087 | 11.065 | 7.928  | 7.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1799 | 0.922  | 0.083 | 11.677 | 8.313  | 7.48% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1799 | 0.933  | 0.080 | 12.199 | 8.831  | 6.49% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1799 | 0.939  | 0.081 | 11.954 | 8.699  | 6.02% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1799 | 0.941  | 0.085 | 11.681 | 8.646  | 5.59% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1799 | 0.943  | 0.085 | 11.268 | 8.602  | 5.27% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1799 | 0.946  | 0.085 | 10.701 | 8.415  | 5.12% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1799 | 0.948  | 0.083 | 10.494 | 8.454  | 5.05% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1799 | 0.955  | 0.083 | 10.531 | 8.593  | 5.03% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1799 | 0.959  | 0.080 | 10.630 | 8.735  | 5.04% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1799 | 0.961  | 0.076 | 10.912 | 8.988  | 5.06% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1799 | 0.960  | 0.071 | 11.452 | 9.438  | 5.22% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1799 | 0.957  | 0.069 | 12.035 | 9.918  | 5.47% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1799 | 0.956  | 0.066 | 12.266 | 10.082 | 5.41% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1799 | 0.955  | 0.066 | 12.066 | 9.854  | 5.35% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1799 | 0.950  | 0.066 | 11.763 | 9.522  | 5.41% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1799 | 0.940  | 0.067 | 11.752 | 9.391  | 5.51% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1799 | 0.935  | 0.069 | 11.640 | 9.227  | 5.53% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1799 | 0.939  | 0.076 | 11.153 | 8.744  | 5.70% | 0    | 0.000 | 0.00% | 0.000   |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Cooling Model Coefficients Page 1014 of 1182

| Variable | CDD65 | CDD70 | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST    |
|----------|-------|-------|------------|------------|-------------|-------------|--------|--------|
| Hour1    | 0.878 | 0.061 | -0.233     | 0.222      | 6.390       | -2.443      | 0.253  | -0.687 |
| Hour2    | 0.650 | 0.218 | -0.197     | 0.171      | 4.838       | -1.456      | 0.150  | -0.475 |
| Hour3    | 0.637 | 0.214 | -0.205     | 0.177      | 4.667       | -1.361      | 0.140  | -0.433 |
| Hour4    | 0.636 | 0.209 | -0.262     | 0.211      | 4.446       | -1.245      | 0.127  | -0.397 |
| Hour5    | 0.698 | 0.169 | -0.409     | 0.310      | 4.458       | -1.280      | 0.131  | -0.405 |
| Hour6    | 0.771 | 0.155 | -0.483     | 0.359      | 4.854       | -1.478      | 0.152  | -0.483 |
| Hour7    | 0.814 | 0.129 | -0.464     | 0.352      | 5.216       | -1.703      | 0.176  | -0.558 |
| Hour8    | 0.797 | 0.187 | -0.375     | 0.290      | 5.459       | -1.783      | 0.187  | -0.661 |
| Hour9    | 0.911 | 0.170 | -0.306     | 0.254      | 6.650       | -2.407      | 0.253  | -0.876 |
| Hour10   | 1.059 | 0.123 | -0.246     | 0.221      | 8.052       | -3.155      | 0.332  | -1.078 |
| Hour11   | 1.172 | 0.085 | -0.242     | 0.223      | 9.001       | -3.658      | 0.385  | -1.220 |
| Hour12   | 1.166 | 0.101 | -0.161     | 0.168      | 9.318       | -3.830      | 0.403  | -1.281 |
| Hour13   | 1.233 | 0.083 | -0.171     | 0.186      | 9.738       | -4.012      | 0.422  | -1.326 |
| Hour14   | 1.213 | 0.084 | -0.102     | 0.139      | 9.801       | -4.068      | 0.428  | -1.339 |
| Hour15   | 1.245 | 0.072 | -0.118     | 0.152      | 9.988       | -4.155      | 0.437  | -1.349 |
| Hour16   | 1.222 | 0.091 | -0.114     | 0.145      | 9.832       | -4.062      | 0.428  | -1.347 |
| Hour17   | 1.203 | 0.086 | -0.180     | 0.193      | 9.421       | -3.860      | 0.406  | -1.279 |
| Hour18   | 1.202 | 0.038 | -0.173     | 0.194      | 9.363       | -3.889      | 0.407  | -1.209 |
| Hour19   | 1.170 | 0.028 | -0.151     | 0.182      | 9.119       | -3.785      | 0.395  | -1.137 |
| Hour20   | 1.068 | 0.066 | -0.033     | 0.096      | 8.710       | -3.581      | 0.374  | -1.081 |
| Hour21   | 1.074 | 0.025 | -0.238     | 0.236      | 8.015       | -3.267      | 0.340  | -0.970 |
| Hour22   | 0.998 | 0.058 | -0.226     | 0.221      | 7.435       | -2.955      | 0.308  | -0.899 |
| Hour23   | 0.920 | 0.094 | -0.118     | 0.148      | 7.147       | -2.779      | 0.290  | -0.850 |
| Hour24   | 0.854 | 0.123 | -0.165     | 0.170      | 6.477       | -2.408      | 0.250  | -0.742 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Cooling Model Standard Errors Page 1015 of 1182

| Variable | CDD65 | CDD70 | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-------|-------|------------|------------|-------------|-------------|--------|-------|
| Hour1    | 0.012 | 0.018 | 0.017      | 0.029      | 0.051       | 0.051       | 0.005  | 0.056 |
| Hour2    | 0.010 | 0.014 | 0.013      | 0.022      | 0.039       | 0.039       | 0.004  | 0.043 |
| Hour3    | 0.009 | 0.013 | 0.012      | 0.021      | 0.038       | 0.038       | 0.004  | 0.042 |
| Hour4    | 0.009 | 0.013 | 0.012      | 0.020      | 0.037       | 0.036       | 0.004  | 0.040 |
| Hour5    | 0.009 | 0.013 | 0.012      | 0.021      | 0.037       | 0.037       | 0.004  | 0.041 |
| Hour6    | 0.010 | 0.014 | 0.013      | 0.023      | 0.041       | 0.040       | 0.004  | 0.045 |
| Hour7    | 0.011 | 0.015 | 0.014      | 0.024      | 0.043       | 0.043       | 0.004  | 0.047 |
| Hour8    | 0.011 | 0.016 | 0.015      | 0.025      | 0.045       | 0.045       | 0.005  | 0.049 |
| Hour9    | 0.013 | 0.019 | 0.017      | 0.030      | 0.054       | 0.053       | 0.005  | 0.059 |
| Hour10   | 0.016 | 0.022 | 0.021      | 0.036      | 0.064       | 0.063       | 0.006  | 0.070 |
| Hour11   | 0.017 | 0.025 | 0.023      | 0.040      | 0.071       | 0.070       | 0.007  | 0.078 |
| Hour12   | 0.018 | 0.025 | 0.024      | 0.041      | 0.073       | 0.072       | 0.007  | 0.080 |
| Hour13   | 0.019 | 0.027 | 0.025      | 0.043      | 0.076       | 0.076       | 0.008  | 0.084 |
| Hour14   | 0.019 | 0.027 | 0.025      | 0.043      | 0.076       | 0.076       | 0.008  | 0.084 |
| Hour15   | 0.019 | 0.027 | 0.025      | 0.044      | 0.078       | 0.077       | 0.008  | 0.086 |
| Hour16   | 0.019 | 0.027 | 0.025      | 0.043      | 0.077       | 0.076       | 0.008  | 0.084 |
| Hour17   | 0.018 | 0.026 | 0.024      | 0.041      | 0.074       | 0.073       | 0.007  | 0.081 |
| Hour18   | 0.018 | 0.026 | 0.024      | 0.041      | 0.073       | 0.073       | 0.007  | 0.081 |
| Hour19   | 0.017 | 0.025 | 0.023      | 0.040      | 0.071       | 0.071       | 0.007  | 0.078 |
| Hour20   | 0.017 | 0.024 | 0.022      | 0.038      | 0.068       | 0.067       | 0.007  | 0.075 |
| Hour21   | 0.015 | 0.022 | 0.020      | 0.035      | 0.063       | 0.063       | 0.006  | 0.070 |
| Hour22   | 0.014 | 0.021 | 0.019      | 0.033      | 0.059       | 0.059       | 0.006  | 0.065 |
| Hour23   | 0.014 | 0.020 | 0.018      | 0.032      | 0.056       | 0.056       | 0.006  | 0.062 |
| Hour24   | 0.013 | 0.018 | 0.017      | 0.029      | 0.052       | 0.051       | 0.005  | 0.057 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Cooling Model t-Statistics Page 1016 of 1182

| Variable | CDD65  | CDD70  | CDD65WkEnd | CDD70WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|--------|--------|------------|------------|-------------|-------------|--------|---------|
| Hour1    | 70.363 | 3.449  | -14.121    | 7.792      | 125.352     | -48.280     | 49.001 | -12.243 |
| Hour2    | 67.558 | 15.922 | -15.442    | 7.787      | 123.026     | -37.298     | 37.714 | -10.976 |
| Hour3    | 68.391 | 16.133 | -16.629    | 8.299      | 122.651     | -36.035     | 36.297 | -10.338 |
| Hour4    | 70.903 | 16.324 | -22.116    | 10.277     | 121.350     | -34.237     | 34.414 | -9.862  |
| Hour5    | 76.523 | 12.994 | -33.882    | 14.869     | 119.706     | -34.633     | 34.814 | -9.891  |
| Hour6    | 77.754 | 10.962 | -36.783    | 15.825     | 119.789     | -36.755     | 37.161 | -10.829 |
| Hour7    | 76.996 | 8.560  | -33.203    | 14.573     | 120.844     | -39.758     | 40.383 | -11.745 |
| Hour8    | 72.352 | 11.899 | -25.710    | 11.504     | 121.335     | -39.924     | 41.026 | -13.351 |
| Hour9    | 69.258 | 9.073  | -17.572    | 8.436      | 123.745     | -45.123     | 46.593 | -14.818 |
| Hour10   | 67.692 | 5.500  | -11.879    | 6.184      | 126.009     | -49.744     | 51.342 | -15.327 |
| Hour11   | 67.511 | 3.445  | -10.539    | 5.625      | 126.961     | -51.992     | 53.684 | -15.637 |
| Hour12   | 65.386 | 3.976  | -6.834     | 4.110      | 127.874     | -52.959     | 54.739 | -15.979 |
| Hour13   | 66.055 | 3.133  | -6.941     | 4.347      | 127.674     | -52.996     | 54.736 | -15.804 |
| Hour14   | 64.811 | 3.135  | -4.118     | 3.257      | 128.248     | -53.631     | 55.410 | -15.929 |
| Hour15   | 65.275 | 2.643  | -4.693     | 3.492      | 128.237     | -53.750     | 55.476 | -15.743 |
| Hour16   | 64.994 | 3.389  | -4.566     | 3.383      | 128.037     | -53.294     | 55.084 | -15.940 |
| Hour17   | 66.388 | 3.338  | -7.489     | 4.654      | 127.260     | -52.535     | 54.253 | -15.709 |
| Hour18   | 67.019 | 1.491  | -7.279     | 4.723      | 127.749     | -53.462     | 54.961 | -14.988 |
| Hour19   | 66.972 | 1.134  | -6.523     | 4.549      | 127.835     | -53.469     | 54.825 | -14.483 |
| Hour20   | 64.357 | 2.799  | -1.490     | 2.537      | 128.445     | -53.213     | 54.565 | -14.491 |
| Hour21   | 69.329 | 1.133  | -11.621    | 6.663      | 126.684     | -52.023     | 53.216 | -13.935 |
| Hour22   | 69.135 | 2.810  | -11.829    | 6.689      | 126.120     | -50.498     | 51.669 | -13.854 |
| Hour23   | 66.552 | 4.753  | -6.448     | 4.692      | 126.608     | -49.608     | 50.724 | -13.686 |
| Hour24   | 67.579 | 6.811  | -9.902     | 5.903      | 125.494     | -47.015     | 47.956 | -13.060 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Commercial Peak Demand Cooling Model Statistics  
Page 1017 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE   | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|--------|------|-------|-------|---------|
| Hour1  | 1826 | 1818 | 0.996  | 0.054 | 0.547  | 0.355 | 23.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1818 | 0.996  | 0.070 | 0.422  | 0.274 | 33.92% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1818 | 0.996  | 0.071 | 0.408  | 0.265 | 22.64% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1818 | 0.996  | 0.075 | 0.393  | 0.255 | 20.10% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1818 | 0.996  | 0.081 | 0.400  | 0.258 | 33.40% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1818 | 0.996  | 0.083 | 0.435  | 0.281 | 23.48% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1818 | 0.996  | 0.077 | 0.463  | 0.300 | 74.49% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1818 | 0.996  | 0.078 | 0.483  | 0.315 | 22.44% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1818 | 0.996  | 0.069 | 0.577  | 0.378 | 37.74% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1818 | 0.996  | 0.060 | 0.686  | 0.449 | 55.86% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1818 | 0.996  | 0.056 | 0.761  | 0.497 | 18.91% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1818 | 0.995  | 0.055 | 0.782  | 0.512 | 18.31% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1818 | 0.995  | 0.054 | 0.819  | 0.535 | 18.87% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1818 | 0.995  | 0.053 | 0.821  | 0.536 | 19.27% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1818 | 0.995  | 0.053 | 0.836  | 0.545 | 70.69% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1818 | 0.995  | 0.054 | 0.824  | 0.538 | 18.99% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1818 | 0.995  | 0.055 | 0.795  | 0.519 | 23.10% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1818 | 0.995  | 0.052 | 0.787  | 0.512 | 15.68% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1818 | 0.995  | 0.050 | 0.766  | 0.498 | 18.32% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1818 | 0.996  | 0.050 | 0.728  | 0.473 | 22.41% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1818 | 0.996  | 0.052 | 0.679  | 0.441 | 31.98% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1818 | 0.996  | 0.054 | 0.633  | 0.411 | 25.63% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1818 | 0.996  | 0.054 | 0.606  | 0.394 | 93.33% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1818 | 0.996  | 0.057 | 0.554  | 0.360 | 19.42% | 0    | 0.000 | 0.00% | 0.000   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commerical Peak Demand Heating Model Coefficients Page 1018 of 1182

| Variable | HDD50 | HDD55  | HDD65 | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-------|--------|-------|------------|-------------|-------------|--------|-------|
| Hour1    | 2.214 | -1.087 | 0.203 | 0.087      | 0.690       | 13.516      | -0.349 | 4.378 |
| Hour2    | 1.935 | -1.008 | 0.175 | 0.038      | 0.563       | 9.952       | -0.213 | 2.538 |
| Hour3    | 1.894 | -1.028 | 0.232 | 0.023      | 0.461       | 10.402      | -0.153 | 1.763 |
| Hour4    | 1.927 | -1.076 | 0.286 | -0.005     | 0.375       | 11.125      | -0.128 | 1.464 |
| Hour5    | 1.964 | -1.089 | 0.291 | -0.004     | 0.390       | 11.472      | -0.141 | 1.646 |
| Hour6    | 1.879 | -1.013 | 0.367 | 0.001      | 0.220       | 13.502      | -0.188 | 2.476 |
| Hour7    | 1.806 | -0.941 | 0.382 | 0.006      | 0.146       | 14.235      | -0.242 | 3.309 |
| Hour8    | 1.829 | -0.879 | 0.398 | 0.041      | 0.170       | 16.285      | -0.375 | 5.216 |
| Hour9    | 1.985 | -0.846 | 0.347 | 0.080      | 0.467       | 18.451      | -0.536 | 7.259 |
| Hour10   | 2.212 | -0.873 | 0.231 | 0.086      | 0.871       | 18.934      | -0.674 | 8.888 |
| Hour11   | 2.260 | -0.930 | 0.120 | 0.079      | 0.958       | 15.881      | -0.569 | 7.332 |
| Hour12   | 2.149 | -0.958 | 0.079 | 0.114      | 0.762       | 11.742      | -0.428 | 5.498 |
| Hour13   | 1.911 | -0.914 | 0.072 | 0.128      | 0.510       | 8.431       | -0.331 | 4.315 |
| Hour14   | 1.682 | -0.848 | 0.072 | 0.117      | 0.388       | 6.515       | -0.268 | 3.525 |
| Hour15   | 1.468 | -0.773 | 0.070 | 0.105      | 0.292       | 5.022       | -0.216 | 2.858 |
| Hour16   | 1.309 | -0.713 | 0.068 | 0.100      | 0.244       | 4.099       | -0.182 | 2.412 |
| Hour17   | 1.240 | -0.687 | 0.061 | 0.119      | 0.209       | 3.660       | -0.164 | 2.183 |
| Hour18   | 1.224 | -0.673 | 0.060 | 0.108      | 0.196       | 3.692       | -0.162 | 2.173 |
| Hour19   | 1.336 | -0.714 | 0.061 | 0.107      | 0.222       | 4.412       | -0.186 | 2.483 |
| Hour20   | 1.642 | -0.843 | 0.073 | 0.108      | 0.353       | 6.492       | -0.258 | 3.406 |
| Hour21   | 1.867 | -0.957 | 0.084 | 0.122      | 0.426       | 7.795       | -0.293 | 3.847 |
| Hour22   | 2.056 | -1.041 | 0.102 | 0.105      | 0.514       | 9.109       | -0.314 | 4.066 |
| Hour23   | 2.169 | -1.062 | 0.113 | 0.100      | 0.650       | 10.879      | -0.330 | 4.162 |
| Hour24   | 2.283 | -1.110 | 0.142 | 0.082      | 0.725       | 12.151      | -0.342 | 4.263 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version

Commerical Peak Demand Heating Model Standard Errors Page 1019 of 1182

| Variable | HDD50 | HDD55 | HDD65 | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-------|-------|-------|------------|-------------|-------------|--------|-------|
| Hour1    | 0.023 | 0.029 | 0.011 | 0.003      | 0.084       | 0.095       | 0.010  | 0.100 |
| Hour2    | 0.019 | 0.024 | 0.009 | 0.002      | 0.070       | 0.078       | 0.008  | 0.083 |
| Hour3    | 0.019 | 0.024 | 0.009 | 0.002      | 0.069       | 0.077       | 0.008  | 0.081 |
| Hour4    | 0.020 | 0.025 | 0.009 | 0.002      | 0.072       | 0.081       | 0.008  | 0.085 |
| Hour5    | 0.020 | 0.025 | 0.010 | 0.002      | 0.074       | 0.083       | 0.008  | 0.087 |
| Hour6    | 0.023 | 0.029 | 0.011 | 0.003      | 0.084       | 0.095       | 0.010  | 0.100 |
| Hour7    | 0.024 | 0.030 | 0.011 | 0.003      | 0.087       | 0.098       | 0.010  | 0.103 |
| Hour8    | 0.027 | 0.033 | 0.013 | 0.003      | 0.097       | 0.109       | 0.011  | 0.115 |
| Hour9    | 0.029 | 0.036 | 0.014 | 0.003      | 0.105       | 0.117       | 0.012  | 0.124 |
| Hour10   | 0.029 | 0.036 | 0.013 | 0.003      | 0.104       | 0.116       | 0.012  | 0.123 |
| Hour11   | 0.026 | 0.033 | 0.012 | 0.003      | 0.094       | 0.106       | 0.011  | 0.112 |
| Hour12   | 0.023 | 0.029 | 0.011 | 0.003      | 0.085       | 0.095       | 0.010  | 0.100 |
| Hour13   | 0.020 | 0.024 | 0.009 | 0.002      | 0.070       | 0.079       | 0.008  | 0.083 |
| Hour14   | 0.017 | 0.021 | 0.008 | 0.002      | 0.060       | 0.067       | 0.007  | 0.071 |
| Hour15   | 0.014 | 0.018 | 0.007 | 0.002      | 0.051       | 0.057       | 0.006  | 0.060 |
| Hour16   | 0.012 | 0.015 | 0.006 | 0.001      | 0.045       | 0.050       | 0.005  | 0.053 |
| Hour17   | 0.012 | 0.015 | 0.006 | 0.001      | 0.043       | 0.048       | 0.005  | 0.051 |
| Hour18   | 0.012 | 0.015 | 0.005 | 0.001      | 0.042       | 0.047       | 0.005  | 0.050 |
| Hour19   | 0.013 | 0.016 | 0.006 | 0.002      | 0.046       | 0.052       | 0.005  | 0.055 |
| Hour20   | 0.016 | 0.020 | 0.008 | 0.002      | 0.058       | 0.065       | 0.007  | 0.069 |
| Hour21   | 0.019 | 0.023 | 0.009 | 0.002      | 0.067       | 0.075       | 0.008  | 0.079 |
| Hour22   | 0.021 | 0.026 | 0.010 | 0.002      | 0.074       | 0.084       | 0.009  | 0.088 |
| Hour23   | 0.023 | 0.028 | 0.011 | 0.003      | 0.081       | 0.091       | 0.009  | 0.096 |
| Hour24   | 0.024 | 0.030 | 0.011 | 0.003      | 0.086       | 0.096       | 0.010  | 0.101 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commerical Peak Demand Heating Model t-Statistics Page 1020 of 1182

| Variable | HDD50   | HDD55   | HDD65  | HDD65WkEnd | SummerFuzzy | WinterFuzzy | HLight  | DST    |
|----------|---------|---------|--------|------------|-------------|-------------|---------|--------|
| Hour1    | 94.741  | -37.339 | 18.536 | 31.083     | 8.197       | 142.781     | -35.961 | 43.865 |
| Hour2    | 100.120 | -41.866 | 19.362 | 16.267     | 8.077       | 127.118     | -26.506 | 30.752 |
| Hour3    | 99.291  | -43.236 | 25.916 | 10.059     | 6.701       | 134.603     | -19.336 | 21.637 |
| Hour4    | 96.645  | -43.289 | 30.622 | -2.028     | 5.219       | 137.699     | -15.381 | 17.185 |
| Hour5    | 96.068  | -42.750 | 30.388 | -1.573     | 5.294       | 138.544     | -16.621 | 18.858 |
| Hour6    | 80.520  | -34.830 | 33.546 | 0.491      | 2.612       | 142.838     | -19.420 | 24.843 |
| Hour7    | 74.594  | -31.203 | 33.683 | 2.108      | 1.678       | 145.169     | -24.006 | 32.008 |
| Hour8    | 68.202  | -26.307 | 31.656 | 12.624     | 1.760       | 149.943     | -33.681 | 45.552 |
| Hour9    | 68.439  | -23.419 | 25.548 | 22.923     | 4.464       | 157.048     | -44.455 | 58.602 |
| Hour10   | 76.989  | -24.394 | 17.145 | 24.986     | 8.414       | 162.711     | -56.437 | 72.448 |
| Hour11   | 86.221  | -28.465 | 9.803  | 24.994     | 10.146      | 149.545     | -52.234 | 65.489 |
| Hour12   | 91.440  | -32.718 | 7.167  | 40.261     | 8.997       | 123.355     | -43.861 | 54.780 |
| Hour13   | 97.864  | -37.567 | 7.855  | 54.436     | 7.249       | 106.582     | -40.725 | 51.741 |
| Hour14   | 101.547 | -41.070 | 9.320  | 58.652     | 6.492       | 97.097      | -38.949 | 49.828 |
| Hour15   | 104.366 | -44.077 | 10.628 | 62.358     | 5.767       | 88.125      | -36.936 | 47.569 |
| Hour16   | 105.816 | -46.239 | 11.738 | 67.354     | 5.468       | 81.805      | -35.410 | 45.670 |
| Hour17   | 104.601 | -46.507 | 11.050 | 83.166     | 4.900       | 76.205      | -33.266 | 43.114 |
| Hour18   | 104.997 | -46.346 | 10.943 | 76.862     | 4.667       | 78.170      | -33.517 | 43.629 |
| Hour19   | 104.229 | -44.704 | 10.086 | 69.337     | 4.808       | 84.942      | -34.825 | 45.335 |
| Hour20   | 101.555 | -41.827 | 9.637  | 55.474     | 6.065       | 99.135      | -38.389 | 49.333 |
| Hour21   | 100.477 | -41.319 | 9.667  | 54.495     | 6.358       | 103.546     | -37.964 | 48.477 |
| Hour22   | 99.672  | -40.501 | 10.502 | 42.496     | 6.917       | 109.020     | -36.644 | 46.153 |
| Hour23   | 96.393  | -37.883 | 10.750 | 37.102     | 8.022       | 119.354     | -35.256 | 43.315 |
| Hour24   | 96.202  | -37.524 | 12.803 | 28.711     | 8.483       | 126.402     | -34.681 | 42.062 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Commerical Peak Demand Heating Model Statistics  
Page 1021 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE   | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|--------|------|-------|-------|---------|
| Hour1  | 1826 | 1818 | 0.994  | 0.360 | 0.949  | 0.587 | 71.18% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1818 | 0.994  | 0.513 | 0.785  | 0.487 | 42.67% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1818 | 0.995  | 0.329 | 0.775  | 0.463 | 94.21% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1818 | 0.995  | 0.238 | 0.810  | 0.468 | 55.25% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1818 | 0.995  | 0.234 | 0.830  | 0.481 | 33.16% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1818 | 0.995  | 0.164 | 0.948  | 0.538 | 33.36% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1818 | 0.995  | 0.157 | 0.983  | 0.564 | 34.47% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1818 | 0.995  | 0.158 | 1.089  | 0.639 | 26.60% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1818 | 0.995  | 0.175 | 1.178  | 0.710 | 53.13% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1818 | 0.995  | 0.240 | 1.167  | 0.733 | 32.54% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1818 | 0.994  | 0.424 | 1.065  | 0.688 | 46.26% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1818 | 0.993  | 0.648 | 0.955  | 0.603 | 78.84% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1818 | 0.992  | 0.787 | 0.793  | 0.484 | 45.82% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1818 | 0.992  | 0.873 | 0.673  | 0.406 | 46.09% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1818 | 0.991  | 0.952 | 0.572  | 0.341 | 48.94% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1818 | 0.991  | 1.006 | 0.503  | 0.298 | 40.07% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1818 | 0.990  | 1.053 | 0.482  | 0.282 | 77.94% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1818 | 0.990  | 1.043 | 0.474  | 0.278 | 39.73% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1818 | 0.991  | 0.994 | 0.521  | 0.307 | 41.49% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1818 | 0.991  | 0.888 | 0.657  | 0.397 | 52.99% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1818 | 0.992  | 0.858 | 0.755  | 0.459 | 47.43% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1818 | 0.992  | 0.804 | 0.838  | 0.515 | 29.30% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1818 | 0.993  | 0.687 | 0.914  | 0.568 | 43.67% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1818 | 0.993  | 0.596 | 0.964  | 0.605 | 37.48% | 0    | 0.000 | 0.00% | 0.000   |

Kentucky Power Company  
Commercial Peak Demand Other Model Coefficients

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1022 of 1182

| Variable | HDD50  | HDD55 | HDD65  | CDD65 | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay   |
|----------|--------|-------|--------|-------|--------|------------|------------|------------|---------|
| Hour1    | -0.300 | 1.856 | -0.828 | 0.532 | 0.238  | 0.469      | -0.058     | -0.662     | 107.978 |
| Hour2    | -0.058 | 1.176 | -0.466 | 0.796 | -0.305 | 0.047      | 0.049      | 0.038      | 114.794 |
| Hour3    | -0.017 | 1.162 | -0.438 | 0.742 | -0.373 | 0.078      | 0.067      | -0.034     | 115.577 |
| Hour4    | -0.068 | 1.199 | -0.430 | 0.706 | -0.425 | 0.139      | 0.102      | -0.049     | 116.365 |
| Hour5    | -0.140 | 1.239 | -0.383 | 0.636 | -0.406 | 0.236      | 0.097      | -0.121     | 117.248 |
| Hour6    | -0.101 | 1.226 | -0.430 | 0.706 | -0.490 | 0.140      | 0.077      | -0.056     | 118.764 |
| Hour7    | -0.123 | 1.276 | -0.431 | 0.695 | -0.559 | 0.126      | 0.096      | -0.021     | 123.266 |
| Hour8    | -0.299 | 1.348 | -0.397 | 0.597 | -0.476 | 0.252      | 0.069      | -0.255     | 131.546 |
| Hour9    | -0.589 | 1.423 | -0.322 | 0.560 | -0.460 | 0.137      | 0.021      | -0.089     | 151.387 |
| Hour10   | -0.915 | 1.659 | -0.330 | 0.846 | -0.642 | -0.339     | 0.007      | 0.382      | 159.590 |
| Hour11   | -0.858 | 1.904 | -0.514 | 1.230 | -0.646 | -0.487     | -0.001     | 0.408      | 159.589 |
| Hour12   | -0.511 | 2.097 | -0.885 | 1.580 | -0.546 | -0.813     | -0.085     | 0.732      | 154.002 |
| Hour13   | 0.005  | 2.208 | -1.360 | 1.661 | -0.330 | -0.601     | -0.099     | 0.456      | 149.549 |
| Hour14   | 0.450  | 2.162 | -1.668 | 1.772 | -0.193 | -0.564     | -0.083     | 0.260      | 143.284 |
| Hour15   | 0.669  | 2.206 | -1.908 | 1.729 | 0.072  | -0.405     | -0.058     | -0.080     | 139.932 |
| Hour16   | 0.787  | 2.279 | -2.096 | 1.885 | -0.095 | -0.422     | -0.017     | 0.028      | 137.914 |
| Hour17   | 0.921  | 2.241 | -2.220 | 1.918 | -0.146 | -0.257     | 0.028      | -0.030     | 138.273 |
| Hour18   | 0.927  | 2.272 | -2.259 | 1.976 | -0.318 | -0.183     | 0.065      | 0.021      | 139.343 |
| Hour19   | 0.826  | 2.274 | -2.175 | 1.718 | -0.150 | 0.138      | 0.075      | -0.385     | 141.625 |
| Hour20   | 0.684  | 2.218 | -1.982 | 1.533 | -0.043 | 0.243      | 0.011      | -0.597     | 137.202 |
| Hour21   | 0.512  | 2.111 | -1.725 | 1.369 | -0.105 | 0.300      | -0.030     | -0.545     | 135.159 |
| Hour22   | 0.202  | 2.213 | -1.542 | 1.150 | -0.130 | 0.219      | -0.062     | -0.390     | 131.846 |
| Hour23   | -0.061 | 2.168 | -1.296 | 1.066 | -0.229 | 0.134      | -0.071     | -0.297     | 119.086 |
| Hour24   | -0.287 | 2.026 | -0.999 | 0.797 | 0.063  | 0.334      | -0.064     | -0.533     | 112.158 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Commercial Peak Demand Other Model Coefficients  
Page 1023 of 1182

| Variable | WkEnd   | MajorHolidays | January | February | March  | April  | May    | June  | July   | August |
|----------|---------|---------------|---------|----------|--------|--------|--------|-------|--------|--------|
| Hour1    | 105.344 | -0.196        | 3.513   | -0.278   | -1.667 | -5.650 | -3.603 | 1.990 | 6.332  | 4.141  |
| Hour2    | 115.189 | -2.899        | 5.741   | 2.069    | 0.940  | -4.096 | -1.581 | 3.961 | 9.348  | 5.879  |
| Hour3    | 115.804 | -2.904        | 5.454   | 2.635    | 1.719  | -3.529 | -1.198 | 4.027 | 9.339  | 5.982  |
| Hour4    | 116.161 | -2.596        | 5.365   | 2.861    | 2.718  | -2.420 | -0.135 | 5.025 | 10.094 | 6.668  |
| Hour5    | 116.379 | -1.397        | 5.432   | 3.333    | 3.929  | -1.415 | 0.388  | 5.420 | 9.949  | 6.735  |
| Hour6    | 116.540 | -0.174        | 5.925   | 3.964    | 4.727  | -1.611 | -0.498 | 4.369 | 8.979  | 6.539  |
| Hour7    | 118.359 | 0.081         | 5.546   | 4.010    | 4.795  | -1.347 | -0.653 | 3.823 | 8.579  | 6.498  |
| Hour8    | 123.928 | -0.754        | 5.589   | 5.376    | 6.559  | 0.576  | -0.724 | 3.430 | 8.309  | 7.252  |
| Hour9    | 139.028 | -2.367        | 6.460   | 5.607    | 6.873  | -1.221 | -2.285 | 3.638 | 7.420  | 5.538  |
| Hour10   | 140.855 | -5.321        | 7.698   | 5.528    | 6.868  | -2.075 | 0.112  | 6.711 | 10.141 | 6.415  |
| Hour11   | 138.981 | -7.802        | 8.629   | 5.758    | 5.738  | -3.128 | 1.305  | 9.062 | 12.699 | 8.945  |
| Hour12   | 133.237 | -9.215        | 8.426   | 3.871    | 2.782  | -5.331 | 0.231  | 8.126 | 11.541 | 8.888  |
| Hour13   | 127.875 | -9.179        | 9.112   | 4.147    | 2.819  | -4.500 | 1.496  | 8.521 | 11.749 | 10.211 |
| Hour14   | 120.371 | -7.912        | 8.646   | 3.304    | 1.663  | -4.941 | 0.624  | 7.445 | 11.074 | 10.926 |
| Hour15   | 115.951 | -7.172        | 7.673   | 2.375    | 0.589  | -5.848 | -0.947 | 5.492 | 9.605  | 10.433 |
| Hour16   | 112.969 | -7.314        | 6.918   | 1.426    | -0.961 | -6.139 | -1.559 | 5.226 | 9.778  | 10.950 |
| Hour17   | 112.284 | -7.039        | 6.206   | 0.549    | -2.223 | -6.831 | -2.651 | 4.385 | 9.222  | 10.306 |
| Hour18   | 116.080 | -7.292        | 5.855   | -0.437   | -3.056 | -7.255 | -3.426 | 4.488 | 8.787  | 9.373  |
| Hour19   | 125.254 | -8.054        | 4.523   | -4.162   | -7.089 | -9.988 | -5.988 | 2.641 | 6.555  | 5.973  |
| Hour20   | 126.231 | -9.385        | 6.310   | -0.029   | -3.612 | -6.570 | -2.573 | 6.165 | 10.707 | 8.839  |
| Hour21   | 125.821 | -8.291        | 5.813   | 1.800    | 0.338  | -4.300 | -0.206 | 8.374 | 12.505 | 9.310  |
| Hour22   | 124.749 | -6.381        | 4.757   | 1.223    | 1.300  | -2.253 | -0.463 | 6.371 | 10.629 | 7.908  |
| Hour23   | 114.722 | -4.562        | 3.880   | -0.198   | -1.638 | -5.446 | -3.222 | 3.749 | 7.904  | 4.679  |
| Hour24   | 108.998 | -1.408        | 3.672   | -0.436   | -1.672 | -5.676 | -3.678 | 2.888 | 6.794  | 3.975  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Other Model Coefficients Page 1024 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|---------|
| Hour1    | -0.430    | -2.413  | -4.643   | 0.000    | -7.726      | -11.219     | 0.387  | -9.653  |
| Hour2    | 0.367     | -3.676  | -4.474   | 0.000    | -5.987      | -8.522      | -0.779 | -7.071  |
| Hour3    | 0.637     | -3.888  | -3.985   | 0.000    | -5.729      | -9.065      | -1.131 | -5.687  |
| Hour4    | 1.287     | -3.378  | -3.423   | 0.000    | -5.451      | -9.881      | -1.324 | -5.842  |
| Hour5    | 1.435     | -3.374  | -2.908   | 0.000    | -5.484      | -10.189     | -1.414 | -6.095  |
| Hour6    | 1.189     | -3.466  | -2.791   | 0.000    | -5.762      | -11.962     | -1.309 | -6.948  |
| Hour7    | 1.335     | -3.469  | -2.547   | 0.000    | -6.079      | -12.438     | -1.175 | -8.655  |
| Hour8    | 2.143     | -2.307  | -1.933   | 0.000    | -6.400      | -14.376     | -1.122 | -11.228 |
| Hour9    | 0.078     | -3.716  | -2.574   | 0.000    | -7.953      | -15.919     | -2.170 | -10.033 |
| Hour10   | -0.602    | -4.225  | -3.137   | 0.000    | -9.886      | -15.610     | -1.833 | -11.122 |
| Hour11   | 1.207     | -2.198  | -3.448   | 0.000    | -10.866     | -12.070     | -1.249 | -10.278 |
| Hour12   | 2.762     | -0.719  | -3.684   | 0.000    | -10.857     | -7.687      | -0.281 | -9.094  |
| Hour13   | 5.446     | 1.463   | -4.065   | 0.000    | -11.011     | -4.177      | 0.363  | -8.544  |
| Hour14   | 7.235     | 3.388   | -3.197   | 0.000    | -10.951     | -2.197      | 1.045  | -7.761  |
| Hour15   | 7.871     | 4.326   | -3.750   | 0.000    | -11.058     | -0.597      | 1.567  | -7.477  |
| Hour16   | 9.012     | 5.155   | -3.892   | 0.000    | -10.869     | 0.256       | 1.956  | -8.026  |
| Hour17   | 8.634     | 5.338   | -4.324   | 0.000    | -10.409     | 0.464       | 2.131  | -8.145  |
| Hour18   | 7.328     | 3.727   | -5.052   | 0.000    | -10.337     | 0.389       | 1.847  | -8.160  |
| Hour19   | 2.455     | -1.181  | -6.156   | 0.000    | -10.110     | -0.455      | 1.375  | -9.373  |
| Hour20   | 4.347     | 1.449   | -5.007   | 0.000    | -9.849      | -2.729      | 1.265  | -13.555 |
| Hour21   | 4.788     | 3.609   | -4.687   | 0.000    | -9.182      | -4.390      | 0.776  | -12.405 |
| Hour22   | 3.327     | -0.024  | -4.933   | 0.000    | -8.599      | -6.127      | 0.378  | -8.966  |
| Hour23   | -0.385    | -2.469  | -5.576   | 0.000    | -8.366      | -8.196      | 0.851  | -9.329  |
| Hour24   | -0.827    | -2.594  | -4.892   | 0.000    | -7.749      | -9.871      | 0.570  | -9.258  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Other Model Standard Errors Page 1025 of 1182

| Variable | HDD50 | HDD55 | HDD65 | CDD65 | CDD70 | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay |
|----------|-------|-------|-------|-------|-------|------------|------------|------------|-------|
| Hour1    | 0.109 | 0.147 | 0.065 | 0.124 | 0.164 | 0.177      | 0.024      | 0.258      | 4.597 |
| Hour2    | 0.104 | 0.140 | 0.062 | 0.118 | 0.156 | 0.169      | 0.023      | 0.246      | 4.390 |
| Hour3    | 0.102 | 0.138 | 0.061 | 0.116 | 0.153 | 0.166      | 0.023      | 0.242      | 4.310 |
| Hour4    | 0.102 | 0.137 | 0.061 | 0.115 | 0.153 | 0.165      | 0.023      | 0.241      | 4.290 |
| Hour5    | 0.102 | 0.138 | 0.061 | 0.116 | 0.153 | 0.165      | 0.023      | 0.241      | 4.299 |
| Hour6    | 0.105 | 0.142 | 0.063 | 0.119 | 0.158 | 0.171      | 0.023      | 0.249      | 4.439 |
| Hour7    | 0.110 | 0.148 | 0.066 | 0.125 | 0.165 | 0.178      | 0.024      | 0.260      | 4.635 |
| Hour8    | 0.118 | 0.159 | 0.070 | 0.133 | 0.177 | 0.191      | 0.026      | 0.278      | 4.958 |
| Hour9    | 0.124 | 0.167 | 0.074 | 0.140 | 0.186 | 0.201      | 0.028      | 0.293      | 5.227 |
| Hour10   | 0.133 | 0.179 | 0.079 | 0.150 | 0.199 | 0.216      | 0.030      | 0.314      | 5.599 |
| Hour11   | 0.139 | 0.187 | 0.083 | 0.157 | 0.208 | 0.225      | 0.031      | 0.328      | 5.844 |
| Hour12   | 0.142 | 0.192 | 0.085 | 0.161 | 0.213 | 0.231      | 0.032      | 0.336      | 5.994 |
| Hour13   | 0.144 | 0.194 | 0.086 | 0.163 | 0.215 | 0.233      | 0.032      | 0.340      | 6.048 |
| Hour14   | 0.144 | 0.194 | 0.086 | 0.163 | 0.216 | 0.233      | 0.032      | 0.340      | 6.064 |
| Hour15   | 0.145 | 0.195 | 0.087 | 0.164 | 0.217 | 0.235      | 0.032      | 0.343      | 6.108 |
| Hour16   | 0.146 | 0.197 | 0.087 | 0.166 | 0.219 | 0.237      | 0.033      | 0.346      | 6.162 |
| Hour17   | 0.146 | 0.197 | 0.088 | 0.166 | 0.220 | 0.237      | 0.033      | 0.346      | 6.169 |
| Hour18   | 0.145 | 0.195 | 0.086 | 0.164 | 0.217 | 0.235      | 0.032      | 0.342      | 6.095 |
| Hour19   | 0.140 | 0.189 | 0.084 | 0.159 | 0.211 | 0.228      | 0.031      | 0.332      | 5.912 |
| Hour20   | 0.139 | 0.187 | 0.083 | 0.157 | 0.208 | 0.225      | 0.031      | 0.329      | 5.855 |
| Hour21   | 0.134 | 0.181 | 0.080 | 0.152 | 0.201 | 0.217      | 0.030      | 0.317      | 5.649 |
| Hour22   | 0.128 | 0.172 | 0.076 | 0.145 | 0.192 | 0.207      | 0.028      | 0.302      | 5.380 |
| Hour23   | 0.123 | 0.166 | 0.074 | 0.140 | 0.185 | 0.200      | 0.027      | 0.292      | 5.197 |
| Hour24   | 0.115 | 0.155 | 0.069 | 0.130 | 0.172 | 0.186      | 0.026      | 0.272      | 4.842 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Commercial Peak Demand Other Model Standard Errors  
Page 1026 of 1182

| Variable | WkEnd | MajorHolidays | January | February | March | April | May   | June  | July  | August |
|----------|-------|---------------|---------|----------|-------|-------|-------|-------|-------|--------|
| Hour1    | 4.622 | 0.817         | 0.511   | 0.762    | 1.184 | 1.538 | 1.853 | 1.969 | 1.874 | 1.586  |
| Hour2    | 4.413 | 0.780         | 0.488   | 0.728    | 1.131 | 1.469 | 1.769 | 1.880 | 1.789 | 1.515  |
| Hour3    | 4.333 | 0.766         | 0.479   | 0.714    | 1.110 | 1.442 | 1.737 | 1.846 | 1.757 | 1.487  |
| Hour4    | 4.313 | 0.762         | 0.477   | 0.711    | 1.105 | 1.435 | 1.729 | 1.838 | 1.749 | 1.481  |
| Hour5    | 4.322 | 0.764         | 0.478   | 0.712    | 1.107 | 1.438 | 1.732 | 1.841 | 1.752 | 1.483  |
| Hour6    | 4.462 | 0.788         | 0.493   | 0.736    | 1.143 | 1.485 | 1.789 | 1.901 | 1.809 | 1.532  |
| Hour7    | 4.660 | 0.823         | 0.515   | 0.768    | 1.194 | 1.551 | 1.868 | 1.985 | 1.889 | 1.599  |
| Hour8    | 4.984 | 0.881         | 0.551   | 0.822    | 1.277 | 1.658 | 1.998 | 2.123 | 2.021 | 1.711  |
| Hour9    | 5.255 | 0.928         | 0.581   | 0.866    | 1.346 | 1.749 | 2.107 | 2.239 | 2.131 | 1.804  |
| Hour10   | 5.629 | 0.995         | 0.622   | 0.928    | 1.442 | 1.873 | 2.257 | 2.398 | 2.282 | 1.932  |
| Hour11   | 5.876 | 1.038         | 0.650   | 0.969    | 1.505 | 1.955 | 2.355 | 2.503 | 2.382 | 2.017  |
| Hour12   | 6.026 | 1.065         | 0.666   | 0.993    | 1.544 | 2.005 | 2.416 | 2.567 | 2.443 | 2.068  |
| Hour13   | 6.081 | 1.074         | 0.672   | 1.002    | 1.558 | 2.023 | 2.438 | 2.591 | 2.465 | 2.087  |
| Hour14   | 6.096 | 1.077         | 0.674   | 1.005    | 1.562 | 2.029 | 2.444 | 2.597 | 2.472 | 2.093  |
| Hour15   | 6.140 | 1.085         | 0.679   | 1.012    | 1.573 | 2.043 | 2.462 | 2.616 | 2.490 | 2.108  |
| Hour16   | 6.195 | 1.095         | 0.685   | 1.021    | 1.587 | 2.062 | 2.484 | 2.640 | 2.512 | 2.127  |
| Hour17   | 6.202 | 1.096         | 0.686   | 1.022    | 1.589 | 2.064 | 2.486 | 2.642 | 2.514 | 2.129  |
| Hour18   | 6.127 | 1.083         | 0.677   | 1.010    | 1.570 | 2.039 | 2.456 | 2.610 | 2.484 | 2.103  |
| Hour19   | 5.944 | 1.050         | 0.657   | 0.980    | 1.523 | 1.978 | 2.383 | 2.532 | 2.410 | 2.040  |
| Hour20   | 5.886 | 1.040         | 0.651   | 0.970    | 1.508 | 1.959 | 2.360 | 2.508 | 2.386 | 2.020  |
| Hour21   | 5.679 | 1.003         | 0.628   | 0.936    | 1.455 | 1.890 | 2.276 | 2.419 | 2.302 | 1.949  |
| Hour22   | 5.409 | 0.956         | 0.598   | 0.892    | 1.386 | 1.800 | 2.168 | 2.304 | 2.193 | 1.857  |
| Hour23   | 5.224 | 0.923         | 0.578   | 0.861    | 1.338 | 1.738 | 2.094 | 2.226 | 2.118 | 1.793  |
| Hour24   | 4.868 | 0.860         | 0.538   | 0.802    | 1.247 | 1.620 | 1.951 | 2.074 | 1.974 | 1.671  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Other Model Standard Errors Page 1027 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST   |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|-------|
| Hour1    | 1.335     | 1.052   | 0.552    | 0.000    | 0.873       | 0.879       | 0.439  | 0.673 |
| Hour2    | 1.275     | 1.005   | 0.527    | 0.000    | 0.833       | 0.839       | 0.419  | 0.643 |
| Hour3    | 1.252     | 0.986   | 0.518    | 0.000    | 0.818       | 0.824       | 0.411  | 0.631 |
| Hour4    | 1.246     | 0.982   | 0.515    | 0.000    | 0.814       | 0.820       | 0.409  | 0.628 |
| Hour5    | 1.249     | 0.984   | 0.516    | 0.000    | 0.816       | 0.822       | 0.410  | 0.630 |
| Hour6    | 1.289     | 1.016   | 0.533    | 0.000    | 0.843       | 0.849       | 0.423  | 0.650 |
| Hour7    | 1.346     | 1.061   | 0.557    | 0.000    | 0.880       | 0.886       | 0.442  | 0.679 |
| Hour8    | 1.440     | 1.135   | 0.595    | 0.000    | 0.941       | 0.948       | 0.473  | 0.726 |
| Hour9    | 1.518     | 1.196   | 0.628    | 0.000    | 0.992       | 0.999       | 0.499  | 0.765 |
| Hour10   | 1.626     | 1.281   | 0.672    | 0.000    | 1.063       | 1.070       | 0.534  | 0.820 |
| Hour11   | 1.698     | 1.338   | 0.702    | 0.000    | 1.109       | 1.117       | 0.558  | 0.856 |
| Hour12   | 1.741     | 1.372   | 0.720    | 0.000    | 1.138       | 1.146       | 0.572  | 0.878 |
| Hour13   | 1.757     | 1.384   | 0.726    | 0.000    | 1.148       | 1.156       | 0.577  | 0.886 |
| Hour14   | 1.761     | 1.388   | 0.728    | 0.000    | 1.151       | 1.159       | 0.579  | 0.888 |
| Hour15   | 1.774     | 1.398   | 0.734    | 0.000    | 1.159       | 1.168       | 0.583  | 0.894 |
| Hour16   | 1.790     | 1.410   | 0.740    | 0.000    | 1.170       | 1.178       | 0.588  | 0.902 |
| Hour17   | 1.792     | 1.412   | 0.741    | 0.000    | 1.171       | 1.179       | 0.589  | 0.903 |
| Hour18   | 1.770     | 1.395   | 0.732    | 0.000    | 1.157       | 1.165       | 0.581  | 0.893 |
| Hour19   | 1.717     | 1.353   | 0.710    | 0.000    | 1.122       | 1.130       | 0.564  | 0.866 |
| Hour20   | 1.701     | 1.340   | 0.703    | 0.000    | 1.111       | 1.119       | 0.559  | 0.857 |
| Hour21   | 1.641     | 1.293   | 0.678    | 0.000    | 1.072       | 1.080       | 0.539  | 0.827 |
| Hour22   | 1.563     | 1.231   | 0.646    | 0.000    | 1.021       | 1.028       | 0.513  | 0.788 |
| Hour23   | 1.509     | 1.189   | 0.624    | 0.000    | 0.986       | 0.993       | 0.496  | 0.761 |
| Hour24   | 1.406     | 1.108   | 0.582    | 0.000    | 0.919       | 0.926       | 0.462  | 0.709 |

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Commercial Peak Demand Other Model t-Statistics  
Volume A - Public Version  
Page 1028 of 1182

| Variable | HDD50  | HDD55  | HDD65   | CDD65  | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd | WkDay  |
|----------|--------|--------|---------|--------|--------|------------|------------|------------|--------|
| Hour1    | -2.750 | 12.616 | -12.691 | 4.307  | 1.453  | 2.653      | -2.402     | -2.566     | 23.487 |
| Hour2    | -0.553 | 8.373  | -7.487  | 6.748  | -1.954 | 0.277      | 2.135      | 0.153      | 26.149 |
| Hour3    | -0.162 | 8.423  | -7.164  | 6.411  | -2.428 | 0.472      | 2.955      | -0.142     | 26.817 |
| Hour4    | -0.666 | 8.734  | -7.057  | 6.122  | -2.781 | 0.842      | 4.519      | -0.202     | 27.122 |
| Hour5    | -1.371 | 9.007  | -6.280  | 5.510  | -2.652 | 1.426      | 4.297      | -0.502     | 27.276 |
| Hour6    | -0.955 | 8.632  | -6.830  | 5.919  | -3.103 | 0.817      | 3.287      | -0.225     | 26.756 |
| Hour7    | -1.115 | 8.601  | -6.555  | 5.580  | -3.387 | 0.705      | 3.943      | -0.081     | 26.595 |
| Hour8    | -2.542 | 8.496  | -5.637  | 4.485  | -2.694 | 1.321      | 2.633      | -0.917     | 26.534 |
| Hour9    | -4.747 | 8.506  | -4.348  | 3.985  | -2.474 | 0.681      | 0.770      | -0.305     | 28.963 |
| Hour10   | -6.885 | 9.259  | -4.148  | 5.623  | -3.218 | -1.572     | 0.254      | 1.214      | 28.503 |
| Hour11   | -6.188 | 10.181 | -6.198  | 7.830  | -3.106 | -2.164     | -0.027     | 1.244      | 27.306 |
| Hour12   | -3.593 | 10.936 | -10.408 | 9.811  | -2.558 | -3.526     | -2.703     | 2.175      | 25.694 |
| Hour13   | 0.036  | 11.406 | -15.843 | 10.219 | -1.534 | -2.582     | -3.115     | 1.344      | 24.725 |
| Hour14   | 3.125  | 11.140 | -19.384 | 10.875 | -0.894 | -2.417     | -2.588     | 0.763      | 23.629 |
| Hour15   | 4.619  | 11.285 | -22.014 | 10.536 | 0.332  | -1.723     | -1.799     | -0.234     | 22.911 |
| Hour16   | 5.381  | 11.558 | -23.976 | 11.382 | -0.431 | -1.780     | -0.513     | 0.082      | 22.380 |
| Hour17   | 6.293  | 11.352 | -25.365 | 11.569 | -0.663 | -1.084     | 0.872      | -0.087     | 22.415 |
| Hour18   | 6.409  | 11.650 | -26.125 | 12.063 | -1.466 | -0.780     | 2.020      | 0.061      | 22.864 |
| Hour19   | 5.890  | 12.019 | -25.931 | 10.815 | -0.714 | 0.604      | 2.401      | -1.161     | 23.955 |
| Hour20   | 4.923  | 11.838 | -23.865 | 9.748  | -0.208 | 1.080      | 0.355      | -1.818     | 23.434 |
| Hour21   | 3.818  | 11.678 | -21.524 | 9.020  | -0.521 | 1.378      | -1.008     | -1.718     | 23.928 |
| Hour22   | 1.585  | 12.853 | -20.203 | 7.957  | -0.680 | 1.058      | -2.183     | -1.292     | 24.507 |
| Hour23   | -0.497 | 13.036 | -17.578 | 7.635  | -1.235 | 0.670      | -2.575     | -1.018     | 22.916 |
| Hour24   | -2.502 | 13.077 | -14.544 | 6.129  | 0.365  | 1.793      | -2.510     | -1.960     | 23.164 |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Commercial Peak Demand Other Model t-Statistics  
Page 1029 of 1182

| Variable | WkEnd  | MajorHolidays | January | February | March  | April  | May    | June  | July  | August |
|----------|--------|---------------|---------|----------|--------|--------|--------|-------|-------|--------|
| Hour1    | 22.792 | -0.240        | 6.875   | -0.364   | -1.408 | -3.674 | -1.945 | 1.011 | 3.379 | 2.610  |
| Hour2    | 26.100 | -3.718        | 11.767  | 2.844    | 0.831  | -2.789 | -0.894 | 2.106 | 5.224 | 3.881  |
| Hour3    | 26.727 | -3.793        | 11.388  | 3.689    | 1.549  | -2.448 | -0.690 | 2.181 | 5.316 | 4.022  |
| Hour4    | 26.930 | -3.406        | 11.253  | 4.023    | 2.460  | -1.686 | -0.078 | 2.735 | 5.772 | 4.504  |
| Hour5    | 26.930 | -1.829        | 11.370  | 4.678    | 3.549  | -0.984 | 0.224  | 2.944 | 5.679 | 4.540  |
| Hour6    | 26.116 | -0.221        | 12.012  | 5.389    | 4.135  | -1.085 | -0.278 | 2.298 | 4.963 | 4.269  |
| Hour7    | 25.400 | 0.098         | 10.767  | 5.221    | 4.017  | -0.869 | -0.350 | 1.926 | 4.541 | 4.063  |
| Hour8    | 24.864 | -0.856        | 10.144  | 6.543    | 5.137  | 0.347  | -0.362 | 1.615 | 4.112 | 4.239  |
| Hour9    | 26.457 | -2.550        | 11.120  | 6.472    | 5.105  | -0.699 | -1.085 | 1.625 | 3.483 | 3.070  |
| Hour10   | 25.023 | -5.350        | 12.372  | 5.957    | 4.763  | -1.108 | 0.049  | 2.798 | 4.444 | 3.320  |
| Hour11   | 23.653 | -7.515        | 13.286  | 5.945    | 3.812  | -1.600 | 0.554  | 3.620 | 5.331 | 4.435  |
| Hour12   | 22.111 | -8.655        | 12.650  | 3.897    | 1.802  | -2.659 | 0.096  | 3.165 | 4.724 | 4.297  |
| Hour13   | 21.029 | -8.543        | 13.556  | 4.137    | 1.810  | -2.224 | 0.614  | 3.289 | 4.765 | 4.892  |
| Hour14   | 19.744 | -7.345        | 12.830  | 3.287    | 1.065  | -2.435 | 0.255  | 2.866 | 4.480 | 5.221  |
| Hour15   | 18.883 | -6.610        | 11.305  | 2.346    | 0.375  | -2.862 | -0.385 | 2.099 | 3.858 | 4.950  |
| Hour16   | 18.234 | -6.681        | 10.101  | 1.397    | -0.605 | -2.978 | -0.628 | 1.980 | 3.893 | 5.149  |
| Hour17   | 18.105 | -6.423        | 9.053   | 0.537    | -1.399 | -3.310 | -1.066 | 1.660 | 3.668 | 4.842  |
| Hour18   | 18.945 | -6.736        | 8.645   | -0.433   | -1.947 | -3.559 | -1.395 | 1.719 | 3.537 | 4.457  |
| Hour19   | 21.073 | -7.669        | 6.884   | -4.247   | -4.656 | -5.050 | -2.513 | 1.043 | 2.720 | 2.927  |
| Hour20   | 21.446 | -9.024        | 9.698   | -0.030   | -2.396 | -3.354 | -1.091 | 2.459 | 4.487 | 4.375  |
| Hour21   | 22.156 | -8.263        | 9.260   | 1.923    | 0.233  | -2.275 | -0.090 | 3.461 | 5.432 | 4.776  |
| Hour22   | 23.065 | -6.677        | 7.956   | 1.372    | 0.938  | -1.252 | -0.214 | 2.765 | 4.847 | 4.259  |
| Hour23   | 21.959 | -4.942        | 6.719   | -0.230   | -1.224 | -3.133 | -1.538 | 1.684 | 3.732 | 2.609  |
| Hour24   | 22.391 | -1.636        | 6.825   | -0.543   | -1.341 | -3.504 | -1.885 | 1.393 | 3.442 | 2.379  |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Other Model t-Statistics Page 1030 of 1182

| Variable | September | October | November | December | SummerFuzzy | WinterFuzzy | HLight | DST     |
|----------|-----------|---------|----------|----------|-------------|-------------|--------|---------|
| Hour1    | -0.322    | -2.294  | -8.409   | 0.000    | -8.853      | -12.765     | 0.882  | -14.338 |
| Hour2    | 0.288     | -3.659  | -8.485   | 0.000    | -7.184      | -10.155     | -1.861 | -10.999 |
| Hour3    | 0.509     | -3.941  | -7.699   | 0.000    | -7.003      | -11.002     | -2.751 | -9.010  |
| Hour4    | 1.033     | -3.440  | -6.643   | 0.000    | -6.693      | -12.047     | -3.233 | -9.297  |
| Hour5    | 1.149     | -3.429  | -5.633   | 0.000    | -6.721      | -12.399     | -3.447 | -9.682  |
| Hour6    | 0.922     | -3.412  | -5.236   | 0.000    | -6.839      | -14.097     | -3.090 | -10.689 |
| Hour7    | 0.991     | -3.270  | -4.576   | 0.000    | -6.909      | -14.038     | -2.658 | -12.752 |
| Hour8    | 1.488     | -2.034  | -3.246   | 0.000    | -6.801      | -15.169     | -2.373 | -15.466 |
| Hour9    | 0.051     | -3.106  | -4.100   | 0.000    | -8.015      | -15.931     | -4.352 | -13.107 |
| Hour10   | -0.370    | -3.298  | -4.664   | 0.000    | -9.301      | -14.584     | -3.431 | -13.564 |
| Hour11   | 0.711     | -1.643  | -4.912   | 0.000    | -9.794      | -10.803     | -2.239 | -12.009 |
| Hour12   | 1.586     | -0.524  | -5.118   | 0.000    | -9.542      | -6.709      | -0.492 | -10.361 |
| Hour13   | 3.100     | 1.057   | -5.596   | 0.000    | -9.590      | -3.612      | 0.630  | -9.646  |
| Hour14   | 4.107     | 2.442   | -4.389   | 0.000    | -9.514      | -1.895      | 1.806  | -8.740  |
| Hour15   | 4.436     | 3.095   | -5.112   | 0.000    | -9.537      | -0.512      | 2.690  | -8.359  |
| Hour16   | 5.035     | 3.655   | -5.258   | 0.000    | -9.292      | 0.217       | 3.326  | -8.894  |
| Hour17   | 4.819     | 3.781   | -5.837   | 0.000    | -8.889      | 0.393       | 3.621  | -9.016  |
| Hour18   | 4.139     | 2.672   | -6.903   | 0.000    | -8.935      | 0.334       | 3.176  | -9.143  |
| Hour19   | 1.429     | -0.873  | -8.670   | 0.000    | -9.008      | -0.402      | 2.437  | -10.826 |
| Hour20   | 2.556     | 1.081   | -7.121   | 0.000    | -8.862      | -2.438      | 2.264  | -15.809 |
| Hour21   | 2.918     | 2.792   | -6.909   | 0.000    | -8.564      | -4.066      | 1.440  | -14.996 |
| Hour22   | 2.129     | -0.019  | -7.635   | 0.000    | -8.420      | -5.957      | 0.736  | -11.380 |
| Hour23   | -0.255    | -2.076  | -8.935   | 0.000    | -8.481      | -8.250      | 1.717  | -12.258 |
| Hour24   | -0.588    | -2.341  | -8.413   | 0.000    | -8.431      | -10.664     | 1.235  | -13.057 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Commercial Peak Demand Other Model Statistics Page 1031 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE  | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|-------|------|-------|-------|---------|
| Hour1  | 1826 | 1799 | 0.777  | 0.069 | 4.275  | 3.336 | 3.26% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1826 | 1799 | 0.781  | 0.094 | 4.083  | 3.222 | 3.17% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1826 | 1799 | 0.783  | 0.073 | 4.008  | 3.144 | 3.17% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1826 | 1799 | 0.779  | 0.063 | 3.990  | 3.119 | 3.18% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1826 | 1799 | 0.784  | 0.052 | 3.998  | 3.114 | 3.17% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1826 | 1799 | 0.757  | 0.046 | 4.128  | 3.199 | 3.24% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1826 | 1799 | 0.772  | 0.050 | 4.310  | 3.342 | 3.25% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1826 | 1799 | 0.762  | 0.063 | 4.610  | 3.584 | 3.29% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1826 | 1799 | 0.808  | 0.063 | 4.861  | 3.766 | 3.33% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1826 | 1799 | 0.846  | 0.062 | 5.207  | 4.046 | 3.29% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1826 | 1799 | 0.857  | 0.058 | 5.435  | 4.241 | 3.19% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1826 | 1799 | 0.870  | 0.059 | 5.574  | 4.364 | 3.12% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1826 | 1799 | 0.888  | 0.054 | 5.625  | 4.403 | 3.07% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1826 | 1799 | 0.906  | 0.060 | 5.639  | 4.419 | 3.04% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1826 | 1799 | 0.915  | 0.071 | 5.680  | 4.461 | 3.04% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1826 | 1799 | 0.923  | 0.092 | 5.731  | 4.519 | 3.04% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1826 | 1799 | 0.928  | 0.089 | 5.737  | 4.526 | 3.03% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1826 | 1799 | 0.923  | 0.099 | 5.668  | 4.485 | 3.05% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1826 | 1799 | 0.903  | 0.102 | 5.498  | 4.356 | 3.07% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1826 | 1799 | 0.885  | 0.152 | 5.445  | 4.335 | 3.15% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1826 | 1799 | 0.865  | 0.129 | 5.253  | 4.171 | 3.14% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1826 | 1799 | 0.834  | 0.082 | 5.003  | 3.945 | 3.12% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1826 | 1799 | 0.812  | 0.141 | 4.833  | 3.809 | 3.22% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1826 | 1799 | 0.791  | 0.120 | 4.503  | 3.539 | 3.25% | 0    | 0.000 | 0.00% | 0.000   |

