

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**ELECTRONIC 2024 JOINT INTEGRATED            )**  
**RESOURCE PLAN OF LOUISVILLE GAS AND    )** **CASE NO. 2024-00326**  
**ELECTRIC COMPANY AND KENTUCKY            )**  
**UTILITIES COMPANY                                )**

**RESPONSE OF**  
**LOUISVILLE GAS AND ELECTRIC COMPANY**  
**AND**  
**KENTUCKY UTILITIES COMPANY**  
**TO**  
**THE MOUNTAIN ASSOCIATION, KENTUCKIANS FOR THE**  
**COMMONWEALTH, KENTUCKY SOLAR ENERGY SOCIETY AND**  
**METROPOLITAN HOUSING COALITION'S SUPPLEMENTAL**  
**REQUESTS FOR INFORMATION**  
**DATED JANUARY 22, 2024**

**FILED: February 11, 2025**

VERIFICATION

COMMONWEALTH OF KENTUCKY )  
 )  
COUNTY OF JEFFERSON )

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Senior Vice President Engineering and Construction for PPL Services Corporation and he provides services to Louisville Gas and Electric Company and Kentucky Utilities Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

*Lonnie E. Bellar*  
\_\_\_\_\_  
**Lonnie E. Bellar**

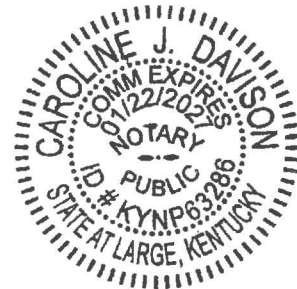
Subscribed and sworn to before me, a Notary Public in and before said County and State, this 5<sup>th</sup> day of February 2025.

*Caroline J. Davison*  
\_\_\_\_\_  
Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027





















VERIFICATION

COMMONWEALTH OF KENTUCKY )  
 )  
COUNTY OF JEFFERSON )

The undersigned, **Shannon L. Montgomery**, being duly sworn, deposes and says she is the Vice President, Customer Services for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that she has personal knowledge of the matters set forth in the responses for which she is identified as the witness, and the answers contained therein are true and correct to the best of her information, knowledge, and belief.

*Shannon Montgomery*  
\_\_\_\_\_  
Shannon L. Montgomery

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 4th day of February 2025.

*Caroline J. Davison*  
\_\_\_\_\_  
Notary Public  
Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027








**VERIFICATION**

**COMMONWEALTH OF KENTUCKY )**  
**)**  
**COUNTY OF JEFFERSON )**

The undersigned, **Peter W. Waldrab**, being duly sworn, deposes and says that he is Vice President, Electric Distribution, for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

  
\_\_\_\_\_  
**Peter W. Waldrab**

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 4th day of February 2025.

  
\_\_\_\_\_  
Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027









**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.1**

**Responding Witness: Tim A. Jones / Stuart A. Wilson**

Q. 2.1. Please refer to the Companies’ IRP, Vol. I, page 7-22, stating: “After the 1% cap is hit, the payment for excess generation drops to the QF repayment rate. This lessens the benefits of selling back to the grid, so it is assumed that customers will be less likely to overbuild their solar installations.”

- a. By the same logic, do the Companies agree that the lower QF repayment rate could or would improve a customer’s return on investment for battery storage? Please explain the basis for your agreement or disagreement, and provide supporting workpapers, if any.
- b. Please define the term “overbuild” as used in the referenced statement. For example, is the term intended to describe a scenario where a customer does not use all energy produced by their behind-the-meter solar resource at every moment; a scenario where a customer’s behind-the-meter solar resource is capable of producing more than the customer’s annual energy use; or something else.

A. 2.1.

- a. The Companies agree that, all else equal, a lower SQF repayment rate would improve a customer’s ROI for a battery; however, there still would not be a large enough difference between the residential or general service tariff rates and the SQF repayment rate to pay off the investment in a reasonable amount of time.

Of the subset of net metering customers on Residential Time-of-Day Energy (“RTOD-E”) rates, where the largest discrepancy exists between the tariff peak energy rate and the NMS-2 compensation rate (e.g., about \$0.15/kWh for KU), *none* has a battery storage installation.<sup>1</sup> This could suggest, as the

---

<sup>1</sup> Notably, the difference between the RTOD-E on-peak rate and the NMS-2 compensation rate is about double the difference between KU’s standard residential rate (Rate RS) and its SQF fixed-tilt solar energy-only compensation rate.

Joint Intervenors note in Question No. 56, that the small number of customers in the service territory that have batteries today have adopted them for reasons other than economics. The Companies' forecast models imply that this adoption for reasons other than economics will continue in the forecast period, but explicitly forecasting distributed battery storage would not affect the decisions being contemplated in this IRP.