KPSC Case No. 2023-00092

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Industrial Peak Demand Model Coefficients  
Page 1032 of 1182

| Variable | Constant | HDD50  | HDD55 | HDD65  | CDD65 | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|--------|-------|--------|-------|--------|------------|------------|------------|
| Hour1    | 227.847  | -0.489 | 1.356 | -0.638 | 0.715 | -0.919 | 0.471      | 0.030      | -0.831     |
| Hour2    | 229.671  | -0.546 | 1.426 | -0.655 | 0.657 | -0.849 | 0.472      | 0.033      | -0.818     |
| Hour3    | 229.655  | -0.504 | 1.358 | -0.617 | 0.689 | -0.872 | 0.360      | 0.020      | -0.689     |
| Hour4    | 229.628  | -0.501 | 1.350 | -0.605 | 0.712 | -0.887 | 0.228      | 0.006      | -0.490     |
| Hour5    | 228.599  | -0.547 | 1.390 | -0.611 | 0.684 | -0.883 | 0.293      | 0.011      | -0.561     |
| Hour6    | 229.901  | -0.566 | 1.463 | -0.659 | 0.654 | -0.892 | 0.325      | 0.013      | -0.615     |
| Hour7    | 230.628  | -0.542 | 1.422 | -0.668 | 0.802 | -1.064 | 0.268      | 0.053      | -0.628     |
| Hour8    | 227.506  | -0.513 | 1.260 | -0.552 | 1.016 | -1.374 | 0.119      | 0.076      | -0.406     |
| Hour9    | 228.119  | -0.610 | 1.427 | -0.627 | 0.959 | -1.323 | 0.131      | 0.074      | -0.416     |
| Hour10   | 229.437  | -0.655 | 1.489 | -0.649 | 1.011 | -1.404 | 0.098      | 0.068      | -0.365     |
| Hour11   | 229.677  | -0.586 | 1.466 | -0.674 | 1.039 | -1.422 | 0.071      | 0.061      | -0.300     |
| Hour12   | 230.097  | -0.486 | 1.387 | -0.683 | 1.120 | -1.448 | 0.046      | 0.066      | -0.278     |
| Hour13   | 231.875  | -0.454 | 1.359 | -0.697 | 1.129 | -1.454 | 0.144      | 0.089      | -0.329     |
| Hour14   | 235.765  | -0.465 | 1.410 | -0.736 | 1.181 | -1.557 | 0.102      | 0.086      | -0.227     |
| Hour15   | 236.385  | -0.398 | 1.287 | -0.676 | 1.242 | -1.610 | 0.168      | 0.078      | -0.342     |
| Hour16   | 235.135  | -0.335 | 1.232 | -0.676 | 1.152 | -1.525 | 0.202      | 0.064      | -0.375     |
| Hour17   | 231.182  | -0.310 | 1.200 | -0.650 | 1.123 | -1.423 | 0.251      | 0.042      | -0.565     |
| Hour18   | 230.074  | -0.319 | 1.188 | -0.630 | 1.073 | -1.381 | 0.301      | 0.042      | -0.582     |
| Hour19   | 228.973  | -0.378 | 1.282 | -0.670 | 0.997 | -1.259 | 0.296      | 0.052      | -0.621     |
| Hour20   | 229.431  | -0.402 | 1.277 | -0.651 | 0.980 | -1.218 | 0.322      | 0.063      | -0.668     |
| Hour21   | 229.733  | -0.396 | 1.215 | -0.613 | 0.969 | -1.178 | 0.390      | 0.072      | -0.783     |
| Hour22   | 231.357  | -0.391 | 1.198 | -0.578 | 0.952 | -1.221 | 0.381      | 0.045      | -0.757     |
| Hour23   | 232.849  | -0.488 | 1.279 | -0.574 | 0.967 | -1.217 | 0.441      | 0.047      | -0.830     |
| Hour24   | 230.299  | -0.517 | 1.284 | -0.553 | 0.925 | -1.107 | 0.491      | 0.049      | -0.952     |

Kpsc Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company Volume A - Public Version  
Industrial Peak Demand Model Coefficients Page 1033 of 1182

| Variable | WkEnd  | MajorHolidays | Monday | TWT   | January | February | March | April | May   | June   | July  |
|----------|--------|---------------|--------|-------|---------|----------|-------|-------|-------|--------|-------|
| Hour1    | -2.884 | -1.862        | -2.998 | 0.538 | 12.479  | 14.347   | 8.352 | 7.141 | 3.042 | 4.767  | 3.784 |
| Hour2    | -2.741 | -2.038        | -1.972 | 0.663 | 12.430  | 14.196   | 8.729 | 8.214 | 4.179 | 5.926  | 5.319 |
| Hour3    | -2.077 | -2.002        | -1.303 | 0.609 | 12.485  | 14.421   | 9.276 | 8.915 | 4.859 | 6.829  | 5.971 |
| Hour4    | -2.101 | -1.944        | -1.201 | 0.449 | 12.416  | 14.545   | 9.363 | 8.992 | 4.905 | 6.600  | 5.527 |
| Hour5    | -2.859 | -2.280        | -0.982 | 0.736 | 12.692  | 14.458   | 9.082 | 8.346 | 3.874 | 5.595  | 4.401 |
| Hour6    | -3.589 | -2.903        | -0.315 | 1.460 | 13.201  | 15.385   | 9.782 | 8.781 | 4.199 | 6.068  | 4.637 |
| Hour7    | -4.024 | -4.286        | -0.096 | 1.616 | 13.043  | 15.233   | 9.503 | 8.822 | 4.263 | 6.487  | 3.980 |
| Hour8    | -4.249 | -7.841        | -0.003 | 1.602 | 11.971  | 12.852   | 7.017 | 6.463 | 1.381 | 5.477  | 2.289 |
| Hour9    | -5.700 | -7.669        | 0.130  | 1.657 | 11.917  | 12.575   | 6.667 | 6.032 | 1.529 | 5.504  | 2.678 |
| Hour10   | -5.694 | -7.434        | 0.263  | 1.876 | 12.153  | 13.027   | 7.384 | 7.144 | 3.336 | 7.432  | 4.800 |
| Hour11   | -5.784 | -7.288        | 0.575  | 1.746 | 12.163  | 12.897   | 7.854 | 7.993 | 4.262 | 8.498  | 5.882 |
| Hour12   | -4.615 | -7.426        | 0.674  | 1.710 | 11.905  | 12.241   | 7.574 | 7.850 | 4.418 | 8.551  | 6.008 |
| Hour13   | -5.451 | -7.686        | 0.996  | 1.784 | 12.424  | 12.995   | 7.714 | 8.781 | 4.959 | 9.441  | 6.497 |
| Hour14   | -6.533 | -7.885        | 1.125  | 2.046 | 12.274  | 12.939   | 8.003 | 9.551 | 5.919 | 10.371 | 6.969 |
| Hour15   | -5.949 | -8.199        | 1.387  | 2.298 | 12.331  | 13.175   | 8.421 | 9.943 | 7.106 | 11.421 | 7.915 |
| Hour16   | -3.829 | -8.054        | 1.765  | 2.417 | 12.234  | 12.833   | 8.138 | 9.135 | 6.262 | 10.976 | 7.467 |
| Hour17   | -0.971 | -8.048        | 1.793  | 2.381 | 11.804  | 12.349   | 6.929 | 7.903 | 4.758 | 9.009  | 6.186 |
| Hour18   | 0.085  | -7.583        | 1.495  | 1.924 | 11.192  | 11.364   | 6.221 | 7.024 | 3.519 | 8.082  | 5.572 |
| Hour19   | 0.834  | -7.093        | 1.186  | 1.491 | 11.198  | 11.631   | 6.617 | 7.074 | 3.611 | 8.116  | 6.065 |
| Hour20   | 1.203  | -6.992        | 1.071  | 1.246 | 11.310  | 12.398   | 7.485 | 7.547 | 4.143 | 8.572  | 7.114 |
| Hour21   | 1.154  | -7.235        | 1.005  | 1.187 | 11.355  | 12.318   | 7.448 | 7.583 | 4.013 | 7.945  | 6.473 |
| Hour22   | -1.409 | -5.548        | 1.305  | 1.514 | 12.091  | 13.665   | 8.349 | 8.342 | 5.096 | 8.239  | 6.821 |
| Hour23   | -3.768 | -3.720        | 1.856  | 1.885 | 13.185  | 15.362   | 9.735 | 9.040 | 6.198 | 8.241  | 7.212 |
| Hour24   | -3.584 | -3.464        | 1.805  | 1.787 | 13.206  | 14.994   | 9.033 | 8.196 | 4.801 | 6.950  | 5.381 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Volume A - Public Version  
 Industrial Peak Demand Model Coefficients  
 Page 1034 of 1182

| Variable | August | September | October | November | December | HLight | DST   |
|----------|--------|-----------|---------|----------|----------|--------|-------|
| Hour1    | 5.449  | 1.686     | -6.527  | 0.374    | 0.000    | -0.952 | 3.784 |
| Hour2    | 6.518  | 2.262     | -6.073  | 0.336    | 0.000    | -1.155 | 3.521 |
| Hour3    | 7.088  | 2.816     | -5.769  | 0.510    | 0.000    | -1.244 | 3.284 |
| Hour4    | 7.008  | 2.772     | -6.029  | 0.480    | 0.000    | -1.239 | 3.336 |
| Hour5    | 5.936  | 2.246     | -6.469  | 0.121    | 0.000    | -1.066 | 3.533 |
| Hour6    | 6.044  | 2.178     | -6.735  | 0.037    | 0.000    | -1.116 | 3.808 |
| Hour7    | 5.633  | 2.167     | -6.403  | -0.293   | 0.000    | -1.169 | 4.060 |
| Hour8    | 3.413  | 1.061     | -6.695  | -1.414   | 0.000    | -0.885 | 4.496 |
| Hour9    | 3.431  | 0.799     | -6.905  | -1.384   | 0.000    | -0.838 | 4.673 |
| Hour10   | 5.146  | 2.018     | -6.053  | -0.962   | 0.000    | -1.041 | 4.517 |
| Hour11   | 6.117  | 2.990     | -5.331  | -1.030   | 0.000    | -1.085 | 4.181 |
| Hour12   | 6.100  | 2.763     | -5.338  | -0.869   | 0.000    | -1.237 | 4.483 |
| Hour13   | 6.581  | 3.217     | -5.694  | -0.638   | 0.000    | -1.435 | 5.069 |
| Hour14   | 7.528  | 3.680     | -5.799  | -0.748   | 0.000    | -1.698 | 5.238 |
| Hour15   | 8.383  | 4.273     | -4.908  | -0.684   | 0.000    | -1.873 | 5.054 |
| Hour16   | 7.580  | 3.166     | -5.469  | -1.194   | 0.000    | -1.889 | 5.015 |
| Hour17   | 6.524  | 2.478     | -6.365  | -1.604   | 0.000    | -1.716 | 4.975 |
| Hour18   | 5.848  | 1.919     | -6.564  | -1.519   | 0.000    | -1.648 | 4.582 |
| Hour19   | 6.051  | 2.205     | -5.973  | -1.334   | 0.000    | -1.570 | 3.605 |
| Hour20   | 6.573  | 2.726     | -5.157  | -0.747   | 0.000    | -1.683 | 3.656 |
| Hour21   | 6.283  | 2.330     | -5.570  | -0.731   | 0.000    | -1.707 | 4.027 |
| Hour22   | 7.132  | 2.527     | -6.316  | -0.110   | 0.000    | -1.650 | 4.385 |
| Hour23   | 7.933  | 3.065     | -6.308  | 0.917    | 0.000    | -1.676 | 4.814 |
| Hour24   | 6.732  | 2.163     | -6.714  | 0.799    | 0.000    | -1.423 | 4.857 |

KPSC Case No. 2023-00092

Kentucky Power Company     Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Industrial Peak Demand Model Standard Errors     Page 1035 of 1182

| Variable | Constant | HDD50 | HDD55 | HDD65 | CDD65 | CDD70 | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|-------|-------|-------|-------|-------|------------|------------|------------|
| Hour1    | 16.533   | 0.494 | 0.675 | 0.297 | 0.565 | 0.757 | 0.797      | 0.110      | 1.152      |
| Hour2    | 16.601   | 0.496 | 0.677 | 0.299 | 0.568 | 0.760 | 0.800      | 0.110      | 1.157      |
| Hour3    | 16.568   | 0.495 | 0.676 | 0.298 | 0.566 | 0.759 | 0.799      | 0.110      | 1.154      |
| Hour4    | 16.639   | 0.497 | 0.679 | 0.299 | 0.569 | 0.762 | 0.802      | 0.110      | 1.159      |
| Hour5    | 16.820   | 0.502 | 0.686 | 0.302 | 0.575 | 0.770 | 0.811      | 0.112      | 1.172      |
| Hour6    | 16.893   | 0.504 | 0.689 | 0.304 | 0.578 | 0.774 | 0.814      | 0.112      | 1.177      |
| Hour7    | 16.632   | 0.497 | 0.679 | 0.299 | 0.569 | 0.762 | 0.802      | 0.110      | 1.159      |
| Hour8    | 16.280   | 0.486 | 0.664 | 0.293 | 0.557 | 0.746 | 0.785      | 0.108      | 1.134      |
| Hour9    | 16.449   | 0.491 | 0.671 | 0.296 | 0.562 | 0.753 | 0.793      | 0.109      | 1.146      |
| Hour10   | 16.472   | 0.492 | 0.672 | 0.296 | 0.563 | 0.754 | 0.794      | 0.109      | 1.147      |
| Hour11   | 16.479   | 0.492 | 0.672 | 0.296 | 0.563 | 0.755 | 0.794      | 0.109      | 1.148      |
| Hour12   | 16.196   | 0.484 | 0.661 | 0.291 | 0.554 | 0.742 | 0.781      | 0.107      | 1.128      |
| Hour13   | 16.142   | 0.482 | 0.659 | 0.290 | 0.552 | 0.739 | 0.778      | 0.107      | 1.125      |
| Hour14   | 16.451   | 0.491 | 0.671 | 0.296 | 0.562 | 0.753 | 0.793      | 0.109      | 1.146      |
| Hour15   | 16.425   | 0.490 | 0.670 | 0.295 | 0.562 | 0.752 | 0.792      | 0.109      | 1.144      |
| Hour16   | 16.019   | 0.478 | 0.654 | 0.288 | 0.548 | 0.734 | 0.772      | 0.106      | 1.116      |
| Hour17   | 15.576   | 0.465 | 0.636 | 0.280 | 0.533 | 0.713 | 0.751      | 0.103      | 1.085      |
| Hour18   | 15.463   | 0.462 | 0.631 | 0.278 | 0.529 | 0.708 | 0.745      | 0.103      | 1.077      |
| Hour19   | 15.294   | 0.457 | 0.624 | 0.275 | 0.523 | 0.700 | 0.737      | 0.101      | 1.065      |
| Hour20   | 15.162   | 0.453 | 0.619 | 0.273 | 0.518 | 0.694 | 0.731      | 0.101      | 1.056      |
| Hour21   | 15.017   | 0.448 | 0.613 | 0.270 | 0.513 | 0.688 | 0.724      | 0.100      | 1.046      |
| Hour22   | 15.777   | 0.471 | 0.644 | 0.284 | 0.539 | 0.723 | 0.761      | 0.105      | 1.099      |
| Hour23   | 16.503   | 0.493 | 0.673 | 0.297 | 0.564 | 0.756 | 0.796      | 0.109      | 1.150      |
| Hour24   | 16.565   | 0.495 | 0.676 | 0.298 | 0.566 | 0.759 | 0.799      | 0.110      | 1.154      |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Industrial Peak Demand Model Standard Errors      Page 1036 of 1182

| Variable | WkEnd | MajorHolidays | Monday | TWT   | January | February | March | April | May   | June  | July  |
|----------|-------|---------------|--------|-------|---------|----------|-------|-------|-------|-------|-------|
| Hour1    | 2.673 | 3.874         | 1.694  | 1.377 | 2.263   | 3.147    | 4.708 | 6.587 | 8.080 | 8.883 | 8.428 |
| Hour2    | 2.684 | 3.890         | 1.701  | 1.383 | 2.273   | 3.161    | 4.728 | 6.614 | 8.114 | 8.920 | 8.463 |
| Hour3    | 2.678 | 3.883         | 1.697  | 1.380 | 2.268   | 3.154    | 4.718 | 6.601 | 8.098 | 8.902 | 8.446 |
| Hour4    | 2.690 | 3.899         | 1.705  | 1.386 | 2.278   | 3.168    | 4.738 | 6.629 | 8.132 | 8.940 | 8.482 |
| Hour5    | 2.719 | 3.941         | 1.723  | 1.401 | 2.303   | 3.202    | 4.790 | 6.701 | 8.221 | 9.037 | 8.574 |
| Hour6    | 2.731 | 3.959         | 1.731  | 1.407 | 2.313   | 3.216    | 4.811 | 6.730 | 8.256 | 9.077 | 8.612 |
| Hour7    | 2.689 | 3.897         | 1.704  | 1.385 | 2.277   | 3.166    | 4.736 | 6.626 | 8.129 | 8.936 | 8.479 |
| Hour8    | 2.632 | 3.815         | 1.668  | 1.356 | 2.229   | 3.099    | 4.636 | 6.486 | 7.957 | 8.747 | 8.299 |
| Hour9    | 2.659 | 3.855         | 1.685  | 1.370 | 2.252   | 3.132    | 4.684 | 6.553 | 8.039 | 8.838 | 8.385 |
| Hour10   | 2.663 | 3.860         | 1.688  | 1.372 | 2.255   | 3.136    | 4.691 | 6.562 | 8.050 | 8.850 | 8.397 |
| Hour11   | 2.664 | 3.862         | 1.688  | 1.373 | 2.256   | 3.137    | 4.693 | 6.565 | 8.054 | 8.854 | 8.401 |
| Hour12   | 2.618 | 3.795         | 1.659  | 1.349 | 2.217   | 3.083    | 4.612 | 6.453 | 7.916 | 8.702 | 8.257 |
| Hour13   | 2.609 | 3.783         | 1.654  | 1.345 | 2.210   | 3.073    | 4.597 | 6.431 | 7.889 | 8.673 | 8.229 |
| Hour14   | 2.659 | 3.855         | 1.685  | 1.370 | 2.252   | 3.132    | 4.685 | 6.554 | 8.040 | 8.839 | 8.386 |
| Hour15   | 2.655 | 3.849         | 1.683  | 1.368 | 2.249   | 3.127    | 4.677 | 6.544 | 8.027 | 8.825 | 8.373 |
| Hour16   | 2.590 | 3.754         | 1.641  | 1.334 | 2.193   | 3.050    | 4.562 | 6.382 | 7.829 | 8.607 | 8.166 |
| Hour17   | 2.518 | 3.650         | 1.596  | 1.297 | 2.132   | 2.965    | 4.436 | 6.205 | 7.613 | 8.369 | 7.940 |
| Hour18   | 2.500 | 3.624         | 1.584  | 1.288 | 2.117   | 2.944    | 4.404 | 6.161 | 7.558 | 8.308 | 7.883 |
| Hour19   | 2.472 | 3.584         | 1.567  | 1.274 | 2.094   | 2.912    | 4.355 | 6.093 | 7.475 | 8.217 | 7.796 |
| Hour20   | 2.451 | 3.553         | 1.553  | 1.263 | 2.076   | 2.886    | 4.318 | 6.040 | 7.410 | 8.146 | 7.729 |
| Hour21   | 2.428 | 3.519         | 1.539  | 1.251 | 2.056   | 2.859    | 4.276 | 5.983 | 7.340 | 8.069 | 7.655 |
| Hour22   | 2.550 | 3.697         | 1.616  | 1.314 | 2.160   | 3.003    | 4.493 | 6.285 | 7.711 | 8.477 | 8.043 |
| Hour23   | 2.668 | 3.867         | 1.691  | 1.375 | 2.259   | 3.142    | 4.700 | 6.575 | 8.066 | 8.867 | 8.413 |
| Hour24   | 2.678 | 3.882         | 1.697  | 1.380 | 2.268   | 3.154    | 4.717 | 6.599 | 8.096 | 8.900 | 8.444 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Volume A - Public Version  
 Industrial Peak Demand Model Standard Errors  
 Page 1037 of 1182

| Variable | August | September | October | November | December | HLight | DST   |
|----------|--------|-----------|---------|----------|----------|--------|-------|
| Hour1    | 7.032  | 5.407     | 4.118   | 2.421    | 0.000    | 1.696  | 3.142 |
| Hour2    | 7.061  | 5.429     | 4.135   | 2.431    | 0.000    | 1.703  | 3.155 |
| Hour3    | 7.047  | 5.418     | 4.127   | 2.426    | 0.000    | 1.700  | 3.149 |
| Hour4    | 7.077  | 5.441     | 4.145   | 2.436    | 0.000    | 1.707  | 3.162 |
| Hour5    | 7.154  | 5.501     | 4.190   | 2.463    | 0.000    | 1.726  | 3.196 |
| Hour6    | 7.185  | 5.525     | 4.208   | 2.473    | 0.000    | 1.733  | 3.210 |
| Hour7    | 7.074  | 5.439     | 4.143   | 2.435    | 0.000    | 1.706  | 3.161 |
| Hour8    | 6.925  | 5.324     | 4.055   | 2.384    | 0.000    | 1.670  | 3.094 |
| Hour9    | 6.997  | 5.380     | 4.097   | 2.408    | 0.000    | 1.688  | 3.126 |
| Hour10   | 7.006  | 5.387     | 4.103   | 2.412    | 0.000    | 1.690  | 3.130 |
| Hour11   | 7.009  | 5.389     | 4.105   | 2.413    | 0.000    | 1.691  | 3.132 |
| Hour12   | 6.889  | 5.297     | 4.035   | 2.371    | 0.000    | 1.662  | 3.078 |
| Hour13   | 6.866  | 5.279     | 4.021   | 2.363    | 0.000    | 1.656  | 3.067 |
| Hour14   | 6.997  | 5.380     | 4.098   | 2.409    | 0.000    | 1.688  | 3.126 |
| Hour15   | 6.986  | 5.372     | 4.091   | 2.405    | 0.000    | 1.685  | 3.121 |
| Hour16   | 6.813  | 5.239     | 3.990   | 2.345    | 0.000    | 1.643  | 3.044 |
| Hour17   | 6.625  | 5.094     | 3.880   | 2.280    | 0.000    | 1.598  | 2.960 |
| Hour18   | 6.577  | 5.057     | 3.852   | 2.264    | 0.000    | 1.586  | 2.939 |
| Hour19   | 6.505  | 5.002     | 3.810   | 2.239    | 0.000    | 1.569  | 2.906 |
| Hour20   | 6.449  | 4.958     | 3.777   | 2.220    | 0.000    | 1.556  | 2.881 |
| Hour21   | 6.387  | 4.911     | 3.741   | 2.199    | 0.000    | 1.541  | 2.854 |
| Hour22   | 6.710  | 5.159     | 3.930   | 2.310    | 0.000    | 1.619  | 2.998 |
| Hour23   | 7.020  | 5.397     | 4.111   | 2.416    | 0.000    | 1.693  | 3.136 |
| Hour24   | 7.046  | 5.417     | 4.126   | 2.425    | 0.000    | 1.699  | 3.148 |

KPSC Case No. 2023-00092

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Industrial Peak Demand Model t-Statistics  
Page 1038 of 1182

| Variable | Constant | HDD50  | HDD55 | HDD65  | CDD65 | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|--------|-------|--------|-------|--------|------------|------------|------------|
| Hour1    | 13.781   | -0.990 | 2.011 | -2.147 | 1.264 | -1.213 | 0.590      | 0.272      | -0.722     |
| Hour2    | 13.835   | -1.102 | 2.105 | -2.195 | 1.157 | -1.117 | 0.590      | 0.301      | -0.707     |
| Hour3    | 13.861   | -1.019 | 2.008 | -2.072 | 1.216 | -1.149 | 0.451      | 0.179      | -0.597     |
| Hour4    | 13.801   | -1.008 | 1.988 | -2.023 | 1.252 | -1.164 | 0.284      | 0.051      | -0.423     |
| Hour5    | 13.591   | -1.089 | 2.026 | -2.020 | 1.189 | -1.146 | 0.362      | 0.102      | -0.479     |
| Hour6    | 13.609   | -1.123 | 2.122 | -2.169 | 1.133 | -1.152 | 0.400      | 0.119      | -0.523     |
| Hour7    | 13.867   | -1.091 | 2.096 | -2.233 | 1.411 | -1.397 | 0.334      | 0.480      | -0.542     |
| Hour8    | 13.975   | -1.056 | 1.896 | -1.884 | 1.826 | -1.843 | 0.152      | 0.709      | -0.358     |
| Hour9    | 13.868   | -1.243 | 2.126 | -2.118 | 1.706 | -1.756 | 0.165      | 0.683      | -0.363     |
| Hour10   | 13.929   | -1.332 | 2.215 | -2.190 | 1.795 | -1.862 | 0.123      | 0.621      | -0.318     |
| Hour11   | 13.938   | -1.190 | 2.180 | -2.273 | 1.844 | -1.884 | 0.089      | 0.557      | -0.261     |
| Hour12   | 14.207   | -1.005 | 2.099 | -2.346 | 2.022 | -1.952 | 0.058      | 0.617      | -0.246     |
| Hour13   | 14.365   | -0.942 | 2.064 | -2.400 | 2.046 | -1.967 | 0.185      | 0.829      | -0.292     |
| Hour14   | 14.331   | -0.946 | 2.100 | -2.489 | 2.100 | -2.066 | 0.128      | 0.791      | -0.198     |
| Hour15   | 14.392   | -0.811 | 1.921 | -2.290 | 2.212 | -2.140 | 0.212      | 0.719      | -0.299     |
| Hour16   | 14.679   | -0.701 | 1.885 | -2.348 | 2.104 | -2.078 | 0.261      | 0.601      | -0.336     |
| Hour17   | 14.842   | -0.667 | 1.889 | -2.321 | 2.110 | -1.995 | 0.335      | 0.409      | -0.521     |
| Hour18   | 14.879   | -0.691 | 1.883 | -2.266 | 2.030 | -1.951 | 0.404      | 0.411      | -0.540     |
| Hour19   | 14.972   | -0.827 | 2.055 | -2.437 | 1.907 | -1.798 | 0.401      | 0.513      | -0.583     |
| Hour20   | 15.132   | -0.888 | 2.064 | -2.388 | 1.890 | -1.754 | 0.440      | 0.624      | -0.633     |
| Hour21   | 15.298   | -0.882 | 1.983 | -2.269 | 1.887 | -1.712 | 0.539      | 0.720      | -0.749     |
| Hour22   | 14.665   | -0.830 | 1.861 | -2.036 | 1.764 | -1.689 | 0.501      | 0.430      | -0.688     |
| Hour23   | 14.109   | -0.990 | 1.899 | -1.936 | 1.715 | -1.610 | 0.554      | 0.427      | -0.722     |
| Hour24   | 13.903   | -1.046 | 1.899 | -1.857 | 1.634 | -1.459 | 0.615      | 0.443      | -0.825     |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Industrial Peak Demand Model t-Statistics      Page 1039 of 1182

| Variable | WkEnd  | MajorHolidays | Monday | TWT   | January | February | March | April | May   | June  | July  |
|----------|--------|---------------|--------|-------|---------|----------|-------|-------|-------|-------|-------|
| Hour1    | -1.079 | -0.480        | -1.770 | 0.391 | 5.514   | 4.558    | 1.774 | 1.084 | 0.376 | 0.537 | 0.449 |
| Hour2    | -1.021 | -0.524        | -1.160 | 0.479 | 5.469   | 4.492    | 1.846 | 1.242 | 0.515 | 0.664 | 0.628 |
| Hour3    | -0.776 | -0.516        | -0.768 | 0.441 | 5.505   | 4.572    | 1.966 | 1.351 | 0.600 | 0.767 | 0.707 |
| Hour4    | -0.781 | -0.499        | -0.705 | 0.324 | 5.451   | 4.592    | 1.976 | 1.357 | 0.603 | 0.738 | 0.652 |
| Hour5    | -1.051 | -0.578        | -0.570 | 0.525 | 5.512   | 4.515    | 1.896 | 1.245 | 0.471 | 0.619 | 0.513 |
| Hour6    | -1.314 | -0.733        | -0.182 | 1.038 | 5.708   | 4.784    | 2.033 | 1.305 | 0.509 | 0.669 | 0.538 |
| Hour7    | -1.497 | -1.100        | -0.056 | 1.167 | 5.729   | 4.811    | 2.006 | 1.331 | 0.524 | 0.726 | 0.469 |
| Hour8    | -1.615 | -2.055        | -0.002 | 1.181 | 5.371   | 4.147    | 1.513 | 0.997 | 0.174 | 0.626 | 0.276 |
| Hour9    | -2.143 | -1.990        | 0.077  | 1.209 | 5.292   | 4.016    | 1.423 | 0.920 | 0.190 | 0.623 | 0.319 |
| Hour10   | -2.138 | -1.926        | 0.156  | 1.367 | 5.389   | 4.154    | 1.574 | 1.089 | 0.414 | 0.840 | 0.572 |
| Hour11   | -2.171 | -1.887        | 0.341  | 1.272 | 5.391   | 4.111    | 1.674 | 1.217 | 0.529 | 0.960 | 0.700 |
| Hour12   | -1.762 | -1.956        | 0.406  | 1.268 | 5.369   | 3.970    | 1.642 | 1.217 | 0.558 | 0.983 | 0.728 |
| Hour13   | -2.089 | -2.032        | 0.602  | 1.327 | 5.622   | 4.229    | 1.678 | 1.365 | 0.629 | 1.089 | 0.790 |
| Hour14   | -2.457 | -2.045        | 0.668  | 1.493 | 5.450   | 4.131    | 1.708 | 1.457 | 0.736 | 1.173 | 0.831 |
| Hour15   | -2.240 | -2.130        | 0.824  | 1.679 | 5.484   | 4.213    | 1.800 | 1.519 | 0.885 | 1.294 | 0.945 |
| Hour16   | -1.479 | -2.146        | 1.075  | 1.811 | 5.579   | 4.208    | 1.784 | 1.432 | 0.800 | 1.275 | 0.914 |
| Hour17   | -0.386 | -2.205        | 1.124  | 1.835 | 5.536   | 4.165    | 1.562 | 1.274 | 0.625 | 1.076 | 0.779 |
| Hour18   | 0.034  | -2.093        | 0.943  | 1.493 | 5.287   | 3.860    | 1.413 | 1.140 | 0.466 | 0.973 | 0.707 |
| Hour19   | 0.337  | -1.979        | 0.757  | 1.170 | 5.348   | 3.995    | 1.519 | 1.161 | 0.483 | 0.988 | 0.778 |
| Hour20   | 0.491  | -1.968        | 0.689  | 0.987 | 5.449   | 4.295    | 1.734 | 1.249 | 0.559 | 1.052 | 0.920 |
| Hour21   | 0.475  | -2.056        | 0.653  | 0.949 | 5.523   | 4.309    | 1.742 | 1.267 | 0.547 | 0.985 | 0.846 |
| Hour22   | -0.553 | -1.501        | 0.808  | 1.152 | 5.598   | 4.550    | 1.858 | 1.327 | 0.661 | 0.972 | 0.848 |
| Hour23   | -1.412 | -0.962        | 1.097  | 1.371 | 5.836   | 4.890    | 2.071 | 1.375 | 0.768 | 0.929 | 0.857 |
| Hour24   | -1.338 | -0.892        | 1.064  | 1.295 | 5.824   | 4.755    | 1.915 | 1.242 | 0.593 | 0.781 | 0.637 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Industrial Peak Demand Model t-Statistics  
Page 1040 of 1182

| Variable | August | September | October | November | December | HLight | DST   |
|----------|--------|-----------|---------|----------|----------|--------|-------|
| Hour1    | 0.775  | 0.312     | -1.585  | 0.155    | 0.000    | -0.561 | 1.204 |
| Hour2    | 0.923  | 0.417     | -1.468  | 0.138    | 0.000    | -0.678 | 1.116 |
| Hour3    | 1.006  | 0.520     | -1.398  | 0.210    | 0.000    | -0.732 | 1.043 |
| Hour4    | 0.990  | 0.509     | -1.455  | 0.197    | 0.000    | -0.726 | 1.055 |
| Hour5    | 0.830  | 0.408     | -1.544  | 0.049    | 0.000    | -0.618 | 1.105 |
| Hour6    | 0.841  | 0.394     | -1.600  | 0.015    | 0.000    | -0.644 | 1.186 |
| Hour7    | 0.796  | 0.398     | -1.545  | -0.120   | 0.000    | -0.685 | 1.285 |
| Hour8    | 0.493  | 0.199     | -1.651  | -0.593   | 0.000    | -0.530 | 1.453 |
| Hour9    | 0.490  | 0.148     | -1.685  | -0.575   | 0.000    | -0.497 | 1.495 |
| Hour10   | 0.735  | 0.375     | -1.475  | -0.399   | 0.000    | -0.616 | 1.443 |
| Hour11   | 0.873  | 0.555     | -1.299  | -0.427   | 0.000    | -0.642 | 1.335 |
| Hour12   | 0.885  | 0.522     | -1.323  | -0.366   | 0.000    | -0.744 | 1.456 |
| Hour13   | 0.958  | 0.609     | -1.416  | -0.270   | 0.000    | -0.867 | 1.652 |
| Hour14   | 1.076  | 0.684     | -1.415  | -0.310   | 0.000    | -1.006 | 1.676 |
| Hour15   | 1.200  | 0.795     | -1.200  | -0.285   | 0.000    | -1.112 | 1.619 |
| Hour16   | 1.112  | 0.604     | -1.371  | -0.509   | 0.000    | -1.150 | 1.648 |
| Hour17   | 0.985  | 0.486     | -1.640  | -0.703   | 0.000    | -1.074 | 1.681 |
| Hour18   | 0.889  | 0.380     | -1.704  | -0.671   | 0.000    | -1.039 | 1.559 |
| Hour19   | 0.930  | 0.441     | -1.568  | -0.596   | 0.000    | -1.000 | 1.240 |
| Hour20   | 1.019  | 0.550     | -1.366  | -0.337   | 0.000    | -1.082 | 1.269 |
| Hour21   | 0.984  | 0.474     | -1.489  | -0.332   | 0.000    | -1.108 | 1.411 |
| Hour22   | 1.063  | 0.490     | -1.607  | -0.047   | 0.000    | -1.019 | 1.463 |
| Hour23   | 1.130  | 0.568     | -1.534  | 0.379    | 0.000    | -0.990 | 1.535 |
| Hour24   | 0.956  | 0.399     | -1.627  | 0.329    | 0.000    | -0.837 | 1.543 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Volume A - Public Version  
 Industrial Peak Demand Model Statistics  
 Page 1041 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD    | MAPE  | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|--------|-------|------|-------|-------|---------|
| Hour1  | 1461 | 1434 | 0.089  | 0.152 | 17.227 | 13.756 | 6.48% | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1461 | 1434 | 0.086  | 0.158 | 17.298 | 13.812 | 6.51% | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1461 | 1434 | 0.085  | 0.162 | 17.263 | 13.792 | 6.51% | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1461 | 1434 | 0.086  | 0.161 | 17.337 | 13.886 | 6.55% | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1461 | 1434 | 0.088  | 0.155 | 17.526 | 14.045 | 6.62% | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1461 | 1434 | 0.101  | 0.142 | 17.602 | 14.107 | 6.61% | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1461 | 1434 | 0.104  | 0.151 | 17.330 | 13.965 | 6.52% | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1461 | 1434 | 0.099  | 0.179 | 16.963 | 13.793 | 6.42% | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1461 | 1434 | 0.107  | 0.179 | 17.139 | 13.997 | 6.50% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1461 | 1434 | 0.109  | 0.185 | 17.163 | 14.002 | 6.50% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1461 | 1434 | 0.111  | 0.185 | 17.170 | 13.977 | 6.49% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1461 | 1434 | 0.105  | 0.178 | 16.876 | 13.735 | 6.41% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1461 | 1434 | 0.115  | 0.173 | 16.819 | 13.739 | 6.41% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1461 | 1434 | 0.123  | 0.180 | 17.141 | 13.996 | 6.51% | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1461 | 1434 | 0.118  | 0.189 | 17.114 | 13.949 | 6.50% | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1461 | 1434 | 0.108  | 0.173 | 16.691 | 13.520 | 6.36% | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1461 | 1434 | 0.101  | 0.171 | 16.230 | 13.091 | 6.21% | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1461 | 1434 | 0.090  | 0.176 | 16.112 | 12.960 | 6.18% | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1461 | 1434 | 0.091  | 0.171 | 15.935 | 12.784 | 6.11% | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1461 | 1434 | 0.089  | 0.175 | 15.798 | 12.677 | 6.07% | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1461 | 1434 | 0.089  | 0.171 | 15.647 | 12.515 | 5.98% | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1461 | 1434 | 0.091  | 0.151 | 16.438 | 13.201 | 6.25% | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1461 | 1434 | 0.100  | 0.151 | 17.196 | 13.771 | 6.48% | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1461 | 1434 | 0.098  | 0.152 | 17.260 | 13.814 | 6.50% | 0    | 0.000 | 0.00% | 0.000   |

KPSC Case No. 2023-00092

Kentucky Power Company  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Other Retail Peak Demand Model Coefficients

Page 1042 of 1182

| Variable | Constant | HDD50  | HDD55 | HDD65  | CDD65 | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|--------|-------|--------|-------|--------|------------|------------|------------|
| Hour1    | 41.234   | 0.445  | 0.021 | -0.014 | 0.457 | -0.131 | -0.245     | -0.014     | 0.327      |
| Hour2    | 39.809   | 0.388  | 0.104 | -0.031 | 0.395 | -0.068 | -0.114     | 0.002      | 0.174      |
| Hour3    | 40.547   | 0.406  | 0.093 | -0.017 | 0.391 | -0.029 | -0.161     | -0.005     | 0.204      |
| Hour4    | 38.592   | 0.383  | 0.103 | 0.013  | 0.478 | -0.146 | -0.148     | -0.003     | 0.195      |
| Hour5    | 39.213   | 0.355  | 0.120 | 0.041  | 0.420 | -0.028 | -0.106     | -0.028     | 0.089      |
| Hour6    | 43.595   | 0.267  | 0.197 | 0.042  | 0.466 | -0.069 | -0.135     | -0.037     | 0.134      |
| Hour7    | 56.613   | 0.111  | 0.401 | -0.017 | 0.551 | -0.124 | -0.062     | -0.034     | 0.098      |
| Hour8    | 69.669   | -0.001 | 0.503 | -0.035 | 0.602 | -0.227 | -0.032     | -0.017     | 0.259      |
| Hour9    | 81.609   | -0.122 | 0.687 | -0.172 | 0.643 | -0.304 | 0.015      | 0.048      | 0.456      |
| Hour10   | 83.738   | -0.042 | 0.702 | -0.278 | 0.620 | -0.181 | 0.071      | 0.081      | 0.416      |
| Hour11   | 81.383   | 0.008  | 0.765 | -0.390 | 0.669 | -0.161 | 0.026      | 0.095      | 0.385      |
| Hour12   | 81.139   | 0.123  | 0.733 | -0.464 | 0.787 | -0.238 | -0.079     | 0.097      | 0.526      |
| Hour13   | 76.282   | 0.193  | 0.727 | -0.522 | 0.926 | -0.352 | -0.217     | 0.099      | 0.628      |
| Hour14   | 70.131   | 0.344  | 0.593 | -0.534 | 1.012 | -0.431 | -0.356     | 0.094      | 0.703      |
| Hour15   | 65.009   | 0.418  | 0.546 | -0.559 | 0.962 | -0.368 | -0.310     | 0.101      | 0.570      |
| Hour16   | 55.765   | 0.469  | 0.459 | -0.493 | 0.938 | -0.308 | -0.398     | 0.064      | 0.528      |
| Hour17   | 48.880   | 0.478  | 0.427 | -0.442 | 0.871 | -0.225 | -0.317     | 0.032      | 0.372      |
| Hour18   | 44.424   | 0.515  | 0.316 | -0.367 | 0.801 | -0.174 | -0.215     | 0.037      | 0.229      |
| Hour19   | 42.006   | 0.545  | 0.246 | -0.301 | 0.710 | -0.142 | -0.013     | 0.049      | 0.057      |
| Hour20   | 43.093   | 0.513  | 0.323 | -0.319 | 0.622 | -0.081 | -0.039     | 0.037      | 0.087      |
| Hour21   | 43.584   | 0.469  | 0.343 | -0.288 | 0.564 | -0.063 | -0.012     | 0.046      | 0.007      |
| Hour22   | 40.809   | 0.460  | 0.296 | -0.206 | 0.548 | -0.075 | -0.093     | 0.021      | 0.102      |
| Hour23   | 37.425   | 0.448  | 0.235 | -0.141 | 0.537 | -0.124 | -0.163     | 0.006      | 0.197      |
| Hour24   | 36.931   | 0.450  | 0.212 | -0.105 | 0.495 | -0.075 | -0.173     | -0.002     | 0.183      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Other Retail Peak Demand Model Coefficients  
Page 1043 of 1182

| Variable | WkEnd   | MajorHolidays | Monday | TWT    | January | February | March  | April  | May    | June   |
|----------|---------|---------------|--------|--------|---------|----------|--------|--------|--------|--------|
| Hour1    | -0.296  | -0.267        | -0.706 | -0.057 | 1.458   | 0.325    | 1.286  | 0.196  | 2.173  | 2.576  |
| Hour2    | -0.906  | -0.132        | -0.966 | -0.119 | 1.690   | 0.561    | 1.165  | -0.064 | 1.847  | 2.108  |
| Hour3    | -0.752  | 0.147         | -1.155 | -0.055 | 1.434   | 0.296    | 1.013  | -0.183 | 1.678  | 1.606  |
| Hour4    | -0.848  | 0.680         | -0.698 | 0.051  | 1.185   | 0.103    | 0.560  | -0.698 | 0.799  | 0.488  |
| Hour5    | -0.987  | 0.992         | -0.090 | 0.162  | 1.461   | 0.298    | 0.827  | -0.623 | 0.803  | 0.545  |
| Hour6    | -2.821  | 1.273         | 0.317  | 0.296  | 1.748   | 1.125    | 2.186  | 0.189  | 1.417  | 0.661  |
| Hour7    | -7.560  | 2.168         | 1.206  | 1.030  | 2.763   | 3.407    | 4.942  | 3.232  | 4.208  | 2.019  |
| Hour8    | -12.738 | 1.828         | 1.577  | 1.467  | 4.423   | 5.969    | 8.037  | 5.738  | 7.677  | 4.604  |
| Hour9    | -18.919 | 0.968         | 1.558  | 1.692  | 5.296   | 7.714    | 10.425 | 8.154  | 11.163 | 5.718  |
| Hour10   | -20.549 | 0.778         | 1.386  | 1.533  | 5.599   | 8.060    | 10.701 | 8.888  | 12.165 | 6.403  |
| Hour11   | -20.243 | 1.109         | 1.498  | 1.408  | 5.538   | 7.852    | 9.970  | 8.321  | 12.153 | 6.400  |
| Hour12   | -20.534 | 1.092         | 1.585  | 1.529  | 5.746   | 7.881    | 9.878  | 8.139  | 12.217 | 5.833  |
| Hour13   | -19.207 | 0.979         | 1.719  | 1.735  | 5.676   | 7.096    | 8.945  | 7.285  | 11.022 | 4.742  |
| Hour14   | -16.979 | 0.365         | 1.946  | 1.970  | 4.894   | 5.813    | 7.109  | 5.706  | 9.097  | 3.568  |
| Hour15   | -15.142 | 0.203         | 1.981  | 2.073  | 4.331   | 4.743    | 5.533  | 4.333  | 7.626  | 2.610  |
| Hour16   | -11.352 | 0.999         | 1.708  | 1.640  | 3.291   | 3.058    | 3.566  | 2.551  | 5.372  | 1.853  |
| Hour17   | -6.877  | 0.258         | 1.736  | 1.521  | 2.517   | 1.824    | 1.517  | 1.061  | 3.429  | 1.374  |
| Hour18   | -3.882  | -1.207        | 1.688  | 1.954  | 1.399   | -0.433   | -0.753 | -1.264 | 1.278  | -0.151 |
| Hour19   | -2.661  | -2.056        | 1.537  | 2.051  | 1.784   | 0.019    | -0.482 | -0.905 | 1.488  | 0.245  |
| Hour20   | -2.298  | -2.653        | 1.739  | 1.911  | 2.052   | 0.155    | 0.498  | -0.369 | 1.746  | 0.737  |
| Hour21   | -2.180  | -1.954        | 1.595  | 1.624  | 1.774   | 0.242    | 0.855  | 0.539  | 2.174  | 1.078  |
| Hour22   | -1.458  | -1.083        | 1.174  | 1.071  | 1.656   | 0.026    | 0.782  | 0.563  | 2.289  | 2.164  |
| Hour23   | -0.329  | -1.141        | 0.923  | 0.904  | 1.311   | -0.171   | 0.407  | -0.006 | 1.230  | 1.191  |
| Hour24   | 0.118   | -0.828        | 0.787  | 0.950  | 1.072   | -0.156   | 0.714  | 0.206  | 1.537  | 1.618  |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Other Retail Peak Demand Model Coefficients      Page 1044 of 1182

| Variable | July  | August | September | October | November | December | HLight | DST    |
|----------|-------|--------|-----------|---------|----------|----------|--------|--------|
| Hour1    | 3.742 | 3.971  | 1.632     | -1.416  | -1.680   | 0.000    | -0.971 | -1.745 |
| Hour2    | 3.453 | 3.402  | 1.172     | -1.578  | -1.814   | 0.000    | -0.874 | -1.704 |
| Hour3    | 2.915 | 2.585  | 0.348     | -2.589  | -2.268   | 0.000    | -0.972 | -1.425 |
| Hour4    | 1.689 | 1.426  | -0.589    | -2.989  | -2.396   | 0.000    | -0.821 | -1.496 |
| Hour5    | 1.539 | 1.592  | -0.568    | -3.042  | -2.237   | 0.000    | -0.881 | -1.319 |
| Hour6    | 1.631 | 2.488  | 0.455     | -2.372  | -1.861   | 0.000    | -1.106 | -1.442 |
| Hour7    | 2.698 | 4.968  | 3.066     | -0.706  | -1.216   | 0.000    | -1.926 | -1.578 |
| Hour8    | 4.606 | 7.570  | 5.151     | 0.959   | -0.122   | 0.000    | -2.750 | -0.640 |
| Hour9    | 5.832 | 10.829 | 8.866     | 3.514   | 1.449    | 0.000    | -3.333 | -0.386 |
| Hour10   | 6.347 | 12.292 | 10.237    | 4.371   | 1.729    | 0.000    | -3.409 | -0.176 |
| Hour11   | 6.556 | 12.686 | 10.728    | 4.529   | 1.290    | 0.000    | -3.175 | -0.552 |
| Hour12   | 6.322 | 13.189 | 11.400    | 4.822   | 1.239    | 0.000    | -3.092 | -0.424 |
| Hour13   | 5.303 | 12.246 | 11.177    | 4.952   | 1.006    | 0.000    | -2.711 | -0.452 |
| Hour14   | 4.384 | 11.309 | 10.243    | 4.653   | 0.425    | 0.000    | -2.219 | -0.776 |
| Hour15   | 3.506 | 10.236 | 9.311     | 4.329   | 0.264    | 0.000    | -1.845 | -0.774 |
| Hour16   | 2.859 | 8.664  | 7.708     | 3.625   | -0.588   | 0.000    | -1.234 | -1.331 |
| Hour17   | 2.364 | 6.901  | 5.512     | 2.277   | -0.946   | 0.000    | -0.974 | -1.246 |
| Hour18   | 1.068 | 4.821  | 3.573     | 0.379   | -1.749   | 0.000    | -0.776 | -1.552 |
| Hour19   | 1.654 | 4.676  | 3.520     | 0.755   | -1.578   | 0.000    | -0.686 | -2.394 |
| Hour20   | 2.168 | 4.737  | 4.005     | 1.746   | -1.660   | 0.000    | -0.775 | -2.537 |
| Hour21   | 2.438 | 4.950  | 3.865     | 0.735   | -1.461   | 0.000    | -0.909 | -1.565 |
| Hour22   | 3.345 | 4.787  | 2.882     | 0.144   | -1.706   | 0.000    | -0.741 | -1.826 |
| Hour23   | 2.246 | 3.294  | 1.537     | -0.586  | -2.053   | 0.000    | -0.562 | -1.836 |
| Hour24   | 2.559 | 3.242  | 1.476     | -0.632  | -1.749   | 0.000    | -0.615 | -1.952 |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Other Retail Peak Demand Model Standard Errors      Page 1045 of 1182

| Variable | Constant | HDD50 | HDD55 | HDD65 | CDD65 | CDD70 | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|-------|-------|-------|-------|-------|------------|------------|------------|
| Hour1    | 3.004    | 0.090 | 0.123 | 0.054 | 0.103 | 0.138 | 0.145      | 0.020      | 0.209      |
| Hour2    | 3.097    | 0.092 | 0.126 | 0.056 | 0.106 | 0.142 | 0.149      | 0.021      | 0.216      |
| Hour3    | 3.104    | 0.093 | 0.127 | 0.056 | 0.106 | 0.142 | 0.150      | 0.021      | 0.216      |
| Hour4    | 3.129    | 0.093 | 0.128 | 0.056 | 0.107 | 0.143 | 0.151      | 0.021      | 0.218      |
| Hour5    | 3.161    | 0.094 | 0.129 | 0.057 | 0.108 | 0.145 | 0.152      | 0.021      | 0.220      |
| Hour6    | 3.113    | 0.093 | 0.127 | 0.056 | 0.106 | 0.143 | 0.150      | 0.021      | 0.217      |
| Hour7    | 3.829    | 0.114 | 0.156 | 0.069 | 0.131 | 0.175 | 0.185      | 0.025      | 0.267      |
| Hour8    | 4.743    | 0.142 | 0.194 | 0.085 | 0.162 | 0.217 | 0.229      | 0.031      | 0.330      |
| Hour9    | 5.862    | 0.175 | 0.239 | 0.105 | 0.200 | 0.268 | 0.283      | 0.039      | 0.408      |
| Hour10   | 5.827    | 0.174 | 0.238 | 0.105 | 0.199 | 0.267 | 0.281      | 0.039      | 0.406      |
| Hour11   | 5.593    | 0.167 | 0.228 | 0.101 | 0.191 | 0.256 | 0.270      | 0.037      | 0.390      |
| Hour12   | 5.963    | 0.178 | 0.243 | 0.107 | 0.204 | 0.273 | 0.287      | 0.040      | 0.415      |
| Hour13   | 5.743    | 0.171 | 0.234 | 0.103 | 0.196 | 0.263 | 0.277      | 0.038      | 0.400      |
| Hour14   | 5.155    | 0.154 | 0.210 | 0.093 | 0.176 | 0.236 | 0.249      | 0.034      | 0.359      |
| Hour15   | 4.812    | 0.144 | 0.196 | 0.087 | 0.165 | 0.220 | 0.232      | 0.032      | 0.335      |
| Hour16   | 4.114    | 0.123 | 0.168 | 0.074 | 0.141 | 0.188 | 0.198      | 0.027      | 0.287      |
| Hour17   | 3.645    | 0.109 | 0.149 | 0.066 | 0.125 | 0.167 | 0.176      | 0.024      | 0.254      |
| Hour18   | 3.255    | 0.097 | 0.133 | 0.059 | 0.111 | 0.149 | 0.157      | 0.022      | 0.227      |
| Hour19   | 3.138    | 0.094 | 0.128 | 0.056 | 0.107 | 0.144 | 0.151      | 0.021      | 0.219      |
| Hour20   | 3.189    | 0.095 | 0.130 | 0.057 | 0.109 | 0.146 | 0.154      | 0.021      | 0.222      |
| Hour21   | 2.977    | 0.089 | 0.121 | 0.054 | 0.102 | 0.136 | 0.144      | 0.020      | 0.207      |
| Hour22   | 2.707    | 0.081 | 0.110 | 0.049 | 0.093 | 0.124 | 0.130      | 0.018      | 0.189      |
| Hour23   | 2.418    | 0.072 | 0.099 | 0.043 | 0.083 | 0.111 | 0.117      | 0.016      | 0.168      |
| Hour24   | 2.346    | 0.070 | 0.096 | 0.042 | 0.080 | 0.107 | 0.113      | 0.016      | 0.163      |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Volume A - Public Version  
Other Retail Peak Demand Model Standard Errors  
Page 1046 of 1182

| Variable | WkEnd | MajorHolidays | Monday | TWT   | January | February | March | April | May   | June  | July  |
|----------|-------|---------------|--------|-------|---------|----------|-------|-------|-------|-------|-------|
| Hour1    | 0.486 | 0.704         | 0.308  | 0.250 | 0.411   | 0.572    | 0.855 | 1.197 | 1.468 | 1.614 | 1.531 |
| Hour2    | 0.501 | 0.726         | 0.317  | 0.258 | 0.424   | 0.590    | 0.882 | 1.234 | 1.514 | 1.664 | 1.579 |
| Hour3    | 0.502 | 0.727         | 0.318  | 0.259 | 0.425   | 0.591    | 0.884 | 1.236 | 1.517 | 1.668 | 1.582 |
| Hour4    | 0.506 | 0.733         | 0.321  | 0.261 | 0.428   | 0.596    | 0.891 | 1.247 | 1.529 | 1.681 | 1.595 |
| Hour5    | 0.511 | 0.741         | 0.324  | 0.263 | 0.433   | 0.602    | 0.900 | 1.259 | 1.545 | 1.698 | 1.611 |
| Hour6    | 0.503 | 0.730         | 0.319  | 0.259 | 0.426   | 0.593    | 0.887 | 1.240 | 1.522 | 1.673 | 1.587 |
| Hour7    | 0.619 | 0.897         | 0.392  | 0.319 | 0.524   | 0.729    | 1.090 | 1.525 | 1.871 | 2.057 | 1.952 |
| Hour8    | 0.767 | 1.111         | 0.486  | 0.395 | 0.649   | 0.903    | 1.351 | 1.890 | 2.318 | 2.548 | 2.418 |
| Hour9    | 0.948 | 1.374         | 0.601  | 0.488 | 0.803   | 1.116    | 1.669 | 2.335 | 2.865 | 3.150 | 2.988 |
| Hour10   | 0.942 | 1.366         | 0.597  | 0.485 | 0.798   | 1.109    | 1.659 | 2.322 | 2.848 | 3.131 | 2.971 |
| Hour11   | 0.904 | 1.311         | 0.573  | 0.466 | 0.766   | 1.065    | 1.593 | 2.228 | 2.733 | 3.005 | 2.851 |
| Hour12   | 0.964 | 1.397         | 0.611  | 0.497 | 0.816   | 1.135    | 1.698 | 2.375 | 2.914 | 3.204 | 3.040 |
| Hour13   | 0.928 | 1.346         | 0.588  | 0.478 | 0.786   | 1.093    | 1.635 | 2.288 | 2.807 | 3.086 | 2.928 |
| Hour14   | 0.833 | 1.208         | 0.528  | 0.429 | 0.706   | 0.981    | 1.468 | 2.054 | 2.520 | 2.770 | 2.628 |
| Hour15   | 0.778 | 1.128         | 0.493  | 0.401 | 0.659   | 0.916    | 1.370 | 1.917 | 2.352 | 2.586 | 2.453 |
| Hour16   | 0.665 | 0.964         | 0.422  | 0.343 | 0.563   | 0.783    | 1.172 | 1.639 | 2.011 | 2.211 | 2.097 |
| Hour17   | 0.589 | 0.854         | 0.373  | 0.304 | 0.499   | 0.694    | 1.038 | 1.452 | 1.782 | 1.959 | 1.858 |
| Hour18   | 0.526 | 0.763         | 0.333  | 0.271 | 0.446   | 0.620    | 0.927 | 1.297 | 1.591 | 1.749 | 1.659 |
| Hour19   | 0.507 | 0.735         | 0.322  | 0.261 | 0.430   | 0.597    | 0.894 | 1.250 | 1.534 | 1.686 | 1.600 |
| Hour20   | 0.515 | 0.747         | 0.327  | 0.266 | 0.437   | 0.607    | 0.908 | 1.270 | 1.558 | 1.713 | 1.625 |
| Hour21   | 0.481 | 0.698         | 0.305  | 0.248 | 0.408   | 0.567    | 0.848 | 1.186 | 1.455 | 1.600 | 1.518 |
| Hour22   | 0.438 | 0.634         | 0.277  | 0.225 | 0.371   | 0.515    | 0.771 | 1.078 | 1.323 | 1.454 | 1.380 |
| Hour23   | 0.391 | 0.567         | 0.248  | 0.201 | 0.331   | 0.460    | 0.689 | 0.963 | 1.182 | 1.299 | 1.233 |
| Hour24   | 0.379 | 0.550         | 0.240  | 0.195 | 0.321   | 0.447    | 0.668 | 0.935 | 1.146 | 1.260 | 1.196 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company Volume A - Public Version  
 Other Retail Peak Demand Model Standard Errors Page 1047 of 1182

| Variable | August | September | October | November | December | HLight | DST   |
|----------|--------|-----------|---------|----------|----------|--------|-------|
| Hour1    | 1.278  | 0.982     | 0.748   | 0.440    | 0.000    | 0.308  | 0.571 |
| Hour2    | 1.317  | 1.013     | 0.772   | 0.453    | 0.000    | 0.318  | 0.589 |
| Hour3    | 1.320  | 1.015     | 0.773   | 0.454    | 0.000    | 0.318  | 0.590 |
| Hour4    | 1.331  | 1.023     | 0.779   | 0.458    | 0.000    | 0.321  | 0.595 |
| Hour5    | 1.344  | 1.034     | 0.787   | 0.463    | 0.000    | 0.324  | 0.601 |
| Hour6    | 1.324  | 1.018     | 0.775   | 0.456    | 0.000    | 0.319  | 0.592 |
| Hour7    | 1.629  | 1.252     | 0.954   | 0.561    | 0.000    | 0.393  | 0.728 |
| Hour8    | 2.017  | 1.551     | 1.181   | 0.694    | 0.000    | 0.487  | 0.901 |
| Hour9    | 2.493  | 1.917     | 1.460   | 0.858    | 0.000    | 0.601  | 1.114 |
| Hour10   | 2.479  | 1.906     | 1.452   | 0.853    | 0.000    | 0.598  | 1.107 |
| Hour11   | 2.379  | 1.829     | 1.393   | 0.819    | 0.000    | 0.574  | 1.063 |
| Hour12   | 2.536  | 1.950     | 1.485   | 0.873    | 0.000    | 0.612  | 1.133 |
| Hour13   | 2.443  | 1.878     | 1.431   | 0.841    | 0.000    | 0.589  | 1.091 |
| Hour14   | 2.193  | 1.686     | 1.284   | 0.755    | 0.000    | 0.529  | 0.980 |
| Hour15   | 2.047  | 1.574     | 1.199   | 0.705    | 0.000    | 0.494  | 0.915 |
| Hour16   | 1.750  | 1.346     | 1.025   | 0.602    | 0.000    | 0.422  | 0.782 |
| Hour17   | 1.551  | 1.192     | 0.908   | 0.534    | 0.000    | 0.374  | 0.693 |
| Hour18   | 1.384  | 1.064     | 0.811   | 0.477    | 0.000    | 0.334  | 0.619 |
| Hour19   | 1.335  | 1.026     | 0.782   | 0.459    | 0.000    | 0.322  | 0.596 |
| Hour20   | 1.356  | 1.043     | 0.794   | 0.467    | 0.000    | 0.327  | 0.606 |
| Hour21   | 1.266  | 0.974     | 0.742   | 0.436    | 0.000    | 0.305  | 0.566 |
| Hour22   | 1.151  | 0.885     | 0.674   | 0.396    | 0.000    | 0.278  | 0.514 |
| Hour23   | 1.029  | 0.791     | 0.602   | 0.354    | 0.000    | 0.248  | 0.460 |
| Hour24   | 0.998  | 0.767     | 0.584   | 0.343    | 0.000    | 0.241  | 0.446 |

KPSC Case No. 2023-00092

Kentucky Power Company     Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Other Retail Peak Demand Model t-Statistics     Page 1048 of 1182

| Variable | Constant | HDD50  | HDD55 | HDD65  | CDD65 | CDD70  | CDD65WkEnd | HDD65WkEnd | CDD70WkEnd |
|----------|----------|--------|-------|--------|-------|--------|------------|------------|------------|
| Hour1    | 13.727   | 4.965  | 0.173 | -0.258 | 4.446 | -0.949 | -1.694     | -0.721     | 1.564      |
| Hour2    | 12.852   | 4.197  | 0.826 | -0.553 | 3.730 | -0.481 | -0.764     | 0.101      | 0.808      |
| Hour3    | 13.064   | 4.377  | 0.733 | -0.302 | 3.687 | -0.205 | -1.075     | -0.257     | 0.942      |
| Hour4    | 12.333   | 4.097  | 0.807 | 0.227  | 4.471 | -1.017 | -0.978     | -0.148     | 0.895      |
| Hour5    | 12.407   | 3.764  | 0.933 | 0.726  | 3.888 | -0.194 | -0.693     | -1.329     | 0.405      |
| Hour6    | 14.004   | 2.870  | 1.547 | 0.757  | 4.376 | -0.482 | -0.898     | -1.786     | 0.616      |
| Hour7    | 14.786   | 0.968  | 2.564 | -0.246 | 4.213 | -0.710 | -0.335     | -1.320     | 0.366      |
| Hour8    | 14.689   | -0.010 | 2.598 | -0.411 | 3.713 | -1.045 | -0.139     | -0.551     | 0.784      |
| Hour9    | 13.921   | -0.697 | 2.871 | -1.632 | 3.209 | -1.133 | 0.052      | 1.226      | 1.116      |
| Hour10   | 14.370   | -0.244 | 2.951 | -2.650 | 3.111 | -0.678 | 0.252      | 2.087      | 1.025      |
| Hour11   | 14.552   | 0.050  | 3.350 | -3.878 | 3.499 | -0.628 | 0.096      | 2.570      | 0.989      |
| Hour12   | 13.608   | 0.689  | 3.014 | -4.325 | 3.859 | -0.870 | -0.275     | 2.462      | 1.267      |
| Hour13   | 13.283   | 1.128  | 3.100 | -5.059 | 4.718 | -1.340 | -0.784     | 2.601      | 1.571      |
| Hour14   | 13.604   | 2.237  | 2.816 | -5.765 | 5.743 | -1.825 | -1.434     | 2.746      | 1.958      |
| Hour15   | 13.509   | 2.909  | 2.778 | -6.460 | 5.850 | -1.670 | -1.338     | 3.160      | 1.699      |
| Hour16   | 13.554   | 3.820  | 2.732 | -6.660 | 6.669 | -1.632 | -2.008     | 2.358      | 1.841      |
| Hour17   | 13.408   | 4.388  | 2.870 | -6.743 | 6.990 | -1.349 | -1.805     | 1.328      | 1.464      |
| Hour18   | 13.649   | 5.304  | 2.379 | -6.262 | 7.199 | -1.168 | -1.369     | 1.698      | 1.010      |
| Hour19   | 13.385   | 5.817  | 1.919 | -5.327 | 6.620 | -0.990 | -0.089     | 2.367      | 0.263      |
| Hour20   | 13.515   | 5.391  | 2.485 | -5.569 | 5.703 | -0.556 | -0.252     | 1.732      | 0.392      |
| Hour21   | 14.639   | 5.275  | 2.821 | -5.378 | 5.536 | -0.461 | -0.081     | 2.351      | 0.032      |
| Hour22   | 15.078   | 5.693  | 2.676 | -4.238 | 5.926 | -0.607 | -0.710     | 1.182      | 0.543      |
| Hour23   | 15.476   | 6.211  | 2.384 | -3.241 | 6.490 | -1.117 | -1.399     | 0.380      | 1.171      |
| Hour24   | 15.744   | 6.418  | 2.211 | -2.487 | 6.167 | -0.702 | -1.526     | -0.151     | 1.122      |

KPSC Case No. 2023-00092

Kentucky Power Company      Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version

Other Retail Peak Demand Model t-Statistics      Page 1049 of 1182

| Variable | WkEnd   | MajorHolidays | Monday | TWT    | January | February | March  | April  | May   | June   | July  |
|----------|---------|---------------|--------|--------|---------|----------|--------|--------|-------|--------|-------|
| Hour1    | -0.609  | -0.380        | -2.294 | -0.227 | 3.545   | 0.568    | 1.504  | 0.164  | 1.480 | 1.596  | 2.444 |
| Hour2    | -1.809  | -0.182        | -3.043 | -0.463 | 3.985   | 0.951    | 1.321  | -0.052 | 1.220 | 1.267  | 2.187 |
| Hour3    | -1.499  | 0.202         | -3.634 | -0.214 | 3.374   | 0.501    | 1.146  | -0.148 | 1.106 | 0.963  | 1.842 |
| Hour4    | -1.677  | 0.928         | -2.178 | 0.196  | 2.766   | 0.173    | 0.628  | -0.560 | 0.522 | 0.290  | 1.059 |
| Hour5    | -1.932  | 1.340         | -0.277 | 0.617  | 3.377   | 0.496    | 0.919  | -0.495 | 0.520 | 0.321  | 0.955 |
| Hour6    | -5.605  | 1.744         | 0.994  | 1.143  | 4.102   | 1.899    | 2.466  | 0.153  | 0.931 | 0.395  | 1.028 |
| Hour7    | -12.213 | 2.416         | 3.074  | 3.231  | 5.271   | 4.674    | 4.533  | 2.119  | 2.249 | 0.981  | 1.382 |
| Hour8    | -16.613 | 1.644         | 3.245  | 3.714  | 6.812   | 6.611    | 5.951  | 3.037  | 3.312 | 1.807  | 1.905 |
| Hour9    | -19.963 | 0.705         | 2.594  | 3.466  | 6.599   | 6.912    | 6.245  | 3.491  | 3.896 | 1.815  | 1.951 |
| Hour10   | -21.814 | 0.570         | 2.321  | 3.157  | 7.019   | 7.266    | 6.448  | 3.829  | 4.271 | 2.045  | 2.137 |
| Hour11   | -22.390 | 0.846         | 2.614  | 3.023  | 7.234   | 7.374    | 6.260  | 3.735  | 4.446 | 2.130  | 2.300 |
| Hour12   | -21.302 | 0.781         | 2.594  | 3.079  | 7.040   | 6.942    | 5.818  | 3.426  | 4.192 | 1.821  | 2.080 |
| Hour13   | -20.688 | 0.727         | 2.922  | 3.627  | 7.220   | 6.490    | 5.470  | 3.184  | 3.927 | 1.537  | 1.811 |
| Hour14   | -20.373 | 0.302         | 3.685  | 4.588  | 6.935   | 5.923    | 4.842  | 2.778  | 3.610 | 1.288  | 1.668 |
| Hour15   | -19.463 | 0.180         | 4.018  | 5.170  | 6.574   | 5.177    | 4.038  | 2.260  | 3.242 | 1.009  | 1.429 |
| Hour16   | -17.067 | 1.037         | 4.052  | 4.785  | 5.843   | 3.904    | 3.043  | 1.556  | 2.672 | 0.838  | 1.363 |
| Hour17   | -11.670 | 0.302         | 4.648  | 5.009  | 5.043   | 2.629    | 1.461  | 0.730  | 1.924 | 0.702  | 1.272 |
| Hour18   | -7.377  | -1.582        | 5.062  | 7.208  | 3.140   | -0.699   | -0.813 | -0.975 | 0.803 | -0.086 | 0.644 |
| Hour19   | -5.245  | -2.795        | 4.781  | 7.846  | 4.153   | 0.032    | -0.539 | -0.724 | 0.970 | 0.145  | 1.034 |
| Hour20   | -4.459  | -3.551        | 5.322  | 7.195  | 4.702   | 0.256    | 0.548  | -0.290 | 1.120 | 0.430  | 1.334 |
| Hour21   | -4.530  | -2.800        | 5.227  | 6.549  | 4.352   | 0.428    | 1.009  | 0.454  | 1.494 | 0.674  | 1.606 |
| Hour22   | -3.333  | -1.707        | 4.233  | 4.749  | 4.469   | 0.050    | 1.015  | 0.522  | 1.730 | 1.488  | 2.424 |
| Hour23   | -0.842  | -2.013        | 3.725  | 4.486  | 3.959   | -0.371   | 0.591  | -0.007 | 1.040 | 0.917  | 1.822 |
| Hour24   | 0.312   | -1.507        | 3.274  | 4.860  | 3.339   | -0.349   | 1.068  | 0.221  | 1.341 | 1.284  | 2.140 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
Kentucky Power Company  
Other Retail Peak Demand Model t-Statistics

Volume A - Public Version  
Page 1050 of 1182

| Variable | August | September | October | November | December | HLight | DST    |
|----------|--------|-----------|---------|----------|----------|--------|--------|
| Hour1    | 3.108  | 1.661     | -1.893  | -3.820   | 0.000    | -3.152 | -3.056 |
| Hour2    | 2.582  | 1.157     | -2.046  | -3.999   | 0.000    | -2.752 | -2.895 |
| Hour3    | 1.959  | 0.343     | -3.349  | -4.992   | 0.000    | -3.051 | -2.416 |
| Hour4    | 1.071  | -0.575    | -3.834  | -5.231   | 0.000    | -2.558 | -2.516 |
| Hour5    | 1.185  | -0.550    | -3.864  | -4.835   | 0.000    | -2.716 | -2.196 |
| Hour6    | 1.879  | 0.447     | -3.059  | -4.082   | 0.000    | -3.462 | -2.437 |
| Hour7    | 3.051  | 2.448     | -0.740  | -2.169   | 0.000    | -4.904 | -2.168 |
| Hour8    | 3.752  | 3.321     | 0.812   | -0.176   | 0.000    | -5.651 | -0.710 |
| Hour9    | 4.343  | 4.625     | 2.406   | 1.688    | 0.000    | -5.543 | -0.347 |
| Hour10   | 4.959  | 5.372     | 3.012   | 2.026    | 0.000    | -5.702 | -0.159 |
| Hour11   | 5.333  | 5.866     | 3.251   | 1.575    | 0.000    | -5.533 | -0.519 |
| Hour12   | 5.200  | 5.846     | 3.246   | 1.419    | 0.000    | -5.055 | -0.374 |
| Hour13   | 5.013  | 5.951     | 3.462   | 1.197    | 0.000    | -4.601 | -0.414 |
| Hour14   | 5.158  | 6.075     | 3.624   | 0.563    | 0.000    | -4.196 | -0.792 |
| Hour15   | 5.001  | 5.916     | 3.611   | 0.374    | 0.000    | -3.737 | -0.846 |
| Hour16   | 4.951  | 5.728     | 3.537   | -0.976   | 0.000    | -2.923 | -1.702 |
| Hour17   | 4.451  | 4.623     | 2.508   | -1.772   | 0.000    | -2.604 | -1.799 |
| Hour18   | 3.483  | 3.357     | 0.468   | -3.669   | 0.000    | -2.324 | -2.510 |
| Hour19   | 3.503  | 3.429     | 0.966   | -3.433   | 0.000    | -2.129 | -4.014 |
| Hour20   | 3.493  | 3.840     | 2.198   | -3.557   | 0.000    | -2.369 | -4.187 |
| Hour21   | 3.909  | 3.969     | 0.992   | -3.351   | 0.000    | -2.977 | -2.765 |
| Hour22   | 4.158  | 3.256     | 0.214   | -4.306   | 0.000    | -2.668 | -3.550 |
| Hour23   | 3.202  | 1.943     | -0.972  | -5.800   | 0.000    | -2.267 | -3.995 |
| Hour24   | 3.249  | 1.924     | -1.081  | -5.092   | 0.000    | -2.557 | -4.378 |

KPSC Case No. 2023-00092

Kentucky Power 2022 Integrated Resource Plan  
 Kentucky Power Company  
 Volume A - Public Version  
 Other Retail Peak Demand Model Statistics  
 Page 1051 of 1182

| Hour   | Obs  | DF   | AdjRSq | DW    | StdErr | MAD   | MAPE   | FObs | FMAD  | FMAPE | FAvgErr |
|--------|------|------|--------|-------|--------|-------|--------|------|-------|-------|---------|
| Hour1  | 1461 | 1434 | 0.655  | 1.095 | 3.130  | 2.354 | 7.28%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour2  | 1461 | 1434 | 0.660  | 1.111 | 3.227  | 2.419 | 7.67%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour3  | 1461 | 1434 | 0.684  | 1.156 | 3.234  | 2.423 | 7.75%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour4  | 1461 | 1434 | 0.699  | 1.132 | 3.260  | 2.449 | 7.84%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour5  | 1461 | 1434 | 0.717  | 1.108 | 3.293  | 2.429 | 7.63%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour6  | 1461 | 1434 | 0.751  | 1.126 | 3.244  | 2.434 | 7.22%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour7  | 1461 | 1434 | 0.766  | 1.030 | 3.989  | 3.063 | 8.33%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour8  | 1461 | 1434 | 0.765  | 0.955 | 4.942  | 3.831 | 9.48%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour9  | 1461 | 1434 | 0.749  | 0.873 | 6.108  | 4.804 | 10.92% | 0    | 0.000 | 0.00% | 0.000   |
| Hour10 | 1461 | 1434 | 0.755  | 0.857 | 6.072  | 4.799 | 10.74% | 0    | 0.000 | 0.00% | 0.000   |
| Hour11 | 1461 | 1434 | 0.760  | 0.857 | 5.827  | 4.600 | 10.36% | 0    | 0.000 | 0.00% | 0.000   |
| Hour12 | 1461 | 1434 | 0.743  | 0.826 | 6.213  | 4.923 | 10.97% | 0    | 0.000 | 0.00% | 0.000   |
| Hour13 | 1461 | 1434 | 0.745  | 0.778 | 5.984  | 4.760 | 10.69% | 0    | 0.000 | 0.00% | 0.000   |
| Hour14 | 1461 | 1434 | 0.763  | 0.764 | 5.372  | 4.224 | 9.70%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour15 | 1461 | 1434 | 0.763  | 0.750 | 5.014  | 3.945 | 9.23%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour16 | 1461 | 1434 | 0.768  | 0.776 | 4.287  | 3.391 | 8.31%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour17 | 1461 | 1434 | 0.742  | 0.762 | 3.798  | 2.997 | 7.93%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour18 | 1461 | 1434 | 0.739  | 0.872 | 3.391  | 2.655 | 7.49%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour19 | 1461 | 1434 | 0.724  | 0.849 | 3.270  | 2.571 | 7.41%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour20 | 1461 | 1434 | 0.710  | 0.796 | 3.322  | 2.627 | 7.51%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour21 | 1461 | 1434 | 0.716  | 0.806 | 3.102  | 2.459 | 6.99%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour22 | 1461 | 1434 | 0.748  | 0.862 | 2.820  | 2.223 | 6.40%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour23 | 1461 | 1434 | 0.773  | 0.977 | 2.520  | 1.986 | 5.94%  | 0    | 0.000 | 0.00% | 0.000   |
| Hour24 | 1461 | 1434 | 0.789  | 1.032 | 2.444  | 1.920 | 5.86%  | 0    | 0.000 | 0.00% | 0.000   |

**Exhibit I** – Load Forecast Model Details and Input Data

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1053 of 1182

LONG-TERM WHOLESALE

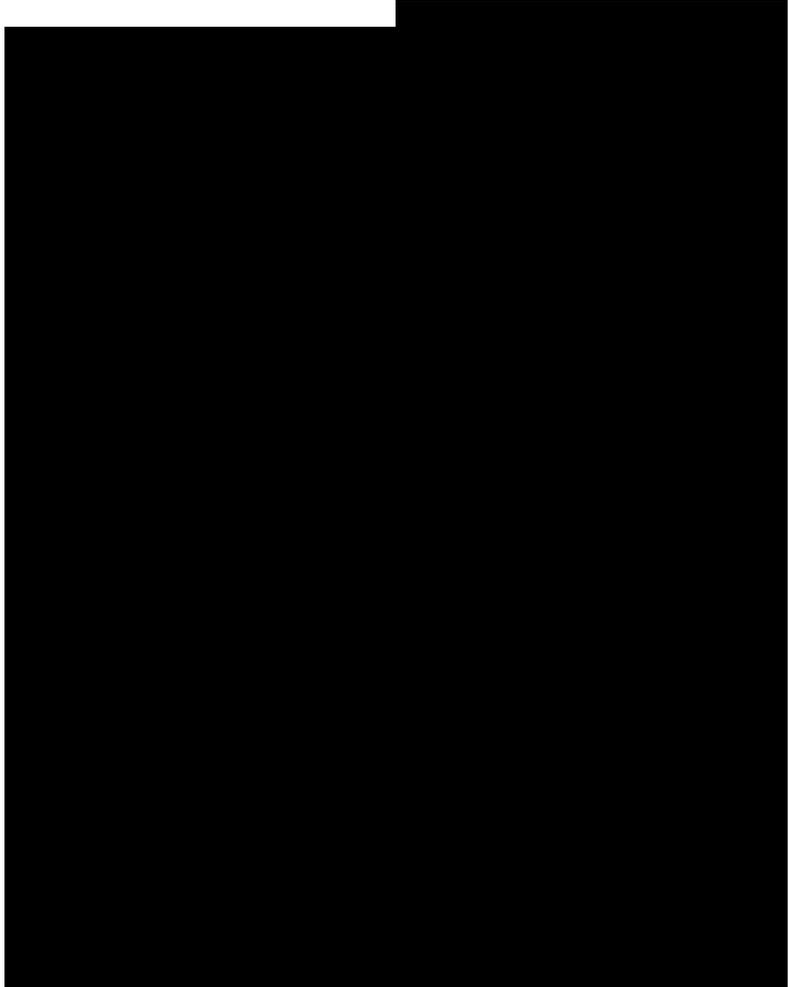
Kentucky Power Company  
Municipal Energy Sales-Vanceburg  
Endogenous Variable

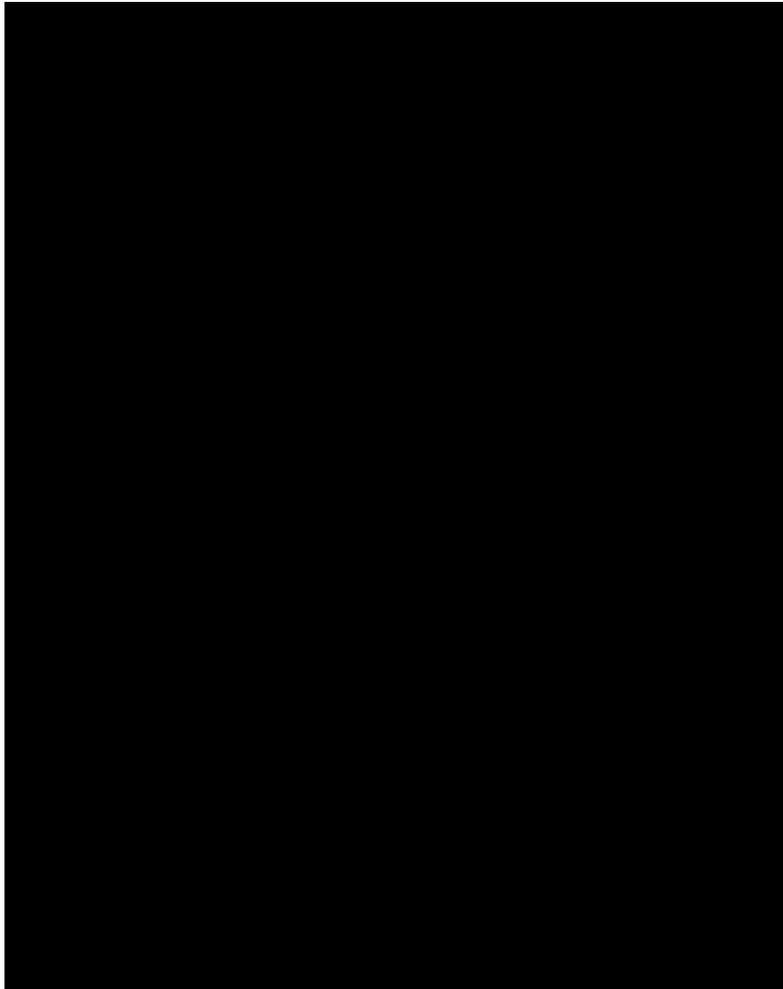
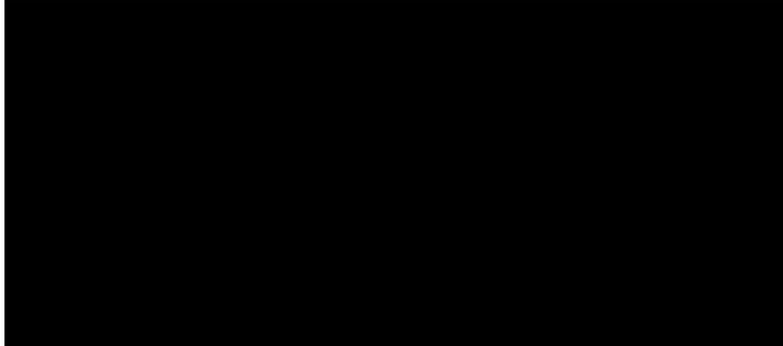
The MEANS Procedure

| Variable | Label        | Mean       |
|----------|--------------|------------|
| YEAR     | YEAR         | 2031.00    |
| MONTH    | MONTH        | 6.5000000  |
| KWH      | Energy (kWh) | 5463528.14 |

Kentucky Power Company  
Municipal Energy Sales-Vanceburg  
Endogenous Variable

Obs YEAR MONTH KWH





[REDACTED]

[REDACTED]

[REDACTED]

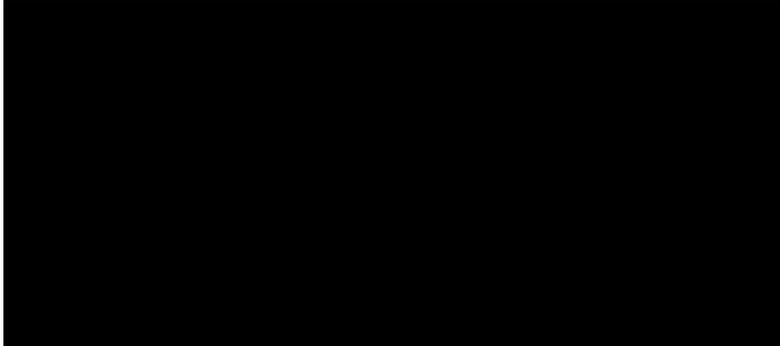
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



|     |      |    |   |
|-----|------|----|---|
| 206 | 2022 | 2  | . |
| 207 | 2022 | 3  | . |
| 208 | 2022 | 4  | . |
| 209 | 2022 | 5  | . |
| 210 | 2022 | 6  | . |
| 211 | 2022 | 7  | . |
| 212 | 2022 | 8  | . |
| 213 | 2022 | 9  | . |
| 214 | 2022 | 10 | . |
| 215 | 2022 | 11 | . |
| 216 | 2022 | 12 | . |
| 217 | 2023 | 1  | . |
| 218 | 2023 | 2  | . |
| 219 | 2023 | 3  | . |
| 220 | 2023 | 4  | . |
| 221 | 2023 | 5  | . |
| 222 | 2023 | 6  | . |
| 223 | 2023 | 7  | . |
| 224 | 2023 | 8  | . |
| 225 | 2023 | 9  | . |
| 226 | 2023 | 10 | . |
| 227 | 2023 | 11 | . |
| 228 | 2023 | 12 | . |
| 229 | 2024 | 1  | . |
| 230 | 2024 | 2  | . |
| 231 | 2024 | 3  | . |
| 232 | 2024 | 4  | . |
| 233 | 2024 | 5  | . |
| 234 | 2024 | 6  | . |
| 235 | 2024 | 7  | . |
| 236 | 2024 | 8  | . |
| 237 | 2024 | 9  | . |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1059 of 1182

|     |      |    |   |
|-----|------|----|---|
| 238 | 2024 | 10 | . |
| 239 | 2024 | 11 | . |
| 240 | 2024 | 12 | . |
| 241 | 2025 | 1  | . |
| 242 | 2025 | 2  | . |
| 243 | 2025 | 3  | . |
| 244 | 2025 | 4  | . |
| 245 | 2025 | 5  | . |
| 246 | 2025 | 6  | . |
| 247 | 2025 | 7  | . |
| 248 | 2025 | 8  | . |
| 249 | 2025 | 9  | . |
| 250 | 2025 | 10 | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 251 | 2025 | 11    | .   |
| 252 | 2025 | 12    | .   |
| 253 | 2026 | 1     | .   |
| 254 | 2026 | 2     | .   |
| 255 | 2026 | 3     | .   |
| 256 | 2026 | 4     | .   |
| 257 | 2026 | 5     | .   |
| 258 | 2026 | 6     | .   |
| 259 | 2026 | 7     | .   |
| 260 | 2026 | 8     | .   |
| 261 | 2026 | 9     | .   |
| 262 | 2026 | 10    | .   |
| 263 | 2026 | 11    | .   |
| 264 | 2026 | 12    | .   |
| 265 | 2027 | 1     | .   |
| 266 | 2027 | 2     | .   |
| 267 | 2027 | 3     | .   |
| 268 | 2027 | 4     | .   |
| 269 | 2027 | 5     | .   |
| 270 | 2027 | 6     | .   |
| 271 | 2027 | 7     | .   |
| 272 | 2027 | 8     | .   |
| 273 | 2027 | 9     | .   |
| 274 | 2027 | 10    | .   |
| 275 | 2027 | 11    | .   |
| 276 | 2027 | 12    | .   |
| 277 | 2028 | 1     | .   |
| 278 | 2028 | 2     | .   |
| 279 | 2028 | 3     | .   |
| 280 | 2028 | 4     | .   |
| 281 | 2028 | 5     | .   |
| 282 | 2028 | 6     | .   |
| 283 | 2028 | 7     | .   |
| 284 | 2028 | 8     | .   |
| 285 | 2028 | 9     | .   |
| 286 | 2028 | 10    | .   |
| 287 | 2028 | 11    | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1060 of 1182

|     |      |    |   |
|-----|------|----|---|
| 288 | 2028 | 12 | . |
| 289 | 2029 | 1  | . |
| 290 | 2029 | 2  | . |
| 291 | 2029 | 3  | . |
| 292 | 2029 | 4  | . |
| 293 | 2029 | 5  | . |
| 294 | 2029 | 6  | . |
| 295 | 2029 | 7  | . |
| 296 | 2029 | 8  | . |
| 297 | 2029 | 9  | . |
| 298 | 2029 | 10 | . |
| 299 | 2029 | 11 | . |
| 300 | 2029 | 12 | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 301 | 2030 | 1     | .   |
| 302 | 2030 | 2     | .   |
| 303 | 2030 | 3     | .   |
| 304 | 2030 | 4     | .   |
| 305 | 2030 | 5     | .   |
| 306 | 2030 | 6     | .   |
| 307 | 2030 | 7     | .   |
| 308 | 2030 | 8     | .   |
| 309 | 2030 | 9     | .   |
| 310 | 2030 | 10    | .   |
| 311 | 2030 | 11    | .   |
| 312 | 2030 | 12    | .   |
| 313 | 2031 | 1     | .   |
| 314 | 2031 | 2     | .   |
| 315 | 2031 | 3     | .   |
| 316 | 2031 | 4     | .   |
| 317 | 2031 | 5     | .   |
| 318 | 2031 | 6     | .   |
| 319 | 2031 | 7     | .   |
| 320 | 2031 | 8     | .   |
| 321 | 2031 | 9     | .   |
| 322 | 2031 | 10    | .   |
| 323 | 2031 | 11    | .   |
| 324 | 2031 | 12    | .   |
| 325 | 2032 | 1     | .   |
| 326 | 2032 | 2     | .   |
| 327 | 2032 | 3     | .   |
| 328 | 2032 | 4     | .   |
| 329 | 2032 | 5     | .   |
| 330 | 2032 | 6     | .   |
| 331 | 2032 | 7     | .   |
| 332 | 2032 | 8     | .   |
| 333 | 2032 | 9     | .   |
| 334 | 2032 | 10    | .   |
| 335 | 2032 | 11    | .   |
| 336 | 2032 | 12    | .   |
| 337 | 2033 | 1     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1061 of 1182

|     |      |    |   |
|-----|------|----|---|
| 338 | 2033 | 2  | . |
| 339 | 2033 | 3  | . |
| 340 | 2033 | 4  | . |
| 341 | 2033 | 5  | . |
| 342 | 2033 | 6  | . |
| 343 | 2033 | 7  | . |
| 344 | 2033 | 8  | . |
| 345 | 2033 | 9  | . |
| 346 | 2033 | 10 | . |
| 347 | 2033 | 11 | . |
| 348 | 2033 | 12 | . |
| 349 | 2034 | 1  | . |
| 350 | 2034 | 2  | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 351 | 2034 | 3     | .   |
| 352 | 2034 | 4     | .   |
| 353 | 2034 | 5     | .   |
| 354 | 2034 | 6     | .   |
| 355 | 2034 | 7     | .   |
| 356 | 2034 | 8     | .   |
| 357 | 2034 | 9     | .   |
| 358 | 2034 | 10    | .   |
| 359 | 2034 | 11    | .   |
| 360 | 2034 | 12    | .   |
| 361 | 2035 | 1     | .   |
| 362 | 2035 | 2     | .   |
| 363 | 2035 | 3     | .   |
| 364 | 2035 | 4     | .   |
| 365 | 2035 | 5     | .   |
| 366 | 2035 | 6     | .   |
| 367 | 2035 | 7     | .   |
| 368 | 2035 | 8     | .   |
| 369 | 2035 | 9     | .   |
| 370 | 2035 | 10    | .   |
| 371 | 2035 | 11    | .   |
| 372 | 2035 | 12    | .   |
| 373 | 2036 | 1     | .   |
| 374 | 2036 | 2     | .   |
| 375 | 2036 | 3     | .   |
| 376 | 2036 | 4     | .   |
| 377 | 2036 | 5     | .   |
| 378 | 2036 | 6     | .   |
| 379 | 2036 | 7     | .   |
| 380 | 2036 | 8     | .   |
| 381 | 2036 | 9     | .   |
| 382 | 2036 | 10    | .   |
| 383 | 2036 | 11    | .   |
| 384 | 2036 | 12    | .   |
| 385 | 2037 | 1     | .   |
| 386 | 2037 | 2     | .   |
| 387 | 2037 | 3     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1062 of 1182

|     |      |    |   |
|-----|------|----|---|
| 388 | 2037 | 4  | . |
| 389 | 2037 | 5  | . |
| 390 | 2037 | 6  | . |
| 391 | 2037 | 7  | . |
| 392 | 2037 | 8  | . |
| 393 | 2037 | 9  | . |
| 394 | 2037 | 10 | . |
| 395 | 2037 | 11 | . |
| 396 | 2037 | 12 | . |
| 397 | 2038 | 1  | . |
| 398 | 2038 | 2  | . |
| 399 | 2038 | 3  | . |
| 400 | 2038 | 4  | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 401 | 2038 | 5     | .   |
| 402 | 2038 | 6     | .   |
| 403 | 2038 | 7     | .   |
| 404 | 2038 | 8     | .   |
| 405 | 2038 | 9     | .   |
| 406 | 2038 | 10    | .   |
| 407 | 2038 | 11    | .   |
| 408 | 2038 | 12    | .   |
| 409 | 2039 | 1     | .   |
| 410 | 2039 | 2     | .   |
| 411 | 2039 | 3     | .   |
| 412 | 2039 | 4     | .   |
| 413 | 2039 | 5     | .   |
| 414 | 2039 | 6     | .   |
| 415 | 2039 | 7     | .   |
| 416 | 2039 | 8     | .   |
| 417 | 2039 | 9     | .   |
| 418 | 2039 | 10    | .   |
| 419 | 2039 | 11    | .   |
| 420 | 2039 | 12    | .   |
| 421 | 2040 | 1     | .   |
| 422 | 2040 | 2     | .   |
| 423 | 2040 | 3     | .   |
| 424 | 2040 | 4     | .   |
| 425 | 2040 | 5     | .   |
| 426 | 2040 | 6     | .   |
| 427 | 2040 | 7     | .   |
| 428 | 2040 | 8     | .   |
| 429 | 2040 | 9     | .   |
| 430 | 2040 | 10    | .   |
| 431 | 2040 | 11    | .   |
| 432 | 2040 | 12    | .   |
| 433 | 2041 | 1     | .   |
| 434 | 2041 | 2     | .   |
| 435 | 2041 | 3     | .   |
| 436 | 2041 | 4     | .   |
| 437 | 2041 | 5     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1063 of 1182

|     |      |    |   |
|-----|------|----|---|
| 438 | 2041 | 6  | . |
| 439 | 2041 | 7  | . |
| 440 | 2041 | 8  | . |
| 441 | 2041 | 9  | . |
| 442 | 2041 | 10 | . |
| 443 | 2041 | 11 | . |
| 444 | 2041 | 12 | . |
| 445 | 2042 | 1  | . |
| 446 | 2042 | 2  | . |
| 447 | 2042 | 3  | . |
| 448 | 2042 | 4  | . |
| 449 | 2042 | 5  | . |
| 450 | 2042 | 6  | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 451 | 2042 | 7     | .   |
| 452 | 2042 | 8     | .   |
| 453 | 2042 | 9     | .   |
| 454 | 2042 | 10    | .   |
| 455 | 2042 | 11    | .   |
| 456 | 2042 | 12    | .   |
| 457 | 2043 | 1     | .   |
| 458 | 2043 | 2     | .   |
| 459 | 2043 | 3     | .   |
| 460 | 2043 | 4     | .   |
| 461 | 2043 | 5     | .   |
| 462 | 2043 | 6     | .   |
| 463 | 2043 | 7     | .   |
| 464 | 2043 | 8     | .   |
| 465 | 2043 | 9     | .   |
| 466 | 2043 | 10    | .   |
| 467 | 2043 | 11    | .   |
| 468 | 2043 | 12    | .   |
| 469 | 2044 | 1     | .   |
| 470 | 2044 | 2     | .   |
| 471 | 2044 | 3     | .   |
| 472 | 2044 | 4     | .   |
| 473 | 2044 | 5     | .   |
| 474 | 2044 | 6     | .   |
| 475 | 2044 | 7     | .   |
| 476 | 2044 | 8     | .   |
| 477 | 2044 | 9     | .   |
| 478 | 2044 | 10    | .   |
| 479 | 2044 | 11    | .   |
| 480 | 2044 | 12    | .   |
| 481 | 2045 | 1     | .   |
| 482 | 2045 | 2     | .   |
| 483 | 2045 | 3     | .   |
| 484 | 2045 | 4     | .   |
| 485 | 2045 | 5     | .   |
| 486 | 2045 | 6     | .   |
| 487 | 2045 | 7     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1064 of 1182

|     |      |    |   |
|-----|------|----|---|
| 488 | 2045 | 8  | . |
| 489 | 2045 | 9  | . |
| 490 | 2045 | 10 | . |
| 491 | 2045 | 11 | . |
| 492 | 2045 | 12 | . |
| 493 | 2046 | 1  | . |
| 494 | 2046 | 2  | . |
| 495 | 2046 | 3  | . |
| 496 | 2046 | 4  | . |
| 497 | 2046 | 5  | . |
| 498 | 2046 | 6  | . |
| 499 | 2046 | 7  | . |
| 500 | 2046 | 8  | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 501 | 2046 | 9     | .   |
| 502 | 2046 | 10    | .   |
| 503 | 2046 | 11    | .   |
| 504 | 2046 | 12    | .   |
| 505 | 2047 | 1     | .   |
| 506 | 2047 | 2     | .   |
| 507 | 2047 | 3     | .   |
| 508 | 2047 | 4     | .   |
| 509 | 2047 | 5     | .   |
| 510 | 2047 | 6     | .   |
| 511 | 2047 | 7     | .   |
| 512 | 2047 | 8     | .   |
| 513 | 2047 | 9     | .   |
| 514 | 2047 | 10    | .   |
| 515 | 2047 | 11    | .   |
| 516 | 2047 | 12    | .   |
| 517 | 2048 | 1     | .   |
| 518 | 2048 | 2     | .   |
| 519 | 2048 | 3     | .   |
| 520 | 2048 | 4     | .   |
| 521 | 2048 | 5     | .   |
| 522 | 2048 | 6     | .   |
| 523 | 2048 | 7     | .   |
| 524 | 2048 | 8     | .   |
| 525 | 2048 | 9     | .   |
| 526 | 2048 | 10    | .   |
| 527 | 2048 | 11    | .   |
| 528 | 2048 | 12    | .   |
| 529 | 2049 | 1     | .   |
| 530 | 2049 | 2     | .   |
| 531 | 2049 | 3     | .   |
| 532 | 2049 | 4     | .   |
| 533 | 2049 | 5     | .   |
| 534 | 2049 | 6     | .   |
| 535 | 2049 | 7     | .   |
| 536 | 2049 | 8     | .   |
| 537 | 2049 | 9     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1065 of 1182

|     |      |    |   |
|-----|------|----|---|
| 538 | 2049 | 10 | . |
| 539 | 2049 | 11 | . |
| 540 | 2049 | 12 | . |
| 541 | 2050 | 1  | . |
| 542 | 2050 | 2  | . |
| 543 | 2050 | 3  | . |
| 544 | 2050 | 4  | . |
| 545 | 2050 | 5  | . |
| 546 | 2050 | 6  | . |
| 547 | 2050 | 7  | . |
| 548 | 2050 | 8  | . |
| 549 | 2050 | 9  | . |
| 550 | 2050 | 10 | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 551 | 2050 | 11    | .   |
| 552 | 2050 | 12    | .   |
| 553 | 2051 | 1     | .   |
| 554 | 2051 | 2     | .   |
| 555 | 2051 | 3     | .   |
| 556 | 2051 | 4     | .   |
| 557 | 2051 | 5     | .   |
| 558 | 2051 | 6     | .   |
| 559 | 2051 | 7     | .   |
| 560 | 2051 | 8     | .   |
| 561 | 2051 | 9     | .   |
| 562 | 2051 | 10    | .   |
| 563 | 2051 | 11    | .   |
| 564 | 2051 | 12    | .   |
| 565 | 2052 | 1     | .   |
| 566 | 2052 | 2     | .   |
| 567 | 2052 | 3     | .   |
| 568 | 2052 | 4     | .   |
| 569 | 2052 | 5     | .   |
| 570 | 2052 | 6     | .   |
| 571 | 2052 | 7     | .   |
| 572 | 2052 | 8     | .   |
| 573 | 2052 | 9     | .   |
| 574 | 2052 | 10    | .   |
| 575 | 2052 | 11    | .   |
| 576 | 2052 | 12    | .   |
| 577 | 2053 | 1     | .   |
| 578 | 2053 | 2     | .   |
| 579 | 2053 | 3     | .   |
| 580 | 2053 | 4     | .   |
| 581 | 2053 | 5     | .   |
| 582 | 2053 | 6     | .   |
| 583 | 2053 | 7     | .   |
| 584 | 2053 | 8     | .   |
| 585 | 2053 | 9     | .   |
| 586 | 2053 | 10    | .   |
| 587 | 2053 | 11    | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1066 of 1182

|     |      |    |   |
|-----|------|----|---|
| 588 | 2053 | 12 | . |
| 589 | 2054 | 1  | . |
| 590 | 2054 | 2  | . |
| 591 | 2054 | 3  | . |
| 592 | 2054 | 4  | . |
| 593 | 2054 | 5  | . |
| 594 | 2054 | 6  | . |
| 595 | 2054 | 7  | . |
| 596 | 2054 | 8  | . |
| 597 | 2054 | 9  | . |
| 598 | 2054 | 10 | . |
| 599 | 2054 | 11 | . |
| 600 | 2054 | 12 | . |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Endogenous Variable

| Obs | YEAR | MONTH | KWH |
|-----|------|-------|-----|
| 601 | 2055 | 1     | .   |
| 602 | 2055 | 2     | .   |
| 603 | 2055 | 3     | .   |
| 604 | 2055 | 4     | .   |
| 605 | 2055 | 5     | .   |
| 606 | 2055 | 6     | .   |
| 607 | 2055 | 7     | .   |
| 608 | 2055 | 8     | .   |
| 609 | 2055 | 9     | .   |
| 610 | 2055 | 10    | .   |
| 611 | 2055 | 11    | .   |
| 612 | 2055 | 12    | .   |
| 613 | 2056 | 1     | .   |
| 614 | 2056 | 2     | .   |
| 615 | 2056 | 3     | .   |
| 616 | 2056 | 4     | .   |
| 617 | 2056 | 5     | .   |
| 618 | 2056 | 6     | .   |
| 619 | 2056 | 7     | .   |
| 620 | 2056 | 8     | .   |
| 621 | 2056 | 9     | .   |
| 622 | 2056 | 10    | .   |
| 623 | 2056 | 11    | .   |
| 624 | 2056 | 12    | .   |
| 625 | 2057 | 1     | .   |
| 626 | 2057 | 2     | .   |
| 627 | 2057 | 3     | .   |
| 628 | 2057 | 4     | .   |
| 629 | 2057 | 5     | .   |
| 630 | 2057 | 6     | .   |
| 631 | 2057 | 7     | .   |
| 632 | 2057 | 8     | .   |
| 633 | 2057 | 9     | .   |
| 634 | 2057 | 10    | .   |
| 635 | 2057 | 11    | .   |
| 636 | 2057 | 12    | .   |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1067 of 1182

Kentucky Power Company  
Municipal Energy Sales-Vanceburg  
Exogenous Variables

The MEANS Procedure

| Variable | Label                            | Mean        |
|----------|----------------------------------|-------------|
| YEAR     | YEAR                             | 2031.00     |
| MONTH    | MONTH                            | 6.5000000   |
| bcdd65   | Cooling Degree Days (Base 65)    | 100.7709292 |
| bhdd55   | Heating Degree Days (Base 55)    | 203.3490090 |
| N_kpc    | Service Area Population          | 374.8189895 |
| d1       | Binary Variable-January          | 0.0833333   |
| d2       | Binary Variable-February         | 0.0833333   |
| d3       | Binary Variable-March            | 0.0833333   |
| d4       | Binary Variable-April            | 0.0833333   |
| d5       | Binary Variable-May              | 0.0833333   |
| d6       | Binary Variable-June             | 0.0833333   |
| d7       | Binary Variable-July             | 0.0833333   |
| d8       | Binary Variable-August           | 0.0833333   |
| d9       | Binary Variable-September        | 0.0833333   |
| d10      | Binary Variable-October          | 0.0833333   |
| d11      | Binary Variable-November         | 0.0833333   |
| d16on    | Binary Variable-2016 On          | 0.7924528   |
| dec18on  | Binary Variable-December 2018 On | 0.7374214   |
| mar18on  | Binary Variable-March 2018 On    | 0.7515723   |

Kentucky Power Company  
Municipal Energy Sales-Vanceburg  
Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 1   | 2005 | 1     | 0.000   | 487.844 | 433.855 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 2   | 2005 | 2     | 0.000   | 585.563 | 433.846 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 3   | 2005 | 3     | 0.000   | 499.739 | 433.834 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 4   | 2005 | 4     | 5.858   | 232.271 | 433.825 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 5   | 2005 | 5     | 21.566  | 67.104  | 433.811 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 6   | 2005 | 6     | 125.880 | 9.147   | 433.796 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 7   | 2005 | 7     | 358.446 | 0.000   | 433.771 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 8   | 2005 | 8     | 457.310 | 0.000   | 433.738 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 0       |
| 9   | 2005 | 9     | 344.668 | 0.000   | 433.702 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 0       |
| 10  | 2005 | 10    | 158.737 | 5.711   | 433.655 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 0       |
| 11  | 2005 | 11    | 9.998   | 143.944 | 433.605 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0       | 0       |
| 12  | 2005 | 12    | 1.473   | 488.547 | 433.551 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 13  | 2006 | 1     | 0.000   | 487.778 | 433.496 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 14  | 2006 | 2     | 0.000   | 415.045 | 433.439 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 15  | 2006 | 3     | 1.374   | 469.910 | 433.380 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 16  | 2006 | 4     | 16.559  | 244.167 | 433.321 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 17  | 2006 | 5     | 27.833  | 19.979  | 433.260 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 18  | 2006 | 6     | 105.312 | 3.862   | 433.202 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 19  | 2006 | 7     | 260.187 | 0.000   | 433.146 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 20  | 2006 | 8     | 410.153 | 0.000   | 433.089 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 0       |
| 21  | 2006 | 9     | 260.776 | 0.916   | 433.036 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 0       |
| 22  | 2006 | 10    | 36.767  | 37.978  | 432.985 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 0       |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1069 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 73  | 2011 | 1  | 0.000   | 776.485 | 430.126 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74  | 2011 | 2  | 0.000   | 708.579 | 430.072 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75  | 2011 | 3  | 1.587   | 368.182 | 430.002 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76  | 2011 | 4  | 15.299  | 236.640 | 429.914 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77  | 2011 | 5  | 45.947  | 45.882  | 429.807 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78  | 2011 | 6  | 172.056 | 14.776  | 429.677 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79  | 2011 | 7  | 268.761 | 0.000   | 429.525 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80  | 2011 | 8  | 397.766 | 0.000   | 429.344 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 81  | 2011 | 9  | 237.851 | 0.164   | 429.143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 82  | 2011 | 10 | 42.413  | 28.815  | 428.925 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 83  | 2011 | 11 | 0.982   | 144.190 | 428.688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 84  | 2011 | 12 | 1.473   | 263.279 | 428.439 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 85  | 2012 | 1  | 0.000   | 454.234 | 428.172 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86  | 2012 | 2  | 0.000   | 472.904 | 427.907 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 87  | 2012 | 3  | 8.787   | 339.498 | 427.638 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 88  | 2012 | 4  | 36.620  | 71.457  | 427.361 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 89  | 2012 | 5  | 53.245  | 48.483  | 427.081 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90  | 2012 | 6  | 157.493 | 0.245   | 426.807 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 91  | 2012 | 7  | 352.571 | 0.000   | 426.533 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 92  | 2012 | 8  | 346.844 | 0.000   | 426.266 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 93  | 2012 | 9  | 244.511 | 0.589   | 426.005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 94  | 2012 | 10 | 58.841  | 39.156  | 425.752 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 95  | 2012 | 11 | 7.560   | 203.440 | 425.499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 96  | 2012 | 12 | 0.000   | 332.134 | 425.255 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 97  | 2013 | 1  | 0.000   | 510.326 | 425.005 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 98  | 2013 | 2  | 0.000   | 598.326 | 424.772 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 99  | 2013 | 3  | 0.000   | 516.659 | 424.540 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 2013 | 4  | 17.345  | 337.878 | 424.300 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 101 | 2013 | 5     | 46.782  | 41.071  | 424.063 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 102 | 2013 | 6     | 171.516 | 7.183   | 423.825 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 103 | 2013 | 7     | 299.179 | 0.000   | 423.584 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 104 | 2013 | 8     | 279.544 | 0.000   | 423.342 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 0       |
| 105 | 2013 | 9     | 241.353 | 0.000   | 423.098 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 0       |
| 106 | 2013 | 10    | 95.527  | 9.981   | 422.857 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 0       |
| 107 | 2013 | 11    | 13.761  | 167.622 | 422.611 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0       | 0       |
| 108 | 2013 | 12    | 0.409   | 453.056 | 422.361 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 109 | 2014 | 1     | 0.785   | 604.086 | 422.106 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 110 | 2014 | 2     | 0.000   | 802.093 | 421.861 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 111 | 2014 | 3     | 0.000   | 572.702 | 421.608 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 112 | 2014 | 4     | 6.202   | 279.969 | 421.345 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 113 | 2014 | 5     | 33.495  | 34.362  | 421.077 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 114 | 2014 | 6     | 129.349 | 9.490   | 420.805 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 115 | 2014 | 7     | 273.440 | 0.000   | 420.527 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 116 | 2014 | 8     | 193.999 | 0.000   | 420.240 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 0       |
| 117 | 2014 | 9     | 225.350 | 0.000   | 419.950 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 0       |
| 118 | 2014 | 10    | 57.139  | 17.230  | 419.657 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 0       |
| 119 | 2014 | 11    | 5.351   | 193.328 | 419.358 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0       | 0       |
| 120 | 2014 | 12    | 0.016   | 466.834 | 419.057 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 121 | 2015 | 1     | 0.000   | 574.452 | 418.742 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |
| 122 | 2015 | 2     | 0.000   | 717.939 | 418.443 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 0       |

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1070 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 123 | 2015 | 3  | 0.000   | 754.199 | 418.136 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 124 | 2015 | 4  | 4.696   | 212.636 | 417.818 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 125 | 2015 | 5  | 51.314  | 52.443  | 417.497 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 126 | 2015 | 6  | 188.370 | 1.784   | 417.173 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 127 | 2015 | 7  | 267.697 | 0.000   | 416.842 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 128 | 2015 | 8  | 284.273 | 0.000   | 416.502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 129 | 2015 | 9  | 216.743 | 0.000   | 416.166 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 130 | 2015 | 10 | 68.708  | 17.508  | 415.820 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 131 | 2015 | 11 | 4.745   | 101.106 | 415.468 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 132 | 2015 | 12 | 0.982   | 248.782 | 415.100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 133 | 2016 | 1  | 0.000   | 410.005 | 414.716 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 134 | 2016 | 2  | 0.000   | 684.951 | 414.326 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 135 | 2016 | 3  | 1.227   | 385.837 | 413.925 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 136 | 2016 | 4  | 9.114   | 138.365 | 413.498 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 137 | 2016 | 5  | 48.205  | 46.127  | 413.048 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 138 | 2016 | 6  | 163.285 | 10.800  | 412.576 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 139 | 2016 | 7  | 304.072 | 0.000   | 412.080 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 140 | 2016 | 8  | 406.716 | 0.000   | 411.553 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 141 | 2016 | 9  | 374.252 | 0.000   | 411.022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 142 | 2016 | 10 | 179.174 | 1.800   | 410.478 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 143 | 2016 | 11 | 43.231  | 59.496  | 409.932 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 144 | 2016 | 12 | 1.784   | 349.086 | 409.389 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 145 | 2017 | 1  | 0.000   | 470.515 | 408.847 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 146 | 2017 | 2  | 0.000   | 392.104 | 408.347 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 147 | 2017 | 3  | 0.589   | 307.884 | 407.863 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 148 | 2017 | 4  | 13.925  | 190.497 | 407.392 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 149 | 2017 | 5  | 73.584  | 26.001  | 406.956 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 150 | 2017 | 6  | 138.414 | 6.267   | 406.560 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |

Kentucky Power Company  
Municipal Energy Sales-Vanceburg  
Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 151 | 2017 | 7     | 276.762 | 0.000   | 406.208 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 0       | 0       |
| 152 | 2017 | 8     | 295.694 | 0.000   | 405.900 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 0       | 0       |
| 153 | 2017 | 9     | 176.278 | 0.000   | 405.628 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 0       | 0       |
| 154 | 2017 | 10    | 129.987 | 3.420   | 405.382 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 0       | 0       |
| 155 | 2017 | 11    | 23.644  | 138.610 | 405.159 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 0       | 0       |
| 156 | 2017 | 12    | 0.884   | 372.551 | 404.941 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 0       |
| 157 | 2018 | 1     | 1.833   | 739.930 | 404.721 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 0       |
| 158 | 2018 | 2     | 3.093   | 599.929 | 404.499 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 0       |
| 159 | 2018 | 3     | 6.218   | 334.376 | 404.261 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 1       |
| 160 | 2018 | 4     | 7.167   | 321.367 | 403.986 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 1       |
| 161 | 2018 | 5     | 77.920  | 78.935  | 403.676 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 1       |
| 162 | 2018 | 6     | 262.363 | 1.064   | 403.321 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 0       | 1       |
| 163 | 2018 | 7     | 349.839 | 0.000   | 402.907 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 0       | 1       |
| 164 | 2018 | 8     | 319.404 | 0.000   | 402.435 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 0       | 1       |
| 165 | 2018 | 9     | 323.511 | 0.000   | 401.930 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 0       | 1       |
| 166 | 2018 | 10    | 202.638 | 20.028  | 401.406 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 0       | 1       |
| 167 | 2018 | 11    | 29.617  | 193.999 | 400.864 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 0       | 1       |
| 168 | 2018 | 12    | 0.164   | 447.035 | 400.334 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 169 | 2019 | 1     | 0.000   | 455.478 | 399.821 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 170 | 2019 | 2     | 0.000   | 566.009 | 399.360 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 171 | 2019 | 3     | 0.851   | 444.155 | 398.949 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 172 | 2019 | 4     | 9.981   | 224.074 | 398.586 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1071 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 173 | 2019 | 5  | 63.357  | 20.225  | 398.307 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 174 | 2019 | 6  | 175.868 | 0.311   | 398.119 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 175 | 2019 | 7  | 305.414 | 0.000   | 398.043 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 176 | 2019 | 8  | 355.026 | 0.000   | 398.070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 177 | 2019 | 9  | 297.428 | 0.000   | 398.190 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 178 | 2019 | 10 | 233.859 | 7.478   | 398.379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 179 | 2019 | 11 | 19.668  | 172.514 | 398.617 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 180 | 2019 | 12 | 0.000   | 416.812 | 398.886 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 181 | 2020 | 1  | 1.833   | 371.880 | 399.174 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 182 | 2020 | 2  | 1.833   | 458.701 | 399.445 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 183 | 2020 | 3  | 0.131   | 381.125 | 399.686 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 184 | 2020 | 4  | 17.803  | 138.234 | 399.889 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 185 | 2020 | 5  | 21.959  | 108.061 | 400.028 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 186 | 2020 | 6  | 165.936 | 29.175  | 400.082 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 187 | 2020 | 7  | 312.957 | 0.000   | 400.032 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 188 | 2020 | 8  | 397.095 | 0.000   | 399.877 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 189 | 2020 | 9  | 287.725 | 0.000   | 399.630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 190 | 2020 | 10 | 69.199  | 12.812  | 399.307 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 191 | 2020 | 11 | 12.076  | 88.294  | 398.920 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 192 | 2020 | 12 | 1.145   | 327.913 | 398.482 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 193 | 2021 | 1  | 0.000   | 542.381 | 398.006 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 194 | 2021 | 2  | 0.000   | 661.045 | 397.533 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 195 | 2021 | 3  | 0.295   | 515.464 | 397.058 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 196 | 2021 | 4  | 7.691   | 140.230 | 396.572 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 197 | 2021 | 5  | 29.879  | 71.833  | 396.111 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 198 | 2021 | 6  | 143.568 | 9.163   | 395.690 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 199 | 2021 | 7  | 280.607 | 0.327   | 395.321 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 200 | 2021 | 8  | 322.136 | 0.000   | 395.003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 201 | 2021 | 9     | 309.717 | 0.000   | 394.738 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 202 | 2021 | 10    | 132.474 | 1.407   | 394.519 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 203 | 2021 | 11    | 32.873  | 116.929 | 394.337 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 204 | 2021 | 12    | 0.000   | 331.234 | 394.186 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 205 | 2022 | 1     | 0.000   | 388.161 | 394.052 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 206 | 2022 | 2     | 0.194   | 619.348 | 393.945 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 207 | 2022 | 3     | 1.218   | 458.542 | 393.845 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 208 | 2022 | 4     | 13.514  | 221.499 | 393.746 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 209 | 2022 | 5     | 45.555  | 53.061  | 393.642 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 210 | 2022 | 6     | 141.661 | 7.071   | 393.527 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 211 | 2022 | 7     | 288.276 | 0.024   | 393.397 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 212 | 2022 | 8     | 327.892 | 0.000   | 393.242 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 213 | 2022 | 9     | 263.024 | 0.103   | 393.071 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 214 | 2022 | 10    | 94.798  | 17.102  | 392.885 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 215 | 2022 | 11    | 12.599  | 143.253 | 392.693 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 216 | 2022 | 12    | 0.899   | 376.241 | 392.483 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 217 | 2023 | 1     | 0.249   | 551.193 | 392.267 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 218 | 2023 | 2     | 0.194   | 619.348 | 392.054 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 219 | 2023 | 3     | 1.218   | 458.542 | 391.837 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 220 | 2023 | 4     | 13.514  | 221.499 | 391.615 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 221 | 2023 | 5     | 45.555  | 53.061  | 391.394 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 222 | 2023 | 6     | 141.661 | 7.071   | 391.178 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1072 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 223 | 2023 | 7  | 288.276 | 0.024   | 390.967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |   |
| 224 | 2023 | 8  | 327.892 | 0.000   | 390.760 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 225 | 2023 | 9  | 263.024 | 0.103   | 390.564 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 226 | 2023 | 10 | 94.798  | 17.102  | 390.375 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 227 | 2023 | 11 | 12.599  | 143.253 | 390.187 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 228 | 2023 | 12 | 0.899   | 376.241 | 390.008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 229 | 2024 | 1  | 0.249   | 551.193 | 389.826 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 230 | 2024 | 2  | 0.194   | 619.348 | 389.653 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 231 | 2024 | 3  | 1.218   | 458.542 | 389.483 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 232 | 2024 | 4  | 13.514  | 221.499 | 389.309 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 233 | 2024 | 5  | 45.555  | 53.061  | 389.132 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 234 | 2024 | 6  | 141.661 | 7.071   | 388.957 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 235 | 2024 | 7  | 288.276 | 0.024   | 388.777 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 236 | 2024 | 8  | 327.892 | 0.000   | 388.594 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 237 | 2024 | 9  | 263.024 | 0.103   | 388.411 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 238 | 2024 | 10 | 94.798  | 17.102  | 388.226 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 239 | 2024 | 11 | 12.599  | 143.253 | 388.040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 240 | 2024 | 12 | 0.899   | 376.241 | 387.851 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 241 | 2025 | 1  | 0.249   | 551.193 | 387.660 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 242 | 2025 | 2  | 0.194   | 619.348 | 387.473 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 243 | 2025 | 3  | 1.218   | 458.542 | 387.291 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 244 | 2025 | 4  | 13.514  | 221.499 | 387.101 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 245 | 2025 | 5  | 45.555  | 53.061  | 386.909 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 246 | 2025 | 6  | 141.661 | 7.071   | 386.722 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 247 | 2025 | 7  | 288.276 | 0.024   | 386.535 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 248 | 2025 | 8  | 327.892 | 0.000   | 386.340 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 249 | 2025 | 9  | 263.024 | 0.103   | 386.153 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 250 | 2025 | 10 | 94.798  | 17.102  | 385.967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bccd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 251 | 2025 | 11    | 12.599  | 143.253 | 385.781 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 252 | 2025 | 12    | 0.899   | 376.241 | 385.597 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 253 | 2026 | 1     | 0.249   | 551.193 | 385.410 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 254 | 2026 | 2     | 0.194   | 619.348 | 385.232 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 255 | 2026 | 3     | 1.218   | 458.542 | 385.056 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 256 | 2026 | 4     | 13.514  | 221.499 | 384.871 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 257 | 2026 | 5     | 45.555  | 53.061  | 384.690 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 258 | 2026 | 6     | 141.661 | 7.071   | 384.510 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 259 | 2026 | 7     | 288.276 | 0.024   | 384.326 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 260 | 2026 | 8     | 327.892 | 0.000   | 384.143 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 1       | 1       |
| 261 | 2026 | 9     | 263.024 | 0.103   | 383.960 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 1       | 1       |
| 262 | 2026 | 10    | 94.798  | 17.102  | 383.777 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 1       | 1       |
| 263 | 2026 | 11    | 12.599  | 143.253 | 383.599 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 264 | 2026 | 12    | 0.899   | 376.241 | 383.415 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 265 | 2027 | 1     | 0.249   | 551.193 | 383.230 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 266 | 2027 | 2     | 0.194   | 619.348 | 383.054 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 267 | 2027 | 3     | 1.218   | 458.542 | 382.878 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 268 | 2027 | 4     | 13.514  | 221.499 | 382.695 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 269 | 2027 | 5     | 45.555  | 53.061  | 382.511 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 270 | 2027 | 6     | 141.661 | 7.071   | 382.325 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 271 | 2027 | 7     | 288.276 | 0.024   | 382.142 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 1       |
| 272 | 2027 | 8     | 327.892 | 0.000   | 381.950 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1073 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 273 | 2027 | 9  | 263.024 | 0.103   | 381.765 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 274 | 2027 | 10 | 94.798  | 17.102  | 381.579 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 275 | 2027 | 11 | 12.599  | 143.253 | 381.391 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 276 | 2027 | 12 | 0.899   | 376.241 | 381.202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 277 | 2028 | 1  | 0.249   | 551.193 | 381.013 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 278 | 2028 | 2  | 0.194   | 619.348 | 380.826 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 279 | 2028 | 3  | 1.218   | 458.542 | 380.643 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 280 | 2028 | 4  | 13.514  | 221.499 | 380.455 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 281 | 2028 | 5  | 45.555  | 53.061  | 380.267 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 282 | 2028 | 6  | 141.661 | 7.071   | 380.078 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 283 | 2028 | 7  | 288.276 | 0.024   | 379.892 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 284 | 2028 | 8  | 327.892 | 0.000   | 379.700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 285 | 2028 | 9  | 263.024 | 0.103   | 379.514 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 286 | 2028 | 10 | 94.798  | 17.102  | 379.326 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 287 | 2028 | 11 | 12.599  | 143.253 | 379.139 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 288 | 2028 | 12 | 0.899   | 376.241 | 378.953 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 289 | 2029 | 1  | 0.249   | 551.193 | 378.762 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 290 | 2029 | 2  | 0.194   | 619.348 | 378.581 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 291 | 2029 | 3  | 1.218   | 458.542 | 378.401 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 292 | 2029 | 4  | 13.514  | 221.499 | 378.214 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 293 | 2029 | 5  | 45.555  | 53.061  | 378.028 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 294 | 2029 | 6  | 141.661 | 7.071   | 377.839 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 295 | 2029 | 7  | 288.276 | 0.024   | 377.652 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 296 | 2029 | 8  | 327.892 | 0.000   | 377.461 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 297 | 2029 | 9  | 263.024 | 0.103   | 377.274 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 298 | 2029 | 10 | 94.798  | 17.102  | 377.088 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 299 | 2029 | 11 | 12.599  | 143.253 | 376.899 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 300 | 2029 | 12 | 0.899   | 376.241 | 376.712 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 301 | 2030 | 1     | 0.249   | 551.193 | 376.522 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 302 | 2030 | 2     | 0.194   | 619.348 | 376.340 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 303 | 2030 | 3     | 1.218   | 458.542 | 376.159 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 304 | 2030 | 4     | 13.514  | 221.499 | 375.972 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 305 | 2030 | 5     | 45.555  | 53.061  | 375.783 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 306 | 2030 | 6     | 141.661 | 7.071   | 375.599 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 307 | 2030 | 7     | 288.276 | 0.024   | 375.413 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 308 | 2030 | 8     | 327.892 | 0.000   | 375.221 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 309 | 2030 | 9     | 263.024 | 0.103   | 375.033 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 310 | 2030 | 10    | 94.798  | 17.102  | 374.849 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 311 | 2030 | 11    | 12.599  | 143.253 | 374.662 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 312 | 2030 | 12    | 0.899   | 376.241 | 374.475 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 313 | 2031 | 1     | 0.249   | 551.193 | 374.287 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 314 | 2031 | 2     | 0.194   | 619.348 | 374.109 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 315 | 2031 | 3     | 1.218   | 458.542 | 373.929 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 316 | 2031 | 4     | 13.514  | 221.499 | 373.744 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 317 | 2031 | 5     | 45.555  | 53.061  | 373.557 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 318 | 2031 | 6     | 141.661 | 7.071   | 373.373 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 319 | 2031 | 7     | 288.276 | 0.024   | 373.191 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 320 | 2031 | 8     | 327.892 | 0.000   | 373.000 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 321 | 2031 | 9     | 263.024 | 0.103   | 372.817 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 322 | 2031 | 10    | 94.798  | 17.102  | 372.632 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1074 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 323 | 2031 | 11 | 12.599  | 143.253 | 372.449 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 324 | 2031 | 12 | 0.899   | 376.241 | 372.263 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 325 | 2032 | 1  | 0.249   | 551.193 | 372.079 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 326 | 2032 | 2  | 0.194   | 619.348 | 371.899 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 327 | 2032 | 3  | 1.218   | 458.542 | 371.716 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 328 | 2032 | 4  | 13.514  | 221.499 | 371.535 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 329 | 2032 | 5  | 45.555  | 53.061  | 371.351 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 330 | 2032 | 6  | 141.661 | 7.071   | 371.169 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 331 | 2032 | 7  | 288.276 | 0.024   | 370.985 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 332 | 2032 | 8  | 327.892 | 0.000   | 370.803 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 333 | 2032 | 9  | 263.024 | 0.103   | 370.623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 334 | 2032 | 10 | 94.798  | 17.102  | 370.441 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 335 | 2032 | 11 | 12.599  | 143.253 | 370.260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 336 | 2032 | 12 | 0.899   | 376.241 | 370.079 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 337 | 2033 | 1  | 0.249   | 551.193 | 369.894 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 338 | 2033 | 2  | 0.194   | 619.348 | 369.718 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 339 | 2033 | 3  | 1.218   | 458.542 | 369.546 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 340 | 2033 | 4  | 13.514  | 221.499 | 369.363 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 341 | 2033 | 5  | 45.555  | 53.061  | 369.182 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 342 | 2033 | 6  | 141.661 | 7.071   | 369.002 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 343 | 2033 | 7  | 288.276 | 0.024   | 368.819 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 344 | 2033 | 8  | 327.892 | 0.000   | 368.639 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 345 | 2033 | 9  | 263.024 | 0.103   | 368.453 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 346 | 2033 | 10 | 94.798  | 17.102  | 368.272 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 347 | 2033 | 11 | 12.599  | 143.253 | 368.090 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 348 | 2033 | 12 | 0.899   | 376.241 | 367.909 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 349 | 2034 | 1  | 0.249   | 551.193 | 367.723 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 350 | 2034 | 2  | 0.194   | 619.348 | 367.548 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |   |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|---|
| 351 | 2034 | 3     | 1.218   | 458.542 | 367.373 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |   |
| 352 | 2034 | 4     | 13.514  | 221.499 | 367.194 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       | 1 |
| 353 | 2034 | 5     | 45.555  | 53.061  | 367.011 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       | 1 |
| 354 | 2034 | 6     | 141.661 | 7.071   | 366.833 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 355 | 2034 | 7     | 288.276 | 0.024   | 366.653 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 356 | 2034 | 8     | 327.892 | 0.000   | 366.471 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 357 | 2034 | 9     | 263.024 | 0.103   | 366.292 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 1       | 1 |
| 358 | 2034 | 10    | 94.798  | 17.102  | 366.113 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 1       | 1 |
| 359 | 2034 | 11    | 12.599  | 143.253 | 365.936 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 0     | 0       | 1       | 1 |
| 360 | 2034 | 12    | 0.899   | 376.241 | 365.757 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 361 | 2035 | 1     | 0.249   | 551.193 | 365.576 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 362 | 2035 | 2     | 0.194   | 619.348 | 365.402 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 363 | 2035 | 3     | 1.218   | 458.542 | 365.228 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 364 | 2035 | 4     | 13.514  | 221.499 | 365.049 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 365 | 2035 | 5     | 45.555  | 53.061  | 364.868 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 366 | 2035 | 6     | 141.661 | 7.071   | 364.685 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 367 | 2035 | 7     | 288.276 | 0.024   | 364.504 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 368 | 2035 | 8     | 327.892 | 0.000   | 364.315 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |
| 369 | 2035 | 9     | 263.024 | 0.103   | 364.132 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 0       | 1       | 1 |
| 370 | 2035 | 10    | 94.798  | 17.102  | 363.947 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 0       | 1       | 1 |
| 371 | 2035 | 11    | 12.599  | 143.253 | 363.759 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       | 1 |
| 372 | 2035 | 12    | 0.899   | 376.241 | 363.573 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 0       | 1       | 1 |



KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1076 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 423 | 2040 | 3  | 1.218   | 458.542 | 353.932 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 424 | 2040 | 4  | 13.514  | 221.499 | 353.737 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 425 | 2040 | 5  | 45.555  | 53.061  | 353.544 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 426 | 2040 | 6  | 141.661 | 7.071   | 353.349 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 427 | 2040 | 7  | 288.276 | 0.024   | 353.153 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 428 | 2040 | 8  | 327.892 | 0.000   | 352.955 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 429 | 2040 | 9  | 263.024 | 0.103   | 352.759 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 430 | 2040 | 10 | 94.798  | 17.102  | 352.566 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 431 | 2040 | 11 | 12.599  | 143.253 | 352.369 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 432 | 2040 | 12 | 0.899   | 376.241 | 352.172 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 433 | 2041 | 1  | 0.249   | 551.193 | 351.976 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 434 | 2041 | 2  | 0.194   | 619.348 | 351.787 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 435 | 2041 | 3  | 1.218   | 458.542 | 351.597 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 436 | 2041 | 4  | 13.514  | 221.499 | 351.401 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 437 | 2041 | 5  | 45.555  | 53.061  | 351.206 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 438 | 2041 | 6  | 141.661 | 7.071   | 351.011 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 439 | 2041 | 7  | 288.276 | 0.024   | 350.815 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 440 | 2041 | 8  | 327.892 | 0.000   | 350.618 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 441 | 2041 | 9  | 263.024 | 0.103   | 350.420 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 442 | 2041 | 10 | 94.798  | 17.102  | 350.226 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 443 | 2041 | 11 | 12.599  | 143.253 | 350.028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 444 | 2041 | 12 | 0.899   | 376.241 | 349.830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 445 | 2042 | 1  | 0.249   | 551.193 | 349.633 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 446 | 2042 | 2  | 0.194   | 619.348 | 349.440 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 447 | 2042 | 3  | 1.218   | 458.542 | 349.252 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 448 | 2042 | 4  | 13.514  | 221.499 | 349.057 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 449 | 2042 | 5  | 45.555  | 53.061  | 348.860 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 450 | 2042 | 6  | 141.661 | 7.071   | 348.660 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 451 | 2042 | 7     | 288.276 | 0.024   | 348.466 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 452 | 2042 | 8     | 327.892 | 0.000   | 348.265 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 453 | 2042 | 9     | 263.024 | 0.103   | 348.063 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 454 | 2042 | 10    | 94.798  | 17.102  | 347.865 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 455 | 2042 | 11    | 12.599  | 143.253 | 347.669 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 456 | 2042 | 12    | 0.899   | 376.241 | 347.471 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 457 | 2043 | 1     | 0.249   | 551.193 | 347.270 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 458 | 2043 | 2     | 0.194   | 619.348 | 347.077 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 459 | 2043 | 3     | 1.218   | 458.542 | 346.887 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 460 | 2043 | 4     | 13.514  | 221.499 | 346.689 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 461 | 2043 | 5     | 45.555  | 53.061  | 346.489 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 462 | 2043 | 6     | 141.661 | 7.071   | 346.293 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 463 | 2043 | 7     | 288.276 | 0.024   | 346.096 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 464 | 2043 | 8     | 327.892 | 0.000   | 345.895 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 465 | 2043 | 9     | 263.024 | 0.103   | 345.698 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 466 | 2043 | 10    | 94.798  | 17.102  | 345.501 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 467 | 2043 | 11    | 12.599  | 143.253 | 345.305 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 468 | 2043 | 12    | 0.899   | 376.241 | 345.106 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 469 | 2044 | 1     | 0.249   | 551.193 | 344.906 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 470 | 2044 | 2     | 0.194   | 619.348 | 344.712 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 471 | 2044 | 3     | 1.218   | 458.542 | 344.518 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 472 | 2044 | 4     | 13.514  | 221.499 | 344.323 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1077 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 473 | 2044 | 5  | 45.555  | 53.061  | 344.124 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 474 | 2044 | 6  | 141.661 | 7.071   | 343.927 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 475 | 2044 | 7  | 288.276 | 0.024   | 343.728 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 476 | 2044 | 8  | 327.892 | 0.000   | 343.528 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 477 | 2044 | 9  | 263.024 | 0.103   | 343.333 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 478 | 2044 | 10 | 94.798  | 17.102  | 343.135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 479 | 2044 | 11 | 12.599  | 143.253 | 342.939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 480 | 2044 | 12 | 0.899   | 376.241 | 342.742 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 481 | 2045 | 1  | 0.249   | 551.193 | 342.542 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 482 | 2045 | 2  | 0.194   | 619.348 | 342.348 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 483 | 2045 | 3  | 1.218   | 458.542 | 342.159 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 484 | 2045 | 4  | 13.514  | 221.499 | 341.961 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 485 | 2045 | 5  | 45.555  | 53.061  | 341.763 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 486 | 2045 | 6  | 141.661 | 7.071   | 341.567 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 487 | 2045 | 7  | 288.276 | 0.024   | 341.370 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 488 | 2045 | 8  | 327.892 | 0.000   | 341.168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 489 | 2045 | 9  | 263.024 | 0.103   | 340.973 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 490 | 2045 | 10 | 94.798  | 17.102  | 340.774 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 491 | 2045 | 11 | 12.599  | 143.253 | 340.579 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 492 | 2045 | 12 | 0.899   | 376.241 | 340.382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 493 | 2046 | 1  | 0.249   | 551.193 | 340.180 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 494 | 2046 | 2  | 0.194   | 619.348 | 339.992 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 495 | 2046 | 3  | 1.218   | 458.542 | 339.799 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 496 | 2046 | 4  | 13.514  | 221.499 | 339.602 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 497 | 2046 | 5  | 45.555  | 53.061  | 339.403 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 498 | 2046 | 6  | 141.661 | 7.071   | 339.207 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 499 | 2046 | 7  | 288.276 | 0.024   | 339.010 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 500 | 2046 | 8  | 327.892 | 0.000   | 338.809 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 501 | 2046 | 9     | 263.024 | 0.103   | 338.609 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 502 | 2046 | 10    | 94.798  | 17.102  | 338.412 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 503 | 2046 | 11    | 12.599  | 143.253 | 338.213 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 504 | 2046 | 12    | 0.899   | 376.241 | 338.014 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 505 | 2047 | 1     | 0.249   | 551.193 | 337.811 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 506 | 2047 | 2     | 0.194   | 619.348 | 337.617 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 507 | 2047 | 3     | 1.218   | 458.542 | 337.425 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 508 | 2047 | 4     | 13.514  | 221.499 | 337.226 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 509 | 2047 | 5     | 45.555  | 53.061  | 337.027 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 510 | 2047 | 6     | 141.661 | 7.071   | 336.827 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 511 | 2047 | 7     | 288.276 | 0.024   | 336.626 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 512 | 2047 | 8     | 327.892 | 0.000   | 336.425 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 513 | 2047 | 9     | 263.024 | 0.103   | 336.227 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 514 | 2047 | 10    | 94.798  | 17.102  | 336.029 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 515 | 2047 | 11    | 12.599  | 143.253 | 335.828 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 516 | 2047 | 12    | 0.899   | 376.241 | 335.628 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 517 | 2048 | 1     | 0.249   | 551.193 | 335.427 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 518 | 2048 | 2     | 0.194   | 619.348 | 335.232 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 519 | 2048 | 3     | 1.218   | 458.542 | 335.036 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 520 | 2048 | 4     | 13.514  | 221.499 | 334.835 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 521 | 2048 | 5     | 45.555  | 53.061  | 334.642 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 522 | 2048 | 6     | 141.661 | 7.071   | 334.444 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1078 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 523 | 2048 | 7  | 288.276 | 0.024   | 334.245 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |   |
| 524 | 2048 | 8  | 327.892 | 0.000   | 334.046 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 525 | 2048 | 9  | 263.024 | 0.103   | 333.848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 526 | 2048 | 10 | 94.798  | 17.102  | 333.649 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 527 | 2048 | 11 | 12.599  | 143.253 | 333.454 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 528 | 2048 | 12 | 0.899   | 376.241 | 333.256 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 529 | 2049 | 1  | 0.249   | 551.193 | 333.057 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 530 | 2049 | 2  | 0.194   | 619.348 | 332.869 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 531 | 2049 | 3  | 1.218   | 458.542 | 332.680 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 532 | 2049 | 4  | 13.514  | 221.499 | 332.480 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 533 | 2049 | 5  | 45.555  | 53.061  | 332.286 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 534 | 2049 | 6  | 141.661 | 7.071   | 332.090 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 535 | 2049 | 7  | 288.276 | 0.024   | 331.892 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 536 | 2049 | 8  | 327.892 | 0.000   | 331.695 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 537 | 2049 | 9  | 263.024 | 0.103   | 331.499 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 538 | 2049 | 10 | 94.798  | 17.102  | 331.306 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 539 | 2049 | 11 | 12.599  | 143.253 | 331.109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 540 | 2049 | 12 | 0.899   | 376.241 | 330.911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 541 | 2050 | 1  | 0.249   | 551.193 | 330.714 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 542 | 2050 | 2  | 0.194   | 619.348 | 330.523 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 543 | 2050 | 3  | 1.218   | 458.542 | 330.336 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 544 | 2050 | 4  | 13.514  | 221.499 | 330.142 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 545 | 2050 | 5  | 45.555  | 53.061  | 329.946 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 546 | 2050 | 6  | 141.661 | 7.071   | 329.754 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 547 | 2050 | 7  | 288.276 | 0.024   | 329.558 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 548 | 2050 | 8  | 327.892 | 0.000   | 329.364 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 549 | 2050 | 9  | 263.024 | 0.103   | 329.168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 550 | 2050 | 10 | 94.798  | 17.102  | 328.976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 551 | 2050 | 11    | 12.599  | 143.253 | 328.783 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 552 | 2050 | 12    | 0.899   | 376.241 | 328.589 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 553 | 2051 | 1     | 0.249   | 551.193 | 328.394 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 554 | 2051 | 2     | 0.194   | 619.348 | 328.206 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 555 | 2051 | 3     | 1.218   | 458.542 | 328.024 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 556 | 2051 | 4     | 13.514  | 221.499 | 327.829 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 557 | 2051 | 5     | 45.555  | 53.061  | 327.639 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 558 | 2051 | 6     | 141.661 | 7.071   | 327.446 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 559 | 2051 | 7     | 288.276 | 0.024   | 327.257 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 560 | 2051 | 8     | 327.892 | 0.000   | 327.062 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 1       | 1       |
| 561 | 2051 | 9     | 263.024 | 0.103   | 326.870 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 0     | 1       | 1       |
| 562 | 2051 | 10    | 94.798  | 17.102  | 326.681 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 0     | 1       | 1       |
| 563 | 2051 | 11    | 12.599  | 143.253 | 326.488 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 564 | 2051 | 12    | 0.899   | 376.241 | 326.301 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 565 | 2052 | 1     | 0.249   | 551.193 | 326.107 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 566 | 2052 | 2     | 0.194   | 619.348 | 325.921 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 567 | 2052 | 3     | 1.218   | 458.542 | 325.733 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 568 | 2052 | 4     | 13.514  | 221.499 | 325.543 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 569 | 2052 | 5     | 45.555  | 53.061  | 325.354 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 570 | 2052 | 6     | 141.661 | 7.071   | 325.165 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 571 | 2052 | 7     | 288.276 | 0.024   | 324.976 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 0     | 1       | 1       |
| 572 | 2052 | 8     | 327.892 | 0.000   | 324.786 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 0     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1079 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 573 | 2052 | 9  | 263.024 | 0.103   | 324.597 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |   |
| 574 | 2052 | 10 | 94.798  | 17.102  | 324.409 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 575 | 2052 | 11 | 12.599  | 143.253 | 324.221 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 576 | 2052 | 12 | 0.899   | 376.241 | 324.032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 577 | 2053 | 1  | 0.249   | 551.193 | 323.837 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 578 | 2053 | 2  | 0.194   | 619.348 | 323.653 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 579 | 2053 | 3  | 1.218   | 458.542 | 323.459 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 580 | 2053 | 4  | 13.514  | 221.499 | 323.274 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 581 | 2053 | 5  | 45.555  | 53.061  | 323.086 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 582 | 2053 | 6  | 141.661 | 7.071   | 322.901 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 583 | 2053 | 7  | 288.276 | 0.024   | 322.712 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 584 | 2053 | 8  | 327.892 | 0.000   | 322.527 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 585 | 2053 | 9  | 263.024 | 0.103   | 322.341 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 586 | 2053 | 10 | 94.798  | 17.102  | 322.154 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 587 | 2053 | 11 | 12.599  | 143.253 | 321.971 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 588 | 2053 | 12 | 0.899   | 376.241 | 321.780 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 589 | 2054 | 1  | 0.249   | 551.193 | 321.584 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 590 | 2054 | 2  | 0.194   | 619.348 | 321.402 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 591 | 2054 | 3  | 1.218   | 458.542 | 321.202 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 592 | 2054 | 4  | 13.514  | 221.499 | 321.022 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 593 | 2054 | 5  | 45.555  | 53.061  | 320.835 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 594 | 2054 | 6  | 141.661 | 7.071   | 320.654 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 595 | 2054 | 7  | 288.276 | 0.024   | 320.465 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 596 | 2054 | 8  | 327.892 | 0.000   | 320.285 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 597 | 2054 | 9  | 263.024 | 0.103   | 320.102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 598 | 2054 | 10 | 94.798  | 17.102  | 319.916 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 599 | 2054 | 11 | 12.599  | 143.253 | 319.737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 600 | 2054 | 12 | 0.899   | 376.241 | 319.545 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Exogenous Variables

| Obs | YEAR | MONTH | bcdd65  | bhdd55  | N_kpc   | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d16on | dec18on | mar18on |
|-----|------|-------|---------|---------|---------|----|----|----|----|----|----|----|----|----|-----|-----|-------|---------|---------|
| 601 | 2055 | 1     | 0.249   | 551.193 | 319.348 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 602 | 2055 | 2     | 0.194   | 619.348 | 319.168 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 603 | 2055 | 3     | 1.218   | 458.542 | 318.962 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 604 | 2055 | 4     | 13.514  | 221.499 | 318.787 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 605 | 2055 | 5     | 45.555  | 53.061  | 318.601 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 606 | 2055 | 6     | 141.661 | 7.071   | 318.423 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 607 | 2055 | 7     | 288.276 | 0.024   | 318.234 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 608 | 2055 | 8     | 327.892 | 0.000   | 318.059 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 609 | 2055 | 9     | 263.024 | 0.103   | 317.879 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 610 | 2055 | 10    | 94.798  | 17.102  | 317.694 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |
| 611 | 2055 | 11    | 12.599  | 143.253 | 317.521 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 1   | 1     | 1       | 1       |
| 612 | 2055 | 12    | 0.899   | 376.241 | 317.326 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 613 | 2056 | 1     | 0.249   | 551.193 | 317.128 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 614 | 2056 | 2     | 0.194   | 619.348 | 316.950 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 615 | 2056 | 3     | 1.218   | 458.542 | 316.739 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 616 | 2056 | 4     | 13.514  | 221.499 | 316.568 | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 617 | 2056 | 5     | 45.555  | 53.061  | 316.383 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 618 | 2056 | 6     | 141.661 | 7.071   | 316.210 | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 619 | 2056 | 7     | 288.276 | 0.024   | 316.021 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0   | 0   | 1     | 1       | 1       |
| 620 | 2056 | 8     | 327.892 | 0.000   | 315.850 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0   | 0   | 1     | 1       | 1       |
| 621 | 2056 | 9     | 263.024 | 0.103   | 315.673 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0   | 0   | 1     | 1       | 1       |
| 622 | 2056 | 10    | 94.798  | 17.102  | 315.489 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1   | 0   | 1     | 1       | 1       |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1080 of 1182

|     |      |    |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|------|----|---------|---------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 623 | 2056 | 11 | 12.599  | 143.253 | 315.320 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 624 | 2056 | 12 | 0.899   | 376.241 | 315.123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 625 | 2057 | 1  | 0.249   | 551.193 | 314.925 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 626 | 2057 | 2  | 0.194   | 619.348 | 314.748 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 627 | 2057 | 3  | 1.218   | 458.542 | 314.532 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 628 | 2057 | 4  | 13.514  | 221.499 | 314.366 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 629 | 2057 | 5  | 45.555  | 53.061  | 314.182 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 630 | 2057 | 6  | 141.661 | 7.071   | 314.012 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 631 | 2057 | 7  | 288.276 | 0.024   | 313.823 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 632 | 2057 | 8  | 327.892 | 0.000   | 313.658 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 633 | 2057 | 9  | 263.024 | 0.103   | 313.483 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 634 | 2057 | 10 | 94.798  | 17.102  | 313.300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 635 | 2057 | 11 | 12.599  | 143.253 | 313.136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 636 | 2057 | 12 | 0.899   | 376.241 | 312.938 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Model  
 Dependent Variable  
 Label  
 KWH  
 KWH  
 Energy (kWh)

Analysis of Variance

| Source          | DF  | Sum of Squares | Mean Square | F Value | Pr > F |
|-----------------|-----|----------------|-------------|---------|--------|
| Model           | 17  | 1.439E14       | 8.463E12    | 56.20   | <.0001 |
| Error           | 187 | 2.816E13       | 1.506E11    |         |        |
| Corrected Total | 204 | 1.72E14        |             |         |        |

|                |            |          |         |
|----------------|------------|----------|---------|
| Root MSE       | 388057.971 | R-Square | 0.83631 |
| Dependent Mean | 5463528.14 | Adj R-Sq | 0.82142 |
| Coeff Var      | 7.10270    |          |         |

Parameter Estimates

| Variable  | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                |
|-----------|----|--------------------|----------------|---------|---------|-------------------------------|
| Intercept | 1  | -2275388           | 2696772        | -0.84   | 0.3999  | Intercept                     |
| N_kpc     | 1  | 18697.93           | 6254.235       | 2.99    | 0.0032  | Service Area Population       |
| bhdd55    | 1  | 2204.328           | 412.4898       | 5.34    | <.0001  | Heating Degree Days (Base 55) |
| bcdd65    | 1  | 1419.453           | 822.9145       | 1.72    | 0.0862  | Cooling Degree Days (Base 65) |
| d16on     | 1  | -459753            | 149657.2       | -3.07   | 0.0024  | Binary Variable-2016 On       |
| mar18on   | 1  | 286997.7           | 159708.4       | 1.80    | 0.0739  | Binary                        |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1081 of 1182

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                   |
|----------|----|--------------------|----------------|---------|---------|----------------------------------|
| dec18on  | 1  | -304571            | 149795.8       | -2.03   | 0.0434  | Binary Variable-March 2018 On    |
| d1       | 1  | 271265.4           | 143760.1       | 1.89    | 0.0607  | Binary Variable-December 2018 On |
| d2       | 1  | -736262            | 163438.9       | -4.50   | <.0001  | Binary Variable-January          |
| d3       | 1  | -835177            | 138572.5       | -6.03   | <.0001  | Binary Variable-February         |
| d4       | 1  | -1241995           | 152857.3       | -8.13   | <.0001  | Binary Variable-March            |
| d5       | 1  | -912419            | 195425.9       | -4.67   | <.0001  | Binary Variable-April            |
|          |    |                    |                |         |         | Binary Variable-May              |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label            |
|----------|----|--------------------|----------------|---------|---------|---------------------------|
| d6       | 1  | -451062            | 242945.6       | -1.86   | 0.0649  | Binary Variable-June      |
| d7       | 1  | -142683            | 317458.1       | -0.45   | 0.6536  | Binary Variable-July      |
| d8       | 1  | -18169.1           | 344694.9       | -0.05   | 0.9580  | Binary Variable-August    |
| d9       | 1  | -1011060           | 306500.9       | -3.30   | 0.0012  | Binary Variable-September |
| d10      | 1  | -905301            | 223494.6       | -4.05   | <.0001  | Binary Variable-October   |
| d11      | 1  | -512016            | 167116.9       | -3.06   | 0.0025  | Binary Variable-November  |

Durbin-Watson 2.241348  
 Number of Observations 205  
 First-Order Autocorrelation -0.12686

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

| time        | Residual Values |
|-------------|-----------------|
|             | Sum             |
| 2005.000000 | ****            |
| 2005.083333 | ****            |
| 2005.166667 | ****            |
| 2005.250000 | ****            |
| 2005.333333 | ****            |
| 2005.416667 | **              |
| 2005.500000 | *               |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1082 of 1182

|              |       |         |
|--------------|-------|---------|
| 2005.5833333 | ***   | -210375 |
| 2005.6666667 | ***   | -198921 |
| 2005.7500000 | **    | -146068 |
| 2005.8333333 | *     | -74303  |
| 2005.9166667 | ***** | 684775  |
| 2006.0000000 | ***** | -778320 |
| 2006.0833333 | ****  | 306642  |
| 2006.1666667 | **    | 115118  |
| 2006.2500000 | ***** | -478896 |
| 2006.3333333 |       | 18651   |
| 2006.4166667 | **    | -116071 |
| 2006.5000000 | ****  | 314233  |
| 2006.5833333 | ***   | 196881  |
| 2006.6666667 | **    | -148058 |
| 2006.7500000 | ***** | 550609  |
| 2006.8333333 | **    | 174816  |
| 2006.9166667 | ***   | 257448  |
| 2007.0000000 | ****  | -280814 |
| 2007.0833333 | ***** | 552301  |
| 2007.1666667 | ***   | -239721 |
| 2007.2500000 | ***** | 445784  |
| 2007.3333333 | ****  | 281341  |
| 2007.4166667 | **    | 178638  |
| 2007.5000000 | *     | -50660  |
| 2007.5833333 | ***** | 489456  |
| 2007.6666667 | *     | -112037 |
| 2007.7500000 | ***** | -344340 |
| 2007.8333333 | **    | -118511 |
| 2007.9166667 | ****  | 267215  |
| 2008.0000000 | ***** | 701224  |
| 2008.0833333 | ***** | 645196  |
| 2008.1666667 | ***** | 484006  |
| 2008.2500000 |       | -18584  |
| 2008.3333333 | *     | -67745  |
| 2008.4166667 | **    | 113406  |
| 2008.5000000 | ***   | 207958  |
| 2008.5833333 | ****  | -324081 |
| 2008.6666667 | **    | -158918 |
| 2008.7500000 | *     | 78081   |
| 2008.8333333 | ***   | 213360  |
| 2008.9166667 | ****  | -314765 |
| 2009.0000000 | ****  | 289553  |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

|              |       |         |
|--------------|-------|---------|
| 2009.0833333 | ***** | -696414 |
| 2009.1666667 | ***** | -591621 |
| 2009.2500000 | ****  | -287285 |
| 2009.3333333 | ***** | -525641 |
| 2009.4166667 | ****  | -266633 |
| 2009.5000000 | ***** | -645896 |
| 2009.5833333 | ****  | -336400 |
| 2009.6666667 | ***   | -226608 |
| 2009.7500000 | *     | -46271  |
| 2009.8333333 | ***** | -366765 |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1083 of 1182

|              |       |       |          |
|--------------|-------|-------|----------|
| 2009.9166667 |       | ***   | 218743   |
| 2010.0000000 |       |       | -32040   |
| 2010.0833333 |       | **    | 154047   |
| 2010.1666667 | ***** |       | -407633  |
| 2010.2500000 |       |       | -21873   |
| 2010.3333333 |       | ***   | 192929   |
| 2010.4166667 |       | ***** | 367647   |
| 2010.5000000 |       | ***** | 490320   |
| 2010.5833333 |       | **    | 184280   |
| 2010.6666667 |       | *     | 93307    |
| 2010.7500000 |       | *     | 41002    |
| 2010.8333333 |       | ***   | 248965   |
| 2010.9166667 |       | ***** | 925788   |
| 2011.0000000 |       |       | 35493    |
| 2011.0833333 | ****  |       | -308356  |
| 2011.1666667 |       | ***** | 361862   |
| 2011.2500000 |       | **    | -117546  |
| 2011.3333333 | ***** |       | -938923  |
| 2011.4166667 |       | **    | -133541  |
| 2011.5000000 |       | ****  | 336433   |
| 2011.5833333 | ***** |       | -563194  |
| 2011.6666667 | ***** |       | -460823  |
| 2011.7500000 |       | **    | -170225  |
| 2011.8333333 |       | ****  | -335372  |
| 2011.9166667 |       | *     | -66075   |
| 2012.0000000 |       | ****  | -284564  |
| 2012.0833333 |       | *     | 60781    |
| 2012.1666667 | ***** |       | -339850  |
| 2012.2500000 |       | ***   | 260417   |
| 2012.3333333 |       | ***** | 473375   |
| 2012.4166667 |       | *     | 104322   |
| 2012.5000000 | ***** |       | -1579456 |
| 2012.5833333 |       | ***** | 1960092  |
| 2012.6666667 |       | **    | 118077   |
| 2012.7500000 |       | **    | 131811   |
| 2012.8333333 |       | ***** | 338128   |
| 2012.9166667 |       | *     | 91521    |
| 2013.0000000 |       |       | 14777    |
| 2013.0833333 |       | *     | 108550   |
| 2013.1666667 |       | ***** | 595694   |
| 2013.2500000 |       | **    | -155400  |
| 2013.3333333 |       | **    | 119101   |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

|              |     |       |         |
|--------------|-----|-------|---------|
| 2013.4166667 |     |       | 23121   |
| 2013.5000000 |     |       | -24400  |
| 2013.5833333 | *** |       | -251892 |
| 2013.6666667 |     |       | -31608  |
| 2013.7500000 |     | *     | 67593   |
| 2013.8333333 |     | ***   | 219320  |
| 2013.9166667 | **  |       | -171090 |
| 2014.0000000 |     | ***** | 664379  |
| 2014.0833333 |     |       | 13325   |
| 2014.1666667 |     | ****  | 289899  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1084 of 1182

|              |       |         |
|--------------|-------|---------|
| 2014.2500000 | ***   | -197622 |
| 2014.3333333 | ***   | 193718  |
| 2014.4166667 | **    | 143671  |
| 2014.5000000 | *     | -98866  |
| 2014.5833333 |       | 32      |
| 2014.6666667 | **    | 177303  |
| 2014.7500000 | **    | 137008  |
| 2014.8333333 | ***** | 566042  |
| 2014.9166667 | ***   | -245475 |
| 2015.0000000 | ***   | 206552  |
| 2015.0833333 | ***** | 461298  |
| 2015.1666667 | ***** | -744117 |
| 2015.2500000 | ****  | -302707 |
| 2015.3333333 | *     | 68668   |
| 2015.4166667 | *     | -40431  |
| 2015.5000000 | *     | -56194  |
| 2015.5833333 | ****  | -300325 |
| 2015.6666667 | ***   | 220124  |
| 2015.7500000 | *     | -57380  |
| 2015.8333333 | ****  | -305704 |
| 2015.9166667 | ***** | -625626 |
| 2016.0000000 | ***** | 553762  |
| 2016.0833333 |       | -25694  |
| 2016.1666667 | **    | -160942 |
| 2016.2500000 | ***   | 242062  |
| 2016.3333333 | *     | 94498   |
| 2016.4166667 |       | 31804   |
| 2016.5000000 | ***   | 213145  |
| 2016.5833333 | ***   | 207683  |
| 2016.6666667 | ***   | 196117  |
| 2016.7500000 | ****  | -320645 |
| 2016.8333333 |       | -34041  |
| 2016.9166667 |       | -23322  |
| 2017.0000000 | ***** | -630247 |
| 2017.0833333 | ****  | -409965 |
| 2017.1666667 | ***** | 353816  |
| 2017.2500000 | *     | -47368  |
| 2017.3333333 | **    | 122916  |
| 2017.4166667 |       | 24466   |
| 2017.5000000 |       | 20582   |
| 2017.5833333 | ****  | -299397 |
| 2017.6666667 | *     | 84086   |

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation

|              |       |         |
|--------------|-------|---------|
| 2017.7500000 |       | 23351   |
| 2017.8333333 |       | 7665    |
| 2017.9166667 | ***   | 235975  |
| 2018.0000000 | *     | 79769   |
| 2018.0833333 | ***** | -540073 |
| 2018.1666667 | ***   | 218859  |
| 2018.2500000 | **    | -145169 |
| 2018.3333333 | ***   | 194255  |
| 2018.4166667 | *     | -37757  |
| 2018.5000000 | **    | -126316 |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1085 of 1182

|              |       |         |
|--------------|-------|---------|
| 2018.5833333 | ***   | -197691 |
| 2018.6666667 |       | 5349    |
| 2018.7500000 | *     | 85106   |
| 2018.8333333 |       | 3364    |
| 2018.9166667 | ****  | -329453 |
| 2019.0000000 | ***   | 250575  |
| 2019.0833333 | *     | -103853 |
| 2019.1666667 | ***** | 506899  |
| 2019.2500000 | *     | 88367   |
| 2019.3333333 | ****  | 309085  |
| 2019.4166667 | ***   | -198435 |
| 2019.5000000 | ***** | 411999  |
| 2019.5833333 | ****  | -321440 |
| 2019.6666667 | ****  | 319673  |
| 2019.7500000 | ***   | -193498 |
| 2019.8333333 | **    | 144184  |
| 2019.9166667 | ***** | -441763 |
| 2020.0000000 | ***** | -402121 |
| 2020.0833333 | *     | 73527   |
| 2020.1666667 | ***** | -358360 |
| 2020.2500000 | *     | 69828   |
| 2020.3333333 | *     | -65995  |
| 2020.4166667 | **    | -116329 |
| 2020.5000000 | ***** | 439105  |
| 2020.5833333 | ****  | -287496 |
| 2020.6666667 | *     | 51664   |
| 2020.7500000 | *     | 64522   |
| 2020.8333333 | ***** | -943061 |
| 2020.9166667 | **    | 138157  |
| 2021.0000000 | ***** | -346137 |
| 2021.0833333 | **    | 158333  |
| 2021.1666667 | ****  | -336887 |
| 2021.2500000 | ***** | 1103154 |
| 2021.3333333 | *     | -70441  |
| 2021.4166667 | *     | 58202   |
| 2021.5000000 | *     | 47657   |
| 2021.5833333 | *     | 53866   |
| 2021.6666667 | *     | 71274   |
| 2021.7500000 | *     | 99345   |
| 2021.8333333 | ***   | 261911  |
| 2021.9166667 | ***** | -602053 |
| 2022.0000000 | ***** | 395993  |

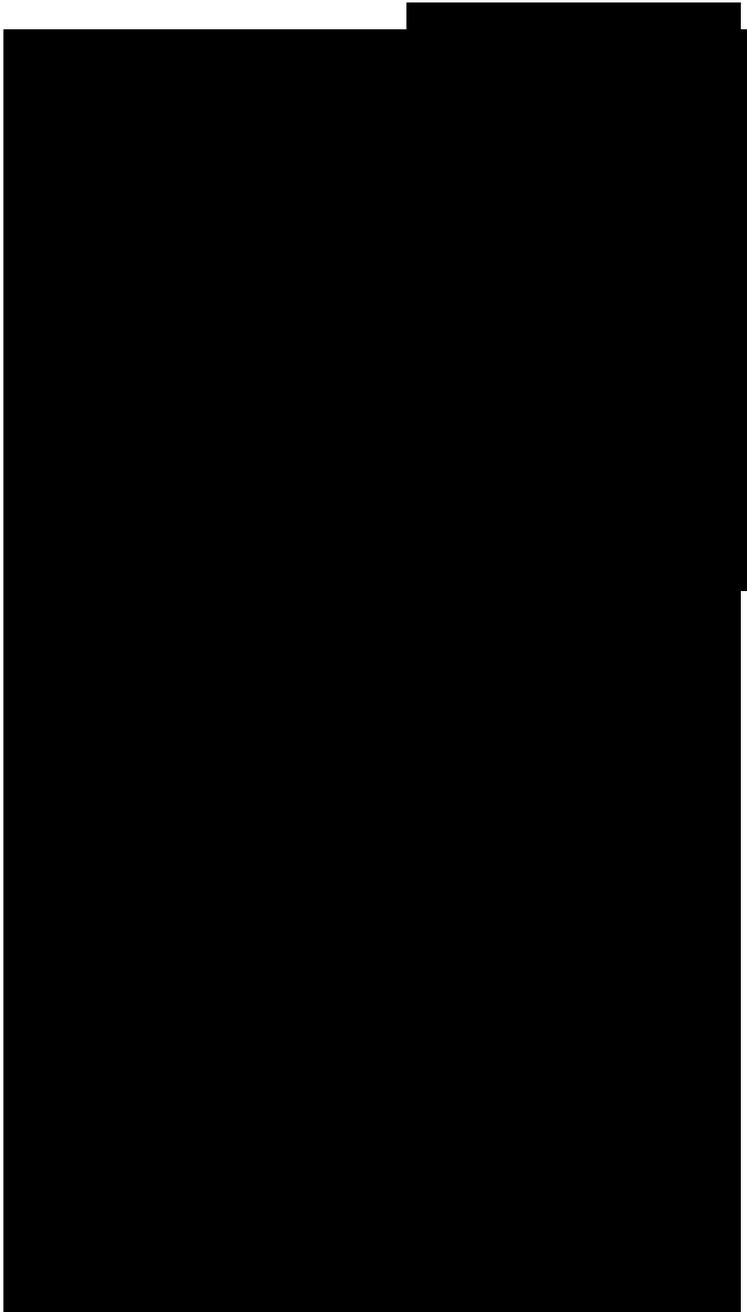
Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Model Estimation



Residual Values

Kentucky Power Company  
 Municipal Energy Sales-Vanceburg  
 Actual and Forecast

| Year | Energy Sales | Growth Rate |
|------|--------------|-------------|
|------|--------------|-------------|



[REDACTED]

[REDACTED]

[REDACTED]

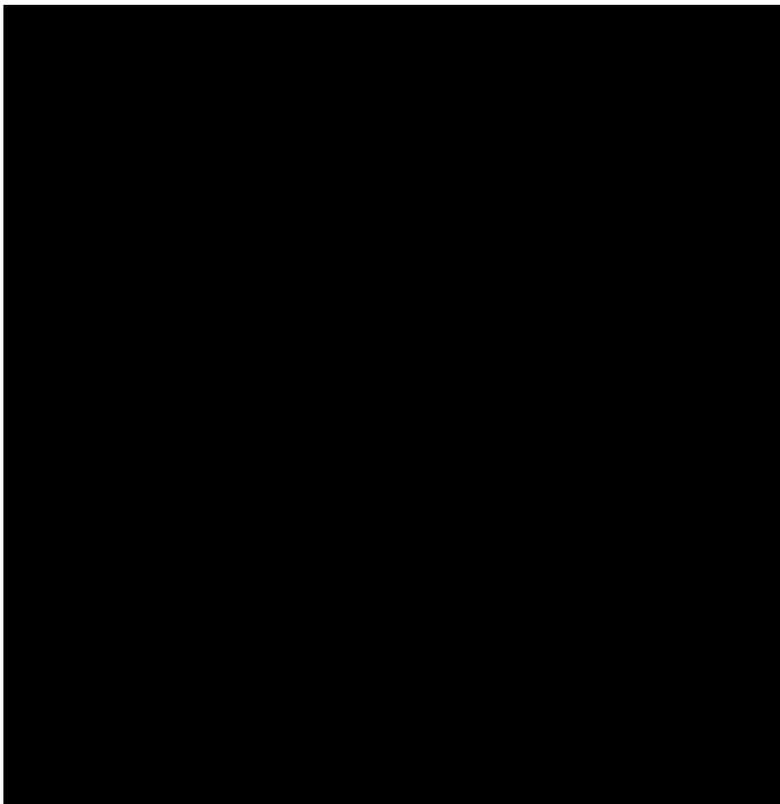
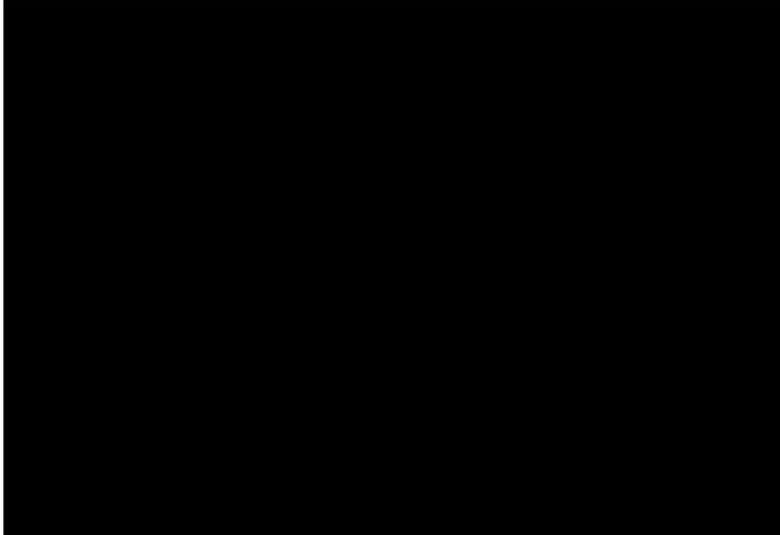
[REDACTED]

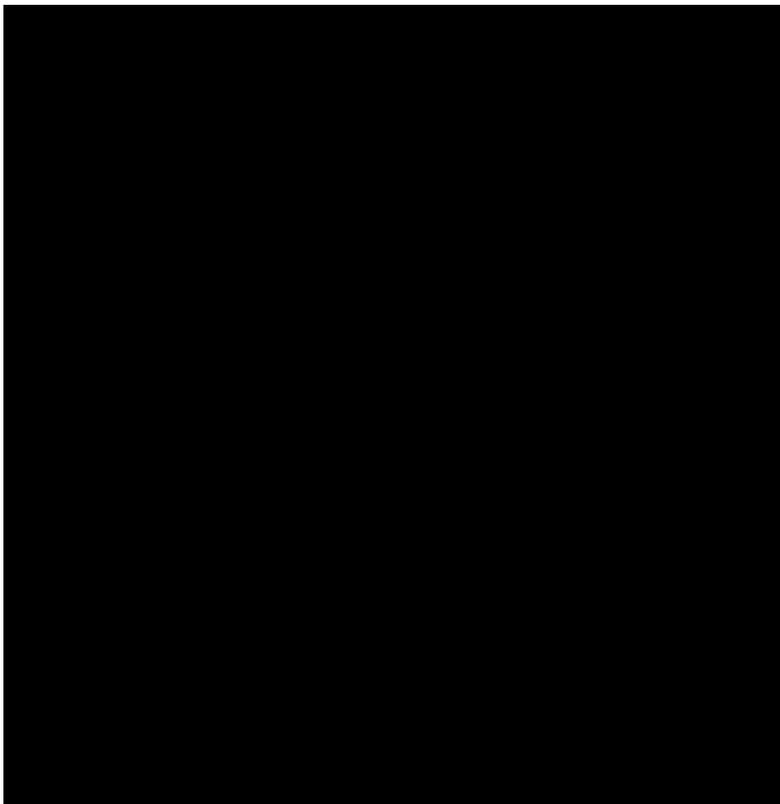
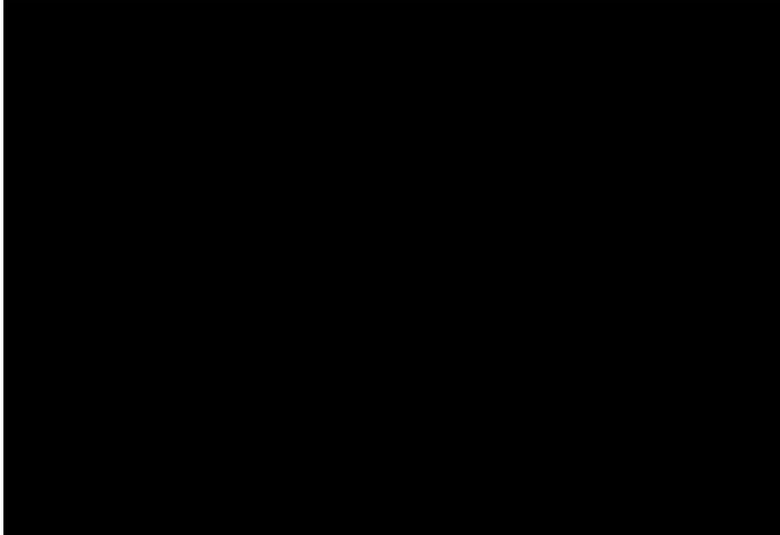
[REDACTED]

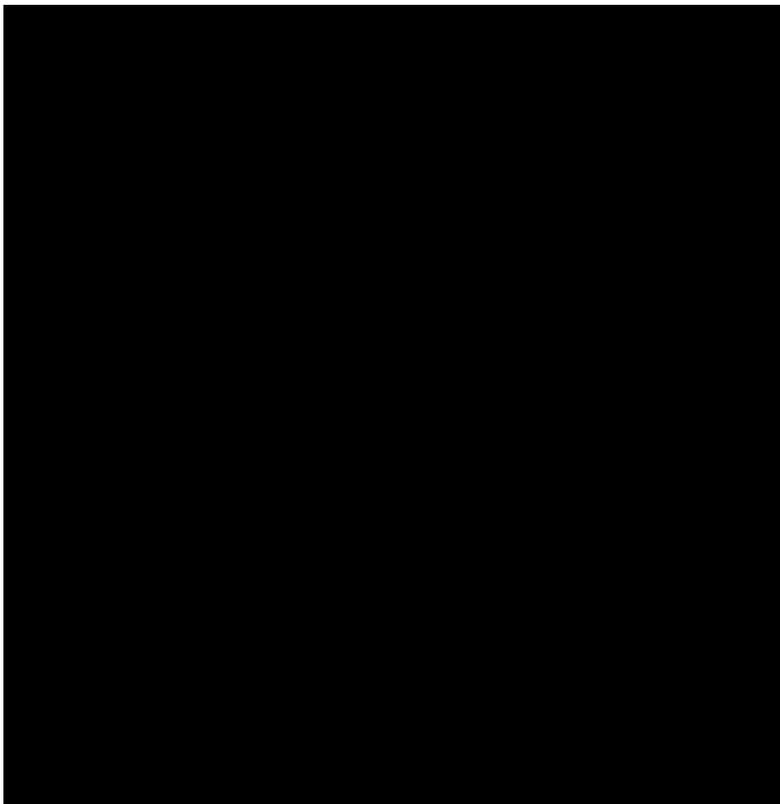
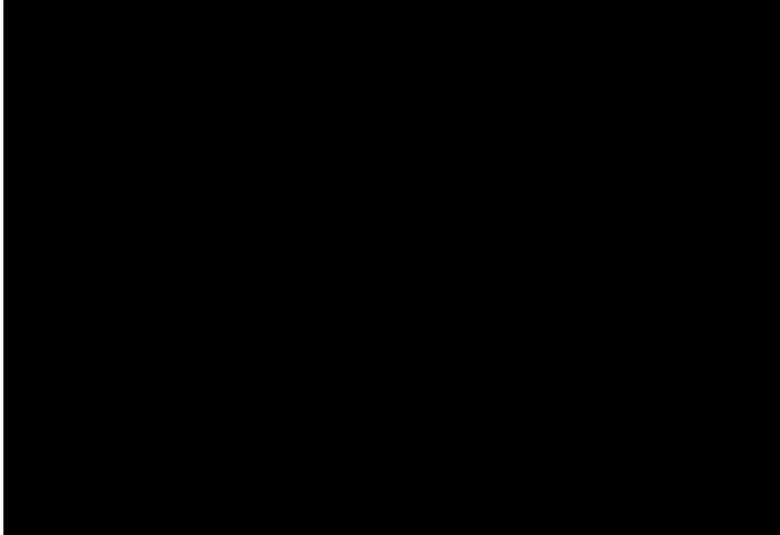
[REDACTED]

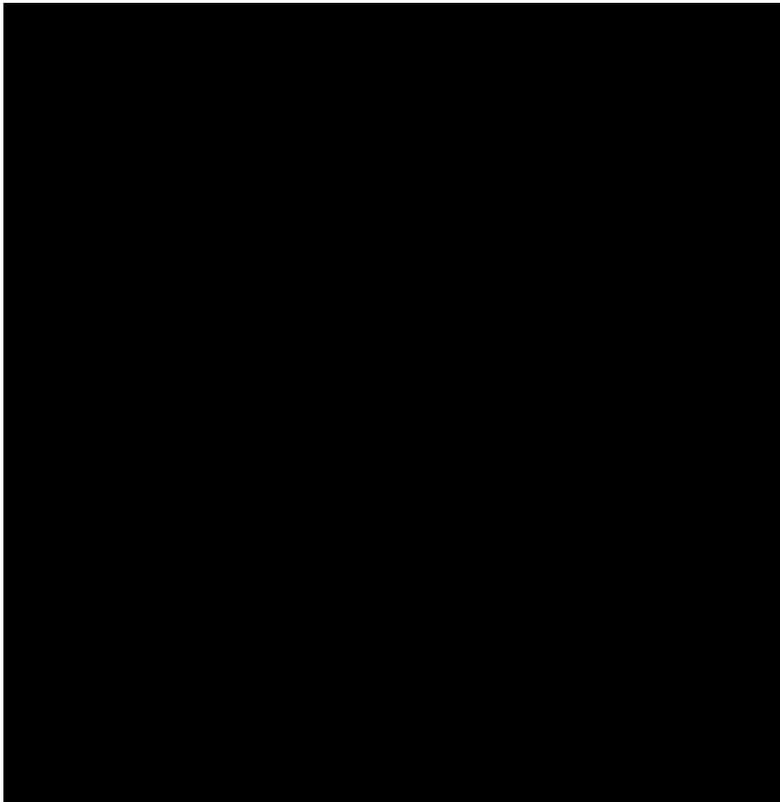
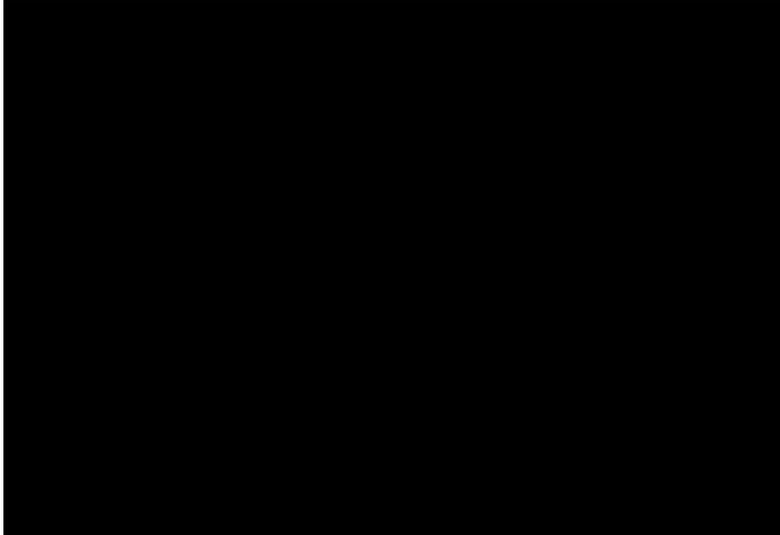
[REDACTED]

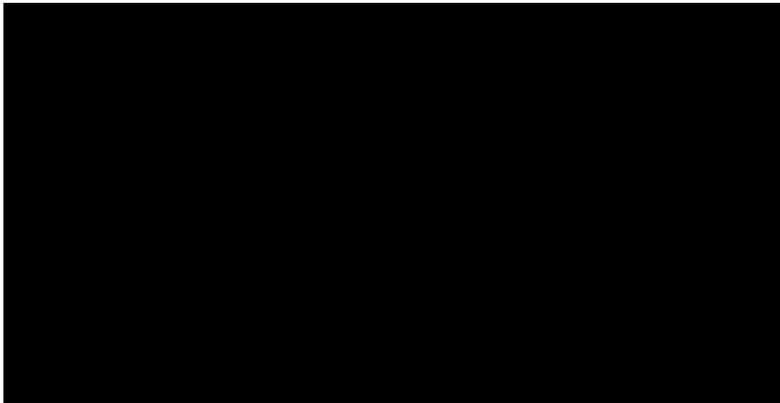
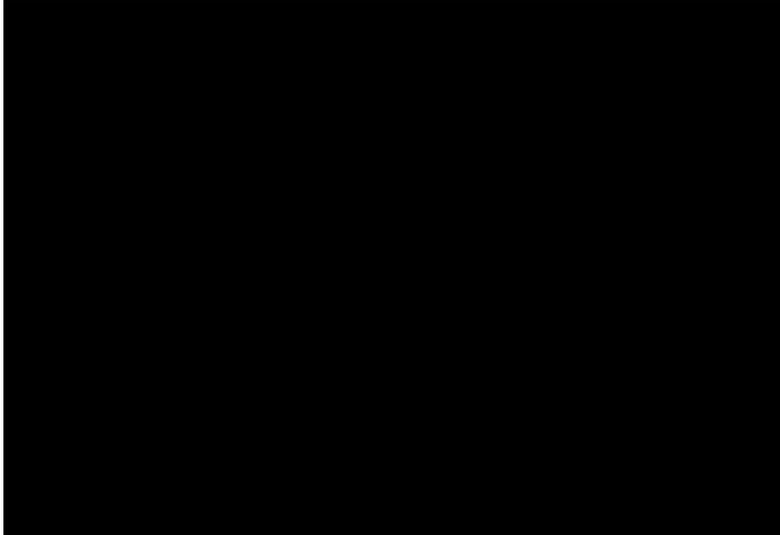
[REDACTED]











|     |      |    |   |
|-----|------|----|---|
| 266 | 2022 | 2  | . |
| 267 | 2022 | 3  | . |
| 268 | 2022 | 4  | . |
| 269 | 2022 | 5  | . |
| 270 | 2022 | 6  | . |
| 271 | 2022 | 7  | . |
| 272 | 2022 | 8  | . |
| 273 | 2022 | 9  | . |
| 274 | 2022 | 10 | . |
| 275 | 2022 | 11 | . |
| 276 | 2022 | 12 | . |
| 277 | 2023 | 1  | . |
| 278 | 2023 | 2  | . |
| 279 | 2023 | 3  | . |
| 280 | 2023 | 4  | . |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1093 of 1182

|     |      |    |   |
|-----|------|----|---|
| 281 | 2023 | 5  | . |
| 282 | 2023 | 6  | . |
| 283 | 2023 | 7  | . |
| 284 | 2023 | 8  | . |
| 285 | 2023 | 9  | . |
| 286 | 2023 | 10 | . |
| 287 | 2023 | 11 | . |
| 288 | 2023 | 12 | . |
| 289 | 2024 | 1  | . |
| 290 | 2024 | 2  | . |
| 291 | 2024 | 3  | . |
| 292 | 2024 | 4  | . |
| 293 | 2024 | 5  | . |
| 294 | 2024 | 6  | . |
| 295 | 2024 | 7  | . |
| 296 | 2024 | 8  | . |
| 297 | 2024 | 9  | . |
| 298 | 2024 | 10 | . |
| 299 | 2024 | 11 | . |
| 300 | 2024 | 12 | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 301 | 2025 | 1     | .   |
| 302 | 2025 | 2     | .   |
| 303 | 2025 | 3     | .   |
| 304 | 2025 | 4     | .   |
| 305 | 2025 | 5     | .   |
| 306 | 2025 | 6     | .   |
| 307 | 2025 | 7     | .   |
| 308 | 2025 | 8     | .   |
| 309 | 2025 | 9     | .   |
| 310 | 2025 | 10    | .   |
| 311 | 2025 | 11    | .   |
| 312 | 2025 | 12    | .   |
| 313 | 2026 | 1     | .   |
| 314 | 2026 | 2     | .   |
| 315 | 2026 | 3     | .   |
| 316 | 2026 | 4     | .   |
| 317 | 2026 | 5     | .   |
| 318 | 2026 | 6     | .   |
| 319 | 2026 | 7     | .   |
| 320 | 2026 | 8     | .   |
| 321 | 2026 | 9     | .   |
| 322 | 2026 | 10    | .   |
| 323 | 2026 | 11    | .   |
| 324 | 2026 | 12    | .   |
| 325 | 2027 | 1     | .   |
| 326 | 2027 | 2     | .   |
| 327 | 2027 | 3     | .   |
| 328 | 2027 | 4     | .   |
| 329 | 2027 | 5     | .   |
| 330 | 2027 | 6     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1094 of 1182

|     |      |    |   |
|-----|------|----|---|
| 331 | 2027 | 7  | . |
| 332 | 2027 | 8  | . |
| 333 | 2027 | 9  | . |
| 334 | 2027 | 10 | . |
| 335 | 2027 | 11 | . |
| 336 | 2027 | 12 | . |
| 337 | 2028 | 1  | . |
| 338 | 2028 | 2  | . |
| 339 | 2028 | 3  | . |
| 340 | 2028 | 4  | . |
| 341 | 2028 | 5  | . |
| 342 | 2028 | 6  | . |
| 343 | 2028 | 7  | . |
| 344 | 2028 | 8  | . |
| 345 | 2028 | 9  | . |
| 346 | 2028 | 10 | . |
| 347 | 2028 | 11 | . |
| 348 | 2028 | 12 | . |
| 349 | 2029 | 1  | . |
| 350 | 2029 | 2  | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 351 | 2029 | 3     | .   |
| 352 | 2029 | 4     | .   |
| 353 | 2029 | 5     | .   |
| 354 | 2029 | 6     | .   |
| 355 | 2029 | 7     | .   |
| 356 | 2029 | 8     | .   |
| 357 | 2029 | 9     | .   |
| 358 | 2029 | 10    | .   |
| 359 | 2029 | 11    | .   |
| 360 | 2029 | 12    | .   |
| 361 | 2030 | 1     | .   |
| 362 | 2030 | 2     | .   |
| 363 | 2030 | 3     | .   |
| 364 | 2030 | 4     | .   |
| 365 | 2030 | 5     | .   |
| 366 | 2030 | 6     | .   |
| 367 | 2030 | 7     | .   |
| 368 | 2030 | 8     | .   |
| 369 | 2030 | 9     | .   |
| 370 | 2030 | 10    | .   |
| 371 | 2030 | 11    | .   |
| 372 | 2030 | 12    | .   |
| 373 | 2031 | 1     | .   |
| 374 | 2031 | 2     | .   |
| 375 | 2031 | 3     | .   |
| 376 | 2031 | 4     | .   |
| 377 | 2031 | 5     | .   |
| 378 | 2031 | 6     | .   |
| 379 | 2031 | 7     | .   |
| 380 | 2031 | 8     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1095 of 1182

|     |      |    |   |
|-----|------|----|---|
| 381 | 2031 | 9  | . |
| 382 | 2031 | 10 | . |
| 383 | 2031 | 11 | . |
| 384 | 2031 | 12 | . |
| 385 | 2032 | 1  | . |
| 386 | 2032 | 2  | . |
| 387 | 2032 | 3  | . |
| 388 | 2032 | 4  | . |
| 389 | 2032 | 5  | . |
| 390 | 2032 | 6  | . |
| 391 | 2032 | 7  | . |
| 392 | 2032 | 8  | . |
| 393 | 2032 | 9  | . |
| 394 | 2032 | 10 | . |
| 395 | 2032 | 11 | . |
| 396 | 2032 | 12 | . |
| 397 | 2033 | 1  | . |
| 398 | 2033 | 2  | . |
| 399 | 2033 | 3  | . |
| 400 | 2033 | 4  | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 401 | 2033 | 5     | .   |
| 402 | 2033 | 6     | .   |
| 403 | 2033 | 7     | .   |
| 404 | 2033 | 8     | .   |
| 405 | 2033 | 9     | .   |
| 406 | 2033 | 10    | .   |
| 407 | 2033 | 11    | .   |
| 408 | 2033 | 12    | .   |
| 409 | 2034 | 1     | .   |
| 410 | 2034 | 2     | .   |
| 411 | 2034 | 3     | .   |
| 412 | 2034 | 4     | .   |
| 413 | 2034 | 5     | .   |
| 414 | 2034 | 6     | .   |
| 415 | 2034 | 7     | .   |
| 416 | 2034 | 8     | .   |
| 417 | 2034 | 9     | .   |
| 418 | 2034 | 10    | .   |
| 419 | 2034 | 11    | .   |
| 420 | 2034 | 12    | .   |
| 421 | 2035 | 1     | .   |
| 422 | 2035 | 2     | .   |
| 423 | 2035 | 3     | .   |
| 424 | 2035 | 4     | .   |
| 425 | 2035 | 5     | .   |
| 426 | 2035 | 6     | .   |
| 427 | 2035 | 7     | .   |
| 428 | 2035 | 8     | .   |
| 429 | 2035 | 9     | .   |
| 430 | 2035 | 10    | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1096 of 1182

|     |      |    |   |
|-----|------|----|---|
| 431 | 2035 | 11 | . |
| 432 | 2035 | 12 | . |
| 433 | 2036 | 1  | . |
| 434 | 2036 | 2  | . |
| 435 | 2036 | 3  | . |
| 436 | 2036 | 4  | . |
| 437 | 2036 | 5  | . |
| 438 | 2036 | 6  | . |
| 439 | 2036 | 7  | . |
| 440 | 2036 | 8  | . |
| 441 | 2036 | 9  | . |
| 442 | 2036 | 10 | . |
| 443 | 2036 | 11 | . |
| 444 | 2036 | 12 | . |
| 445 | 2037 | 1  | . |
| 446 | 2037 | 2  | . |
| 447 | 2037 | 3  | . |
| 448 | 2037 | 4  | . |
| 449 | 2037 | 5  | . |
| 450 | 2037 | 6  | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 451 | 2037 | 7     | .   |
| 452 | 2037 | 8     | .   |
| 453 | 2037 | 9     | .   |
| 454 | 2037 | 10    | .   |
| 455 | 2037 | 11    | .   |
| 456 | 2037 | 12    | .   |
| 457 | 2038 | 1     | .   |
| 458 | 2038 | 2     | .   |
| 459 | 2038 | 3     | .   |
| 460 | 2038 | 4     | .   |
| 461 | 2038 | 5     | .   |
| 462 | 2038 | 6     | .   |
| 463 | 2038 | 7     | .   |
| 464 | 2038 | 8     | .   |
| 465 | 2038 | 9     | .   |
| 466 | 2038 | 10    | .   |
| 467 | 2038 | 11    | .   |
| 468 | 2038 | 12    | .   |
| 469 | 2039 | 1     | .   |
| 470 | 2039 | 2     | .   |
| 471 | 2039 | 3     | .   |
| 472 | 2039 | 4     | .   |
| 473 | 2039 | 5     | .   |
| 474 | 2039 | 6     | .   |
| 475 | 2039 | 7     | .   |
| 476 | 2039 | 8     | .   |
| 477 | 2039 | 9     | .   |
| 478 | 2039 | 10    | .   |
| 479 | 2039 | 11    | .   |
| 480 | 2039 | 12    | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1097 of 1182

|     |      |    |   |
|-----|------|----|---|
| 481 | 2040 | 1  | . |
| 482 | 2040 | 2  | . |
| 483 | 2040 | 3  | . |
| 484 | 2040 | 4  | . |
| 485 | 2040 | 5  | . |
| 486 | 2040 | 6  | . |
| 487 | 2040 | 7  | . |
| 488 | 2040 | 8  | . |
| 489 | 2040 | 9  | . |
| 490 | 2040 | 10 | . |
| 491 | 2040 | 11 | . |
| 492 | 2040 | 12 | . |
| 493 | 2041 | 1  | . |
| 494 | 2041 | 2  | . |
| 495 | 2041 | 3  | . |
| 496 | 2041 | 4  | . |
| 497 | 2041 | 5  | . |
| 498 | 2041 | 6  | . |
| 499 | 2041 | 7  | . |
| 500 | 2041 | 8  | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 501 | 2041 | 9     | .   |
| 502 | 2041 | 10    | .   |
| 503 | 2041 | 11    | .   |
| 504 | 2041 | 12    | .   |
| 505 | 2042 | 1     | .   |
| 506 | 2042 | 2     | .   |
| 507 | 2042 | 3     | .   |
| 508 | 2042 | 4     | .   |
| 509 | 2042 | 5     | .   |
| 510 | 2042 | 6     | .   |
| 511 | 2042 | 7     | .   |
| 512 | 2042 | 8     | .   |
| 513 | 2042 | 9     | .   |
| 514 | 2042 | 10    | .   |
| 515 | 2042 | 11    | .   |
| 516 | 2042 | 12    | .   |
| 517 | 2043 | 1     | .   |
| 518 | 2043 | 2     | .   |
| 519 | 2043 | 3     | .   |
| 520 | 2043 | 4     | .   |
| 521 | 2043 | 5     | .   |
| 522 | 2043 | 6     | .   |
| 523 | 2043 | 7     | .   |
| 524 | 2043 | 8     | .   |
| 525 | 2043 | 9     | .   |
| 526 | 2043 | 10    | .   |
| 527 | 2043 | 11    | .   |
| 528 | 2043 | 12    | .   |
| 529 | 2044 | 1     | .   |
| 530 | 2044 | 2     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1098 of 1182

|     |      |    |   |
|-----|------|----|---|
| 531 | 2044 | 3  | . |
| 532 | 2044 | 4  | . |
| 533 | 2044 | 5  | . |
| 534 | 2044 | 6  | . |
| 535 | 2044 | 7  | . |
| 536 | 2044 | 8  | . |
| 537 | 2044 | 9  | . |
| 538 | 2044 | 10 | . |
| 539 | 2044 | 11 | . |
| 540 | 2044 | 12 | . |
| 541 | 2045 | 1  | . |
| 542 | 2045 | 2  | . |
| 543 | 2045 | 3  | . |
| 544 | 2045 | 4  | . |
| 545 | 2045 | 5  | . |
| 546 | 2045 | 6  | . |
| 547 | 2045 | 7  | . |
| 548 | 2045 | 8  | . |
| 549 | 2045 | 9  | . |
| 550 | 2045 | 10 | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 551 | 2045 | 11    | .   |
| 552 | 2045 | 12    | .   |
| 553 | 2046 | 1     | .   |
| 554 | 2046 | 2     | .   |
| 555 | 2046 | 3     | .   |
| 556 | 2046 | 4     | .   |
| 557 | 2046 | 5     | .   |
| 558 | 2046 | 6     | .   |
| 559 | 2046 | 7     | .   |
| 560 | 2046 | 8     | .   |
| 561 | 2046 | 9     | .   |
| 562 | 2046 | 10    | .   |
| 563 | 2046 | 11    | .   |
| 564 | 2046 | 12    | .   |
| 565 | 2047 | 1     | .   |
| 566 | 2047 | 2     | .   |
| 567 | 2047 | 3     | .   |
| 568 | 2047 | 4     | .   |
| 569 | 2047 | 5     | .   |
| 570 | 2047 | 6     | .   |
| 571 | 2047 | 7     | .   |
| 572 | 2047 | 8     | .   |
| 573 | 2047 | 9     | .   |
| 574 | 2047 | 10    | .   |
| 575 | 2047 | 11    | .   |
| 576 | 2047 | 12    | .   |
| 577 | 2048 | 1     | .   |
| 578 | 2048 | 2     | .   |
| 579 | 2048 | 3     | .   |
| 580 | 2048 | 4     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1099 of 1182

|     |      |    |   |
|-----|------|----|---|
| 581 | 2048 | 5  | . |
| 582 | 2048 | 6  | . |
| 583 | 2048 | 7  | . |
| 584 | 2048 | 8  | . |
| 585 | 2048 | 9  | . |
| 586 | 2048 | 10 | . |
| 587 | 2048 | 11 | . |
| 588 | 2048 | 12 | . |
| 589 | 2049 | 1  | . |
| 590 | 2049 | 2  | . |
| 591 | 2049 | 3  | . |
| 592 | 2049 | 4  | . |
| 593 | 2049 | 5  | . |
| 594 | 2049 | 6  | . |
| 595 | 2049 | 7  | . |
| 596 | 2049 | 8  | . |
| 597 | 2049 | 9  | . |
| 598 | 2049 | 10 | . |
| 599 | 2049 | 11 | . |
| 600 | 2049 | 12 | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 601 | 2050 | 1     | .   |
| 602 | 2050 | 2     | .   |
| 603 | 2050 | 3     | .   |
| 604 | 2050 | 4     | .   |
| 605 | 2050 | 5     | .   |
| 606 | 2050 | 6     | .   |
| 607 | 2050 | 7     | .   |
| 608 | 2050 | 8     | .   |
| 609 | 2050 | 9     | .   |
| 610 | 2050 | 10    | .   |
| 611 | 2050 | 11    | .   |
| 612 | 2050 | 12    | .   |
| 613 | 2051 | 1     | .   |
| 614 | 2051 | 2     | .   |
| 615 | 2051 | 3     | .   |
| 616 | 2051 | 4     | .   |
| 617 | 2051 | 5     | .   |
| 618 | 2051 | 6     | .   |
| 619 | 2051 | 7     | .   |
| 620 | 2051 | 8     | .   |
| 621 | 2051 | 9     | .   |
| 622 | 2051 | 10    | .   |
| 623 | 2051 | 11    | .   |
| 624 | 2051 | 12    | .   |
| 625 | 2052 | 1     | .   |
| 626 | 2052 | 2     | .   |
| 627 | 2052 | 3     | .   |
| 628 | 2052 | 4     | .   |
| 629 | 2052 | 5     | .   |
| 630 | 2052 | 6     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1100 of 1182

|     |      |    |   |
|-----|------|----|---|
| 631 | 2052 | 7  | . |
| 632 | 2052 | 8  | . |
| 633 | 2052 | 9  | . |
| 634 | 2052 | 10 | . |
| 635 | 2052 | 11 | . |
| 636 | 2052 | 12 | . |
| 637 | 2053 | 1  | . |
| 638 | 2053 | 2  | . |
| 639 | 2053 | 3  | . |
| 640 | 2053 | 4  | . |
| 641 | 2053 | 5  | . |
| 642 | 2053 | 6  | . |
| 643 | 2053 | 7  | . |
| 644 | 2053 | 8  | . |
| 645 | 2053 | 9  | . |
| 646 | 2053 | 10 | . |
| 647 | 2053 | 11 | . |
| 648 | 2053 | 12 | . |
| 649 | 2054 | 1  | . |
| 650 | 2054 | 2  | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Endogenous Variable

| Obs | YEAR | MONTH | kwh |
|-----|------|-------|-----|
| 651 | 2054 | 3     | .   |
| 652 | 2054 | 4     | .   |
| 653 | 2054 | 5     | .   |
| 654 | 2054 | 6     | .   |
| 655 | 2054 | 7     | .   |
| 656 | 2054 | 8     | .   |
| 657 | 2054 | 9     | .   |
| 658 | 2054 | 10    | .   |
| 659 | 2054 | 11    | .   |
| 660 | 2054 | 12    | .   |
| 661 | 2055 | 1     | .   |
| 662 | 2055 | 2     | .   |
| 663 | 2055 | 3     | .   |
| 664 | 2055 | 4     | .   |
| 665 | 2055 | 5     | .   |
| 666 | 2055 | 6     | .   |
| 667 | 2055 | 7     | .   |
| 668 | 2055 | 8     | .   |
| 669 | 2055 | 9     | .   |
| 670 | 2055 | 10    | .   |
| 671 | 2055 | 11    | .   |
| 672 | 2055 | 12    | .   |
| 673 | 2056 | 1     | .   |
| 674 | 2056 | 2     | .   |
| 675 | 2056 | 3     | .   |
| 676 | 2056 | 4     | .   |
| 677 | 2056 | 5     | .   |
| 678 | 2056 | 6     | .   |
| 679 | 2056 | 7     | .   |
| 680 | 2056 | 8     | .   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1101 of 1182

|     |      |    |   |
|-----|------|----|---|
| 681 | 2056 | 9  | . |
| 682 | 2056 | 10 | . |
| 683 | 2056 | 11 | . |
| 684 | 2056 | 12 | . |
| 685 | 2057 | 1  | . |
| 686 | 2057 | 2  | . |
| 687 | 2057 | 3  | . |
| 688 | 2057 | 4  | . |
| 689 | 2057 | 5  | . |
| 690 | 2057 | 6  | . |
| 691 | 2057 | 7  | . |
| 692 | 2057 | 8  | . |
| 693 | 2057 | 9  | . |
| 694 | 2057 | 10 | . |
| 695 | 2057 | 11 | . |
| 696 | 2057 | 12 | . |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Exogenous Variables