- b. "Overbuild" is intended to be understood in terms of economics. An optimally sized system will provide the best return on investment accounting for the uncertainties of solar production, the timing and quantity of a customer's usage, and the compensation rates available (whether in terms of avoided retail rates for offset consumption or compensation under Rider NMS-2 or SQF). Having a higher compensation rate for energy produced to the grid tends to reduce the adverse economic impact of overbuilding relative to having an economically optimally sized facility; having a lower compensation rate for energy produced to the grid tends to increase the adverse economic impact of overbuilding relative to having an economically optimally sized facility.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.2**

**Responding Witness: Lonnie E. Bellar / Philip A. Imber**

- Q. 2.2. Refer to the Companies’ IRP, Vol. 1, page 8-49, which states “On May 8, 2024, the most recent modification expanded the scope of the regulation to include Legacy CCR surface impoundments and CCR management units (“CCRMU”). While the companies had anticipated the regulation of legacy CCR surface impoundments, the addition of CCRMUs broadens the Companies’ exposure to the rule at each of its owned current and former generating facilities because of the Companies’ past beneficial use of CCR, especially for fill materials. Many of the known CCRMU locations are beneath buildings or infrastructure. This will create challenges during the investigative process and may inhibit the closure process for individual CCRMUs if the removal of CCRs are necessary for rule compliance.” Please respond to the following requests:
- a. List each Companies’ Legacy CCR surface impoundments and CCRMUs affected or potentially affected by the updated CCR rule by location.
  - b. What investigations have the Companies performed regarding necessary measures for compliance with the updated CCR rule? Please list the investigations and produce any documentation.
  - c. What efforts do the Companies believe will be necessary for compliance with the updated CCR rule for each location, and what are the estimated costs of compliance?
  - d. How would the Companies’ preferred portfolio affect compliance efforts, particularly for continued operation of facilities that are co-located with a Legacy CCR surface impoundment or CCRMU?
- A. 2.2.
- a. The Companies’ Legacy CCR surface impoundments include: ATB1, ATB2, and SO2 Pond at the Green River Station (Muhlenberg County,

KY); ATB at Pineville Station (Bell County, KY); and ATB at the Tyrone Station (Woodford County, KY).

The updated CCR Rule includes a schedule for CCRMUs that is distinct and separate from those for Legacy CCR surface impoundments. The Rule specifies that facilities are to identify CCRMUs through a series of investigative efforts involving: (1) a review of historical records and (2) a series of field investigations at applicable locations. CCRMUs identified in each effort ([1] the record review & [2] the field efforts) are to be summarized in a 2-part document known as the Facility Evaluation Report (“FER”). The updated Rule specifies that FER, Part 1 (record review) must be published by February 8, 2026, and FER, Part 2 (field investigations) must be published by February 8, 2027.

The Companies are required to perform CCRMU evaluations that apply to owners and operators of active facilities or facilities with Legacy CCR impoundments: Mill Creek, Trimble County, E.W. Brown, Ghent, Cane Run, Paddy’s Run, Pineville, Green River, and Tyrone.

- b. By the end of 2019, the Companies had completed closure of all five of the Legacy CCR Surface Impoundments at the three former generating stations. Since the Rule’s effective date (RED) of November 8, 2024, the Companies have taken many actions to comply with the mandates of the expanded Rule. A representative listing of those actions is itemized below:
- Expanded the CCR Rule public internet site to include the facilities with unit subject to the expanded Rule. The site can be found at: [CCR Rule Compliance Data and Information | LG&E and KU](https://ccr.lge-ku.com) or <https://ccr.lge-ku.com> [Completed by RED, as required by 40 CFR 257.107].
  - Confirmed that site security provision specified under 40 CFR 257.103(f)(3)(iii) are in place. [Completed by RED, as required by 40 CFR 257.103(f)(3)(iii)]
  - Completed & published all required Applicability Reports for the five Legacy CCR Surface Impoundments at three former generating locations (Green River, Pineville, and Tyrone). [Completed by RED, as required by 40 CFR 257.100.]
  - Prepared and published Fugitive Dust Control Plans for each of the three former generating stations subject to the expanded Rule. [Completed by RED, as required by 40 CFR 257.180.]

- Installed permanent markers at each of the five Legacy CCR Surface Impoundment locations. [Completed by January 8, 2025, as required by 40 CFR 257.73.]
- Performed PE Inspections of each of the five former Legacy CCR Surface Impoundments. These documents are available at: [CCR Rule Compliance Data and Information | LG&E and KU](https://ccr.lge-ku.com) or <https://ccr.lge-ku.com>.