The MEANS Procedure

| Variable | Label                            | Mean        |
|----------|----------------------------------|-------------|
| YEAR     | YEAR                             | 2028.50     |
| MONTH    | MONTH                            | 6.5000000   |
| bcdd65   | Cooling Degree Days (Base 65)    | 99.9442273  |
| bhdd55   | Heating Degree Days (Base 55)    | 203.5764807 |
| L_kpc    | Service Area Employment          | 121.8544188 |
| d1       | Binary Variable-January          | 0.0833333   |
| d2       | Binary Variable-February         | 0.0833333   |
| d3       | Binary Variable-March            | 0.0833333   |
| d4       | Binary Variable-April            | 0.0833333   |
| d5       | Binary Variable-May              | 0.0833333   |
| d6       | Binary Variable-June             | 0.0833333   |
| d7       | Binary Variable-July             | 0.0833333   |
| d8       | Binary Variable-August           | 0.0833333   |
| d9       | Binary Variable-September        | 0.0833333   |
| d10      | Binary Variable-October          | 0.0833333   |
| d11      | Binary Variable-November         | 0.0833333   |
| jan04    | Binary Variable-July 2004        | 0.0014368   |
| mar02    | Binary Variable-March 2002       | 0.0014368   |
| apr02    | Binary Variable-April 2002       | 0.0014368   |
| jul15on  | Binary Variable-July 2015 On     | 0.7327586   |
| dec18on  | Binary Variable-December 2018 On | 0.6738506   |
| jand08on | Binary Variable-2008 On January  | 0.0718391   |
| decd07on | Binary Variable-2007 On December | 0.0732759   |
| oct11on  | Binary Variable-October 2011 On  | 0.7974138   |
| d17onjan | Binary Variable-2017 On January  | 0.0589080   |
| mar18on  | Binary Variable-March 2018 On    | 0.6867816   |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Exogenous Variables



































KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1119 of 1182

|          |   |          |          |       |        |                                  |
|----------|---|----------|----------|-------|--------|----------------------------------|
| jan04    | 1 | 2686728  | 176925.9 | 15.19 | <.0001 | Binary Variable-July 2004        |
| mar02    | 1 | -842041  | 169820.3 | -4.96 | <.0001 | Binary Variable-March 2002       |
| apr02    | 1 | 1665412  | 169736.4 | 9.81  | <.0001 | Binary Variable-April 2002       |
| jand08on | 1 | 315056.5 | 84714.92 | 3.72  | 0.0002 | Binary Variable-2008 On January  |
| decd07on | 1 | -50705.1 | 77536.51 | -0.65 | 0.5138 | Binary Variable-2007 On December |
| oct11on  | 1 | -157385  | 48094.22 | -3.27 | 0.0012 | Binary Variable-October 2011 On  |
| d1       | 1 | -125997  | 92126.11 | -1.37 | 0.1727 | Binary Variable-January          |
| d2       | 1 | -414157  | 82211.08 | -5.04 | <.0001 | Binary Variable-February         |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Results

The SYSLIN Procedure  
 Ordinary Least Squares Estimation

Parameter Estimates

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr >  t | Variable Label                   |
|----------|----|--------------------|----------------|---------|---------|----------------------------------|
| d3       | 1  | -541495            | 74242.54       | -7.29   | <.0001  | Binary Variable-March            |
| d4       | 1  | -786501            | 77626.22       | -10.13  | <.0001  | Binary Variable-April            |
| d5       | 1  | -667072            | 89329.56       | -7.47   | <.0001  | Binary Variable-May              |
| d6       | 1  | -533529            | 102375.1       | -5.21   | <.0001  | Binary Variable-June             |
| d7       | 1  | -361613            | 124904.9       | -2.90   | 0.0041  | Binary Variable-July             |
| d8       | 1  | -492857            | 133570.9       | -3.69   | 0.0003  | Binary Variable-August           |
| d9       | 1  | -794319            | 122189.1       | -6.50   | <.0001  | Binary Variable-September        |
| d10      | 1  | -720981            | 95886.49       | -7.52   | <.0001  | Binary Variable-October          |
| d11      | 1  | -371660            | 81256.44       | -4.57   | <.0001  | Binary Variable-November         |
| jul15on  | 1  | -85117.5           | 53437.70       | -1.59   | 0.1125  | Binary Variable-July 2015 On     |
| d17onjan | 1  | -214391            | 90792.04       | -2.36   | 0.0190  | Binary Variable-2017 On January  |
| mar18on  | 1  | 90693.64           | 64775.68       | 1.40    | 0.1628  | Binary Variable-March 2018 On    |
| dec18on  | 1  | -142664            | 65224.80       | -2.19   | 0.0297  | Binary Variable-December 2018 On |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1120 of 1182

Durbin-Watson 2.187661  
 Number of Observations 265  
 First-Order Autocorrelation -0.09759

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals

| time         |       | Residual Values |
|--------------|-------|-----------------|
|              |       | Sum             |
| 2000.000000  | *     | -10353.3        |
| 2000.0833333 | ***** | -314720.0       |
| 2000.1666667 | ***** | 359177.8        |
| 2000.2500000 | ***** | 110824.5        |
| 2000.3333333 | ***** | -101621.0       |
| 2000.4166667 | ***** | -338642.6       |
| 2000.5000000 | ***** | -146740.7       |
| 2000.5833333 | *     | -11142.5        |
| 2000.6666667 | ***** | 262381.5        |
| 2000.7500000 | ***** | 288343.3        |
| 2000.8333333 | ***** | -495558.6       |
| 2000.9166667 | ***** | -613935.6       |
| 2001.0000000 | ****  | -73518.3        |
| 2001.0833333 | ***** | 434785.5        |
| 2001.1666667 | ****  | -86831.0        |
| 2001.2500000 | ***** | -111661.2       |
| 2001.3333333 | *     | -23913.9        |
| 2001.4166667 | ***** | -105708.8       |
| 2001.5000000 | ***** | -256724.7       |
| 2001.5833333 | ***** | -330413.0       |
| 2001.6666667 | ***** | -451314.3       |
| 2001.7500000 | ***** | -239759.0       |
| 2001.8333333 | ***** | 423742.9        |
| 2001.9166667 | ***** | -151979.9       |
| 2002.0000000 |       | -6248.0         |
| 2002.0833333 | ***** | -152310.1       |
| 2002.1666667 |       | -0.0            |
| 2002.2500000 |       | 0.0             |
| 2002.3333333 | ***** | -166222.7       |
| 2002.4166667 | ***   | 65545.2         |
| 2002.5000000 | ***** | 254685.6        |
| 2002.5833333 | ***   | 67824.5         |
| 2002.6666667 | ***** | 95233.6         |
| 2002.7500000 | ***** | -163474.5       |
| 2002.8333333 | ***** | -103151.8       |
| 2002.9166667 | ***** | 262652.0        |
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| 2003.0833333 | ***** | -167674.0       |
| 2003.1666667 | ***** | -325239.4       |
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| 2003.3333333 | ***** | -118856.3       |
| 2003.4166667 | ***** | -199470.8       |
| 2003.5000000 | ***** | 154779.7        |
| 2003.5833333 | *     | 26743.6         |
| 2003.6666667 | *     | -13557.1        |
| 2003.7500000 | ****  | 76141.4         |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1121 of 1182

|              |       |           |
|--------------|-------|-----------|
| 2003.8333333 | ***** | -246536.6 |
| 2003.9166667 | ***** | 223176.7  |
| 2004.0000000 |       | 0.0       |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals

|              |       |           |
|--------------|-------|-----------|
| 2004.0833333 | **    | 31888.5   |
| 2004.1666667 | *     | -13160.8  |
| 2004.2500000 |       | -1486.6   |
| 2004.3333333 |       | 7461.9    |
| 2004.4166667 | ****  | 71684.2   |
| 2004.5000000 | **    | -35193.7  |
| 2004.5833333 | ***** | -156595.5 |
| 2004.6666667 | ***** | 324899.4  |
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| 2005.1666667 | ***** | 163529.3  |
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| 2006.3333333 | *     | 12973.2   |
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KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1122 of 1182

|             |      |          |
|-------------|------|----------|
| 2008.166667 | **** | 77325.5  |
| 2008.250000 | *    | -25527.1 |
| 2008.333333 | **** | -83026.6 |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals

|             |       |           |
|-------------|-------|-----------|
| 2008.416667 | ***** | 129938.2  |
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| 2008.583333 | **    | -42489.9  |
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| 2009.083333 | ***   | -59494.4  |
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| 2011.750000 | ***** | 172456.1  |
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| 2012.250000 | **    | 37431.4   |
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KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1123 of 1182

|              |  |     |          |
|--------------|--|-----|----------|
| 2012.5000000 |  | *** | 65043.2  |
| 2012.5833333 |  | *** | -61626.9 |
| 2012.6666667 |  | *** | -63437.7 |

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals

|              |       |       |           |
|--------------|-------|-------|-----------|
| 2012.7500000 |       | ***** | 121001.2  |
| 2012.8333333 |       | ***** | 116659.4  |
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| 2013.1666667 |       | ***** | 235306.1  |
| 2013.2500000 |       | ***** | -117892.1 |
| 2013.3333333 |       | *     | 12427.0   |
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| 2013.5833333 |       | ***** | -125979.9 |
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| 2014.5000000 | ***** |       | -207898.3 |
| 2014.5833333 |       | ****  | 71372.7   |
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| 2015.2500000 |       | ****  | -70906.7  |
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| 2015.6666667 |       | ***** | 103251.5  |
| 2015.7500000 |       | ***   | 68185.4   |
| 2015.8333333 |       | ***   | -66900.3  |
| 2015.9166667 | ***** |       | -274971.1 |
| 2016.0000000 |       | ***   | 60863.7   |
| 2016.0833333 |       | *     | -29044.4  |
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| 2016.2500000 |       | ***** | 130627.4  |
| 2016.3333333 |       | ***   | 53201.8   |
| 2016.4166667 |       | ***** | 117154.3  |
| 2016.5000000 |       | ***   | 60668.5   |
| 2016.5833333 |       | ***** | 162008.4  |
| 2016.6666667 |       | **    | 48367.7   |
| 2016.7500000 |       | ***** | -96549.0  |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1124 of 1182

|              |       |           |
|--------------|-------|-----------|
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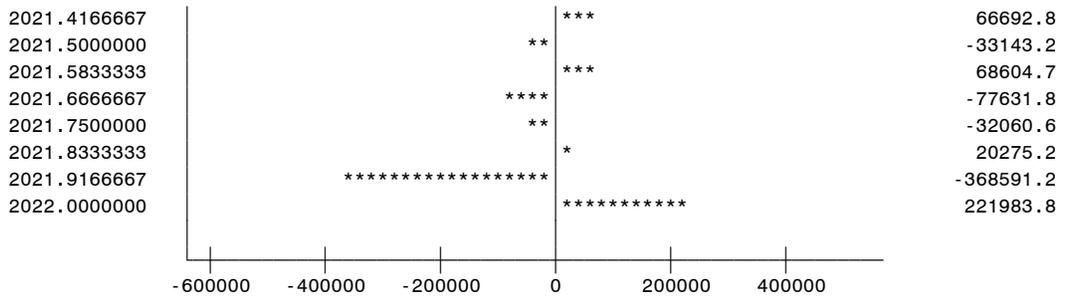
Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals

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| 2017.6666667 | **    | 45651.9   |
| 2017.7500000 | ***   | 64957.4   |
| 2017.8333333 | *     | 18253.2   |
| 2017.9166667 | ***** | 144292.0  |
| 2018.0000000 | ***** | 143013.5  |
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| 2018.2500000 | *     | 26810.1   |
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| 2019.5833333 | *     | -14331.9  |
| 2019.6666667 | ***** | 163593.8  |
| 2019.7500000 | ***** | -122733.6 |
| 2019.8333333 | ***** | 109842.8  |
| 2019.9166667 | ***** | -174107.0 |
| 2020.0000000 | ***** | -200194.5 |
| 2020.0833333 | **    | 30413.6   |
| 2020.1666667 | ***** | -149059.6 |
| 2020.2500000 | ***   | 57627.7   |
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| 2020.4166667 | *     | 13119.1   |
| 2020.5000000 | ***** | 229183.2  |
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| 2020.6666667 |       | -2921.7   |
| 2020.7500000 | ***   | 57051.8   |
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| 2020.9166667 | **    | 49643.6   |
| 2021.0000000 | ***   | -63021.2  |
| 2021.0833333 | ****  | 76434.8   |

KPSC Case No. 2023-00092  
 Kentucky Power 2022 Integrated Resource Plan  
 Volume A - Public Version  
 Page 1125 of 1182

|              |       |           |
|--------------|-------|-----------|
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| 2021.2500000 | ***** | 147862.5  |
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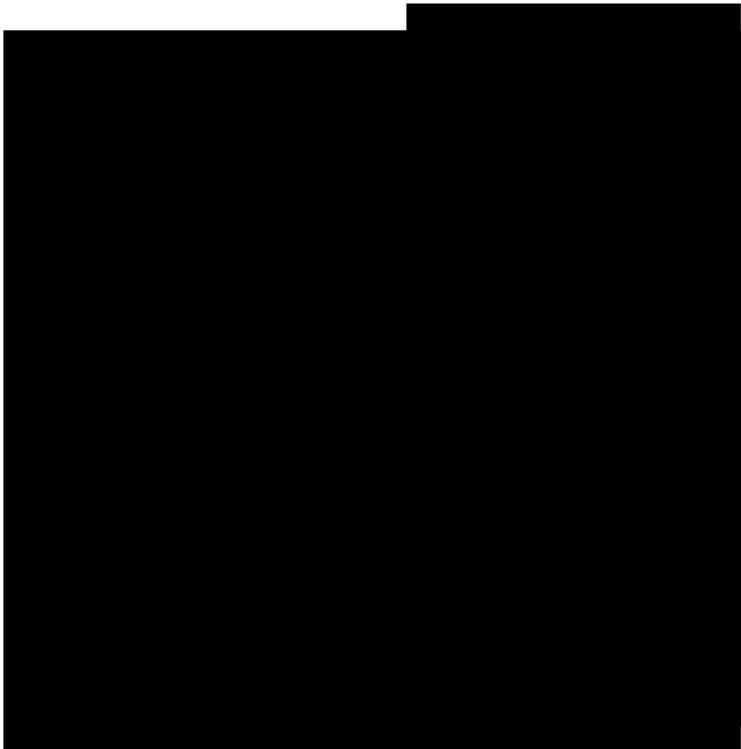
Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Model Residuals



Residual Values

Kentucky Power Company  
 Municipal Energy Sales-Olive Hill  
 Actual and Forecast

| Year | Energy Sales | Growth Rate |
|------|--------------|-------------|
|------|--------------|-------------|



[REDACTED]

[REDACTED]

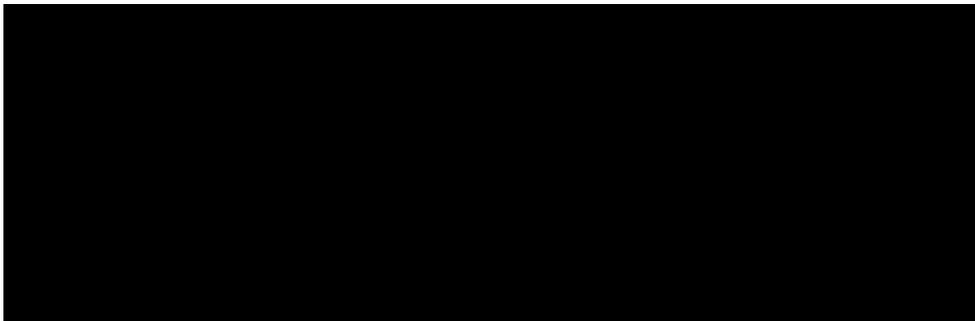
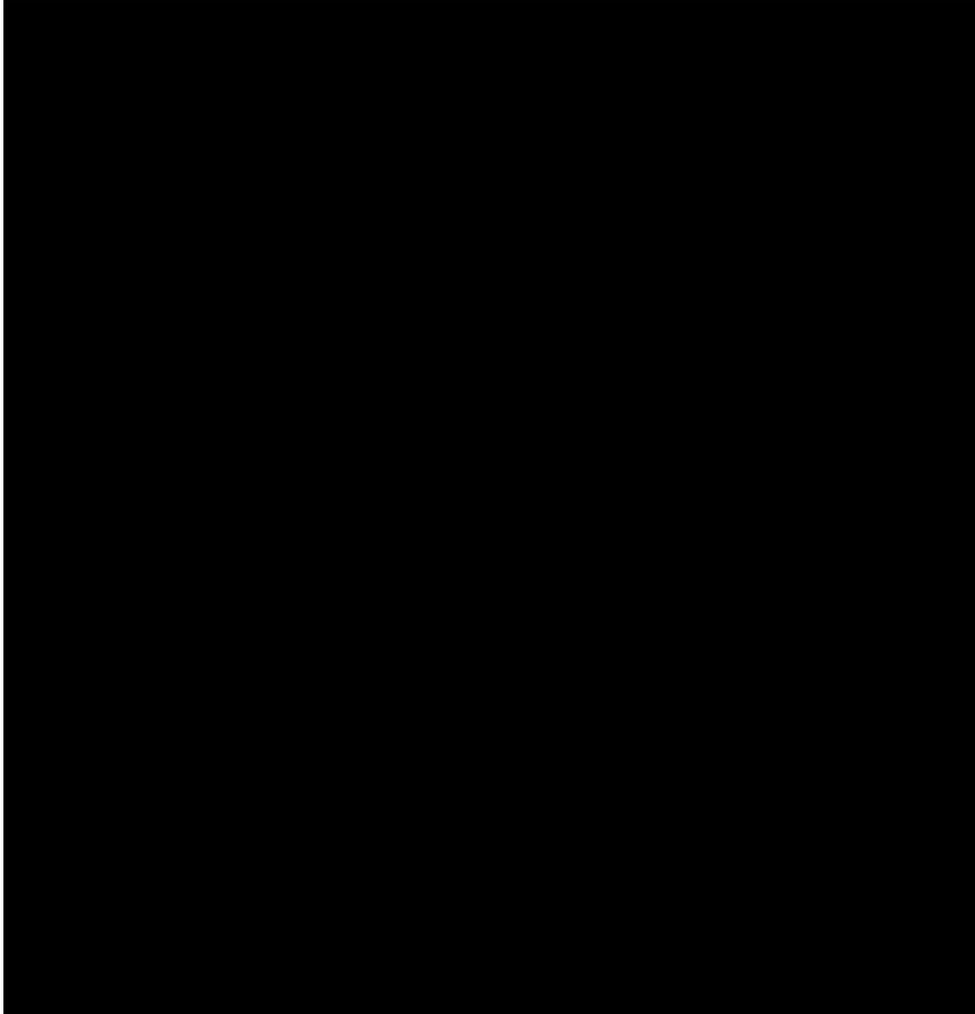
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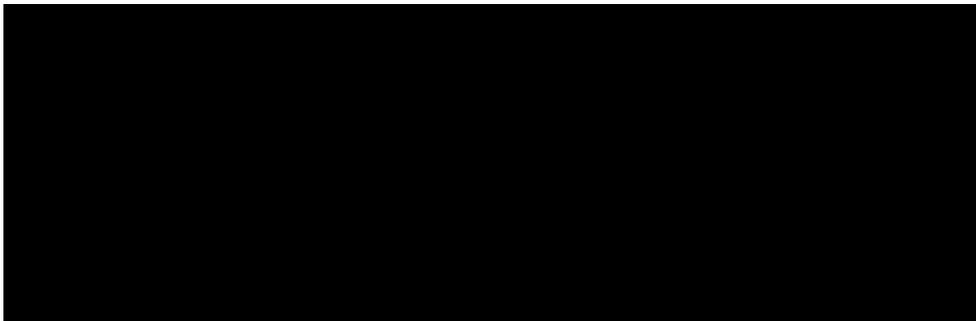
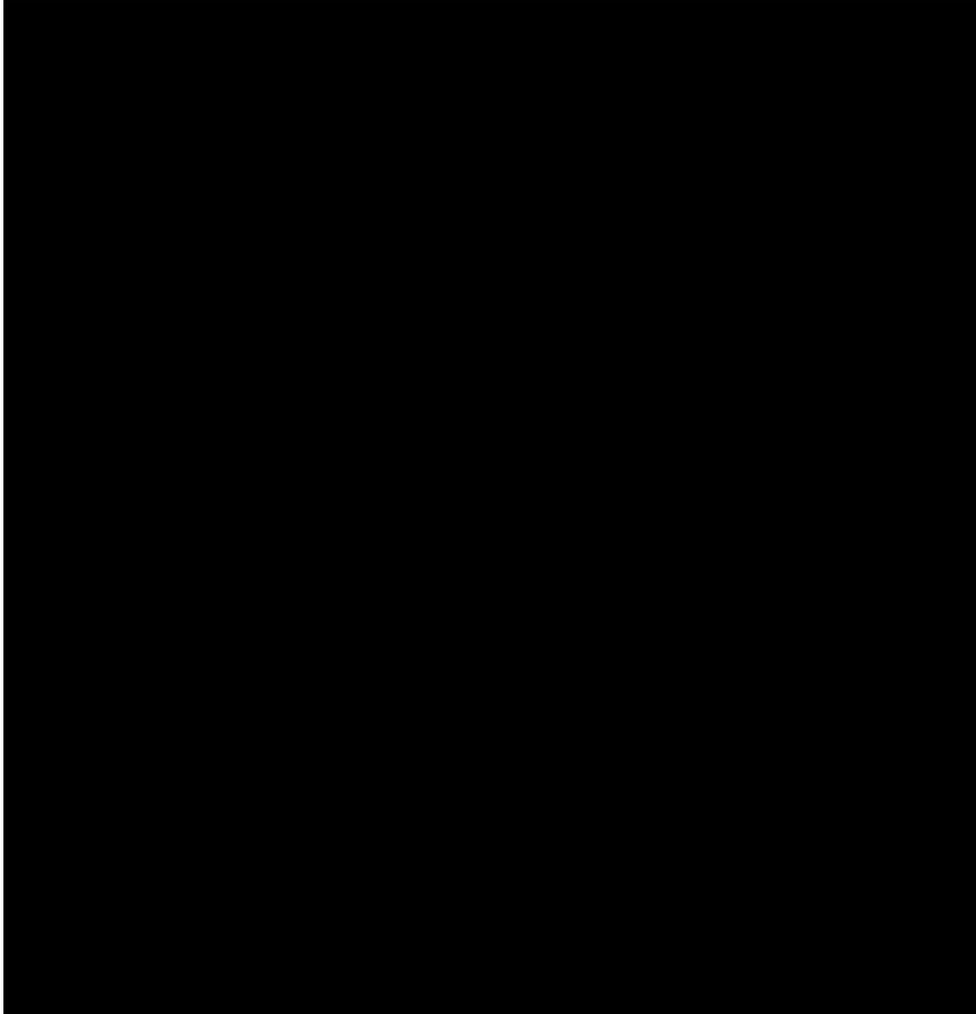
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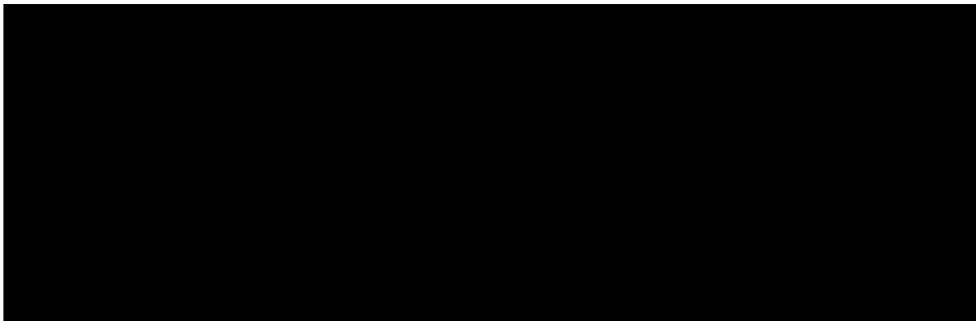
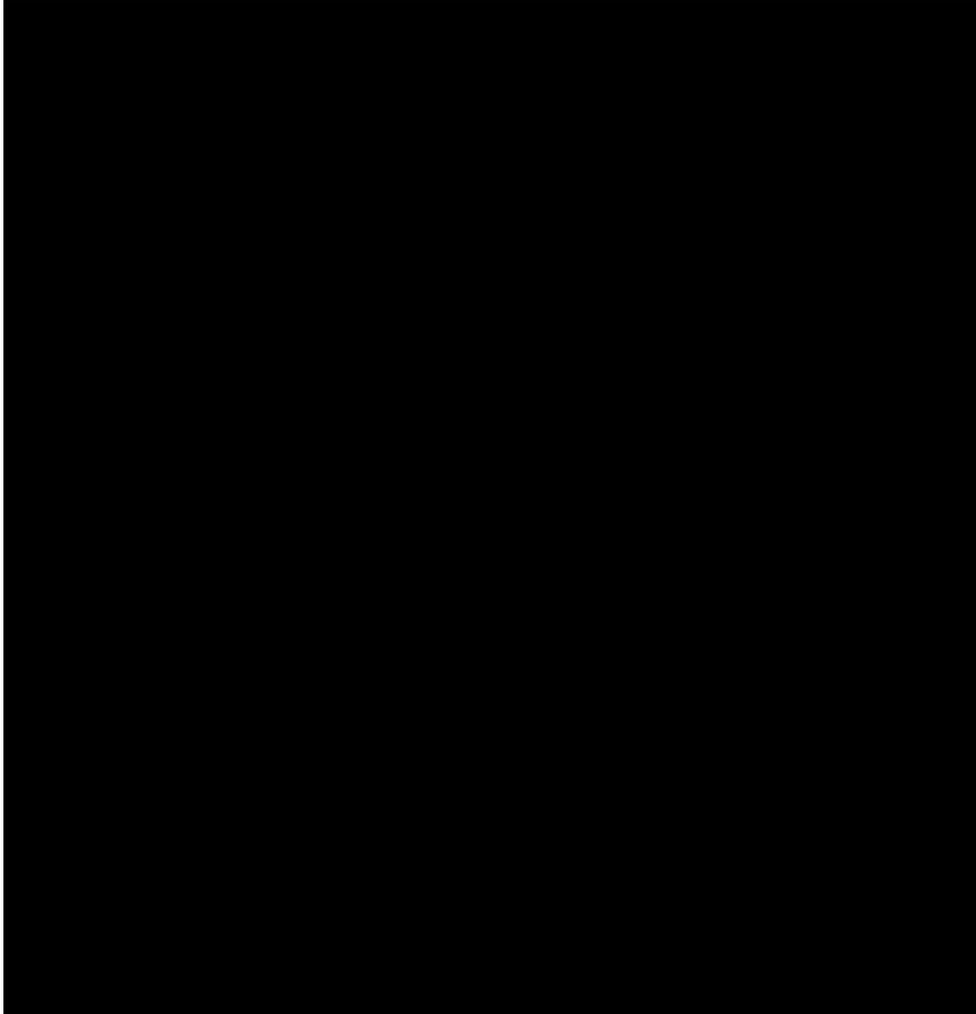
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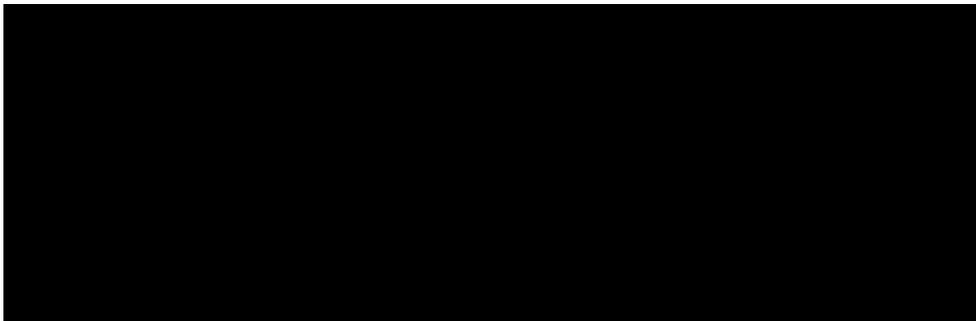
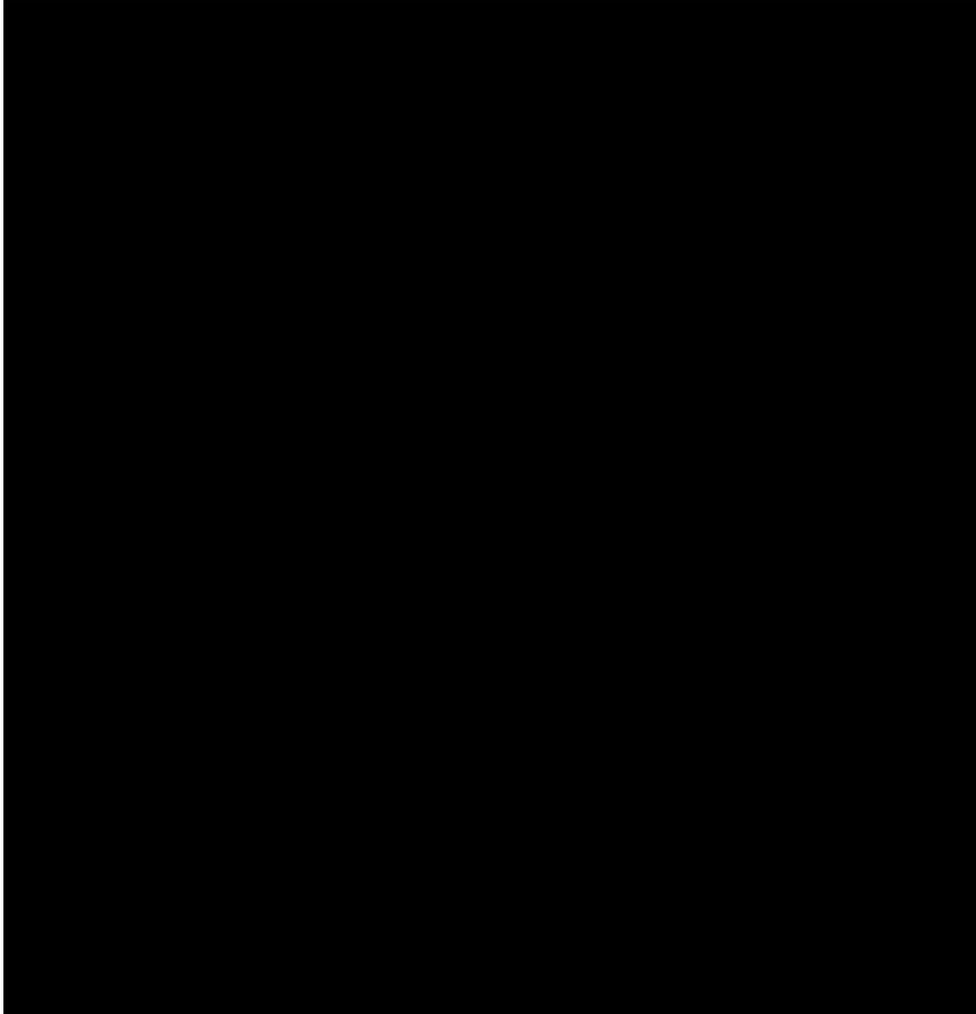
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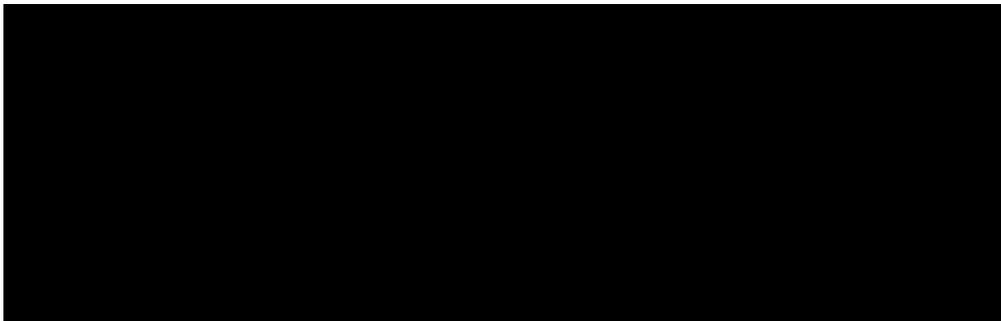
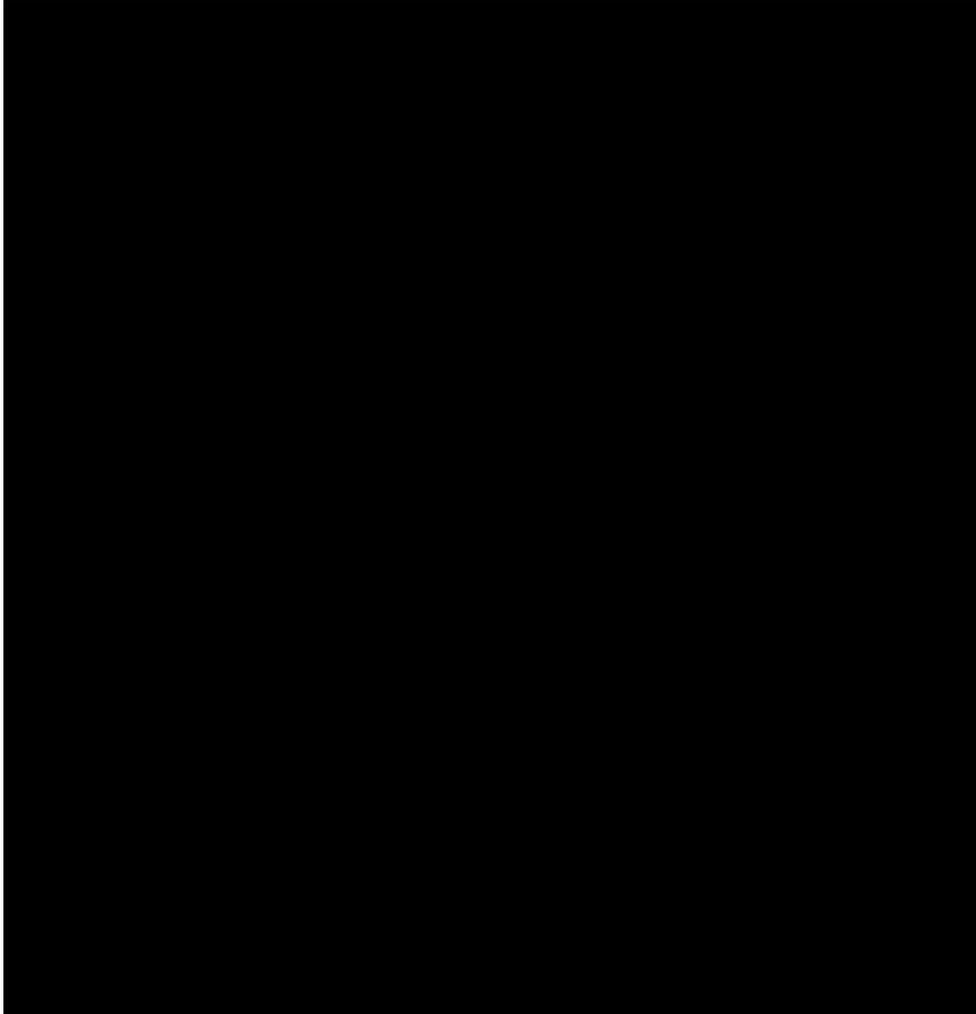
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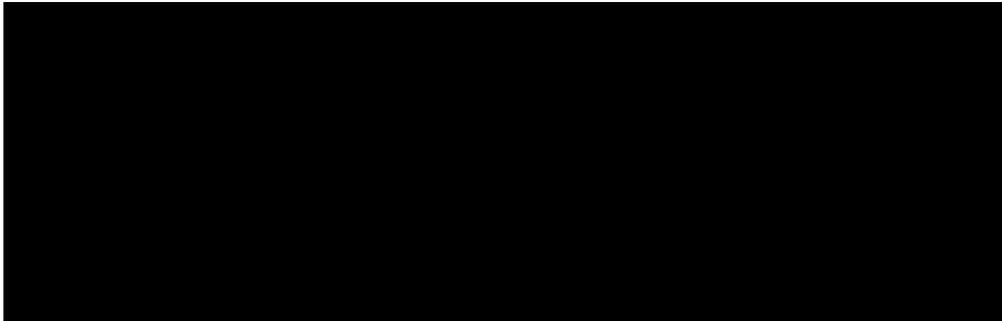
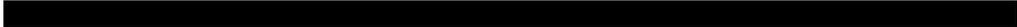
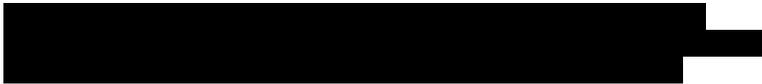
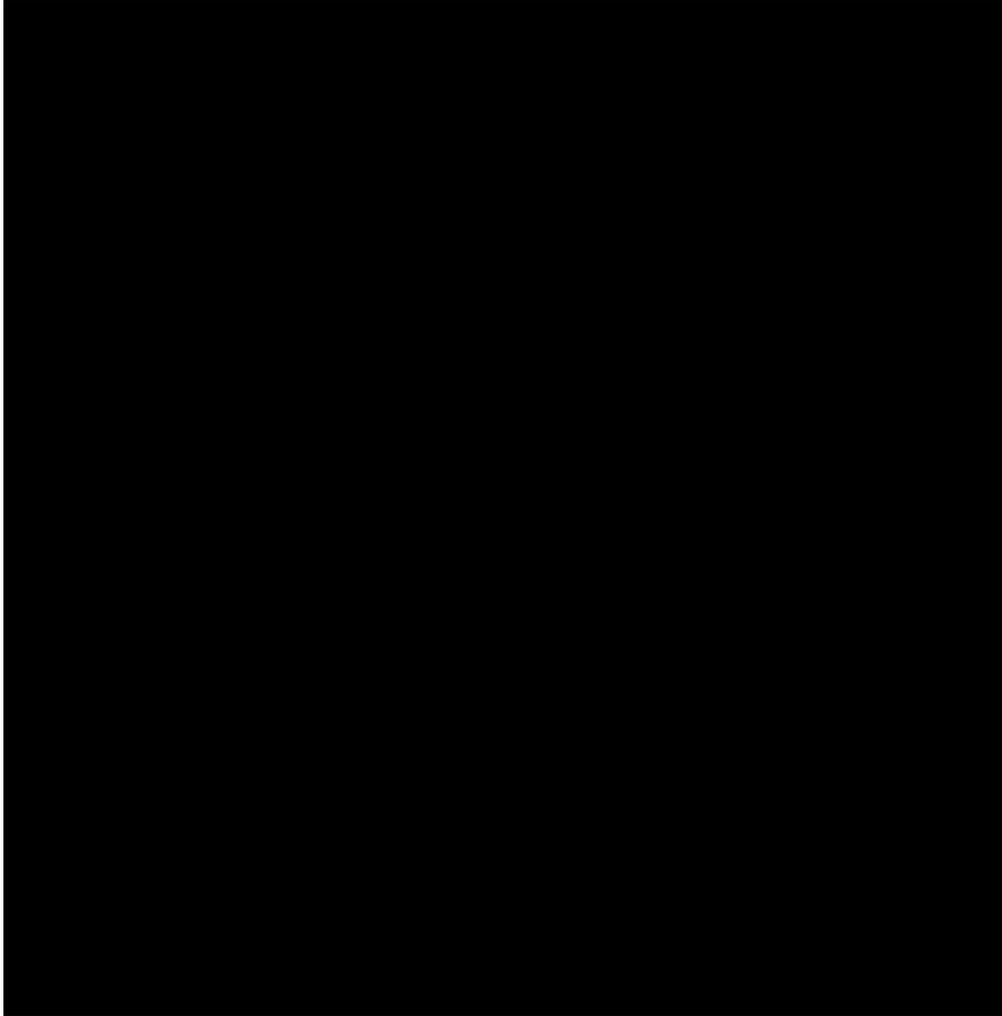


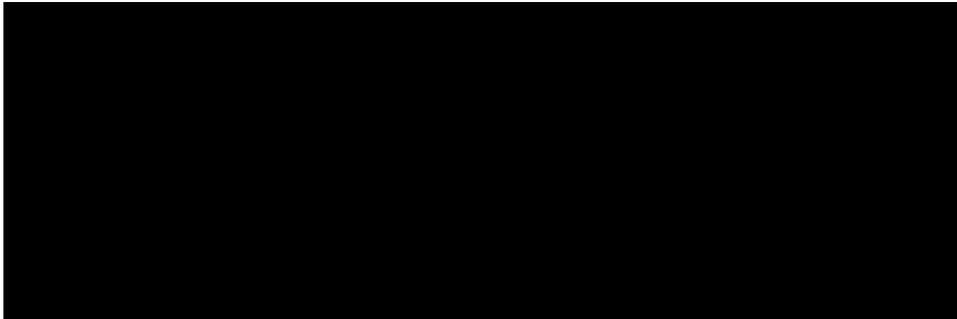
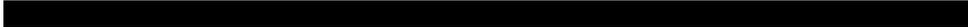
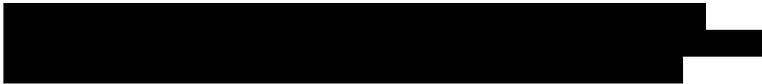
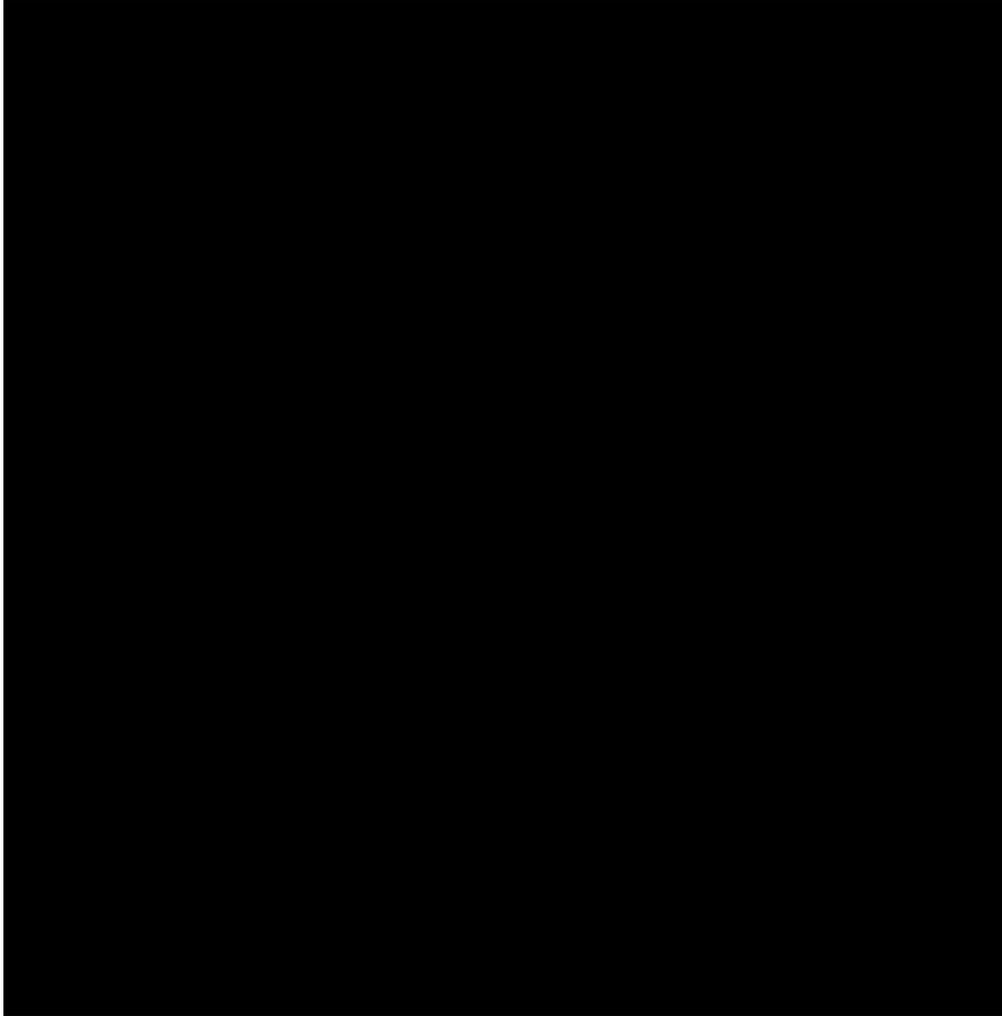


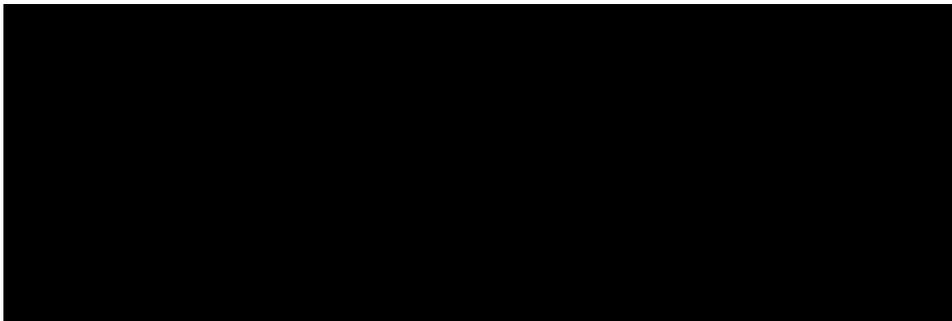
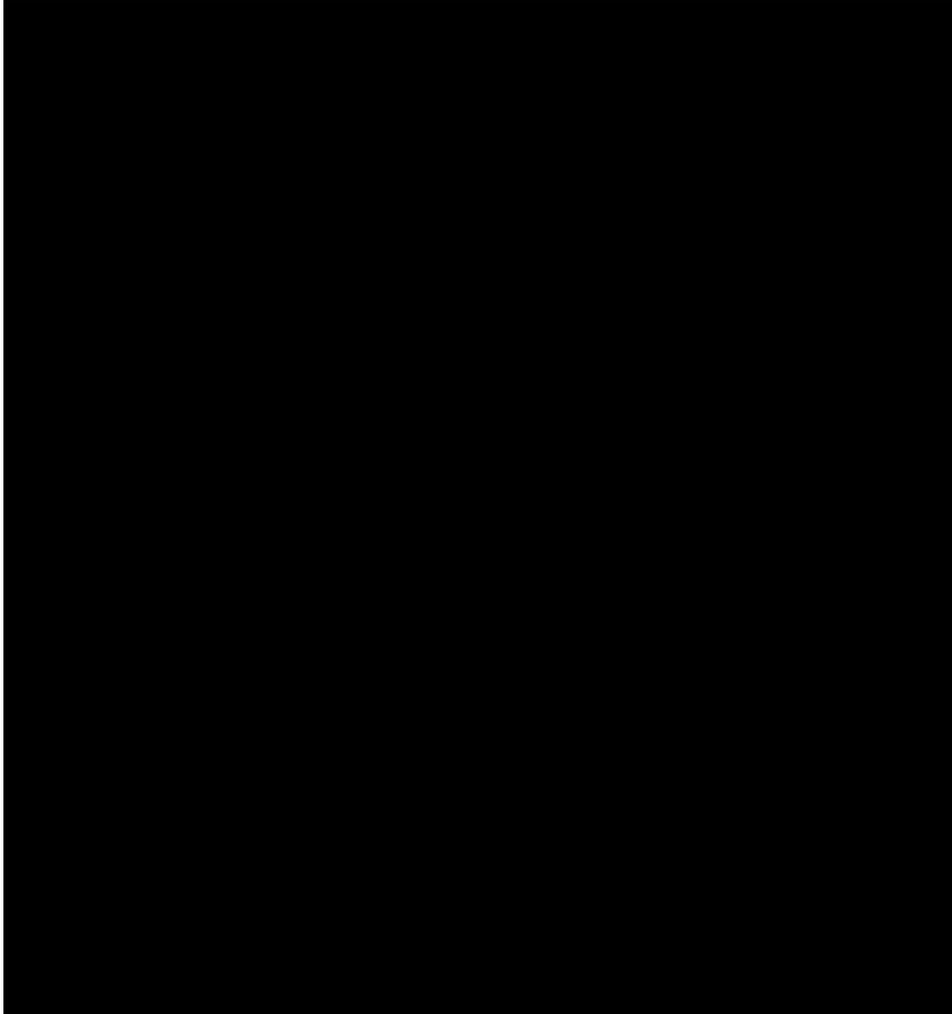


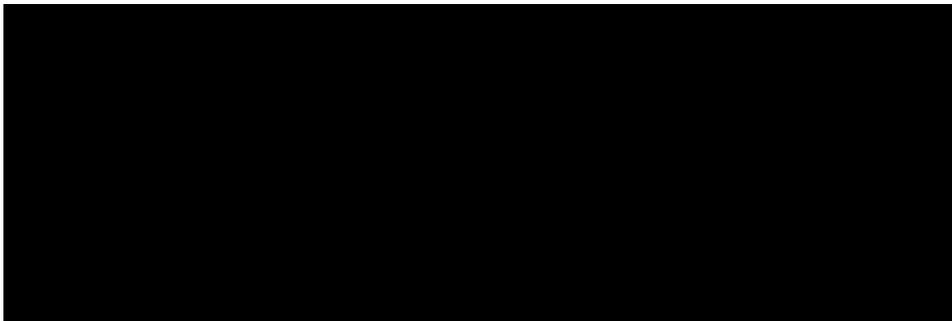
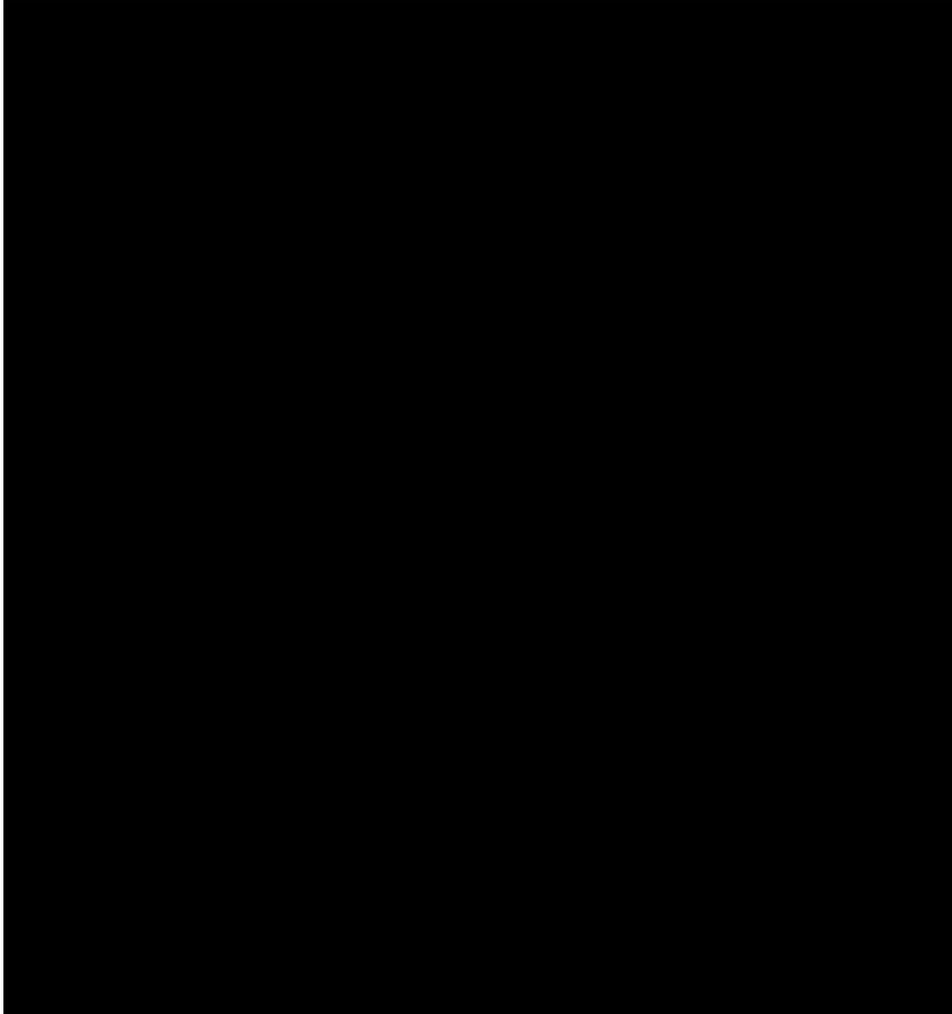


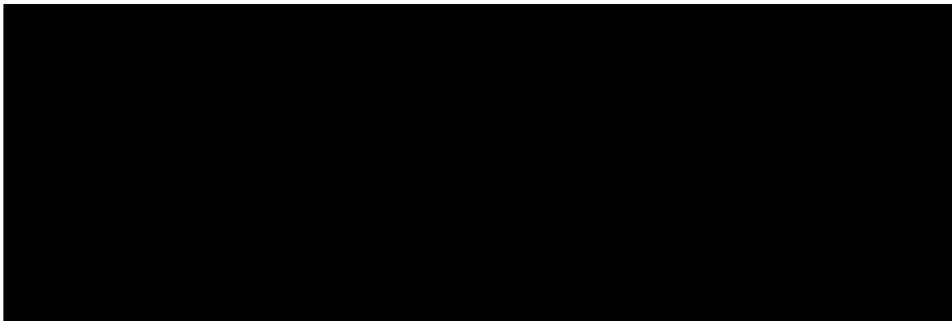
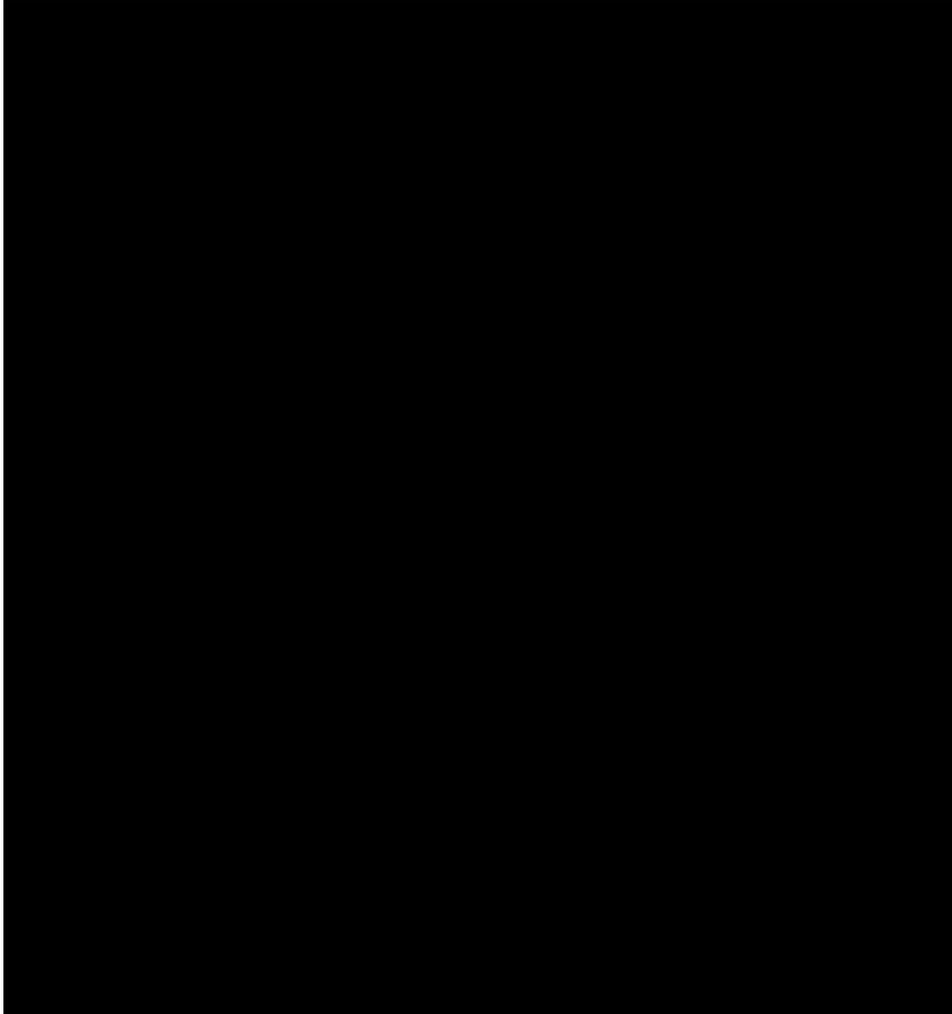


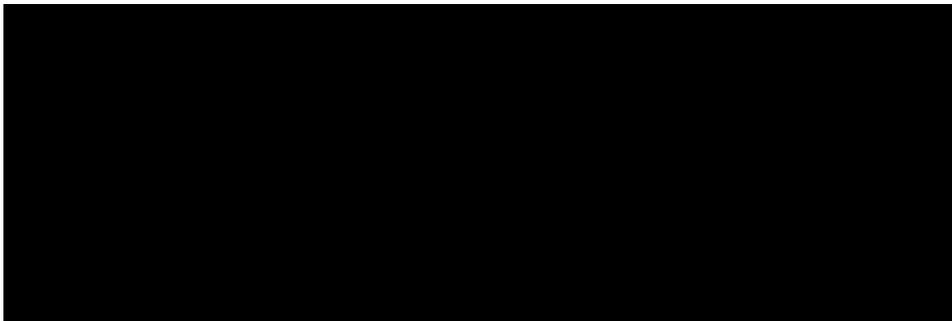
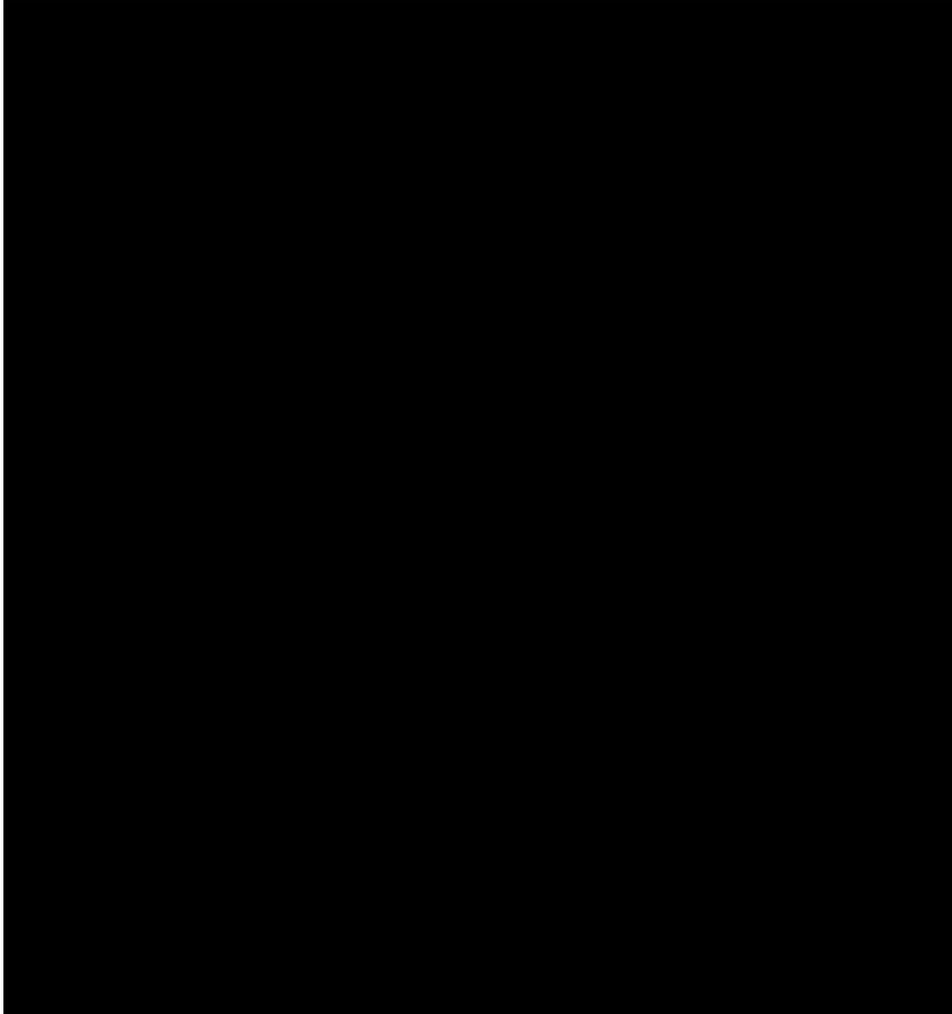


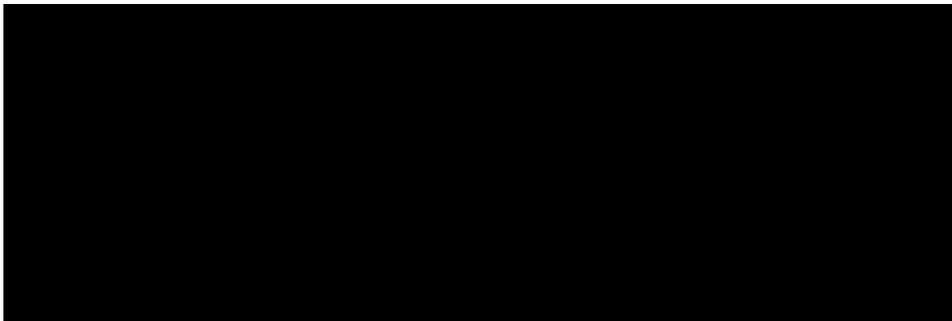
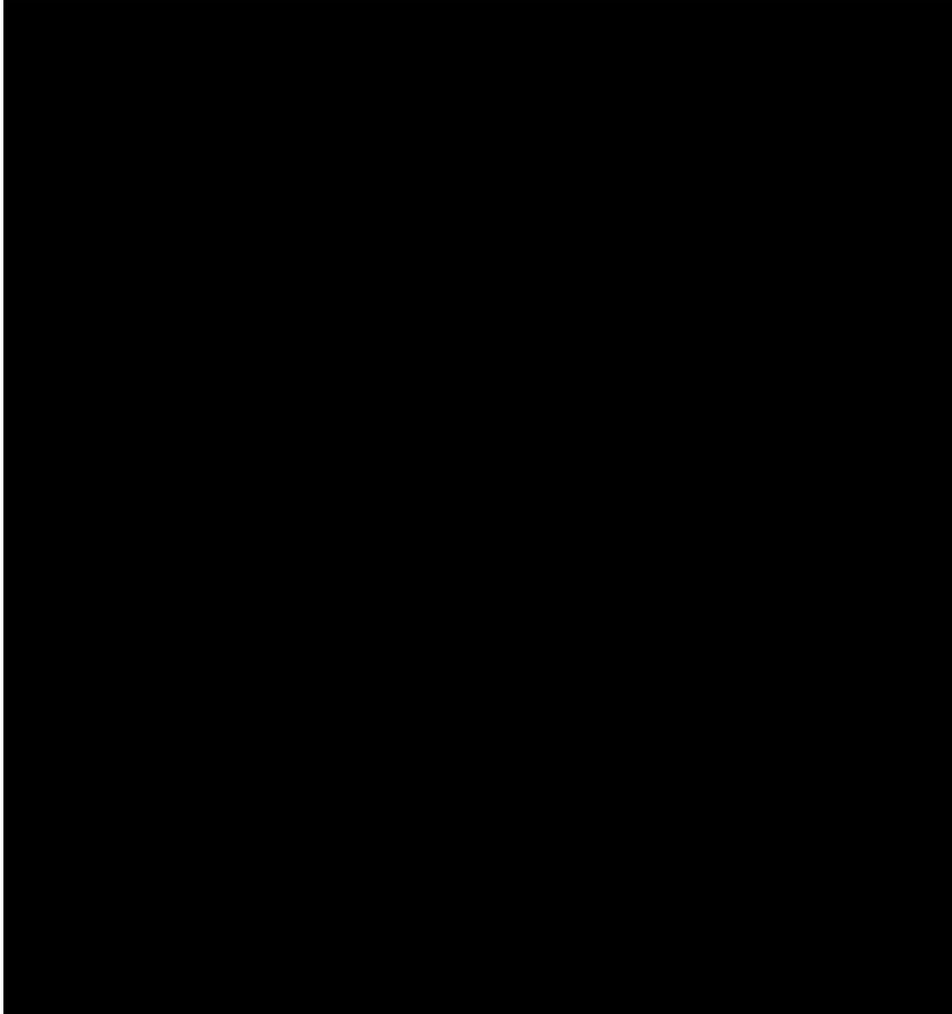


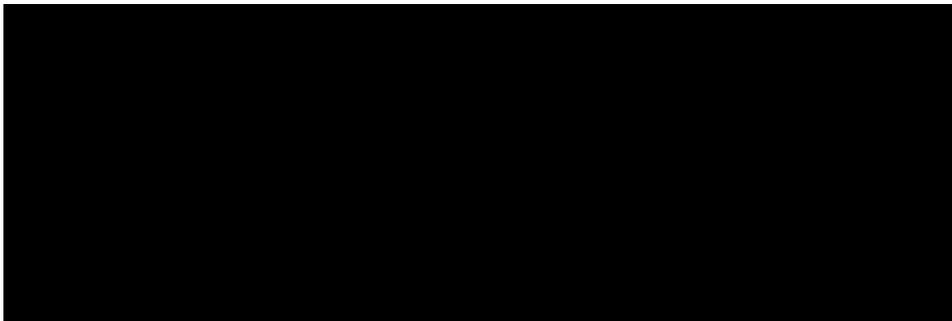
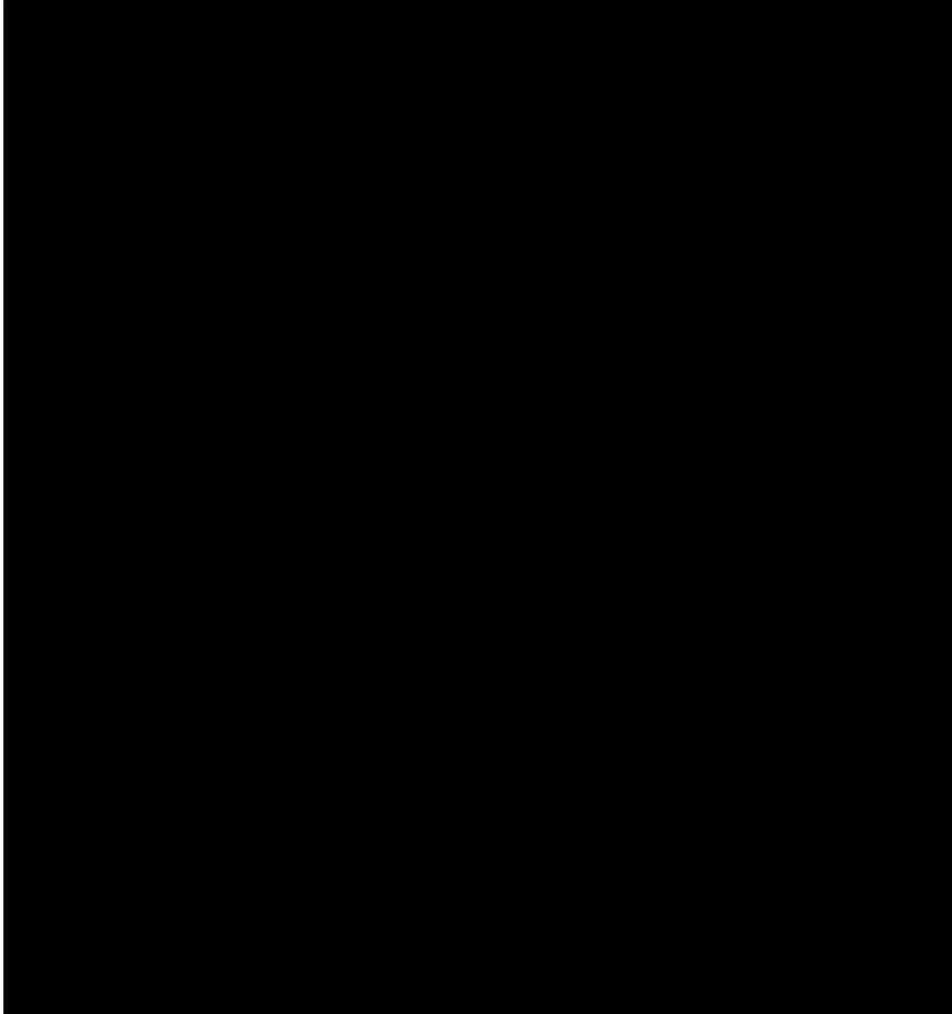


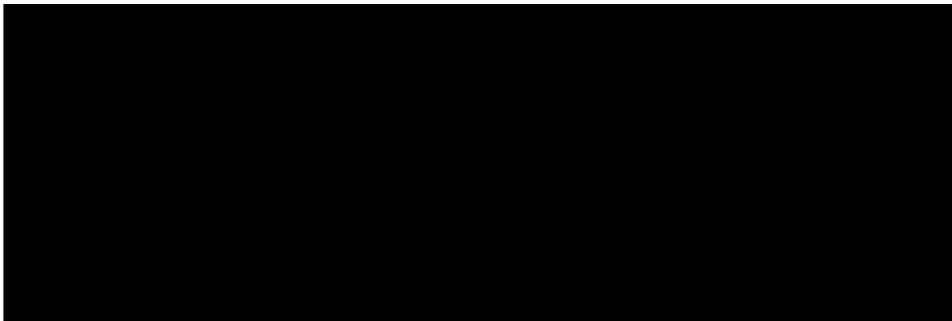
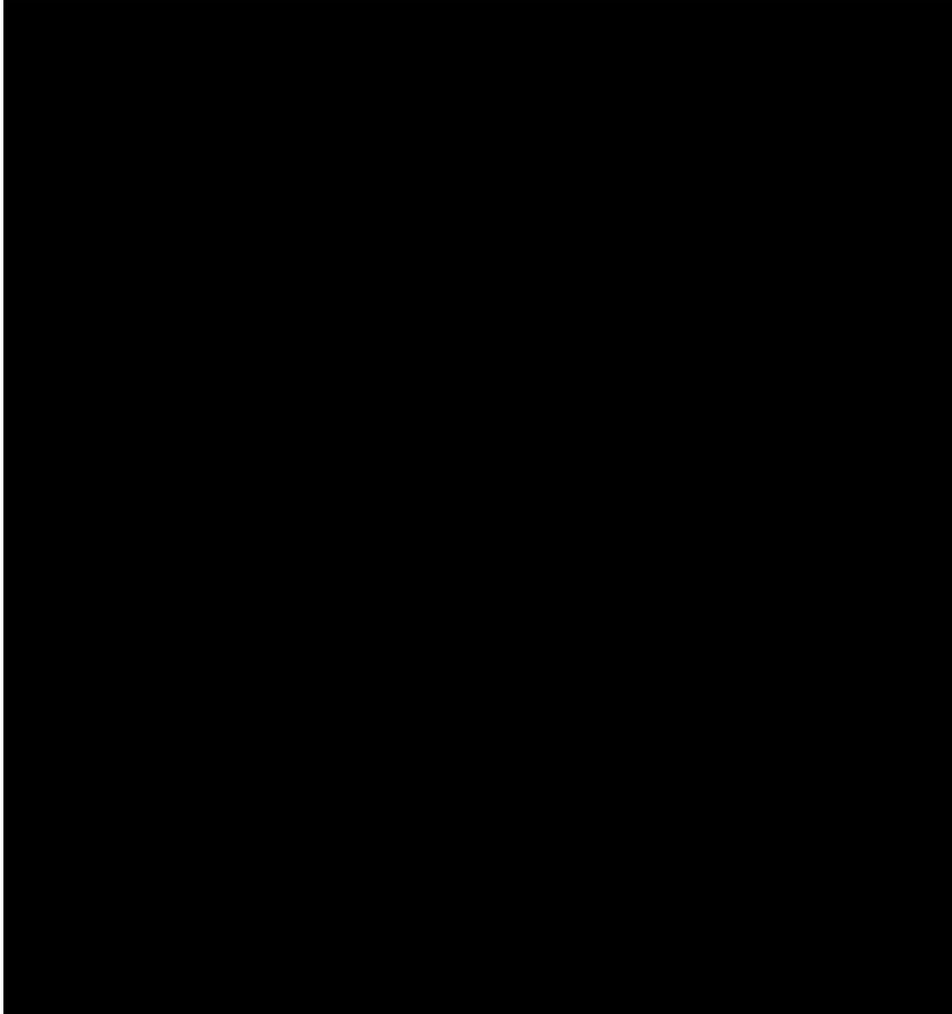


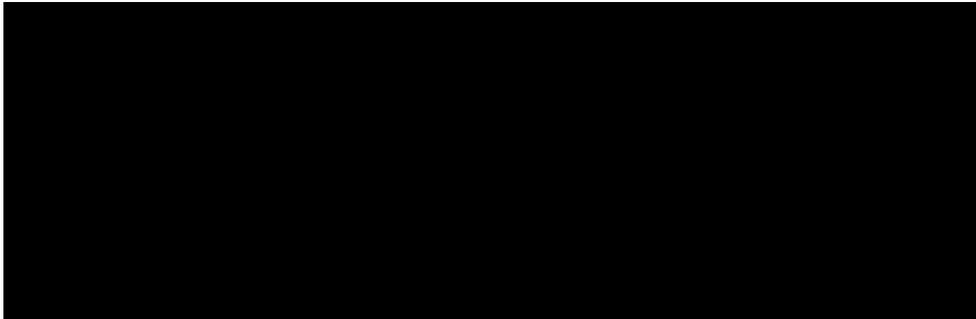
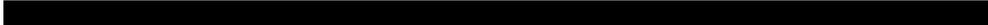
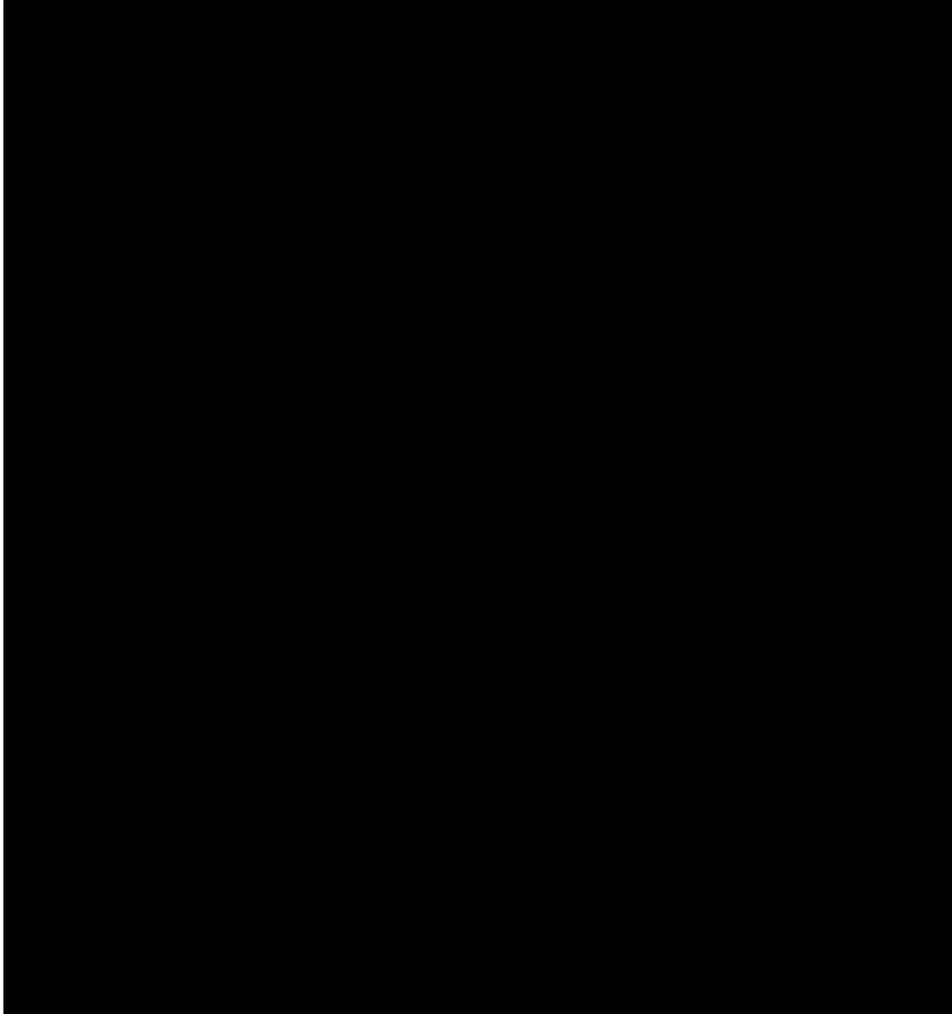


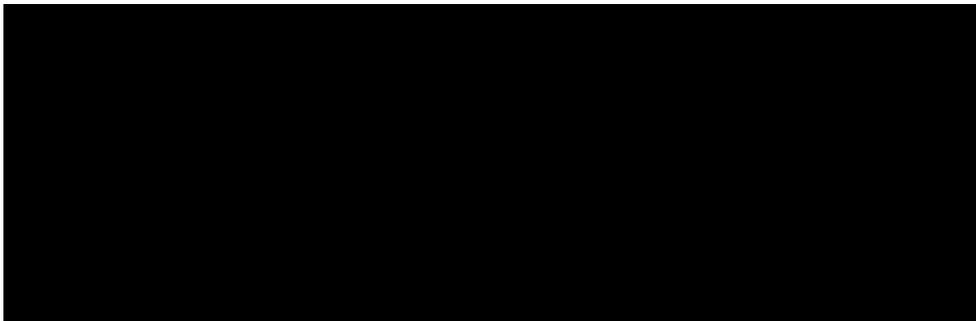
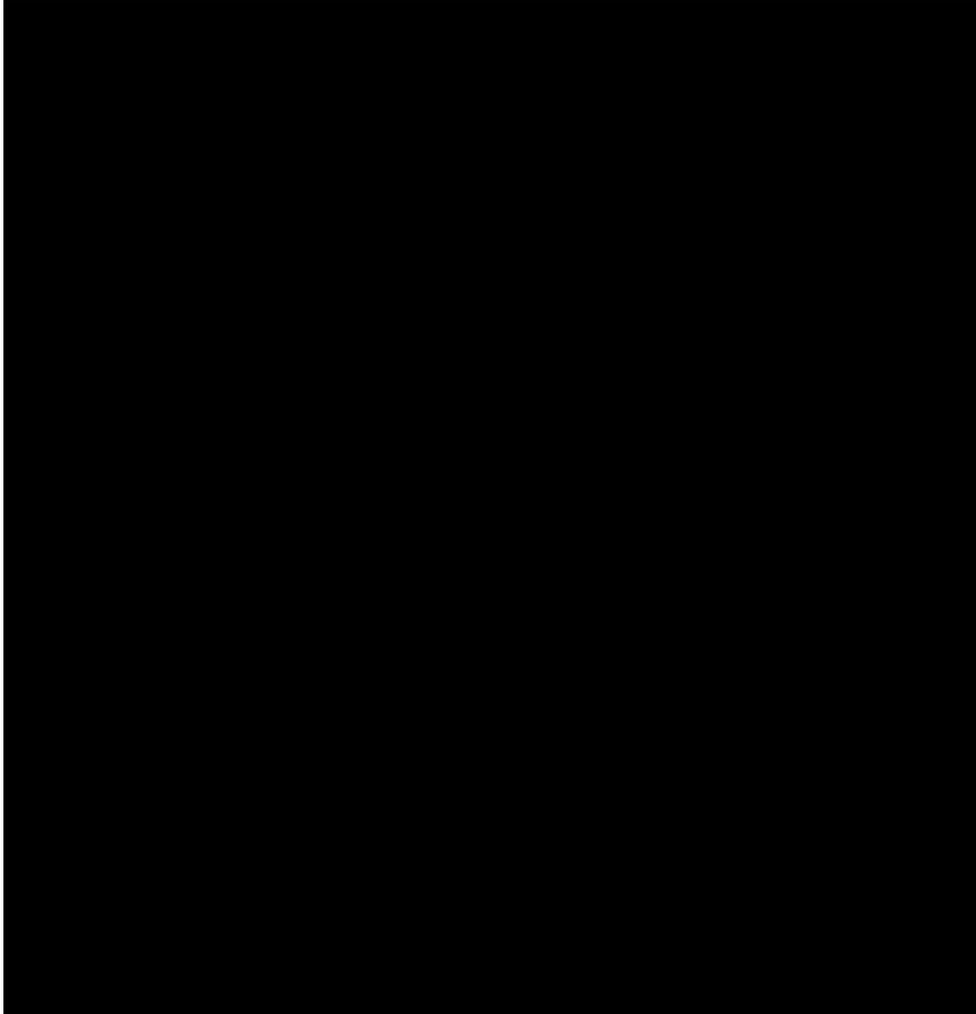


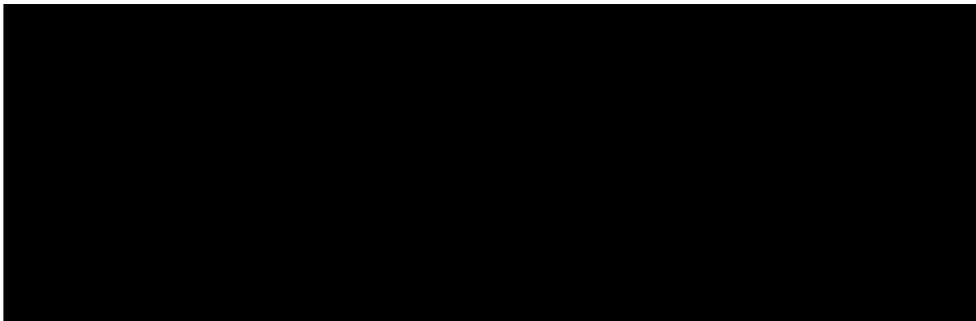
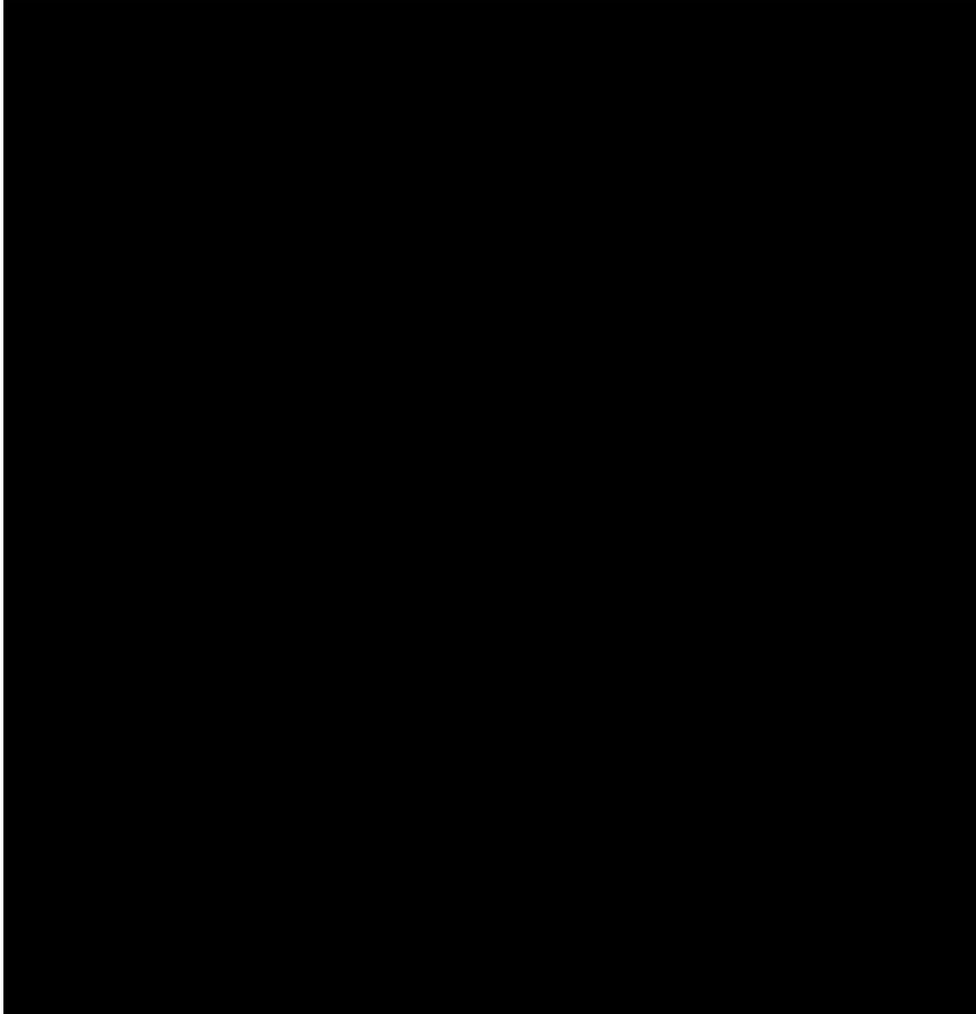


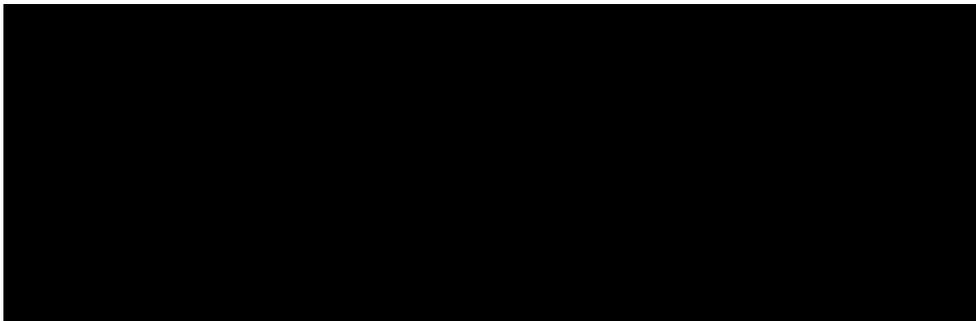
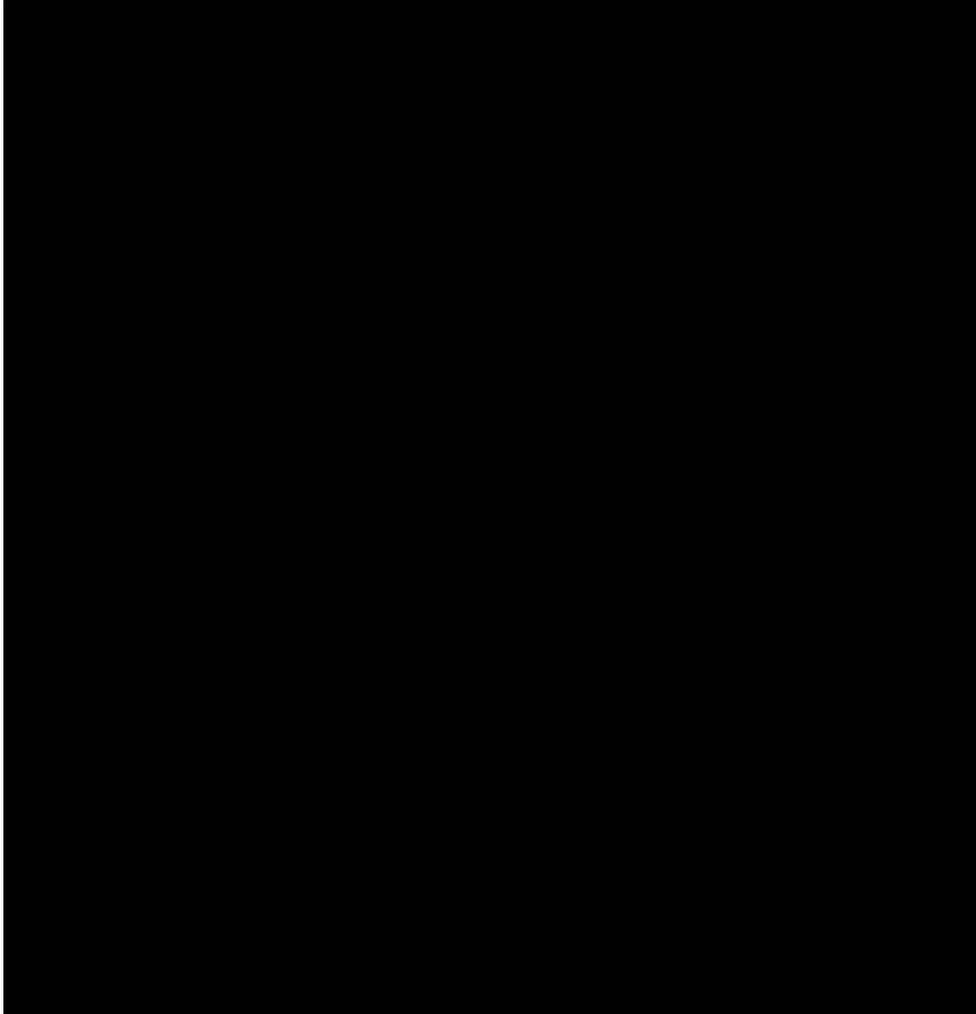


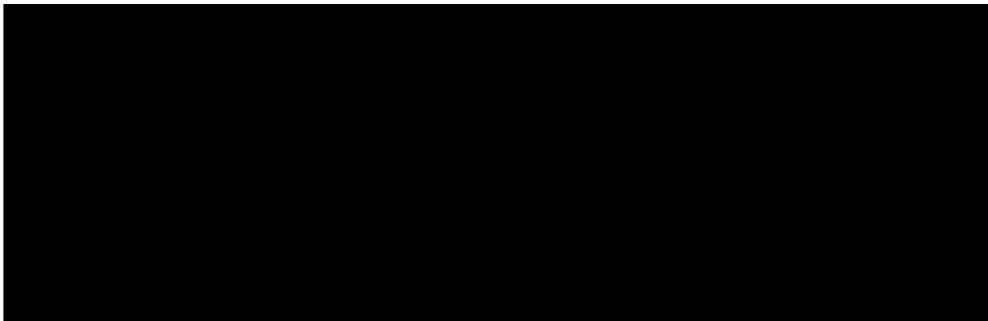
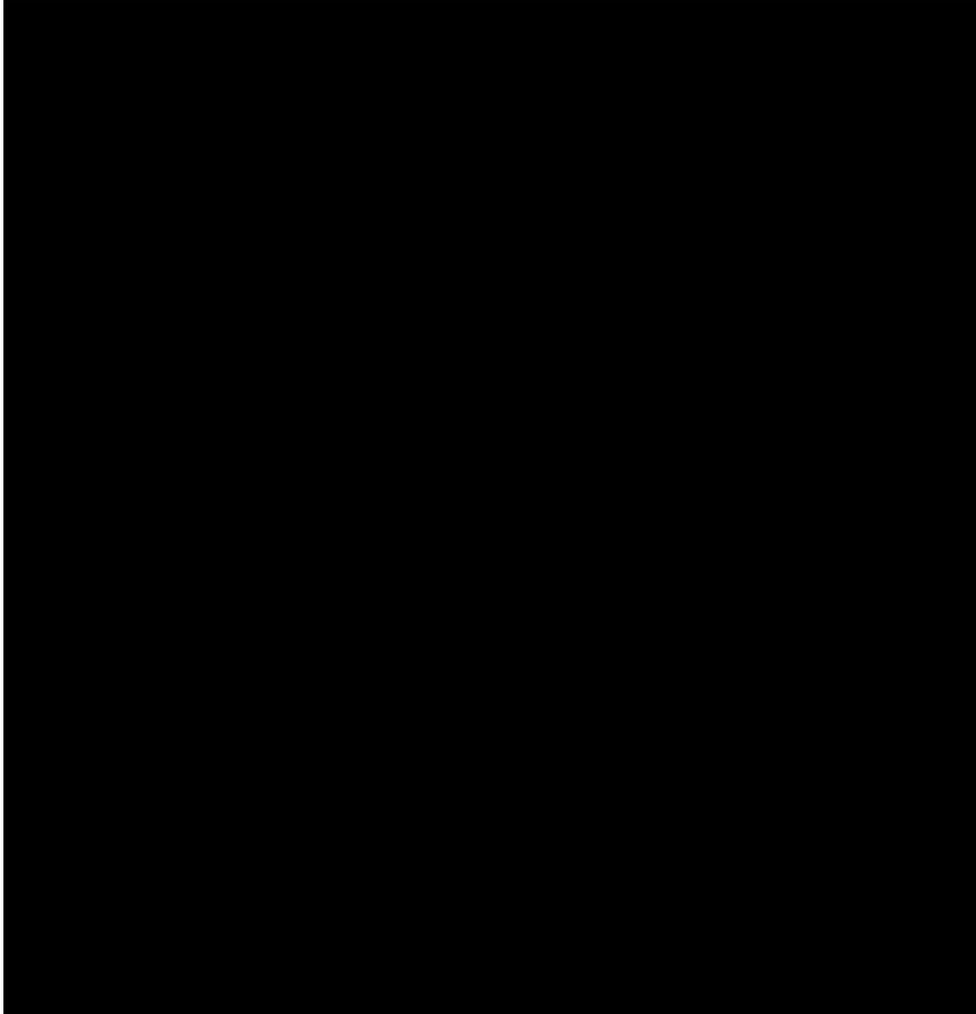


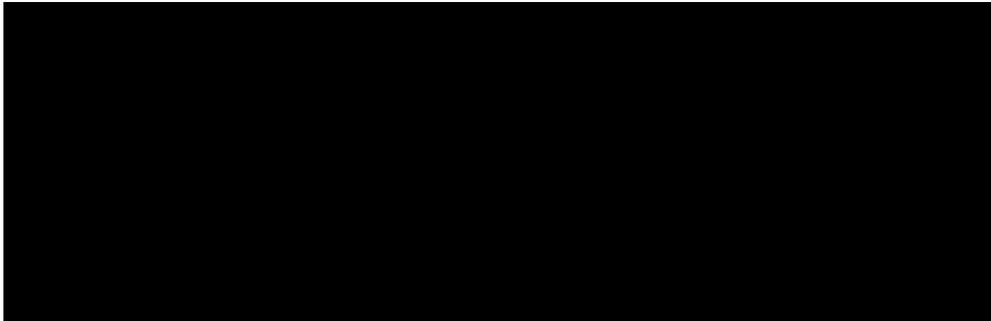
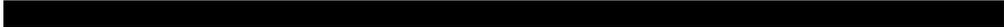
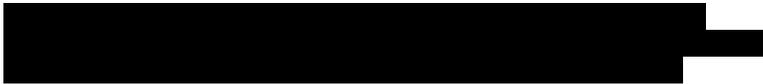
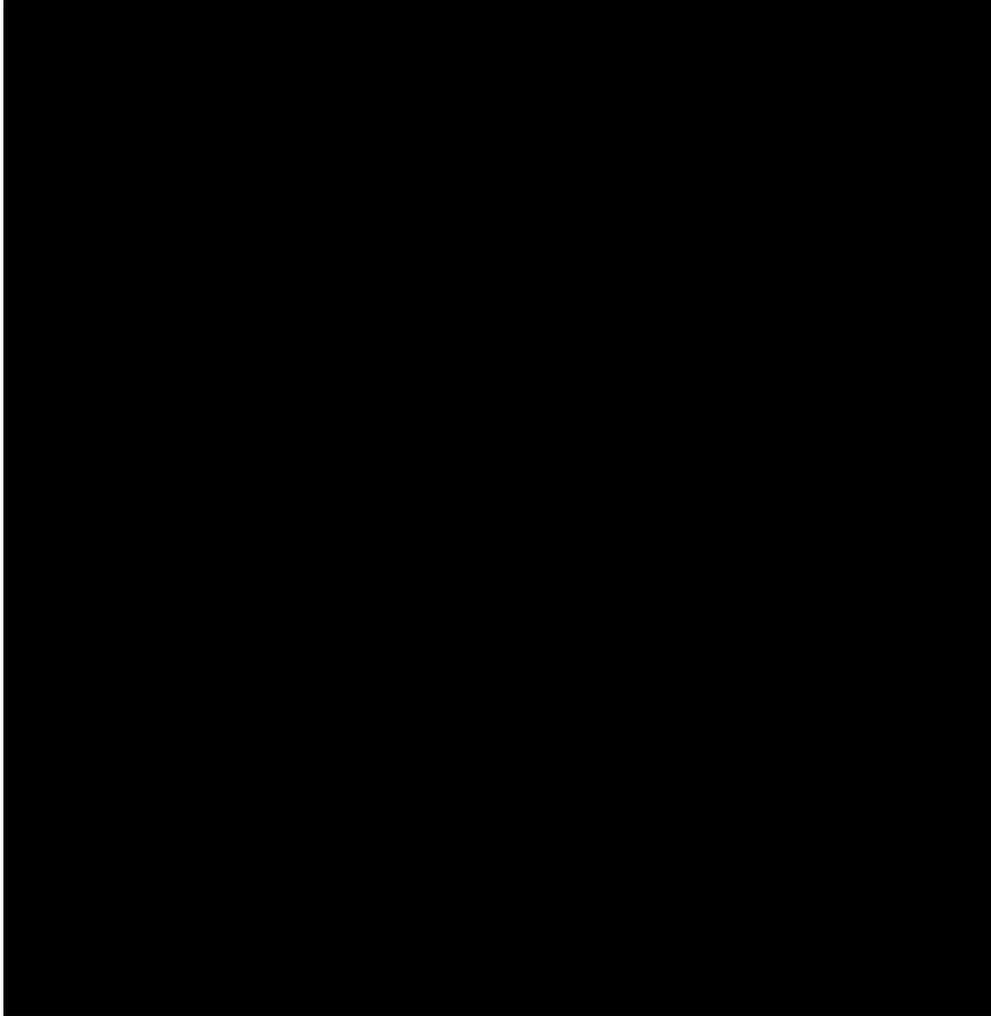


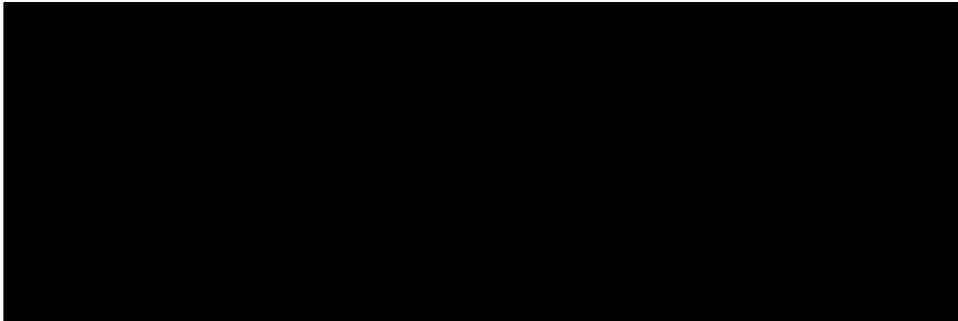
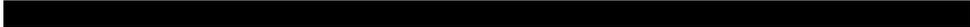
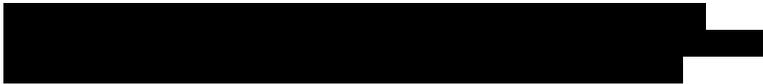
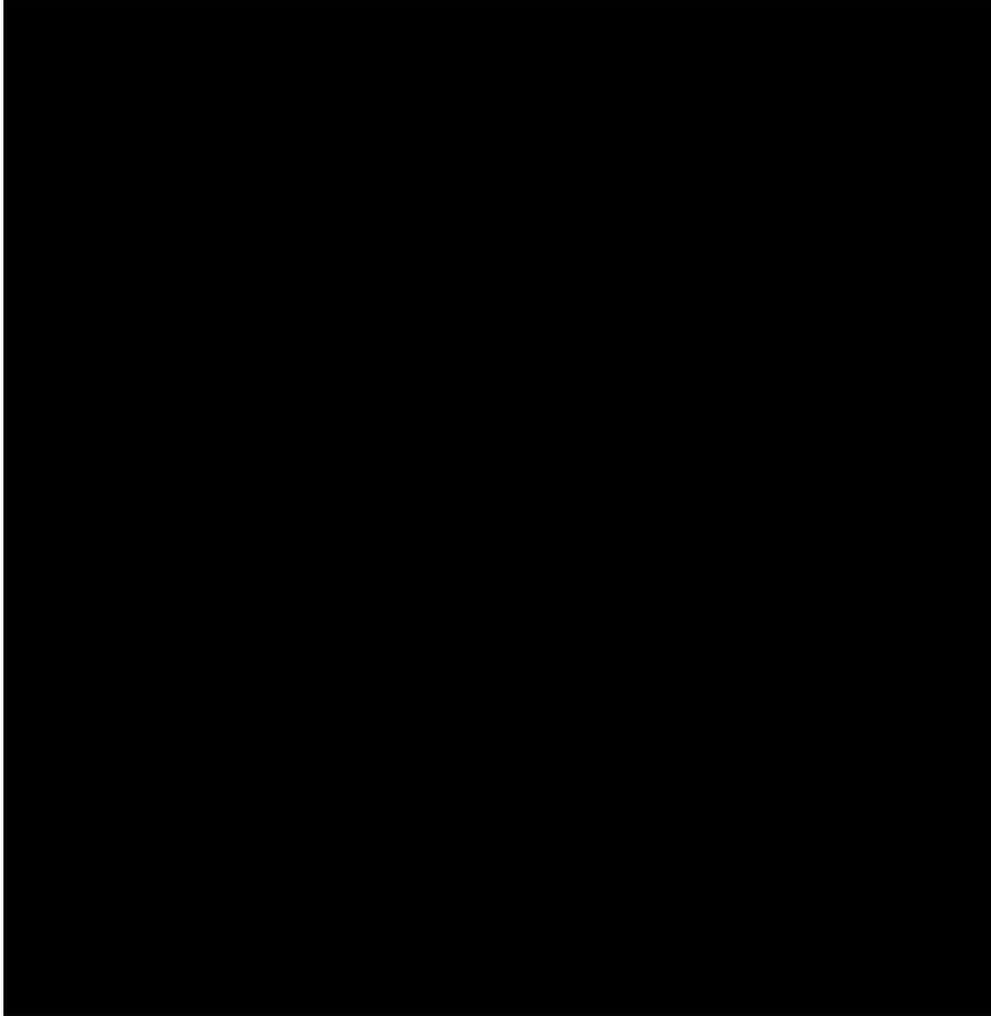


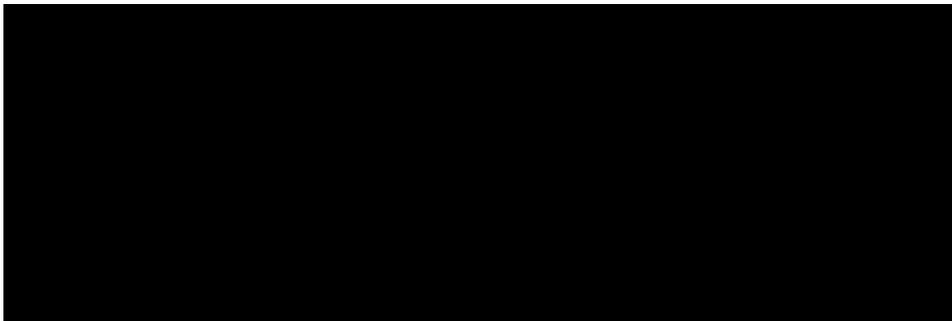
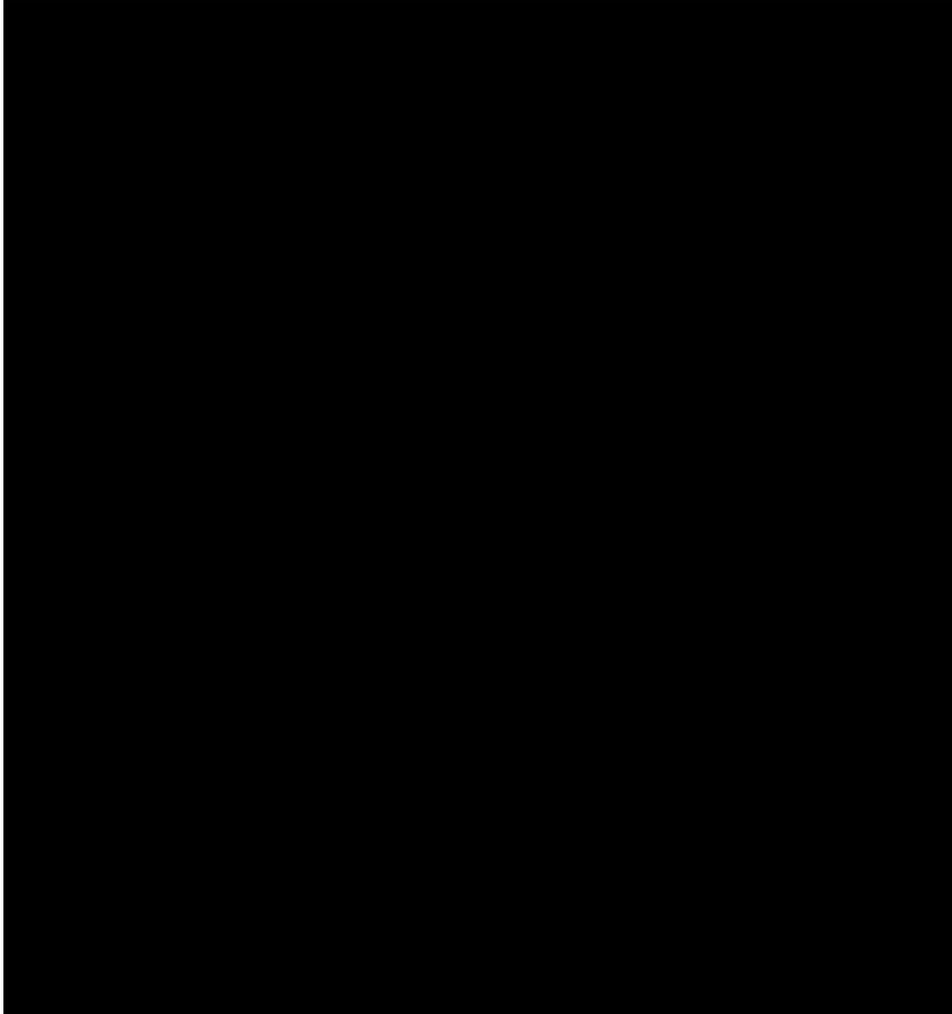


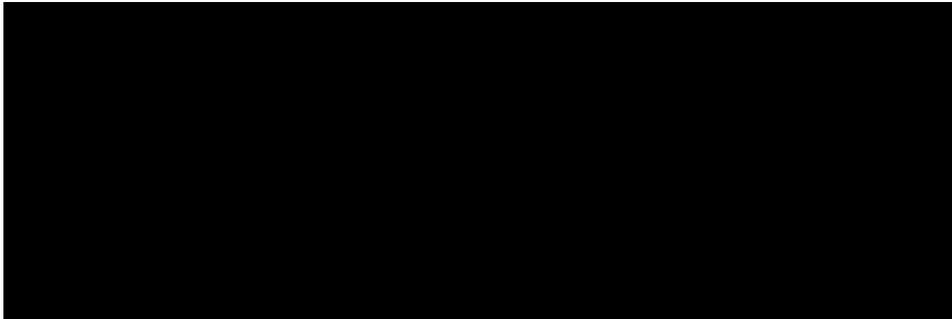
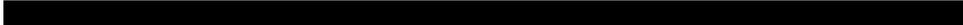
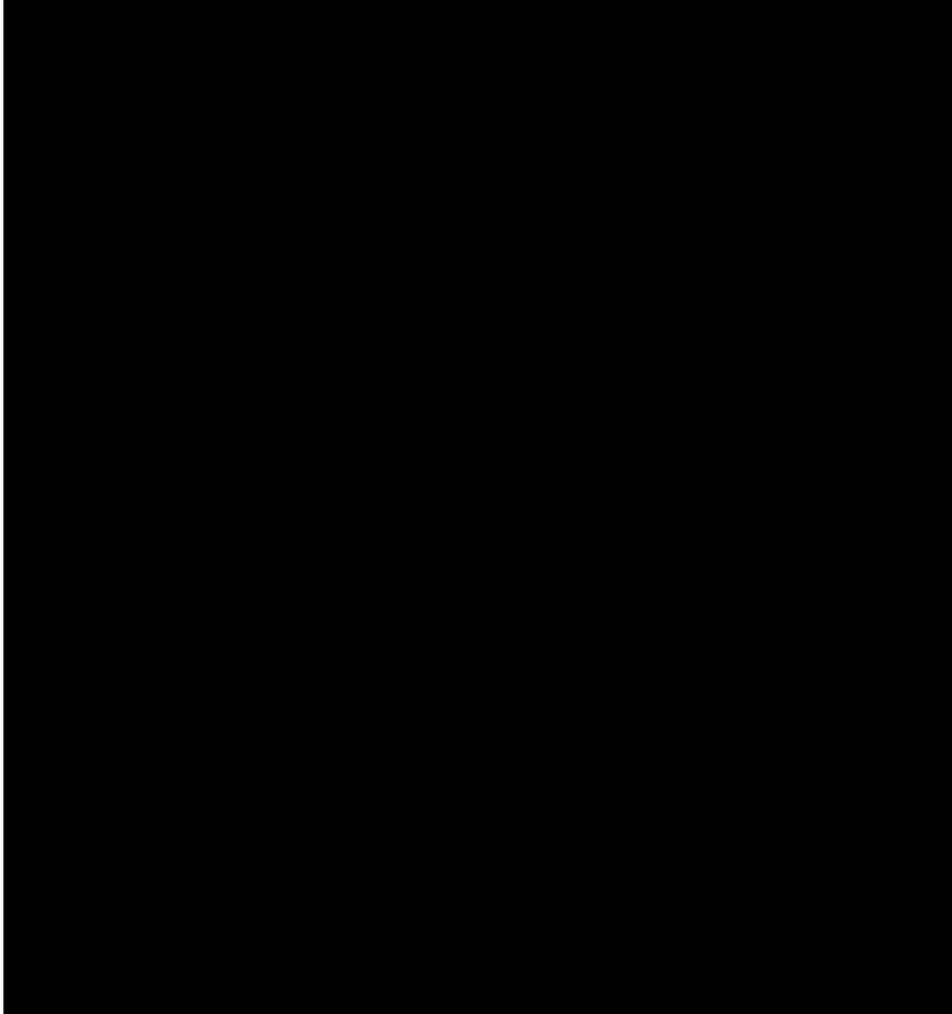


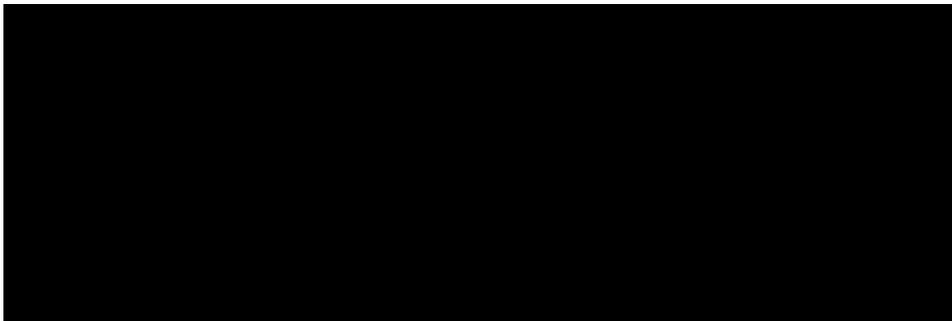
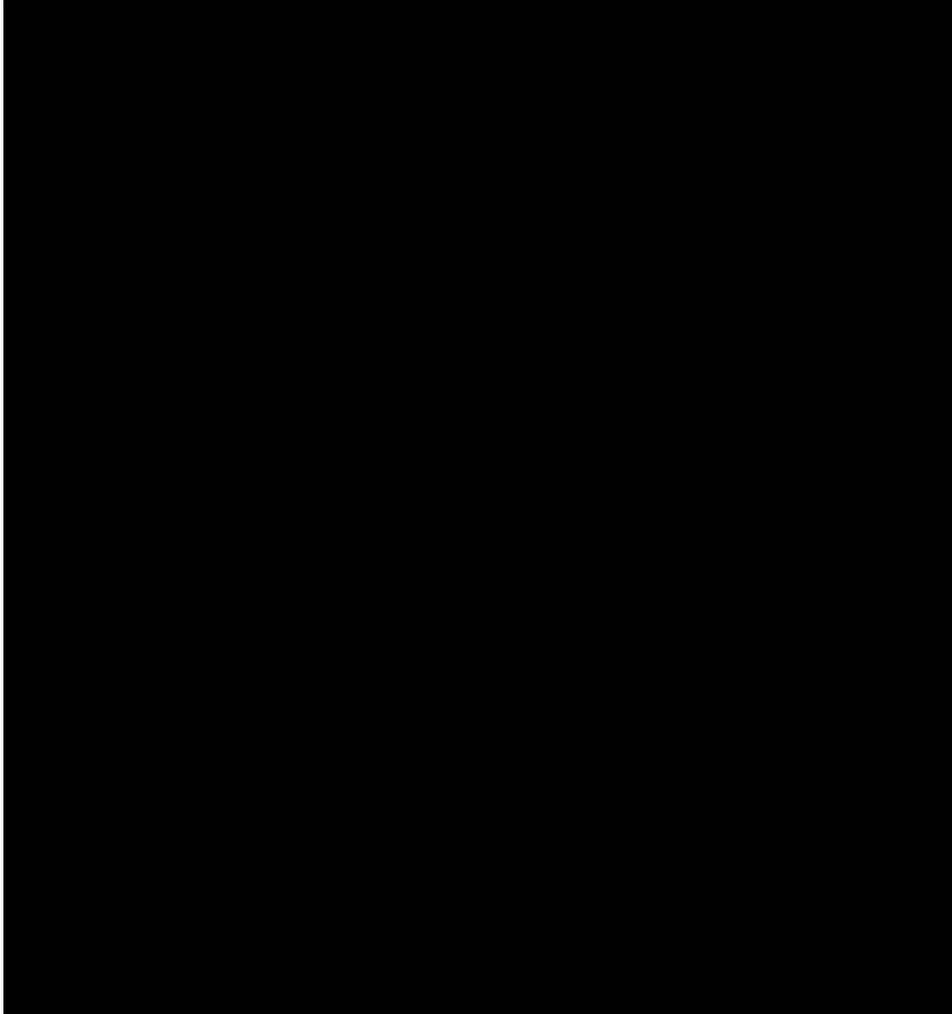


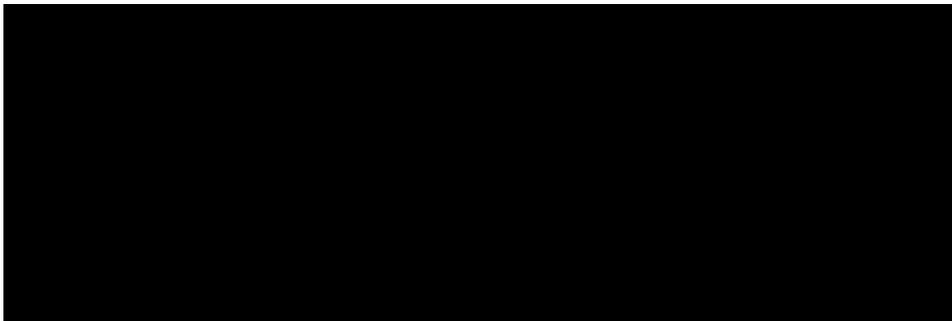
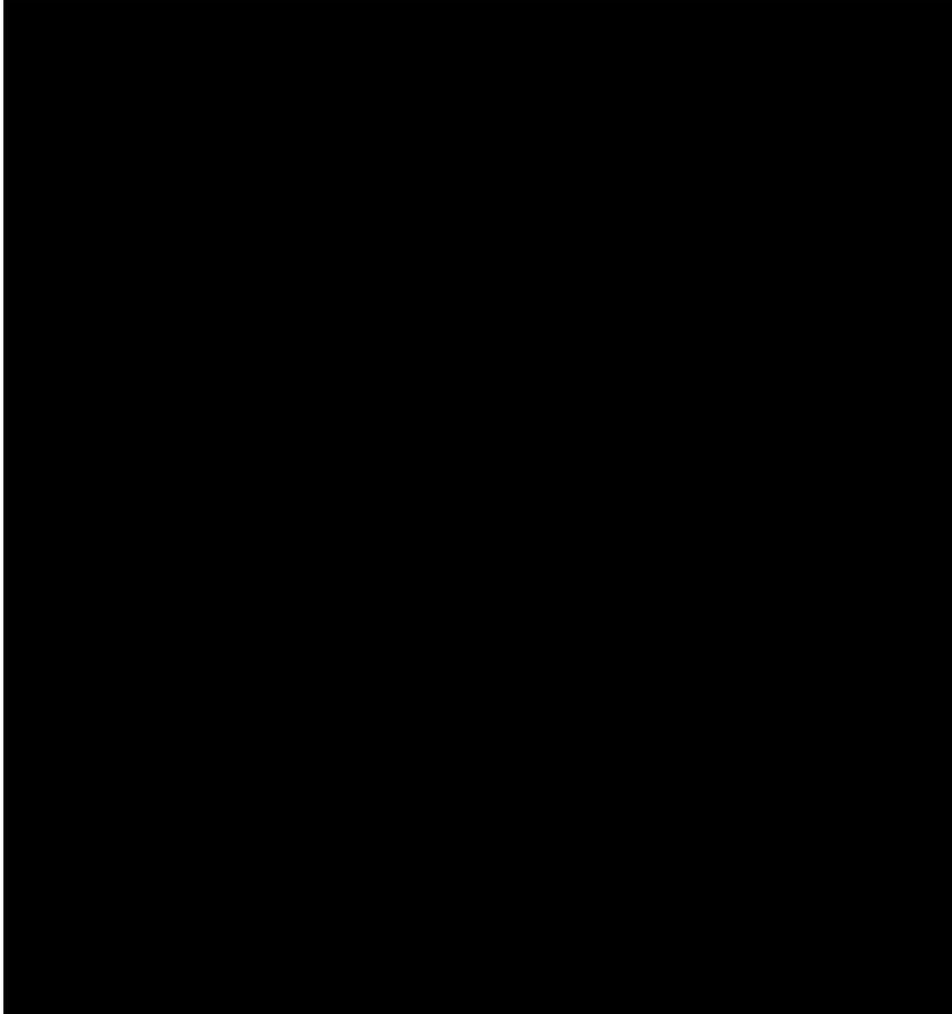


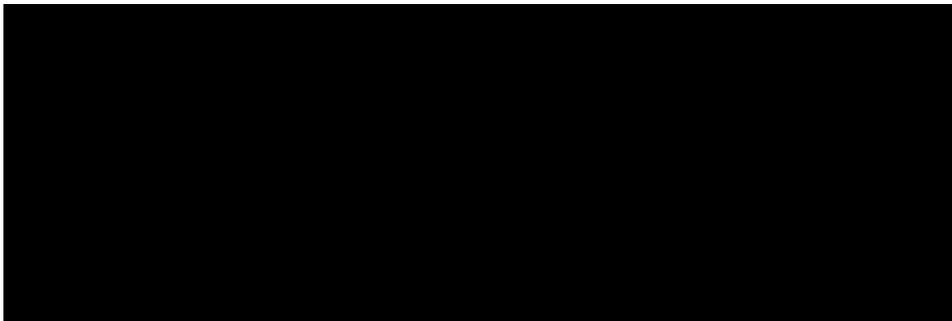
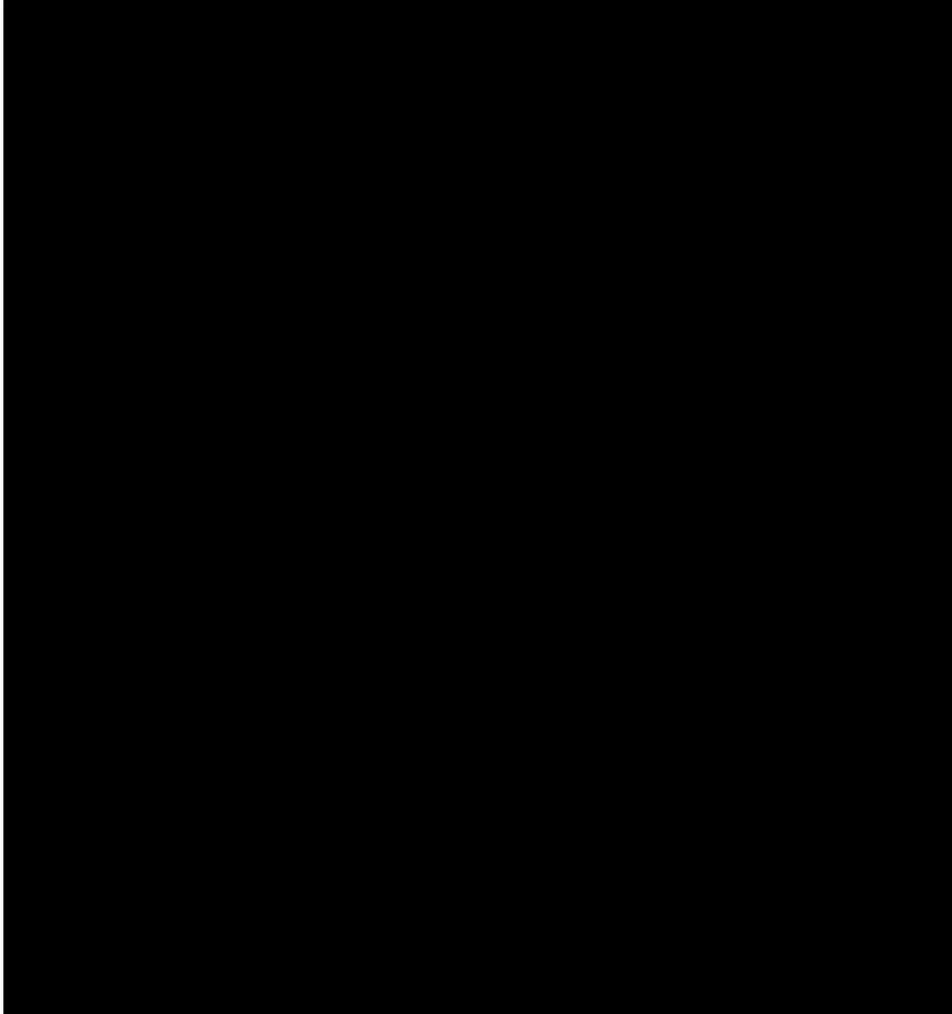


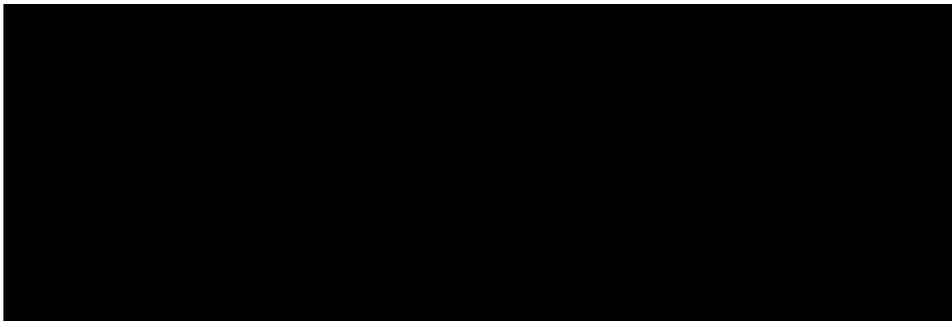
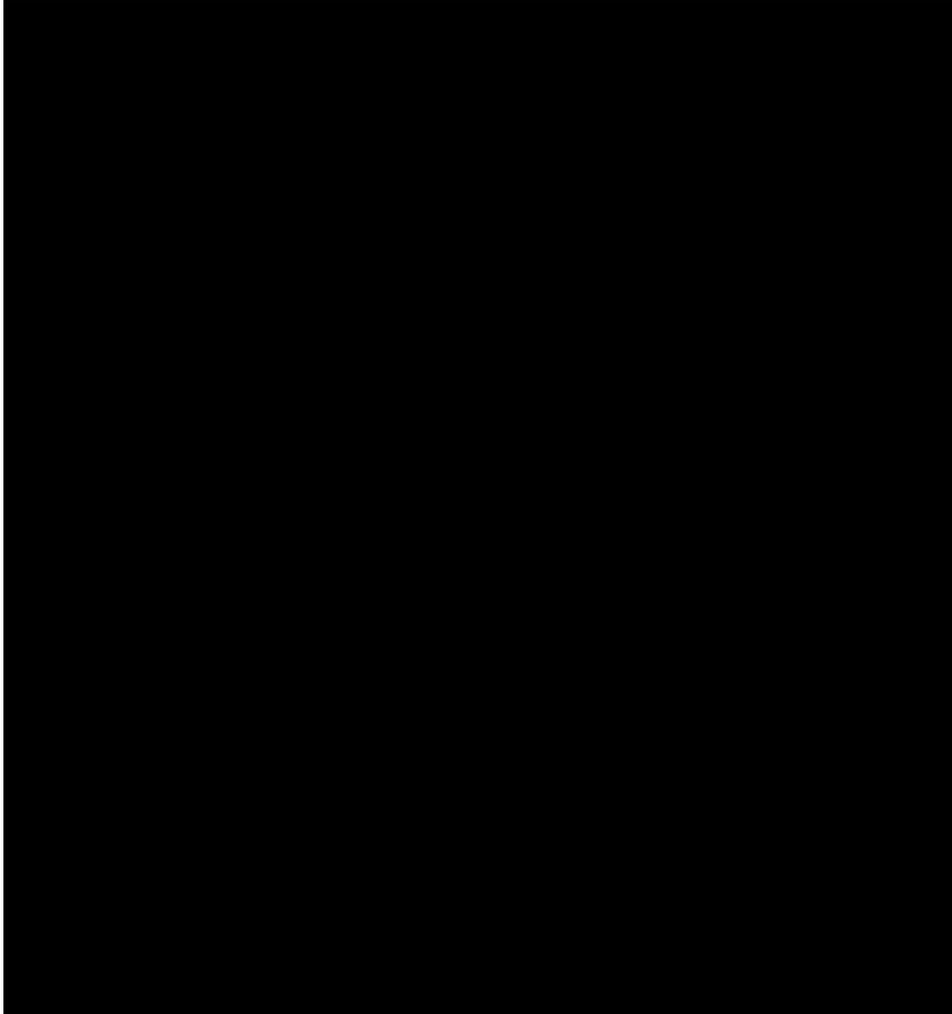


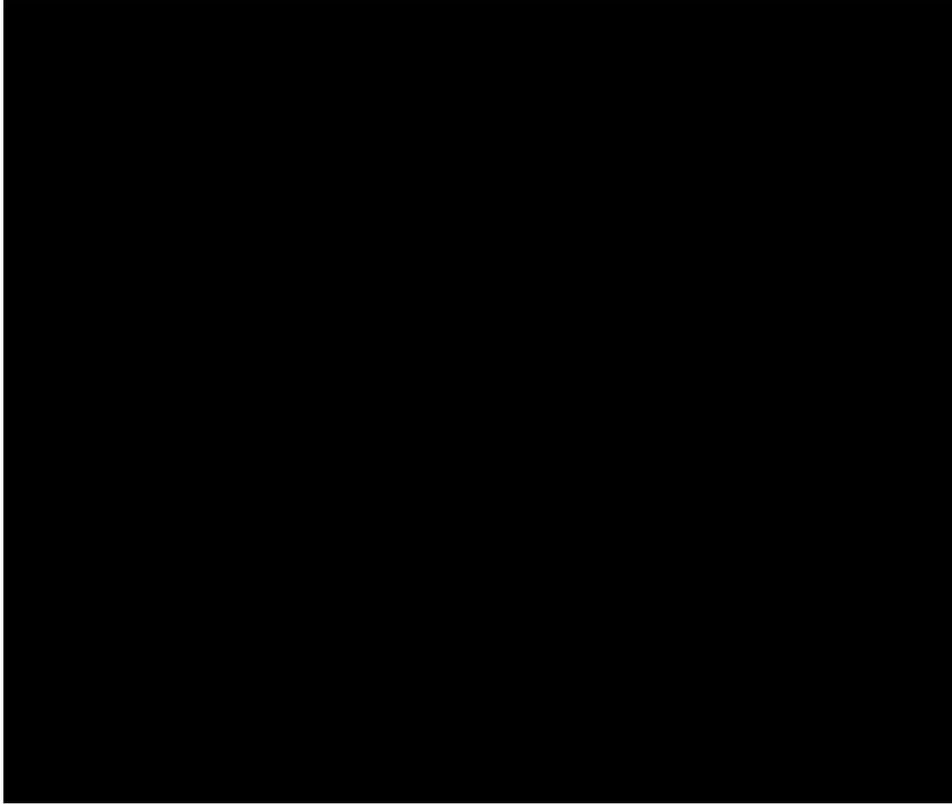












KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1155 of 1182

**CONFIDENTIAL**  
**PRICE FORECASTS**

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 1984 | 1     |             |            |               |            |              |           |
| 1984 | 2     |             |            |               |            |              |           |
| 1984 | 3     |             |            |               |            |              |           |
| 1984 | 4     |             |            |               |            |              |           |
| 1984 | 5     |             |            |               |            |              |           |
| 1984 | 6     |             |            |               |            |              |           |
| 1984 | 7     |             |            |               |            |              |           |
| 1984 | 8     |             |            |               |            |              |           |
| 1984 | 9     |             |            |               |            |              |           |
| 1984 | 10    |             |            |               |            |              |           |
| 1984 | 11    |             |            |               |            |              |           |
| 1984 | 12    |             |            |               |            |              |           |
| 1985 | 1     |             |            |               |            |              |           |
| 1985 | 2     |             |            |               |            |              |           |
| 1985 | 3     |             |            |               |            |              |           |
| 1985 | 4     |             |            |               |            |              |           |
| 1985 | 5     |             |            |               |            |              |           |
| 1985 | 6     |             |            |               |            |              |           |
| 1985 | 7     |             |            |               |            |              |           |
| 1985 | 8     |             |            |               |            |              |           |
| 1985 | 9     |             |            |               |            |              |           |
| 1985 | 10    |             |            |               |            |              |           |
| 1985 | 11    |             |            |               |            |              |           |
| 1985 | 12    |             |            |               |            |              |           |
| 1986 | 1     |             |            |               |            |              |           |
| 1986 | 2     |             |            |               |            |              |           |
| 1986 | 3     |             |            |               |            |              |           |
| 1986 | 4     |             |            |               |            |              |           |
| 1986 | 5     |             |            |               |            |              |           |
| 1986 | 6     |             |            |               |            |              |           |
| 1986 | 7     |             |            |               |            |              |           |
| 1986 | 8     |             |            |               |            |              |           |
| 1986 | 9     |             |            |               |            |              |           |
| 1986 | 10    |             |            |               |            |              |           |
| 1986 | 11    |             |            |               |            |              |           |
| 1986 | 12    |             |            |               |            |              |           |
| 1987 | 1     |             |            |               |            |              |           |
| 1987 | 2     |             |            |               |            |              |           |
| 1987 | 3     |             |            |               |            |              |           |
| 1987 | 4     |             |            |               |            |              |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|-------------|------------|---------------|---------------|-----------------|-----------|
| 1987 | 5     |             |            |               |               |                 |           |
| 1987 | 6     |             |            |               |               |                 |           |
| 1987 | 7     |             |            |               |               |                 |           |
| 1987 | 8     |             |            |               |               |                 |           |
| 1987 | 9     |             |            |               |               |                 |           |
| 1987 | 10    |             |            |               |               |                 |           |
| 1987 | 11    |             |            |               |               |                 |           |
| 1987 | 12    |             |            |               |               |                 |           |
| 1988 | 1     |             |            |               |               |                 |           |
| 1988 | 2     |             |            |               |               |                 |           |
| 1988 | 3     |             |            |               |               |                 |           |
| 1988 | 4     |             |            |               |               |                 |           |
| 1988 | 5     |             |            |               |               |                 |           |
| 1988 | 6     |             |            |               |               |                 |           |
| 1988 | 7     |             |            |               |               |                 |           |
| 1988 | 8     |             |            |               |               |                 |           |
| 1988 | 9     |             |            |               |               |                 |           |
| 1988 | 10    |             |            |               |               |                 |           |
| 1988 | 11    |             |            |               |               |                 |           |
| 1988 | 12    |             |            |               |               |                 |           |
| 1989 | 1     |             |            |               |               |                 |           |
| 1989 | 2     |             |            |               |               |                 |           |
| 1989 | 3     |             |            |               |               |                 |           |
| 1989 | 4     |             |            |               |               |                 |           |
| 1989 | 5     |             |            |               |               |                 |           |
| 1989 | 6     |             |            |               |               |                 |           |
| 1989 | 7     |             |            |               |               |                 |           |
| 1989 | 8     |             |            |               |               |                 |           |
| 1989 | 9     |             |            |               |               |                 |           |
| 1989 | 10    |             |            |               |               |                 |           |
| 1989 | 11    |             |            |               |               |                 |           |
| 1989 | 12    |             |            |               |               |                 |           |
| 1990 | 1     |             |            |               |               |                 |           |
| 1990 | 2     |             |            |               |               |                 |           |
| 1990 | 3     |             |            |               |               |                 |           |
| 1990 | 4     |             |            |               |               |                 |           |
| 1990 | 5     |             |            |               |               |                 |           |
| 1990 | 6     |             |            |               |               |                 |           |
| 1990 | 7     |             |            |               |               |                 |           |
| 1990 | 8     |             |            |               |               |                 |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|-------------|------------|---------------|---------------|-----------------|-----------|
| 1990 | 9     |             |            |               |               |                 |           |
| 1990 | 10    |             |            |               |               |                 |           |
| 1990 | 11    |             |            |               |               |                 |           |
| 1990 | 12    |             |            |               |               |                 |           |
| 1991 | 1     |             |            |               |               |                 |           |
| 1991 | 2     |             |            |               |               |                 |           |
| 1991 | 3     |             |            |               |               |                 |           |
| 1991 | 4     |             |            |               |               |                 |           |
| 1991 | 5     |             |            |               |               |                 |           |
| 1991 | 6     |             |            |               |               |                 |           |
| 1991 | 7     |             |            |               |               |                 |           |
| 1991 | 8     |             |            |               |               |                 |           |
| 1991 | 9     |             |            |               |               |                 |           |
| 1991 | 10    |             |            |               |               |                 |           |
| 1991 | 11    |             |            |               |               |                 |           |
| 1991 | 12    |             |            |               |               |                 |           |
| 1992 | 1     |             |            |               |               |                 |           |
| 1992 | 2     |             |            |               |               |                 |           |
| 1992 | 3     |             |            |               |               |                 |           |
| 1992 | 4     |             |            |               |               |                 |           |
| 1992 | 5     |             |            |               |               |                 |           |
| 1992 | 6     |             |            |               |               |                 |           |
| 1992 | 7     |             |            |               |               |                 |           |
| 1992 | 8     |             |            |               |               |                 |           |
| 1992 | 9     |             |            |               |               |                 |           |
| 1992 | 10    |             |            |               |               |                 |           |
| 1992 | 11    |             |            |               |               |                 |           |
| 1992 | 12    |             |            |               |               |                 |           |
| 1993 | 1     |             |            |               |               |                 |           |
| 1993 | 2     |             |            |               |               |                 |           |
| 1993 | 3     |             |            |               |               |                 |           |
| 1993 | 4     |             |            |               |               |                 |           |
| 1993 | 5     |             |            |               |               |                 |           |
| 1993 | 6     |             |            |               |               |                 |           |
| 1993 | 7     |             |            |               |               |                 |           |
| 1993 | 8     |             |            |               |               |                 |           |
| 1993 | 9     |             |            |               |               |                 |           |
| 1993 | 10    |             |            |               |               |                 |           |
| 1993 | 11    |             |            |               |               |                 |           |
| 1993 | 12    |             |            |               |               |                 |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 1994 | 1     |             |            |               |            |              |           |
| 1994 | 2     |             |            |               |            |              |           |
| 1994 | 3     |             |            |               |            |              |           |
| 1994 | 4     |             |            |               |            |              |           |
| 1994 | 5     |             |            |               |            |              |           |
| 1994 | 6     |             |            |               |            |              |           |
| 1994 | 7     |             |            |               |            |              |           |
| 1994 | 8     |             |            |               |            |              |           |
| 1994 | 9     |             |            |               |            |              |           |
| 1994 | 10    |             |            |               |            |              |           |
| 1994 | 11    |             |            |               |            |              |           |
| 1994 | 12    |             |            |               |            |              |           |
| 1995 | 1     |             |            |               |            |              |           |
| 1995 | 2     |             |            |               |            |              |           |
| 1995 | 3     |             |            |               |            |              |           |
| 1995 | 4     |             |            |               |            |              |           |
| 1995 | 5     |             |            |               |            |              |           |
| 1995 | 6     |             |            |               |            |              |           |
| 1995 | 7     |             |            |               |            |              |           |
| 1995 | 8     |             |            |               |            |              |           |
| 1995 | 9     |             |            |               |            |              |           |
| 1995 | 10    |             |            |               |            |              |           |
| 1995 | 11    |             |            |               |            |              |           |
| 1995 | 12    |             |            |               |            |              |           |
| 1996 | 1     |             |            |               |            |              |           |
| 1996 | 2     |             |            |               |            |              |           |
| 1996 | 3     |             |            |               |            |              |           |
| 1996 | 4     |             |            |               |            |              |           |
| 1996 | 5     |             |            |               |            |              |           |
| 1996 | 6     |             |            |               |            |              |           |
| 1996 | 7     |             |            |               |            |              |           |
| 1996 | 8     |             |            |               |            |              |           |
| 1996 | 9     |             |            |               |            |              |           |
| 1996 | 10    |             |            |               |            |              |           |
| 1996 | 11    |             |            |               |            |              |           |
| 1996 | 12    |             |            |               |            |              |           |
| 1997 | 1     |             |            |               |            |              |           |
| 1997 | 2     |             |            |               |            |              |           |
| 1997 | 3     |             |            |               |            |              |           |
| 1997 | 4     |             |            |               |            |              |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 1997 | 5     |             |            |               |            |              |           |
| 1997 | 6     |             |            |               |            |              |           |
| 1997 | 7     |             |            |               |            |              |           |
| 1997 | 8     |             |            |               |            |              |           |
| 1997 | 9     |             |            |               |            |              |           |
| 1997 | 10    |             |            |               |            |              |           |
| 1997 | 11    |             |            |               |            |              |           |
| 1997 | 12    |             |            |               |            |              |           |
| 1998 | 1     |             |            |               |            |              |           |
| 1998 | 2     |             |            |               |            |              |           |
| 1998 | 3     |             |            |               |            |              |           |
| 1998 | 4     |             |            |               |            |              |           |
| 1998 | 5     |             |            |               |            |              |           |
| 1998 | 6     |             |            |               |            |              |           |
| 1998 | 7     |             |            |               |            |              |           |
| 1998 | 8     |             |            |               |            |              |           |
| 1998 | 9     |             |            |               |            |              |           |
| 1998 | 10    |             |            |               |            |              |           |
| 1998 | 11    |             |            |               |            |              |           |
| 1998 | 12    |             |            |               |            |              |           |
| 1999 | 1     |             |            |               |            |              |           |
| 1999 | 2     |             |            |               |            |              |           |
| 1999 | 3     |             |            |               |            |              |           |
| 1999 | 4     |             |            |               |            |              |           |
| 1999 | 5     |             |            |               |            |              |           |
| 1999 | 6     |             |            |               |            |              |           |
| 1999 | 7     |             |            |               |            |              |           |
| 1999 | 8     |             |            |               |            |              |           |
| 1999 | 9     |             |            |               |            |              |           |
| 1999 | 10    |             |            |               |            |              |           |
| 1999 | 11    |             |            |               |            |              |           |
| 1999 | 12    |             |            |               |            |              |           |
| 2000 | 1     |             |            |               |            |              |           |
| 2000 | 2     |             |            |               |            |              |           |
| 2000 | 3     |             |            |               |            |              |           |
| 2000 | 4     |             |            |               |            |              |           |
| 2000 | 5     |             |            |               |            |              |           |
| 2000 | 6     |             |            |               |            |              |           |
| 2000 | 7     |             |            |               |            |              |           |
| 2000 | 8     |             |            |               |            |              |           |

**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2000 | 9     |             |            |               |            |              |           |
| 2000 | 10    |             |            |               |            |              |           |
| 2000 | 11    |             |            |               |            |              |           |
| 2000 | 12    |             |            |               |            |              |           |
| 2001 | 1     |             |            |               |            |              |           |
| 2001 | 2     |             |            |               |            |              |           |
| 2001 | 3     |             |            |               |            |              |           |
| 2001 | 4     |             |            |               |            |              |           |
| 2001 | 5     |             |            |               |            |              |           |
| 2001 | 6     |             |            |               |            |              |           |
| 2001 | 7     |             |            |               |            |              |           |
| 2001 | 8     |             |            |               |            |              |           |
| 2001 | 9     |             |            |               |            |              |           |
| 2001 | 10    |             |            |               |            |              |           |
| 2001 | 11    |             |            |               |            |              |           |
| 2001 | 12    |             |            |               |            |              |           |
| 2002 | 1     |             |            |               |            |              |           |
| 2002 | 2     |             |            |               |            |              |           |
| 2002 | 3     |             |            |               |            |              |           |
| 2002 | 4     |             |            |               |            |              |           |
| 2002 | 5     |             |            |               |            |              |           |
| 2002 | 6     |             |            |               |            |              |           |
| 2002 | 7     |             |            |               |            |              |           |
| 2002 | 8     |             |            |               |            |              |           |
| 2002 | 9     |             |            |               |            |              |           |
| 2002 | 10    |             |            |               |            |              |           |
| 2002 | 11    |             |            |               |            |              |           |
| 2002 | 12    |             |            |               |            |              |           |
| 2003 | 1     |             |            |               |            |              |           |
| 2003 | 2     |             |            |               |            |              |           |
| 2003 | 3     |             |            |               |            |              |           |
| 2003 | 4     |             |            |               |            |              |           |
| 2003 | 5     |             |            |               |            |              |           |
| 2003 | 6     |             |            |               |            |              |           |
| 2003 | 7     |             |            |               |            |              |           |
| 2003 | 8     |             |            |               |            |              |           |
| 2003 | 9     |             |            |               |            |              |           |
| 2003 | 10    |             |            |               |            |              |           |
| 2003 | 11    |             |            |               |            |              |           |
| 2003 | 12    |             |            |               |            |              |           |

**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|-------------|------------|---------------|---------------|-----------------|-----------|
| 2004 | 1     |             |            |               |               |                 |           |
| 2004 | 2     |             |            |               |               |                 |           |
| 2004 | 3     |             |            |               |               |                 |           |
| 2004 | 4     |             |            |               |               |                 |           |
| 2004 | 5     |             |            |               |               |                 |           |
| 2004 | 6     |             |            |               |               |                 |           |
| 2004 | 7     |             |            |               |               |                 |           |
| 2004 | 8     |             |            |               |               |                 |           |
| 2004 | 9     |             |            |               |               |                 |           |
| 2004 | 10    |             |            |               |               |                 |           |
| 2004 | 11    |             |            |               |               |                 |           |
| 2004 | 12    |             |            |               |               |                 |           |
| 2005 | 1     |             |            |               |               |                 |           |
| 2005 | 2     |             |            |               |               |                 |           |
| 2005 | 3     |             |            |               |               |                 |           |
| 2005 | 4     |             |            |               |               |                 |           |
| 2005 | 5     |             |            |               |               |                 |           |
| 2005 | 6     |             |            |               |               |                 |           |
| 2005 | 7     |             |            |               |               |                 |           |
| 2005 | 8     |             |            |               |               |                 |           |
| 2005 | 9     |             |            |               |               |                 |           |
| 2005 | 10    |             |            |               |               |                 |           |
| 2005 | 11    |             |            |               |               |                 |           |
| 2005 | 12    |             |            |               |               |                 |           |
| 2006 | 1     |             |            |               |               |                 |           |
| 2006 | 2     |             |            |               |               |                 |           |
| 2006 | 3     |             |            |               |               |                 |           |
| 2006 | 4     |             |            |               |               |                 |           |
| 2006 | 5     |             |            |               |               |                 |           |
| 2006 | 6     |             |            |               |               |                 |           |
| 2006 | 7     |             |            |               |               |                 |           |
| 2006 | 8     |             |            |               |               |                 |           |
| 2006 | 9     |             |            |               |               |                 |           |
| 2006 | 10    |             |            |               |               |                 |           |
| 2006 | 11    |             |            |               |               |                 |           |
| 2006 | 12    |             |            |               |               |                 |           |
| 2007 | 1     |             |            |               |               |                 |           |
| 2007 | 2     |             |            |               |               |                 |           |
| 2007 | 3     |             |            |               |               |                 |           |
| 2007 | 4     |             |            |               |               |                 |           |

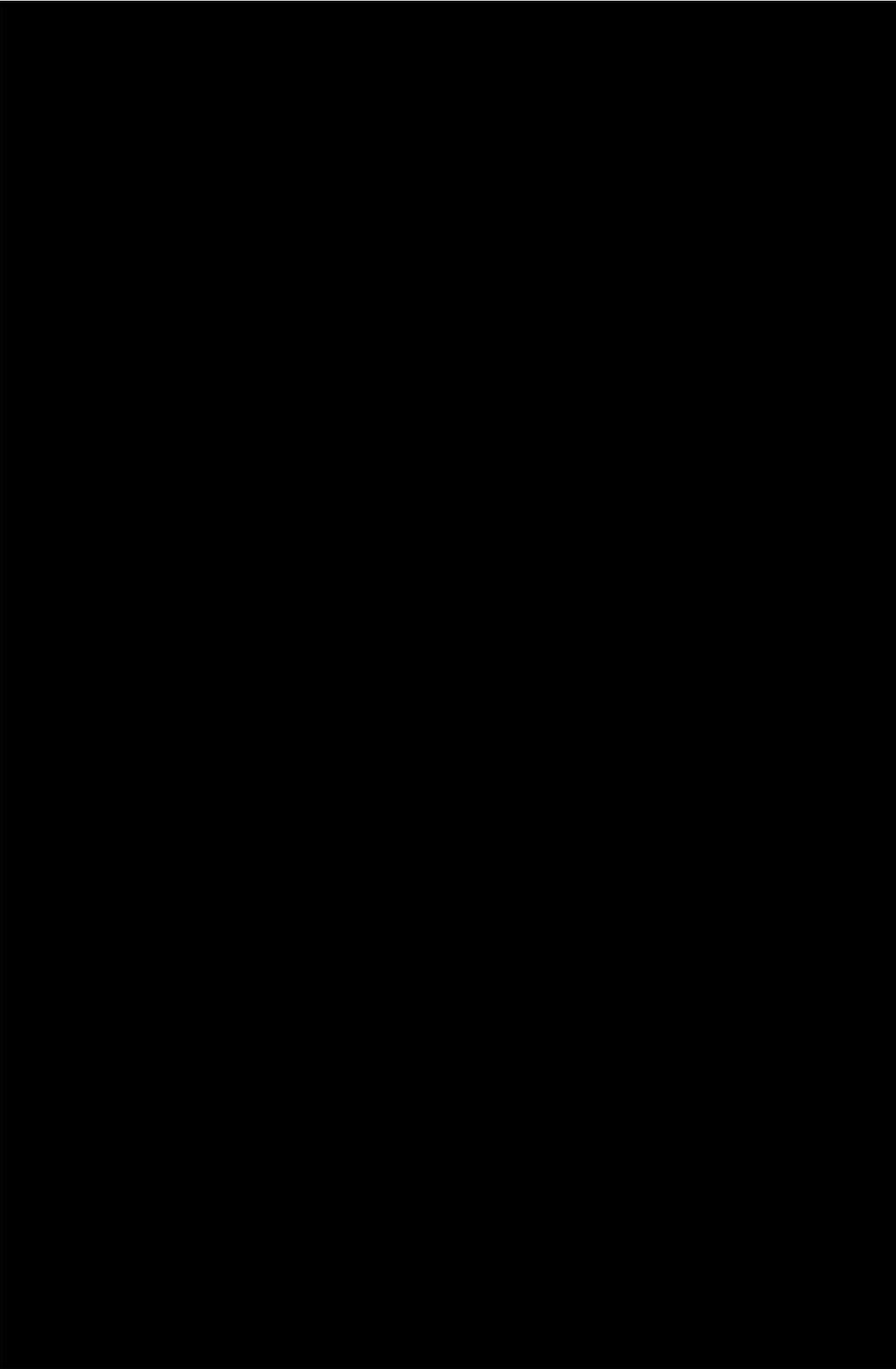
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2007 | 5     |             |            |               |            |              |           |
| 2007 | 6     |             |            |               |            |              |           |
| 2007 | 7     |             |            |               |            |              |           |
| 2007 | 8     |             |            |               |            |              |           |
| 2007 | 9     |             |            |               |            |              |           |
| 2007 | 10    |             |            |               |            |              |           |
| 2007 | 11    |             |            |               |            |              |           |
| 2007 | 12    |             |            |               |            |              |           |
| 2008 | 1     |             |            |               |            |              |           |
| 2008 | 2     |             |            |               |            |              |           |
| 2008 | 3     |             |            |               |            |              |           |
| 2008 | 4     |             |            |               |            |              |           |
| 2008 | 5     |             |            |               |            |              |           |
| 2008 | 6     |             |            |               |            |              |           |
| 2008 | 7     |             |            |               |            |              |           |
| 2008 | 8     |             |            |               |            |              |           |
| 2008 | 9     |             |            |               |            |              |           |
| 2008 | 10    |             |            |               |            |              |           |
| 2008 | 11    |             |            |               |            |              |           |
| 2008 | 12    |             |            |               |            |              |           |
| 2009 | 1     |             |            |               |            |              |           |
| 2009 | 2     |             |            |               |            |              |           |
| 2009 | 3     |             |            |               |            |              |           |
| 2009 | 4     |             |            |               |            |              |           |
| 2009 | 5     |             |            |               |            |              |           |
| 2009 | 6     |             |            |               |            |              |           |
| 2009 | 7     |             |            |               |            |              |           |
| 2009 | 8     |             |            |               |            |              |           |
| 2009 | 9     |             |            |               |            |              |           |
| 2009 | 10    |             |            |               |            |              |           |
| 2009 | 11    |             |            |               |            |              |           |
| 2009 | 12    |             |            |               |            |              |           |
| 2010 | 1     |             |            |               |            |              |           |
| 2010 | 2     |             |            |               |            |              |           |
| 2010 | 3     |             |            |               |            |              |           |
| 2010 | 4     |             |            |               |            |              |           |
| 2010 | 5     |             |            |               |            |              |           |
| 2010 | 6     |             |            |               |            |              |           |
| 2010 | 7     |             |            |               |            |              |           |
| 2010 | 8     |             |            |               |            |              |           |

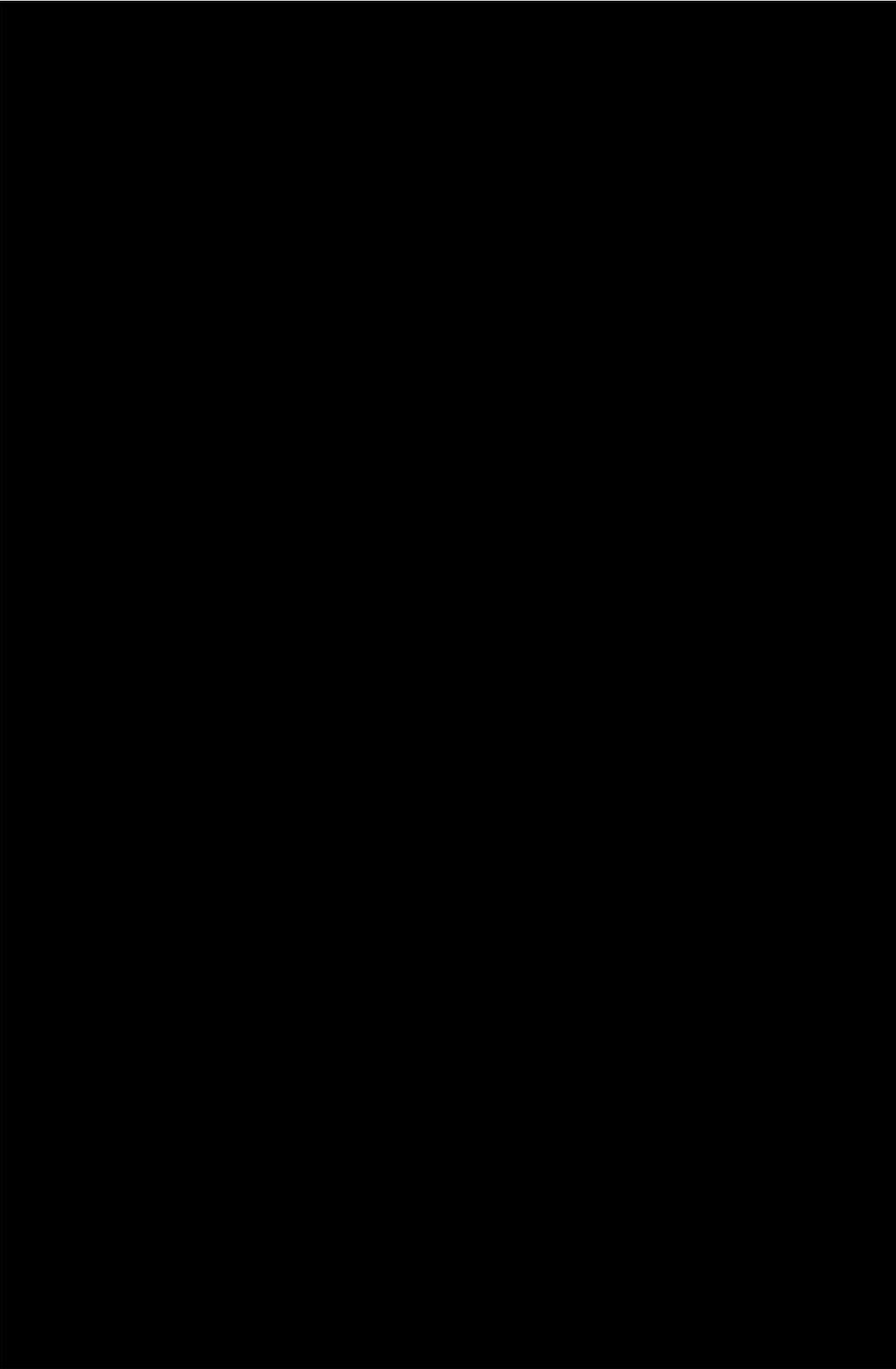
**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2010 | 9     |             |            |               |            |              |           |
| 2010 | 10    |             |            |               |            |              |           |
| 2010 | 11    |             |            |               |            |              |           |
| 2010 | 12    |             |            |               |            |              |           |
| 2011 | 1     |             |            |               |            |              |           |
| 2011 | 2     |             |            |               |            |              |           |
| 2011 | 3     |             |            |               |            |              |           |
| 2011 | 4     |             |            |               |            |              |           |
| 2011 | 5     |             |            |               |            |              |           |
| 2011 | 6     |             |            |               |            |              |           |
| 2011 | 7     |             |            |               |            |              |           |
| 2011 | 8     |             |            |               |            |              |           |
| 2011 | 9     |             |            |               |            |              |           |
| 2011 | 10    |             |            |               |            |              |           |
| 2011 | 11    |             |            |               |            |              |           |
| 2011 | 12    |             |            |               |            |              |           |
| 2012 | 1     |             |            |               |            |              |           |
| 2012 | 2     |             |            |               |            |              |           |
| 2012 | 3     |             |            |               |            |              |           |
| 2012 | 4     |             |            |               |            |              |           |
| 2012 | 5     |             |            |               |            |              |           |
| 2012 | 6     |             |            |               |            |              |           |
| 2012 | 7     |             |            |               |            |              |           |
| 2012 | 8     |             |            |               |            |              |           |
| 2012 | 9     |             |            |               |            |              |           |
| 2012 | 10    |             |            |               |            |              |           |
| 2012 | 11    |             |            |               |            |              |           |
| 2012 | 12    |             |            |               |            |              |           |
| 2013 | 1     |             |            |               |            |              |           |
| 2013 | 2     |             |            |               |            |              |           |
| 2013 | 3     |             |            |               |            |              |           |
| 2013 | 4     |             |            |               |            |              |           |
| 2013 | 5     |             |            |               |            |              |           |
| 2013 | 6     |             |            |               |            |              |           |
| 2013 | 7     |             |            |               |            |              |           |
| 2013 | 8     |             |            |               |            |              |           |
| 2013 | 9     |             |            |               |            |              |           |
| 2013 | 10    |             |            |               |            |              |           |
| 2013 | 11    |             |            |               |            |              |           |
| 2013 | 12    |             |            |               |            |              |           |

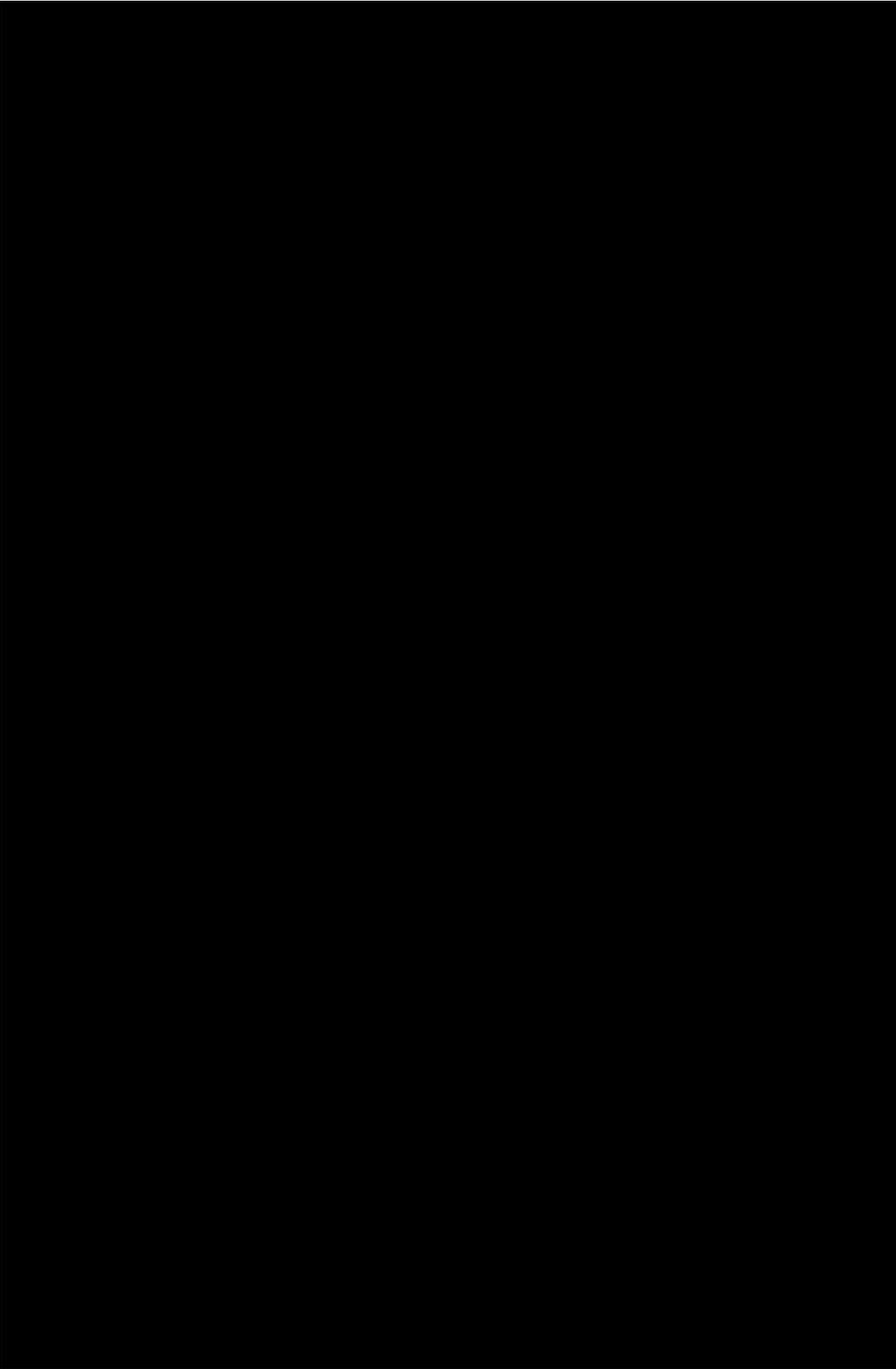
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|---|------------|---------------|---------------|-----------------|-----------|
| 2014 | 1     |  |            |               |               |                 |           |
| 2014 | 2     |   |            |               |               |                 |           |
| 2014 | 3     |   |            |               |               |                 |           |
| 2014 | 4     |   |            |               |               |                 |           |
| 2014 | 5     |   |            |               |               |                 |           |
| 2014 | 6     |   |            |               |               |                 |           |
| 2014 | 7     |   |            |               |               |                 |           |
| 2014 | 8     |   |            |               |               |                 |           |
| 2014 | 9     |   |            |               |               |                 |           |
| 2014 | 10    |   |            |               |               |                 |           |
| 2014 | 11    |   |            |               |               |                 |           |
| 2014 | 12    |   |            |               |               |                 |           |
| 2015 | 1     |   |            |               |               |                 |           |
| 2015 | 2     |   |            |               |               |                 |           |
| 2015 | 3     |   |            |               |               |                 |           |
| 2015 | 4     |   |            |               |               |                 |           |
| 2015 | 5     |   |            |               |               |                 |           |
| 2015 | 6     |   |            |               |               |                 |           |
| 2015 | 7     |   |            |               |               |                 |           |
| 2015 | 8     |   |            |               |               |                 |           |
| 2015 | 9     |   |            |               |               |                 |           |
| 2015 | 10    |   |            |               |               |                 |           |
| 2015 | 11    |   |            |               |               |                 |           |
| 2015 | 12    |   |            |               |               |                 |           |
| 2016 | 1     |   |            |               |               |                 |           |
| 2016 | 2     |   |            |               |               |                 |           |
| 2016 | 3     |   |            |               |               |                 |           |
| 2016 | 4     |   |            |               |               |                 |           |
| 2016 | 5     |   |            |               |               |                 |           |
| 2016 | 6     |   |            |               |               |                 |           |
| 2016 | 7     |   |            |               |               |                 |           |
| 2016 | 8     |   |            |               |               |                 |           |
| 2016 | 9     |   |            |               |               |                 |           |
| 2016 | 10    |   |            |               |               |                 |           |
| 2016 | 11    |   |            |               |               |                 |           |
| 2016 | 12    |   |            |               |               |                 |           |
| 2017 | 1     |   |            |               |               |                 |           |
| 2017 | 2     |   |            |               |               |                 |           |
| 2017 | 3     |   |            |               |               |                 |           |
| 2017 | 4     |   |            |               |               |                 |           |

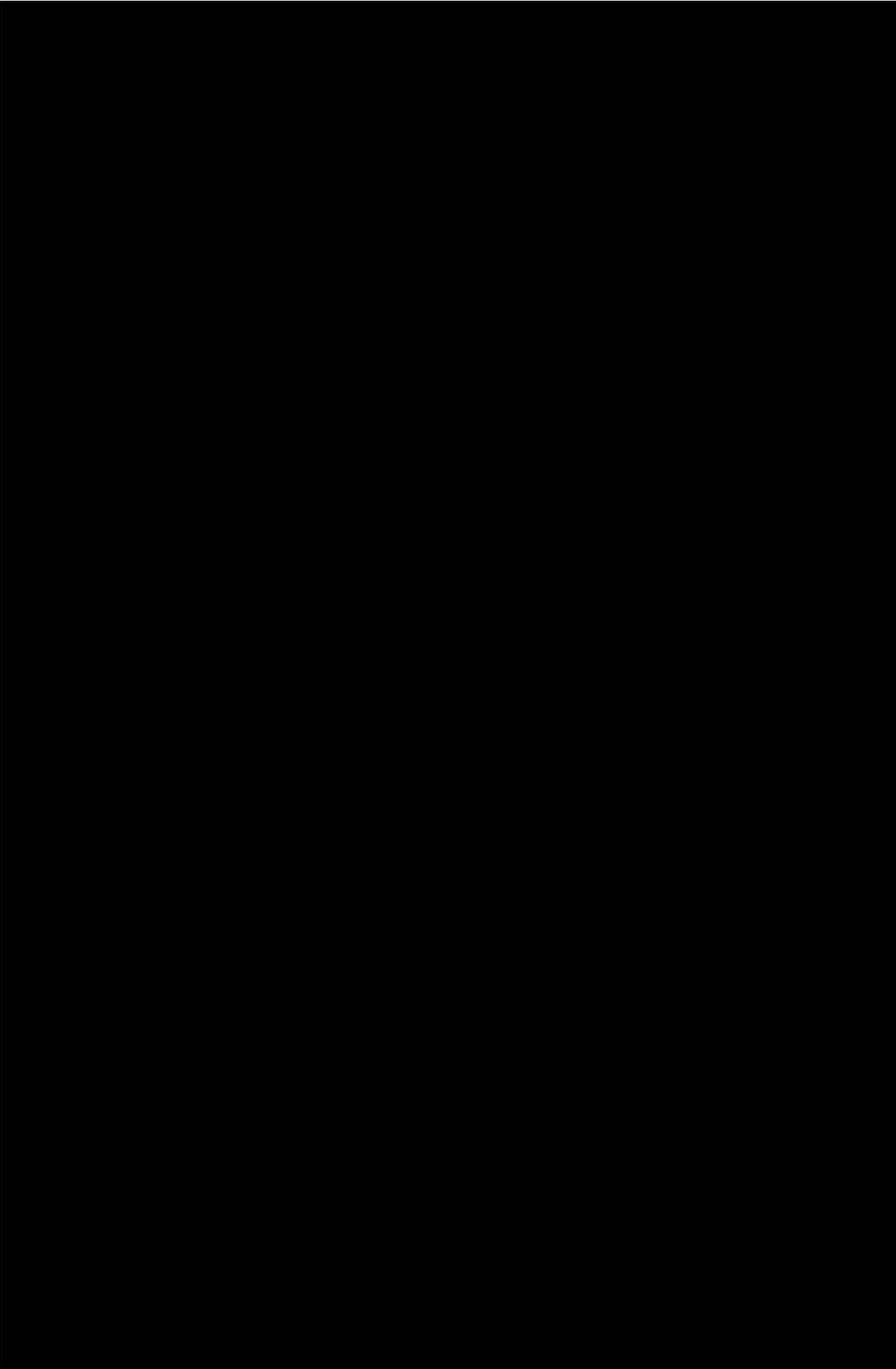
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|---|------------|---------------|---------------|-----------------|-----------|
| 2017 | 5     |  |            |               |               |                 |           |
| 2017 | 6     |   |            |               |               |                 |           |
| 2017 | 7     |   |            |               |               |                 |           |
| 2017 | 8     |   |            |               |               |                 |           |
| 2017 | 9     |   |            |               |               |                 |           |
| 2017 | 10    |   |            |               |               |                 |           |
| 2017 | 11    |   |            |               |               |                 |           |
| 2017 | 12    |   |            |               |               |                 |           |
| 2018 | 1     |   |            |               |               |                 |           |
| 2018 | 2     |   |            |               |               |                 |           |
| 2018 | 3     |   |            |               |               |                 |           |
| 2018 | 4     |   |            |               |               |                 |           |
| 2018 | 5     |   |            |               |               |                 |           |
| 2018 | 6     |   |            |               |               |                 |           |
| 2018 | 7     |   |            |               |               |                 |           |
| 2018 | 8     |   |            |               |               |                 |           |
| 2018 | 9     |   |            |               |               |                 |           |
| 2018 | 10    |   |            |               |               |                 |           |
| 2018 | 11    |   |            |               |               |                 |           |
| 2018 | 12    |   |            |               |               |                 |           |
| 2019 | 1     |   |            |               |               |                 |           |
| 2019 | 2     |   |            |               |               |                 |           |
| 2019 | 3     |   |            |               |               |                 |           |
| 2019 | 4     |   |            |               |               |                 |           |
| 2019 | 5     |   |            |               |               |                 |           |
| 2019 | 6     |   |            |               |               |                 |           |
| 2019 | 7     |   |            |               |               |                 |           |
| 2019 | 8     |   |            |               |               |                 |           |
| 2019 | 9     |   |            |               |               |                 |           |
| 2019 | 10    |   |            |               |               |                 |           |
| 2019 | 11    |   |            |               |               |                 |           |
| 2019 | 12    |   |            |               |               |                 |           |
| 2020 | 1     |   |            |               |               |                 |           |
| 2020 | 2     |   |            |               |               |                 |           |
| 2020 | 3     |   |            |               |               |                 |           |
| 2020 | 4     |   |            |               |               |                 |           |
| 2020 | 5     |   |            |               |               |                 |           |
| 2020 | 6     |   |            |               |               |                 |           |
| 2020 | 7     |   |            |               |               |                 |           |
| 2020 | 8     |   |            |               |               |                 |           |

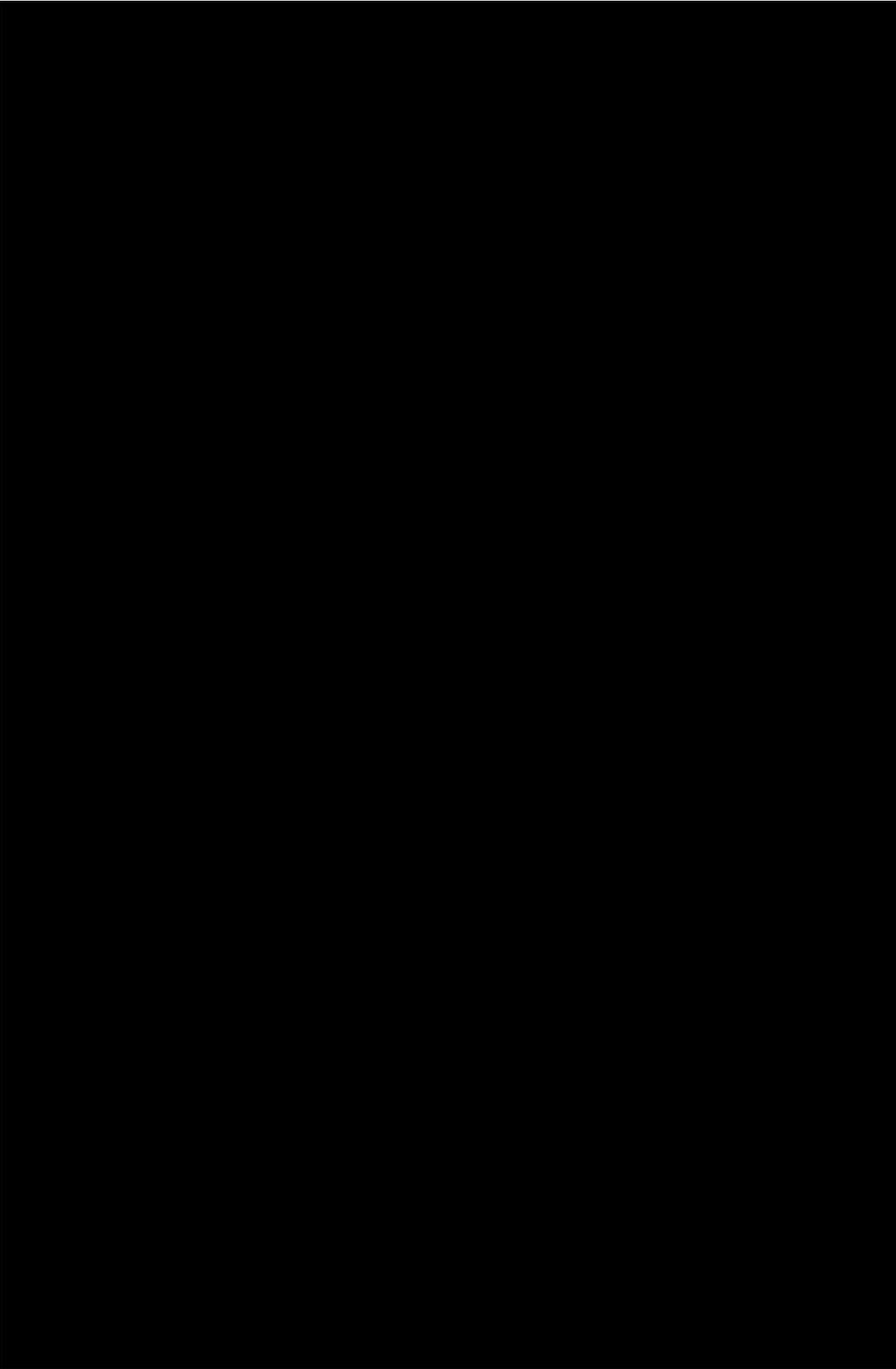
**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|---|------------|---------------|------------|--------------|-----------|
| 2020 | 9     |  |            |               |            |              |           |
| 2020 | 10    |   |            |               |            |              |           |
| 2020 | 11    |   |            |               |            |              |           |
| 2020 | 12    |   |            |               |            |              |           |
| 2021 | 1     |   |            |               |            |              |           |
| 2021 | 2     |   |            |               |            |              |           |
| 2021 | 3     |   |            |               |            |              |           |
| 2021 | 4     |   |            |               |            |              |           |
| 2021 | 5     |   |            |               |            |              |           |
| 2021 | 6     |   |            |               |            |              |           |
| 2021 | 7     |   |            |               |            |              |           |
| 2021 | 8     |   |            |               |            |              |           |
| 2021 | 9     |   |            |               |            |              |           |
| 2021 | 10    |   |            |               |            |              |           |
| 2021 | 11    |   |            |               |            |              |           |
| 2021 | 12    |   |            |               |            |              |           |
| 2022 | 1     |   |            |               |            |              |           |
| 2022 | 2     |   |            |               |            |              |           |
| 2022 | 3     |   |            |               |            |              |           |
| 2022 | 4     |   |            |               |            |              |           |
| 2022 | 5     |   |            |               |            |              |           |
| 2022 | 6     |   |            |               |            |              |           |
| 2022 | 7     |   |            |               |            |              |           |
| 2022 | 8     |   |            |               |            |              |           |
| 2022 | 9     |   |            |               |            |              |           |
| 2022 | 10    |   |            |               |            |              |           |
| 2022 | 11    |   |            |               |            |              |           |
| 2022 | 12    |   |            |               |            |              |           |
| 2023 | 1     |   |            |               |            |              |           |
| 2023 | 2     |   |            |               |            |              |           |
| 2023 | 3     |   |            |               |            |              |           |
| 2023 | 4     |   |            |               |            |              |           |
| 2023 | 5     |   |            |               |            |              |           |
| 2023 | 6     |   |            |               |            |              |           |
| 2023 | 7     |   |            |               |            |              |           |
| 2023 | 8     |   |            |               |            |              |           |
| 2023 | 9     |   |            |               |            |              |           |
| 2023 | 10    |   |            |               |            |              |           |
| 2023 | 11    |   |            |               |            |              |           |
| 2023 | 12    |   |            |               |            |              |           |

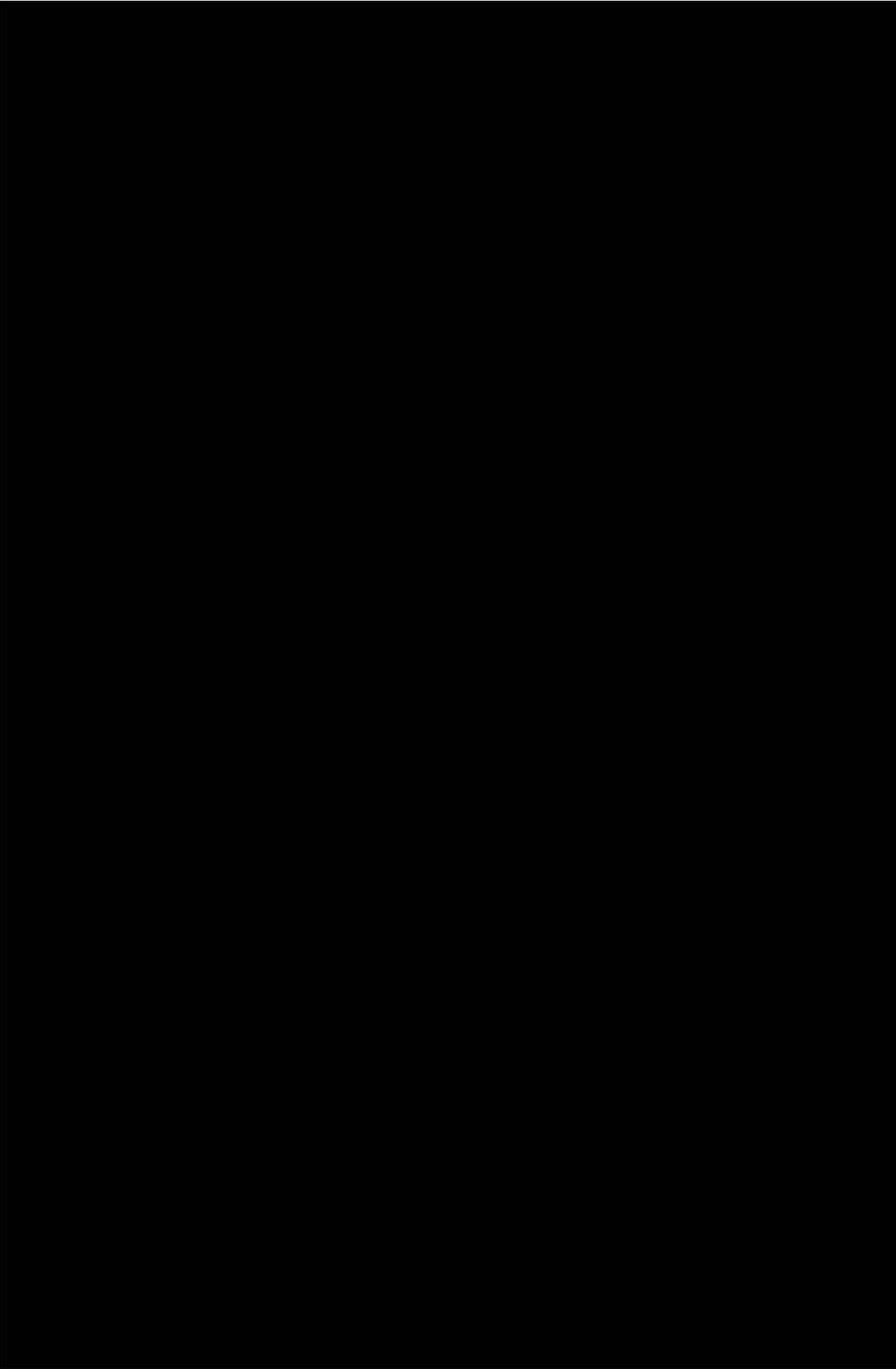
**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|---|------------|---------------|---------------|-----------------|-----------|
| 2024 | 1     |  |            |               |               |                 |           |
| 2024 | 2     |   |            |               |               |                 |           |
| 2024 | 3     |   |            |               |               |                 |           |
| 2024 | 4     |   |            |               |               |                 |           |
| 2024 | 5     |   |            |               |               |                 |           |
| 2024 | 6     |   |            |               |               |                 |           |
| 2024 | 7     |   |            |               |               |                 |           |
| 2024 | 8     |   |            |               |               |                 |           |
| 2024 | 9     |   |            |               |               |                 |           |
| 2024 | 10    |   |            |               |               |                 |           |
| 2024 | 11    |   |            |               |               |                 |           |
| 2024 | 12    |   |            |               |               |                 |           |
| 2025 | 1     |   |            |               |               |                 |           |
| 2025 | 2     |   |            |               |               |                 |           |
| 2025 | 3     |   |            |               |               |                 |           |
| 2025 | 4     |   |            |               |               |                 |           |
| 2025 | 5     |   |            |               |               |                 |           |
| 2025 | 6     |   |            |               |               |                 |           |
| 2025 | 7     |   |            |               |               |                 |           |
| 2025 | 8     |   |            |               |               |                 |           |
| 2025 | 9     |   |            |               |               |                 |           |
| 2025 | 10    |   |            |               |               |                 |           |
| 2025 | 11    |   |            |               |               |                 |           |
| 2025 | 12    |   |            |               |               |                 |           |
| 2026 | 1     |   |            |               |               |                 |           |
| 2026 | 2     |   |            |               |               |                 |           |
| 2026 | 3     |   |            |               |               |                 |           |
| 2026 | 4     |   |            |               |               |                 |           |
| 2026 | 5     |   |            |               |               |                 |           |
| 2026 | 6     |   |            |               |               |                 |           |
| 2026 | 7     |   |            |               |               |                 |           |
| 2026 | 8     |   |            |               |               |                 |           |
| 2026 | 9     |   |            |               |               |                 |           |
| 2026 | 10    |   |            |               |               |                 |           |
| 2026 | 11    |   |            |               |               |                 |           |
| 2026 | 12    |   |            |               |               |                 |           |
| 2027 | 1     |   |            |               |               |                 |           |
| 2027 | 2     |   |            |               |               |                 |           |
| 2027 | 3     |   |            |               |               |                 |           |
| 2027 | 4     |   |            |               |               |                 |           |

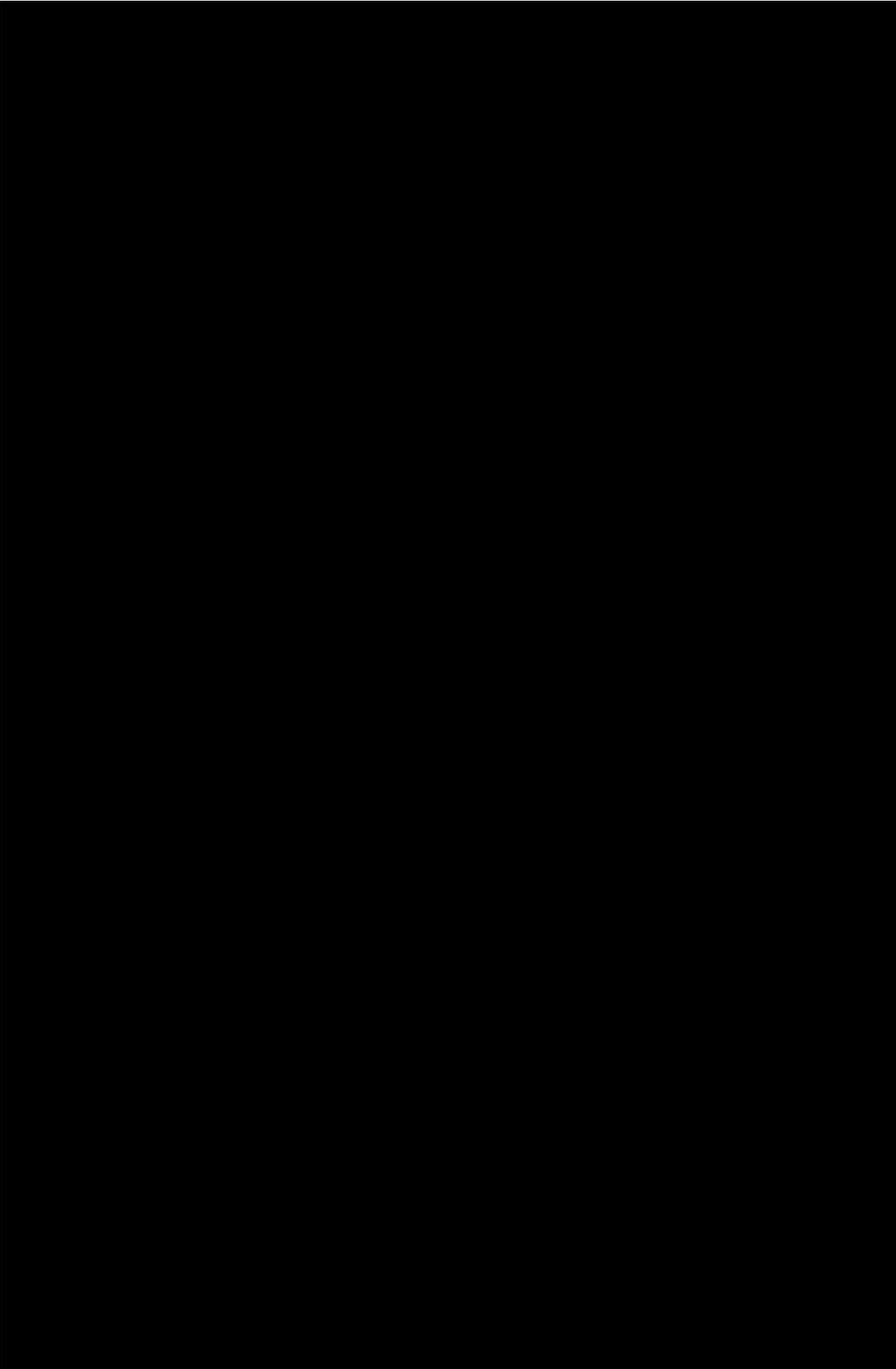
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|---|------------|---------------|------------|--------------|-----------|
| 2027 | 5     |  |            |               |            |              |           |
| 2027 | 6     |   |            |               |            |              |           |
| 2027 | 7     |   |            |               |            |              |           |
| 2027 | 8     |   |            |               |            |              |           |
| 2027 | 9     |   |            |               |            |              |           |
| 2027 | 10    |   |            |               |            |              |           |
| 2027 | 11    |   |            |               |            |              |           |
| 2027 | 12    |   |            |               |            |              |           |
| 2028 | 1     |   |            |               |            |              |           |
| 2028 | 2     |   |            |               |            |              |           |
| 2028 | 3     |   |            |               |            |              |           |
| 2028 | 4     |   |            |               |            |              |           |
| 2028 | 5     |   |            |               |            |              |           |
| 2028 | 6     |   |            |               |            |              |           |
| 2028 | 7     |   |            |               |            |              |           |
| 2028 | 8     |   |            |               |            |              |           |
| 2028 | 9     |   |            |               |            |              |           |
| 2028 | 10    |   |            |               |            |              |           |
| 2028 | 11    |   |            |               |            |              |           |
| 2028 | 12    |   |            |               |            |              |           |
| 2029 | 1     |   |            |               |            |              |           |
| 2029 | 2     |   |            |               |            |              |           |
| 2029 | 3     |   |            |               |            |              |           |
| 2029 | 4     |   |            |               |            |              |           |
| 2029 | 5     |   |            |               |            |              |           |
| 2029 | 6     |   |            |               |            |              |           |
| 2029 | 7     |   |            |               |            |              |           |
| 2029 | 8     |   |            |               |            |              |           |
| 2029 | 9     |   |            |               |            |              |           |
| 2029 | 10    |   |            |               |            |              |           |
| 2029 | 11    |   |            |               |            |              |           |
| 2029 | 12    |   |            |               |            |              |           |
| 2030 | 1     |   |            |               |            |              |           |
| 2030 | 2     |   |            |               |            |              |           |
| 2030 | 3     |   |            |               |            |              |           |
| 2030 | 4     |   |            |               |            |              |           |
| 2030 | 5     |   |            |               |            |              |           |
| 2030 | 6     |   |            |               |            |              |           |
| 2030 | 7     |   |            |               |            |              |           |
| 2030 | 8     |   |            |               |            |              |           |

**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|---|------------|---------------|------------|--------------|-----------|
| 2030 | 9     |  |            |               |            |              |           |
| 2030 | 10    |   |            |               |            |              |           |
| 2030 | 11    |   |            |               |            |              |           |
| 2030 | 12    |   |            |               |            |              |           |
| 2031 | 1     |   |            |               |            |              |           |
| 2031 | 2     |   |            |               |            |              |           |
| 2031 | 3     |   |            |               |            |              |           |
| 2031 | 4     |   |            |               |            |              |           |
| 2031 | 5     |   |            |               |            |              |           |
| 2031 | 6     |   |            |               |            |              |           |
| 2031 | 7     |   |            |               |            |              |           |
| 2031 | 8     |   |            |               |            |              |           |
| 2031 | 9     |   |            |               |            |              |           |
| 2031 | 10    |   |            |               |            |              |           |
| 2031 | 11    |   |            |               |            |              |           |
| 2031 | 12    |   |            |               |            |              |           |
| 2032 | 1     |   |            |               |            |              |           |
| 2032 | 2     |   |            |               |            |              |           |
| 2032 | 3     |   |            |               |            |              |           |
| 2032 | 4     |   |            |               |            |              |           |
| 2032 | 5     |   |            |               |            |              |           |
| 2032 | 6     |   |            |               |            |              |           |
| 2032 | 7     |   |            |               |            |              |           |
| 2032 | 8     |   |            |               |            |              |           |
| 2032 | 9     |   |            |               |            |              |           |
| 2032 | 10    |   |            |               |            |              |           |
| 2032 | 11    |   |            |               |            |              |           |
| 2032 | 12    |   |            |               |            |              |           |
| 2033 | 1     |   |            |               |            |              |           |
| 2033 | 2     |   |            |               |            |              |           |
| 2033 | 3     |   |            |               |            |              |           |
| 2033 | 4     |   |            |               |            |              |           |
| 2033 | 5     |   |            |               |            |              |           |
| 2033 | 6     |   |            |               |            |              |           |
| 2033 | 7     |   |            |               |            |              |           |
| 2033 | 8     |   |            |               |            |              |           |
| 2033 | 9     |   |            |               |            |              |           |
| 2033 | 10    |   |            |               |            |              |           |
| 2033 | 11    |   |            |               |            |              |           |
| 2033 | 12    |   |            |               |            |              |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|---|------------|---------------|------------|--------------|-----------|
| 2034 | 1     |  |            |               |            |              |           |
| 2034 | 2     |   |            |               |            |              |           |
| 2034 | 3     |   |            |               |            |              |           |
| 2034 | 4     |   |            |               |            |              |           |
| 2034 | 5     |   |            |               |            |              |           |
| 2034 | 6     |   |            |               |            |              |           |
| 2034 | 7     |   |            |               |            |              |           |
| 2034 | 8     |   |            |               |            |              |           |
| 2034 | 9     |   |            |               |            |              |           |
| 2034 | 10    |   |            |               |            |              |           |
| 2034 | 11    |   |            |               |            |              |           |
| 2034 | 12    |   |            |               |            |              |           |
| 2035 | 1     |   |            |               |            |              |           |
| 2035 | 2     |   |            |               |            |              |           |
| 2035 | 3     |   |            |               |            |              |           |
| 2035 | 4     |   |            |               |            |              |           |
| 2035 | 5     |   |            |               |            |              |           |
| 2035 | 6     |   |            |               |            |              |           |
| 2035 | 7     |   |            |               |            |              |           |
| 2035 | 8     |   |            |               |            |              |           |
| 2035 | 9     |   |            |               |            |              |           |
| 2035 | 10    |   |            |               |            |              |           |
| 2035 | 11    |   |            |               |            |              |           |
| 2035 | 12    |   |            |               |            |              |           |
| 2036 | 1     |   |            |               |            |              |           |
| 2036 | 2     |   |            |               |            |              |           |
| 2036 | 3     |   |            |               |            |              |           |
| 2036 | 4     |   |            |               |            |              |           |
| 2036 | 5     |   |            |               |            |              |           |
| 2036 | 6     |   |            |               |            |              |           |
| 2036 | 7     |   |            |               |            |              |           |
| 2036 | 8     |   |            |               |            |              |           |
| 2036 | 9     |   |            |               |            |              |           |
| 2036 | 10    |   |            |               |            |              |           |
| 2036 | 11    |   |            |               |            |              |           |
| 2036 | 12    |   |            |               |            |              |           |
| 2037 | 1     |   |            |               |            |              |           |
| 2037 | 2     |   |            |               |            |              |           |
| 2037 | 3     |   |            |               |            |              |           |
| 2037 | 4     |   |            |               |            |              |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2037 | 5     |             |            |               |            |              |           |
| 2037 | 6     |             |            |               |            |              |           |
| 2037 | 7     |             |            |               |            |              |           |
| 2037 | 8     |             |            |               |            |              |           |
| 2037 | 9     |             |            |               |            |              |           |
| 2037 | 10    |             |            |               |            |              |           |
| 2037 | 11    |             |            |               |            |              |           |
| 2037 | 12    |             |            |               |            |              |           |
| 2038 | 1     |             |            |               |            |              |           |
| 2038 | 2     |             |            |               |            |              |           |
| 2038 | 3     |             |            |               |            |              |           |
| 2038 | 4     |             |            |               |            |              |           |
| 2038 | 5     |             |            |               |            |              |           |
| 2038 | 6     |             |            |               |            |              |           |
| 2038 | 7     |             |            |               |            |              |           |
| 2038 | 8     |             |            |               |            |              |           |
| 2038 | 9     |             |            |               |            |              |           |
| 2038 | 10    |             |            |               |            |              |           |
| 2038 | 11    |             |            |               |            |              |           |
| 2038 | 12    |             |            |               |            |              |           |
| 2039 | 1     |             |            |               |            |              |           |
| 2039 | 2     |             |            |               |            |              |           |
| 2039 | 3     |             |            |               |            |              |           |
| 2039 | 4     |             |            |               |            |              |           |
| 2039 | 5     |             |            |               |            |              |           |
| 2039 | 6     |             |            |               |            |              |           |
| 2039 | 7     |             |            |               |            |              |           |
| 2039 | 8     |             |            |               |            |              |           |
| 2039 | 9     |             |            |               |            |              |           |
| 2039 | 10    |             |            |               |            |              |           |
| 2039 | 11    |             |            |               |            |              |           |
| 2039 | 12    |             |            |               |            |              |           |
| 2040 | 1     |             |            |               |            |              |           |
| 2040 | 2     |             |            |               |            |              |           |
| 2040 | 3     |             |            |               |            |              |           |
| 2040 | 4     |             |            |               |            |              |           |
| 2040 | 5     |             |            |               |            |              |           |
| 2040 | 6     |             |            |               |            |              |           |
| 2040 | 7     |             |            |               |            |              |           |
| 2040 | 8     |             |            |               |            |              |           |

**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2040 | 9     |             |            |               |            |              |           |
| 2040 | 10    |             |            |               |            |              |           |
| 2040 | 11    |             |            |               |            |              |           |
| 2040 | 12    |             |            |               |            |              |           |
| 2041 | 1     |             |            |               |            |              |           |
| 2041 | 2     |             |            |               |            |              |           |
| 2041 | 3     |             |            |               |            |              |           |
| 2041 | 4     |             |            |               |            |              |           |
| 2041 | 5     |             |            |               |            |              |           |
| 2041 | 6     |             |            |               |            |              |           |
| 2041 | 7     |             |            |               |            |              |           |
| 2041 | 8     |             |            |               |            |              |           |
| 2041 | 9     |             |            |               |            |              |           |
| 2041 | 10    |             |            |               |            |              |           |
| 2041 | 11    |             |            |               |            |              |           |
| 2041 | 12    |             |            |               |            |              |           |
| 2042 | 1     |             |            |               |            |              |           |
| 2042 | 2     |             |            |               |            |              |           |
| 2042 | 3     |             |            |               |            |              |           |
| 2042 | 4     |             |            |               |            |              |           |
| 2042 | 5     |             |            |               |            |              |           |
| 2042 | 6     |             |            |               |            |              |           |
| 2042 | 7     |             |            |               |            |              |           |
| 2042 | 8     |             |            |               |            |              |           |
| 2042 | 9     |             |            |               |            |              |           |
| 2042 | 10    |             |            |               |            |              |           |
| 2042 | 11    |             |            |               |            |              |           |
| 2042 | 12    |             |            |               |            |              |           |
| 2043 | 1     |             |            |               |            |              |           |
| 2043 | 2     |             |            |               |            |              |           |
| 2043 | 3     |             |            |               |            |              |           |
| 2043 | 4     |             |            |               |            |              |           |
| 2043 | 5     |             |            |               |            |              |           |
| 2043 | 6     |             |            |               |            |              |           |
| 2043 | 7     |             |            |               |            |              |           |
| 2043 | 8     |             |            |               |            |              |           |
| 2043 | 9     |             |            |               |            |              |           |
| 2043 | 10    |             |            |               |            |              |           |
| 2043 | 11    |             |            |               |            |              |           |
| 2043 | 12    |             |            |               |            |              |           |

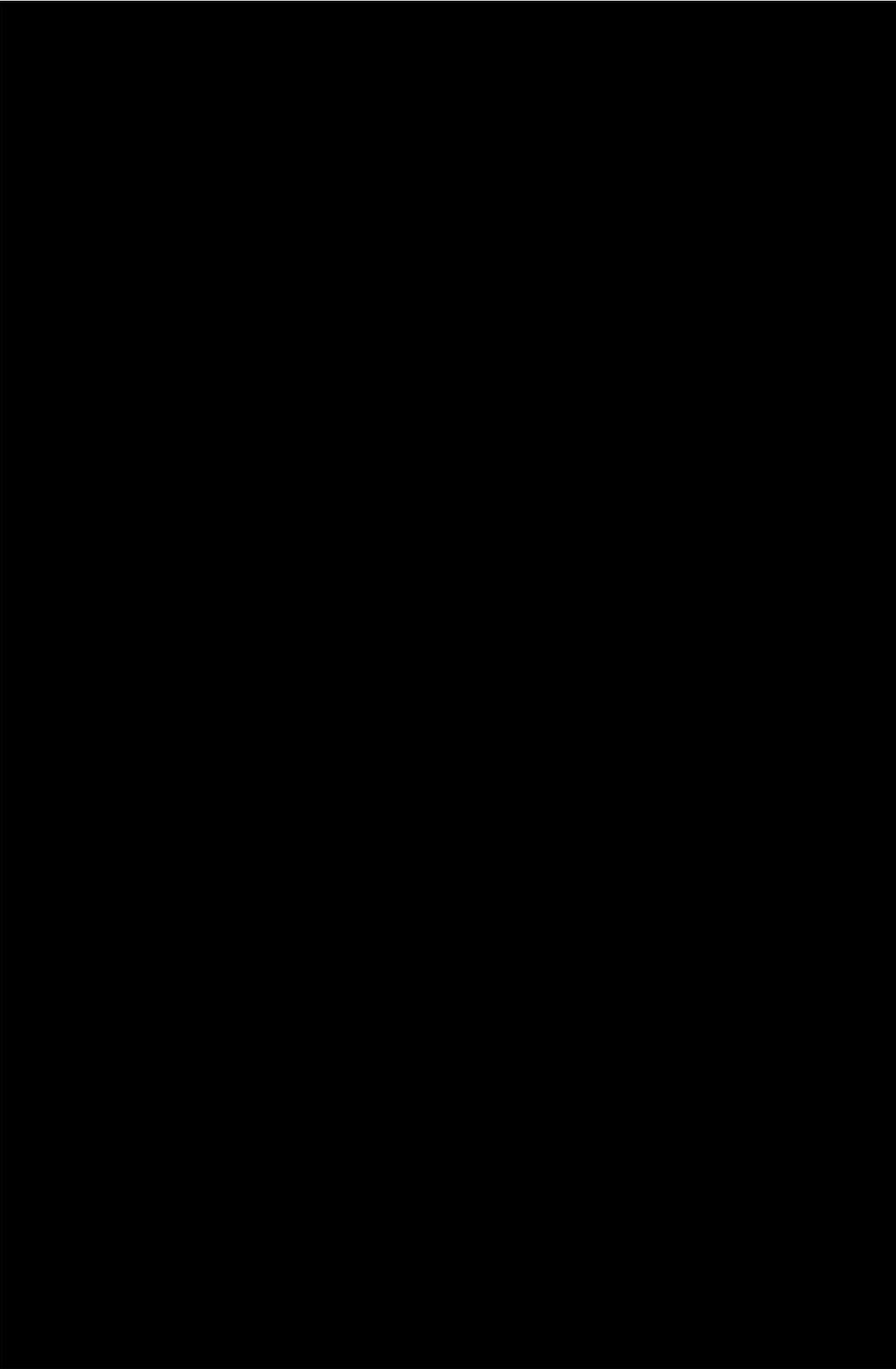
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2044 | 1     |             |            |               |            |              |           |
| 2044 | 2     |             |            |               |            |              |           |
| 2044 | 3     |             |            |               |            |              |           |
| 2044 | 4     |             |            |               |            |              |           |
| 2044 | 5     |             |            |               |            |              |           |
| 2044 | 6     |             |            |               |            |              |           |
| 2044 | 7     |             |            |               |            |              |           |
| 2044 | 8     |             |            |               |            |              |           |
| 2044 | 9     |             |            |               |            |              |           |
| 2044 | 10    |             |            |               |            |              |           |
| 2044 | 11    |             |            |               |            |              |           |
| 2044 | 12    |             |            |               |            |              |           |
| 2045 | 1     |             |            |               |            |              |           |
| 2045 | 2     |             |            |               |            |              |           |
| 2045 | 3     |             |            |               |            |              |           |
| 2045 | 4     |             |            |               |            |              |           |
| 2045 | 5     |             |            |               |            |              |           |
| 2045 | 6     |             |            |               |            |              |           |
| 2045 | 7     |             |            |               |            |              |           |
| 2045 | 8     |             |            |               |            |              |           |
| 2045 | 9     |             |            |               |            |              |           |
| 2045 | 10    |             |            |               |            |              |           |
| 2045 | 11    |             |            |               |            |              |           |
| 2045 | 12    |             |            |               |            |              |           |
| 2046 | 1     |             |            |               |            |              |           |
| 2046 | 2     |             |            |               |            |              |           |
| 2046 | 3     |             |            |               |            |              |           |
| 2046 | 4     |             |            |               |            |              |           |
| 2046 | 5     |             |            |               |            |              |           |
| 2046 | 6     |             |            |               |            |              |           |
| 2046 | 7     |             |            |               |            |              |           |
| 2046 | 8     |             |            |               |            |              |           |
| 2046 | 9     |             |            |               |            |              |           |
| 2046 | 10    |             |            |               |            |              |           |
| 2046 | 11    |             |            |               |            |              |           |
| 2046 | 12    |             |            |               |            |              |           |
| 2047 | 1     |             |            |               |            |              |           |
| 2047 | 2     |             |            |               |            |              |           |
| 2047 | 3     |             |            |               |            |              |           |
| 2047 | 4     |             |            |               |            |              |           |

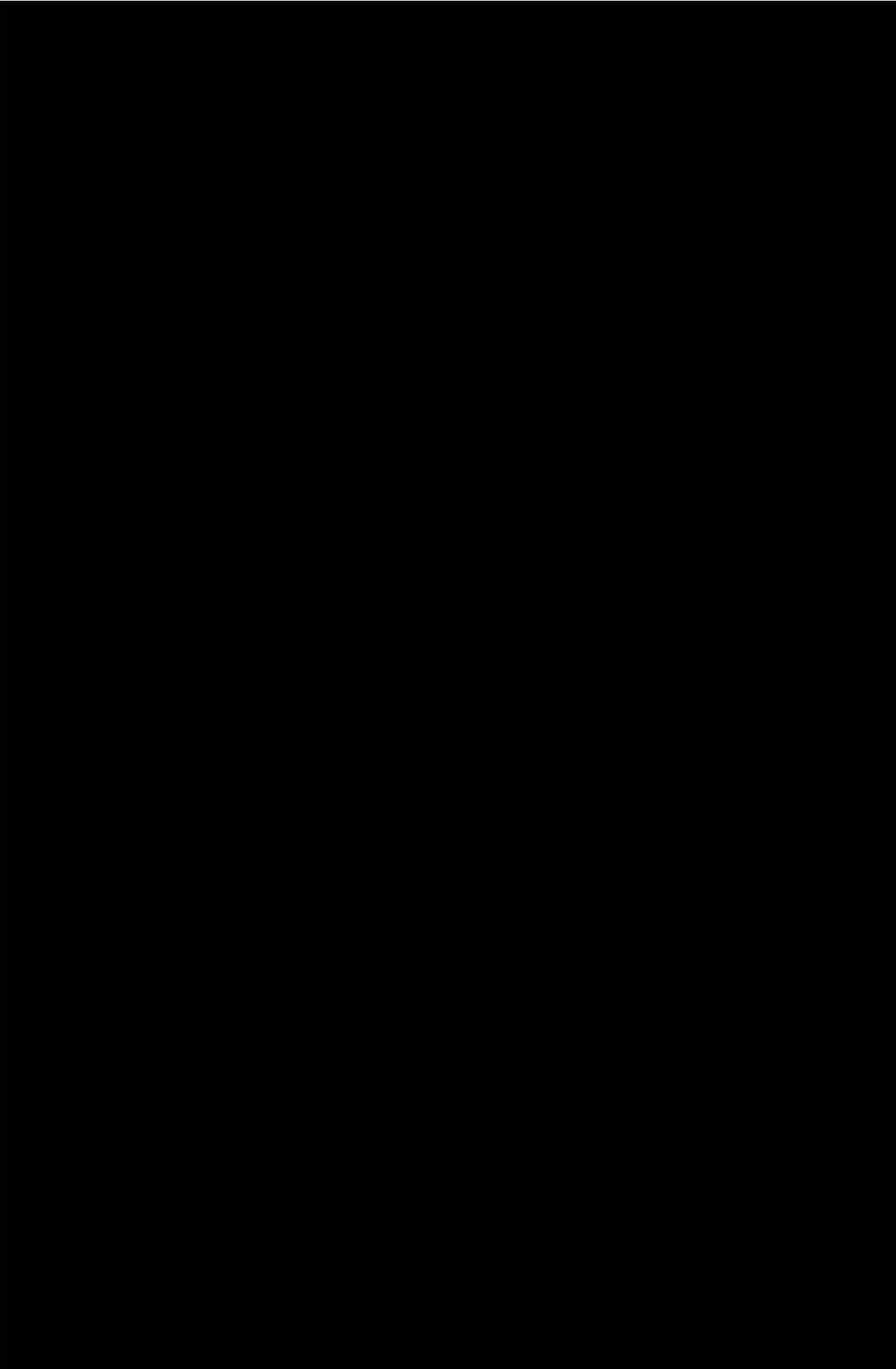
**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential | Commercial | Manufacturing | Mine Power | Other Retail | Wholesale |
|------|-------|-------------|------------|---------------|------------|--------------|-----------|
| 2047 | 5     |             |            |               |            |              |           |
| 2047 | 6     |             |            |               |            |              |           |
| 2047 | 7     |             |            |               |            |              |           |
| 2047 | 8     |             |            |               |            |              |           |
| 2047 | 9     |             |            |               |            |              |           |
| 2047 | 10    |             |            |               |            |              |           |
| 2047 | 11    |             |            |               |            |              |           |
| 2047 | 12    |             |            |               |            |              |           |
| 2048 | 1     |             |            |               |            |              |           |
| 2048 | 2     |             |            |               |            |              |           |
| 2048 | 3     |             |            |               |            |              |           |
| 2048 | 4     |             |            |               |            |              |           |
| 2048 | 5     |             |            |               |            |              |           |
| 2048 | 6     |             |            |               |            |              |           |
| 2048 | 7     |             |            |               |            |              |           |
| 2048 | 8     |             |            |               |            |              |           |
| 2048 | 9     |             |            |               |            |              |           |
| 2048 | 10    |             |            |               |            |              |           |
| 2048 | 11    |             |            |               |            |              |           |
| 2048 | 12    |             |            |               |            |              |           |
| 2049 | 1     |             |            |               |            |              |           |
| 2049 | 2     |             |            |               |            |              |           |
| 2049 | 3     |             |            |               |            |              |           |
| 2049 | 4     |             |            |               |            |              |           |
| 2049 | 5     |             |            |               |            |              |           |
| 2049 | 6     |             |            |               |            |              |           |
| 2049 | 7     |             |            |               |            |              |           |
| 2049 | 8     |             |            |               |            |              |           |
| 2049 | 9     |             |            |               |            |              |           |
| 2049 | 10    |             |            |               |            |              |           |
| 2049 | 11    |             |            |               |            |              |           |
| 2049 | 12    |             |            |               |            |              |           |
| 2050 | 1     |             |            |               |            |              |           |
| 2050 | 2     |             |            |               |            |              |           |
| 2050 | 3     |             |            |               |            |              |           |
| 2050 | 4     |             |            |               |            |              |           |
| 2050 | 5     |             |            |               |            |              |           |
| 2050 | 6     |             |            |               |            |              |           |
| 2050 | 7     |             |            |               |            |              |           |
| 2050 | 8     |             |            |               |            |              |           |

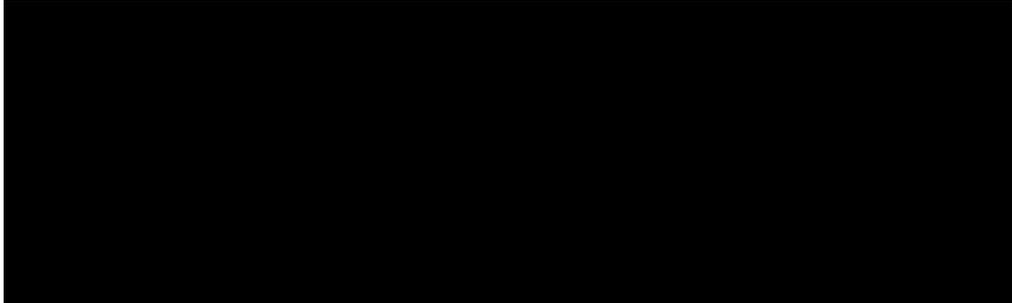
**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|---|------------|---------------|---------------|-----------------|-----------|
| 2050 | 9     |  |            |               |               |                 |           |
| 2050 | 10    |   |            |               |               |                 |           |
| 2050 | 11    |   |            |               |               |                 |           |
| 2050 | 12    |   |            |               |               |                 |           |
| 2051 | 1     |   |            |               |               |                 |           |
| 2051 | 2     |   |            |               |               |                 |           |
| 2051 | 3     |   |            |               |               |                 |           |
| 2051 | 4     |   |            |               |               |                 |           |
| 2051 | 5     |   |            |               |               |                 |           |
| 2051 | 6     |   |            |               |               |                 |           |
| 2051 | 7     |   |            |               |               |                 |           |
| 2051 | 8     |   |            |               |               |                 |           |
| 2051 | 9     |   |            |               |               |                 |           |
| 2051 | 10    |   |            |               |               |                 |           |
| 2051 | 11    |   |            |               |               |                 |           |
| 2051 | 12    |   |            |               |               |                 |           |
| 2052 | 1     |   |            |               |               |                 |           |
| 2052 | 2     |   |            |               |               |                 |           |
| 2052 | 3     |   |            |               |               |                 |           |
| 2052 | 4     |   |            |               |               |                 |           |
| 2052 | 5     |   |            |               |               |                 |           |
| 2052 | 6     |   |            |               |               |                 |           |
| 2052 | 7     |   |            |               |               |                 |           |
| 2052 | 8     |   |            |               |               |                 |           |
| 2052 | 9     |   |            |               |               |                 |           |
| 2052 | 10    |   |            |               |               |                 |           |
| 2052 | 11    |   |            |               |               |                 |           |
| 2052 | 12    |   |            |               |               |                 |           |
| 2053 | 1     |   |            |               |               |                 |           |
| 2053 | 2     |   |            |               |               |                 |           |
| 2053 | 3     |   |            |               |               |                 |           |
| 2053 | 4     |   |            |               |               |                 |           |
| 2053 | 5     |   |            |               |               |                 |           |
| 2053 | 6     |   |            |               |               |                 |           |
| 2053 | 7     |   |            |               |               |                 |           |
| 2053 | 8     |   |            |               |               |                 |           |
| 2053 | 9     |   |            |               |               |                 |           |
| 2053 | 10    |   |            |               |               |                 |           |
| 2053 | 11    |   |            |               |               |                 |           |
| 2053 | 12    |   |            |               |               |                 |           |

**Kentucky Power Company  
Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| Year | Month | Residential   | Commercial | Manufacturing | Mine<br>Power | Other<br>Retail | Wholesale |
|------|-------|---|------------|---------------|---------------|-----------------|-----------|
| 2054 | 1     |  |            |               |               |                 |           |
| 2054 | 2     |   |            |               |               |                 |           |
| 2054 | 3     |   |            |               |               |                 |           |
| 2054 | 4     |   |            |               |               |                 |           |
| 2054 | 5     |   |            |               |               |                 |           |
| 2054 | 6     |   |            |               |               |                 |           |
| 2054 | 7     |   |            |               |               |                 |           |
| 2054 | 8     |   |            |               |               |                 |           |
| 2054 | 9     |   |            |               |               |                 |           |
| 2054 | 10    |   |            |               |               |                 |           |
| 2054 | 11    |   |            |               |               |                 |           |
| 2054 | 12    |   |            |               |               |                 |           |
| 2055 | 1     |   |            |               |               |                 |           |
| 2055 | 2     |   |            |               |               |                 |           |
| 2055 | 3     |   |            |               |               |                 |           |
| 2055 | 4     |   |            |               |               |                 |           |
| 2055 | 5     |   |            |               |               |                 |           |
| 2055 | 6     |   |            |               |               |                 |           |
| 2055 | 7     |   |            |               |               |                 |           |
| 2055 | 8     |   |            |               |               |                 |           |
| 2055 | 9     |   |            |               |               |                 |           |
| 2055 | 10    |   |            |               |               |                 |           |
| 2055 | 11    |   |            |               |               |                 |           |
| 2055 | 12    |   |            |               |               |                 |           |
| 2056 | 1     |   |            |               |               |                 |           |
| 2056 | 2     |   |            |               |               |                 |           |
| 2056 | 3     |   |            |               |               |                 |           |
| 2056 | 4     |   |            |               |               |                 |           |
| 2056 | 5     |   |            |               |               |                 |           |
| 2056 | 6     |   |            |               |               |                 |           |
| 2056 | 7     |   |            |               |               |                 |           |
| 2056 | 8     |   |            |               |               |                 |           |
| 2056 | 9     |   |            |               |               |                 |           |
| 2056 | 10    |   |            |               |               |                 |           |
| 2056 | 11    |   |            |               |               |                 |           |
| 2056 | 12    |   |            |               |               |                 |           |
| 2057 | 1     |   |            |               |               |                 |           |
| 2057 | 2     |   |            |               |               |                 |           |
| 2057 | 3     |   |            |               |               |                 |           |
| 2057 | 4     |   |            |               |               |                 |           |

**Kentucky Power Company**  
**Actual and Forecast Electricity Prices (2009 cents per kWh) By Sector**

| <b>Year</b> | <b>Month</b> | <b>Residential</b>   | <b>Commercial</b> | <b>Manufacturing</b> | <b>Mine<br/>Power</b> | <b>Other<br/>Retail</b> | <b>Wholesale</b> |
|-------------|--------------|--|-------------------|----------------------|-----------------------|-------------------------|------------------|
| 2057        | 5            |  |                   |                      |                       |                         |                  |
| 2057        | 6            |  |                   |                      |                       |                         |                  |
| 2057        | 7            |  |                   |                      |                       |                         |                  |
| 2057        | 8            |  |                   |                      |                       |                         |                  |
| 2057        | 9            |  |                   |                      |                       |                         |                  |
| 2057        | 10           |  |                   |                      |                       |                         |                  |
| 2057        | 11           |  |                   |                      |                       |                         |                  |
| 2057        | 12           |  |                   |                      |                       |                         |                  |

**Exhibit J – PJM Capacity Market Analysis**

KPSC Case No. 2023-00092  
Kentucky Power 2022 Integrated Resource Plan  
Volume A - Public Version  
Page 1180 of 1182

PJM Capacity Market Analysis

| Item     | Description   | 2029/2030  |
|----------|---|------------|
| A        | Internal Demand (a)   | 910        |
| B        | Interruptible Demand Response (b)   | 5          |
| C        | Forecast Pool Requirement ©   | 1.089      |
| D        | Total UCAP Obligation (A-B)*C   | 985        |
| <b>X</b> | <b>Capacity Obligation excluding FPR</b>                                      | <b>904</b> |
| E        | ICAP Existing Capacity & Planned Changes(e)                                   | 295        |
| E1       | Preferred Plan New ICAP (Thermal)   | 480        |
| E2       | Preferred Plan New ICAP (Renewable)   | 1,200      |
| F        | AEP EFORD   | 2.9%       |
| F1       | Solar ELCC  | 31%        |
| F2       | Wind ELCC   | 12%        |
| G        | Net Installed Capacity (UCAP) = (E+E1)*(1-F)<br>+(New Solar*F1)+(New Wind*F2) | 1,030      |
| H        | Net Position = G-D  | 44         |
| <b>Y</b> | <b>PJM Holdback (3% of X)</b>   | <b>27</b>  |
| Z        | Available for RPM auction if FRR (=H-Y if >0)                                 | 17         |
| I        | Capacity Obligation Less Effects of IDR+IRM                                   | 990        |
| J        | Reserve Margin above IRM (=H/I)   | 4.5%       |
| K        | Total Reserve Margin (=IRM + J)   | 19.2%      |
| IRM      | PJM IRM   | 14.70%     |
| (a)      | Includes effects of proposed EE programs                                      |            |
| (b)      | DR approved by PJM  |            |
| "(c)     | Forecast Pool Requirement (FPR) = (1 + IRM) * (1 - PJM EFORD                  |            |

| Kentucky Power Payment as LSE                         |              | Kentucky Revenue as LSE                      |                    |
|---|--------------|--|--------------------|
| KPCO Capacity Obligation excluding FPR                | 904          | Kentucky Power UCAP Capacity                 | 1,030              |
| PJM CT Clearing Price (BRA 2024/2025)                 | \$29         | PJM CT Clearing Price (BRA 2024/2025)        | \$29               |
| RPM Reserve (2024/2025 BRA)                           | 1.2170       | Days in Planning Year                        | 365                |
| RPM Capacity Obligation                               | 1100.00      | Kentucky Power Capacity REV                  | \$10,867,460       |
| Days in Planning Year                                 | 365          | Net Payment Received                         | <b>(\$743,920)</b> |
| Kentucky Power Payment to PJM                         | \$11,611,380 |  |                    |
| <b>Kentucky Power elects FRR, sells surplus power</b> |              | FRR Benefit (excl addl capacity rqmts costs) | \$182,598          |
| Capacity available for auction                        | 17           | RPM Benefit (Cost)                           | <b>(\$743,920)</b> |
| PJM CT Clearing Price (BRA RM)                        | \$29         | Net Benefit FRR over RPM                     | \$926,518          |
| Days in Planning Year                                 | 365          |  |                    |
| Kentucky Power Payment to PJM                         | \$182,597.67 |  |                    |
| FPR Obligation  | 1.0894       |  |                    |

**Exhibit K – Organization of the 2022 Kentucky Power IRP**

## **Organization of the 2022 Kentucky Power IRP**

**807 KAR 5:058 Section 4(2): Each plan filed shall identify the individual for its preparation, who shall available to respond to inquiries during the commission's review of the plan.**

Kelly Pearce, Managing Director Integrated Resource Planning & Strategy

Akarsh Sheilendranath, Director Resource Planning Strategy

Greg Soller, Resource Planning Manager

Brian West, VP Regulatory & Finance

Reid Newman, Manager Economic Forecasting

Kamran Ali, VP Transmission Planning & Analysis

Nicolas C Koehler, Director Transmission Planning

Carlos Casablanca, Managing Director Distribution Planning & Analysis

Gary Spitznogle, VP Environmental Services

Legal Counsel: Katie M. Glass, Stites & Harbison PLLC

Consultants: Thomas Haratym, Charles River Associates

Jim McMahon, Charles River Associates

Jeffrey Huber, GDS Associates

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 1 of 2

**DATA REQUEST**

- AG\_KIUC  
1\_11** Refer to the Direct Testimony of Witness Yetzer at page 8, which describes the economic analysis conducted for each proposal included in the RFP.
- a. Provide a copy of the economic and other evaluations, including all scorecard results for each such evaluation, for each of the bids received in response to the Company’s RFP. Indicate which of the bids were considered “viable,” meaning, at a minimum, the bidder met the requirements set forth in the RFP, the bid was compliant with the RFP requirements, and the bidder was deemed able to provide the resource offered in the bid, along with the required transmission to ensure deliverability.
  - b. Provide the economic analysis, in electronic format with all formulas intact, conducted for the Bright Mountain Solar REPA as well as the detailed workpapers and supporting assumptions, including, but not limited to:
    - i. bid price;
    - ii. term length;
    - iii. transmission congestion;
    - iv. line loss estimates;
    - v. variable fuel, purchased power, and other variable operation and maintenance supply expense for non-renewable resources or savings in variable operating expenses for renewable resources;
    - vi. dispatch assumptions;
    - vii. capacity and/or other fixed costs for owned resources or savings from avoided fixed costs under purchase
    - viii. emissions or avoided emissions;
    - ix. estimated annual energy production;
    - x. Renewable Energy Credits (“REC”); and
    - xi. accounting assumptions regarding lease accounting
    - xii. credit rating assumptions regarding debt imputation

**RESPONSE**

- a. Please see KPCO\_R\_KPSC\_1\_13\_ConfidentialAttachment1 and KPCO\_R\_AG\_KIUC\_1\_11\_ConfidentialAttachment1 for the request information.
- b. Please see KPCO\_R\_KPSC\_1\_13\_ConfidentialAttachment1. For clarity, to view the Bight Mountain PPA, in this Attachment please ensure cell G6 on ‘Project Cost’ sheet is

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 2 of 2

selected to “Solar-Avangrid-Bright Mountain-PPA-Life-15”. Further instructions on how to view items i-xii in this Attachment are provided below.

- i. Bid price: select ‘Project\_Costs’ sheet, see cell L15.
- ii. Term length: select ‘Project\_Costs’ sheet, see cell L14.
- iii. Transmission congestion: select ‘Net\_Cost\_of\_Energy\_Summary’ sheet, see column starting in N13, this includes congestion and losses aggregated.
- iv. Line loss estimates: select ‘Net\_Cost\_of\_Energy\_Summary’ sheet, see column starting in N13, this includes congestion and losses aggregated.
- v. All variable expenses are covered in the PPA contract price.
- vi. Bright Mountain is a solar resource that does not dispatch.
- vii. Capacity and/or other fixed costs for owned resources or savings from avoided fixed costs under purchase: select ‘Net\_Cost\_of\_Energy\_Summary’ sheet, see column starting in R13, for accredited capacity value.
- viii. The requested information does not exist.
- ix. Estimated annual energy production: select ‘Net\_Cost\_of\_Energy\_Summary’ sheet, see column starting in D13, for energy generation.
- x. Renewable Energy Credits (“REC”): select ‘Net\_Cost\_of\_Energy\_Summary’ sheet, see column starting in K13, for energy generation.
- xi. The requested information does not exist.
- xii. The requested information does not exist.

Witness: Zachary M. Yetzer

KPCO\_R\_AG\_KIUC\_1\_11\_ConfidentialAttachment1 is redacted in its entirety.

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC  
1\_12** Refer to Exhibit ZMY-1 at page 32 and Items 2.2 and Item 2.3 under the heading entitled 2. Overview of RFP (from the Thermal and Wind RFP). Item 2.2 seeks capacity, energy, and ancillary services from produced by a natural gas or coal resource. Explain in detail why Item 2.3 precludes any affiliate of AEP and/or Kentucky Power Company from participating in the RFP and bidding in its natural gas or coal resources, including Wheeling Power Company potentially bidding in its coal resources.

**RESPONSE**

Kentucky Power affiliates were precluded because the Company was looking for potential resources beyond the capacity already committed in the FRR plan. An RFP is not necessary to evaluate capacity from affiliates available through the FERC-approved AEP Power Coordination Agreement, which is a filed affiliate agreement with the Commission.

Witness: Zachary M. Yetzer

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC  
1\_13** Refer to the Direct Testimony of Witness Yetzer at page 8, lines 19-24, which describes the price scores derived for each proposal in the RFP. Provide the workpapers, assumptions, and calculations for the project in electronic spreadsheet format with all formulas intact that were inputs and/or used in any manner to calculate the following:

- a. Levelized Adjusted Net Cost of Energy (LANCOE);
- b. Levelized Adjusted Net Cost of Capacity (LANCOC); and
- c. Value to Cost (V/C) Ratio.

**RESPONSE**

a. – c. Please see KPCO\_R\_KPSC\_1\_13\_Attachment1 for the requested information. For clarity, to view LANCOE please select in cell G6 of “Project Cost” bid scenario, then see “Metric’s Sheet” cell B2. For LANCOC please select in cell G6 of “Project Cost” bid scenario and then see “Metric Sheet” cell B3. For V/C Ratio please select in cell G6 of “Project Cost” bid scenario, and then see “Metric Sheet” cell B4.

Witness: Zachary M. Yetzer

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC 1\_14** Refer to the Direct Testimony of Witness Yetzer at page 11, which states, “Avangrid will transfer the capacity and RECs directly to Kentucky Power and will bid the energy from the Project into the PJM market.”
- a. Did KPCO consider only contracting for capacity and energy products, allowing Avangrid to retain REC risks? Explain.
  - b. Provide the workpapers and assumptions associated with the REC, capacity, and energy values calculated for the project as part of the RFP evaluation. The workpapers should be in live Excel format with all formulas intact.

**RESPONSE**

- a. No. The Company plans to use the RECs to offset the cost of the REPA by liquidating them in the market. Please see the Company’s response to KPSC 1-9 in addition with AG-KIUC 1-15, in which Company witness Coon’s analysis of the REC forecast and market is explained.
- b. Please see KPCO\_R\_KPSC\_1\_13\_Attachment1 for the requested information. For clarity, to view the Bight Mountain PPA, please ensure cell G6 on ‘Project Cost’ sheet is selected to “Solar-Avangrid-Bright Mountain-PPA-Life-15”, to view REC value see ‘Net\_Cost\_of\_Energy\_Summary’ sheet: see column starting in K13, for capacity value see column starting in R13, for energy value see column starting in J13.

Witness: Zachary M. Yetzer

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 1 of 2

**DATA REQUEST**

- AG\_KIUC  
1\_15** Refer to the Direct Testimony of Witness Coon at page 4, lines 20-26, which states, “REC Revenues - The proposed renewable generator will generate one REC for each MWh of renewable energy produced and those RECs will be transferred to the Company. This calculation is the product the RECs generated by the Project and the forecasted REC market price. These RECs could be monetized in various REC markets or used to fulfill the Company’s obligations, if any, under Rider R.P.O. (Renewable Power Option Rider).”
- a. Explain how the Company derived the REC market price assumptions.
  - b. Provide the forecasted REC revenue assumptions (\$/MWh) assumed for each year of the delivery period.
  - c. Provide all industry documentation, memos, and research in the Company’s possession forecasting REC pricing consistent with any part of the delivery period.
  - d. What REC market(s) does the Company assume the REC would be monetized in?
  - e. Explain how the Company expects to use RECs to fulfill the Company’s obligations. Explain if the Company will assume responsibility for the REC revenue forecast assumed.
  - f. Provide historic price and project data demonstrating that Kentucky sited solar projects generated RECs and successfully monetized those RECs in PJM and/or other markets.

**RESPONSE**

- a.-c. Please see the Company’s response to KPSC 1-9.
- d. The Company anticipates the RECs to be monetized in the Virginia and Pennsylvania markets. These markets trade RECs that are generated by projects located within the PJM footprint. The Project will be located within the PJM footprint.
- e. The RECs generated by the project can be used to fulfill the needs of the Company’s obligations under Rider R.P.O. Rider R.P.O. gives customers the option to offset their usage with RECs that are procured by the Company. Kentucky Power would be able to use the RECs generated through the Project to fulfill this offering to customers.

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 2 of 2

f. The Company does not have the ability to see historic prices for specific Kentucky sited solar projects that are not owned by the Company. The Company is providing historical prices for RECs in the Pennsylvania and Virginia markets in KPCO\_R\_AG\_KIUC\_1\_15\_Attachment1. The RECs from the Bright Mountain project would qualify for sale in the Virginia and Pennsylvania markets.

Witness: Nicole M. Coon

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC** Refer to Witness Yetzer Exhibit ZMY-4 (CONF).  
**1\_16**
- a. Provide the name, position, and employer of the person(s) who identified and redacted the confidential provisions of this exhibit. Provide the guidelines used for the redactions.
  - b. Explain why any provision of the contract between the Company and Bright Mountain should be confidential and redacted.

**RESPONSE**

a. and b. Kentucky Power objects to this request as it seeks information not relevant to this proceeding. Kentucky Power's motion for confidential treatment identifies the basis for Kentucky Power's request for confidential treatment of the REPA.

Preparer: Counsel

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC**      Refer to Witness Yetzer Exhibit ZMY-3 (CONF).  
**1\_17**
- a. Provide the workpapers and analysis deriving the scores for the Bright Mountain Solar REPA consistent with the RFP evaluation. The workpapers should be in electronic spreadsheet format with all formulas intact.
  - b. Provide the workpapers and analysis deriving the scores for the projects ranked [REDACTED] resources consistent with the RFP evaluation. Workpapers should be in live Excel format with all formulas intact.
  - c. Provide the workpapers and analysis deriving the scores for the projects ranked [REDACTED] consistent with the RFP evaluation. Workpapers should be in live Excel format with all formulas intact.
  - d. Provide the name, position, and employer of the person(s) who identified and redacted the confidential provisions of this exhibit. Provide the guidelines used for the redactions.

**RESPONSE**

a-c. Please see KPCO\_R\_KPSC\_1\_13\_ConfidentialAttachment1 and KPCO\_R\_AG\_KIUC\_1\_11\_ConfidentialAttachment1. To view, select in cell G5 of 'Project Cost' bid scenario then see 'Metric's sheet, cell B4 for Value to Cost (V/C) Ratio.

d. Kentucky Power objects to this request as it seeks information not relevant to this proceeding. Kentucky Power's motion for confidential treatment identifies the basis for Kentucky Power's request for confidential treatment of the identified information.

Witness: Zachary M. Yetzer

Preparer: Counsel (as to objections)

**DATA REQUEST**

**AG\_KIUC  
1\_18**

Refer to Witness Yetzer Exhibit ZMY-2 (CONF) at page 19, which states,

[REDACTED]

a. [REDACTED] If not confirmed, explain.

b. Explain the Company's process for evaluating the pending evaluation of the feasibility of [REDACTED] resources. In other words, what steps are anticipated in making the assessment?

c. Provide a status update on the pending evaluation of the feasibility of [REDACTED] resources.

d. Explain why the Company should proceed at this time with the Bright Mountain REPA prior to completion of the feasibility of [REDACTED] resources.

e. Confirm that CRA did not provide an opinion in support of or against the Company's decision to reject all [REDACTED] resource bids. If denied, then provide a copy of all documentation, including, but not limited to, studies, analyses, and correspondence in which it addressed the rejection of all [REDACTED] resource bids.

f. Explain in detail why Witness Yetzer fails to address the fact AEP and/or the Company decided to reject all [REDACTED] resource bids.

g. Explain in detail why the Company failed to publicly disclose in the Application or any public Witness testimony the fact AEP and/or the Company decided to reject all [REDACTED] resource bids. Why does the Company consider that fact to be secret.

h. Confirm that the Company informed the bidders of [REDACTED] resources that it rejected their bids. Confirm that information is not confidential or secret.

i. Provide the name, position, and employer of the person(s) who identified and redacted the confidential provisions of this exhibit. Provide the guidelines used for the redactions.

j. Explain why any provision of the CRA Report should be considered confidential and redacted.

**RESPONSE**

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024  
Page 2 of 2

a. Please see the Company's response to AG-KIUC 1-11 for rankings of all conforming proposals.

b-c. The Company is still evaluating the [REDACTED] bids. Please see the Direct Testimony of Company witness Yetzer beginning on Page 7, Line 21 through Page 10, Line 2 for an outline of the RFP steps relating to selection/assessment.

d. Please see the Direct Testimony of Company witness Wolfram on Page 13, Lines 14-17.

e. Denied. The information requested does not exist as the Company has not made the decision to reject all [REDACTED] resource bids. The Company retained CRA to serve as a third-party consultant for the 2023 All Source RFP to independently verify and support the Company's efforts with the development, issuance, and evaluation of the RFP. CRA confirmed the Company developed the RFP in a clear and transparent manner and evaluated the proposals on a fair and consistent basis, supporting the selection of Bright Mountain.

f.-i. The Company objects to these requests on the basis that they mischaracterize the Company's testimony. Specifically, the Company has not made a decision to reject all [REDACTED] resource bids and continues to evaluate such bids. Subject to and without waiving this objection, the Company states it does not have any documents responsive to these requests because it has made no such determination to reject all [REDACTED] resource bids.

i. Kentucky Power objects to this request as it seeks information not relevant to this proceeding. Kentucky Power's motion for confidential treatment identifies the basis for Kentucky Power's request for confidential treatment of the identified information.

Witness: Zachary M. Yetzer

Witness: Tanner S. Wolfram

Preparer: Counsel (as to the objections)

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC  
1\_19** Refer to the Direct Testimony of Witness Coon at page 4, which describes the calculated benefits associated with the Bright Mountain Solar REPA. Provide the analysis and workpapers supporting the Company's calculated benefits for each of the following in electronic spreadsheet format with all formulas intact:
- a. Energy – \$42.57 million NPV benefits;
  - b. Capacity - \$2.06 million NPV benefits; and
  - c. RECs - \$42.58 million NPV benefits.

**RESPONSE**

Please see the Company's response to KPSC 1-7.

Witness: Nicole M. Coon

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC  
1\_20** Refer to the Direct Testimony of Witness Coon at page 4, lines 6-9, which states, “Kentucky Power will receive the net revenue from the sale of energy from the Project at the applicable PJM LMP node. This calculation is the product of the MWhs of generation from the project and the forecasted LMP.”
- a. Provide the hourly generation profile expected from the “Project” in electronic spreadsheet format with all formulas intact.
  - b. Provide the hourly LMP forecast for the applicable PJM LMP node in electronic spreadsheet format with all formulas intact.
  - c. Explain how the LMP forecast is derived and provide all documentation supporting the methodology and intended use of the forecast.
  - d. Provide the associated gas price forecast for the same forecasted period in electronic spreadsheet format with all formulas intact.
  - e. Explain whether the assumed generation profiles and LMPs assumed for the economic evaluation is consistent with the generation profiles and LMPs assumed in the RFP evaluation. If not, explain why not.

**RESPONSE**

- a. Please see KPCO\_R\_AG\_KIUC\_1\_20\_Attachment1.
- b.-d. Please see KPSC 1-7, KPCO\_R\_KPSC\_1\_7\_Attachment2 which includes the Company’s 2023 Fundamental Forecast that was utilized in witness Coon’s analysis.
- e. Please see the Company’s response to KPSC 1-14.

Witness: Nicole M. Coon

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC  
1\_21** Refer to the Direct Testimony of Witness Coon at page 4, lines 12-18, which states, “Transmission level market facing resources will act as capacity resources in PJM and will be included in the Company’s Fixed Resource Requirement (FRR) plan and as such, the resulting unforced capacity (UCAP) has a value. This calculation is the product of the project’s installed capacity (“ICAP”), the effective load carrying capability (“ELCC”) percentage for fixed tilt solar resources, and the forecasted cost of capacity.”
- a. Provide the forecasted unforced capacity (UCAP) associated with the Project.
  - b. Provide the forecasted installed capacity (ICAP) associated with the Project.
  - c. Provide the forecasted ELCC associated with the Project.
  - d. Provide all supporting documentation for the assumed ELCC value.
  - e. Provide all supporting documentation for the forecasted cost of capacity and all supporting calculations or sources relied on for this purpose.
  - f. Provide all supporting documentation for the forecasted capacity value pursuant to the BRA process in PJM and/or all other relevant forecasted capacity values.
  - g. Explain whether the assumed UCAP, ICAP, or ELCC assumed for the economic evaluation is consistent with the UCAP, ICAP, and ELCC assumed in the RFP evaluation. If not, explain why not.

**RESPONSE**

- a.-c. Please see KPCO\_R\_KPSC\_1\_7\_ConfidentialAttachment1.
- d. Please see the Company’s response to KPSC 1-3.
- e. Please see the Company’s response to KPSC 1-8.
- f. To the extent the question is asking for the forecasted cost of capacity, please see subpart e of this question. To the extent the question is asking for the workpapers supporting the forecasted ELCC, these numbers are produced by PJM.
- g. Please see the Company’s response to KPSC 1-14. ICAP is the same between the analysis as the REPA is 80 MW. UCAP will vary with the varying ELCC forecasts.

Witness: Nicole M. Coon

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

- AG\_KIUC**      Refer to the Direct Testimony of Witness Coon at page 5, Figure NMC-1,  
**1\_22**            which describes the rate impact on customers.
- a. Provide the workpapers and calculations used to derive this Figure in live Excel format with all formulas intact.
  - b. Provide the analysis for the entire delivery period in electronic spreadsheet format in live Excel format with all formulas intact.

**RESPONSE**

Please refer to the Company's response to KPSC 1-11.

Witness: Nicole M. Coon

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC**      Refer to the Direct Testimony of Witness Wolfram at page 16 in  
**1\_23**            reference to the \$0.9 million in development costs for which the Company  
seeks to defer and establish as a regulatory asset. Provide a list of all costs  
summing to the \$0.9 million that the Company seeks to defer.

**RESPONSE**

| FERC ACCOUNT | DESCRIPTION                                  | AMOUNT       |
|--------------|--|--------------|
| 183          | Preliminary Survey and Investigation Charges | \$266,623.50 |
| 500          | Operation Supervision and Engineering        | \$171,886.97 |
| 569.2        | Maintenance of Computer Software             | \$119.54     |
| 920          | Administrative and General Salaries          | \$420,383.98 |
| 923          | Outside Service Employed                     | \$2,483      |

Witness: Tanner S. Wolfram

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC** Provide a list and description of each planned maintenance outage and  
**1\_24** each forced outage separately for Mitchell 1, Mitchell 2, and Big Sandy 1  
by hour in chronological order from January 2023 through the end of the  
most recent month in 2024 for which actual information is available.

**RESPONSE**

Kentucky Power objects to this request as it seeks information not reasonably calculated  
to lead to the discovery of evidence relevant to this proceeding.

Preparer: Counsel

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC** For each month from January 2023 through the most recent month in 2024  
**1\_25** for which actual information is available, provide the actual monthly net capacity factors and equivalent availability factors separately for Mitchell 1, Mitchell 2, and Big Sandy 1.

**RESPONSE**

Kentucky Power objects to this request as it seeks information not reasonably calculated to lead to the discovery of evidence relevant to this proceeding.

Preparer: Counsel

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC  
1\_26** For each month from January 2023 through the most recent month 2024 for which actual information is available, provide a detailed description of the mWs available, the hourly cost curves, and hourly pricing curves submitted to PJM for dispatch purposes each of the Mitchell units and Big Sandy 1. For each hour in which the capacity of the unit was deemed not available or derated, provide a detailed explanation why the unit was not available or not available at its nameplate capacity. For each hour in which the Company submitted a pricing curve with a discount or premium to the cost curve for that hour, provide a detailed explanation why the Company incorporated a discount or premium for that hour.

**RESPONSE**

Kentucky Power objects to this request as it seeks information not reasonably calculated to lead to the discovery of evidence relevant to this proceeding.

Preparer: Counsel

Kentucky Power Company  
KPSC Case No. 2024-00243  
AG-KIUC's First Set of Data Requests  
Dated September 11, 2024

**DATA REQUEST**

**AG\_KIUC** For each month January 2023 through the most recent month in 2024 for  
**1\_27** which actual information is available, provide the monthly supporting peaking unit equivalent calculations reflected in the Company's fuel adjustment clause tariff filings in live Excel spreadsheet format with all formulas, columns, and rows unprotected and visible supporting the forced outage calculations. In addition, provide the corresponding amount, if any, of forced outage purchased power expense collected through the purchase power adjustment tariff.

**RESPONSE**

Kentucky Power objects to this request as it seeks information not reasonably calculated to lead to the discovery of evidence relevant to this proceeding.

Preparer: Counsel

VERIFICATION

The undersigned, Nicole M. Coon, being duly sworn, deposes and says she is a Regulatory Consultant Principal for American Electric Power Service Corporation, that she has personal knowledge of the matters set forth in the foregoing responses and the information contained therein is true and correct to the best of her information, knowledge, and belief.

Nicole M Coon  
Nicole M. Coon

State of Ohio )  
County of Madison )

Case No. 2024-00243

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Nicole M. Coon, on September 19 2024

[Signature]  
Notary Public

My Commission Expires Never

Notary ID Number No ID

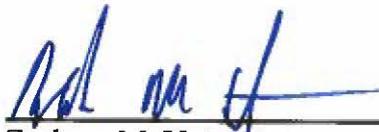


Paul D. Flory  
Attorney At Law  
Notary Public, State of Ohio  
My commission has no expiration date  
Sec. 147.03 R.C.



**VERIFICATION**

The undersigned, Zachary M. Yetzer, being duly sworn, deposes and says he is the Regulated Infrastructure Development Manager for American Electric Power Service Corporation, that he has personal knowledge of the matters set forth in the foregoing responses and the information contained therein is true and correct to the best of his information, knowledge, and belief.

  
\_\_\_\_\_  
Zachary M. Yetzer

State of Ohio                                    )  
  )  
County of Franklin                            )     Case No. 2024-00243

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Zachary M. Yetzer, on September 17<sup>th</sup>, 2024

  
\_\_\_\_\_  
Notary Public

My Commission Expires N/A

Notary ID Number —



**ASHLEY R LAWSON**  
Attorney at Law  
NOTARY PUBLIC, STATE OF OHIO  
My Commission Has No Expiration Date  
Section 147.03 O.R.C.