Additionally, the Companies have initiated installation of groundwater monitoring system networks for each of the five Legacy CCR Surface Impoundments at the three former generating station sites. The Companies plan to install additional wells in the first quarter of 2025 to complete the monitoring network. In total, an additional 20-25 new wells have been or will be added to the CCR monitoring program by this effort. The installation of these wells and collection of sufficient background samples to perform statistical analyses for Legacy CCR Surface Impoundments is required to be completed in 2027.

- c. To comply with the expanded Rule, the Companies will need to perform the following tasks in addition to those already underway or completed (as described in part (b) above):
- Prepare FERs, Parts 1 & 2 for nine active and former generating locations subject to the CCR Rule;
  - Perform analysis and collect historical data on Legacy CCR Surface Impoundments to satisfy construction and design criteria and reporting specified in 40 CFR 257.73;
  - Install additional monitoring locations, as needed, to evaluate groundwater conditions adjacent to CCRMUs and to characterize any potential contamination resulting from Legacy CCR Surface Impoundments and CCRMUs;
  - Prepare annual groundwater monitoring and corrective action reports for four former coal-fired generating locations (Green River, Pineville, Tyrone, and Paddy's Run) for the duration of the CCR Rule;
  - Prepare closure and post-closure care plans for all Legacy CCR Surface Impoundments and CCRMUs; and
  - Update information provided in plans and revise the Companies' publicly accessible CCR web site according to facility and Rule changes.

- Perform corrective measures to address groundwater concerns for any sites if Legacy CCR Surface Impoundments and/or CCRMUS have significantly impacted groundwater quality;

The Companies estimate and carry asset retirement obligation compliance costs of approximately \$7.5 million for the defined scopes of work prior to corrective measures outlined herein.

- d. The Companies' recommended plan for IRP reporting is not anticipated to impact CCR Legacy or CCRMU compliance efforts.



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.3**

**Responding Witness: Lonnie E. Bellar / David L. Tummonds**

- Q. 2.3. Please refer to the Companies’ IRP, Vol. III at Section 4.4.2.3, which states “ELG compliance via zero liquid discharge is least-cost in all load scenarios at the Ghent and Trimble County stations,” and provide the Companies’ planned methods for and estimates of the costs of compliance with the ELG rule for Ghent and Trimble County stations.
- A. 2.3. The Companies are currently performing a front-end engineering design (“FEED”) study to identify the least-cost compliance option. The ongoing FEED study has identified limited commercially available options that address the flow volume and the type of constituents associated with power generation to comply with the ELG zero liquid discharge regulations. The Companies included the most conservative option, from a regulatory compliance and cost perspective, in the IRP analysis. The estimated cost of this option for each station is listed in Table 15 on page 34 of Volume III, 2024 IRP Resource Assessment. The chosen option is a full thermal system consisting of ultra-filtration, thermal evaporation, and effluent recirculation.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.4**

**Responding Witness: Robert M. Conroy**

- Q. 2.4. Do the Companies anticipate the filing of a base rate case in the three-year period 2025-2027? Please explain.
- A. 2.4. The Companies object to this request as irrelevant and seeking information protected by the attorney-client privilege, attorney work product, or both. Without waiving this objection, PPL has publicly stated, “[B]ased on our current plan, ... we would have a rate case in Kentucky in the first half of next year [2025] at the earliest.”<sup>2</sup>

---

<sup>2</sup> PPL 3<sup>rd</sup> Quarter 2024 Investor Update Audio at 52:45-53:10, available at <https://app.webinar.net/Wga4m8Ab2kN/on-demand>.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.5**

**Responding Witness: Lonnie E. Bellar**

- Q. 2.5. Please refer to the Companies’ response to Joint Intervenors Initial Request for Information 1.1.a. (“JI 1.1.”), stating that beyond the first quarter of 2025 “there are no definite plans regarding future CPCN applications” and Volume I of the Companies’ IRP (“Vol. I”) at 4-1, which states “[t]his report is filed with the Public Service Commission of Kentucky in compliance with the aforementioned regulation [807 KAR 5:058].” Explain how the response complies with the requirement in 807 KAR 5:058 Section 5(5) requiring integrated resource plans (“IRPs”) to contain “[s]teps to be taken during the next three (3) years to implement the plan.
- A. 2.5. The Companies object to this request as seeking a legal opinion. Without waiving this objection, see IRP Vol. I at 5-28 and 5-29 for the steps the Companies planned to take to implement the plan as of the date of the IRP filing. The Companies did not construe actions yet to be determined or decided upon as “steps to be taken.” The Companies assume it would have been superfluous to have included in the cited section a statement similar to the following: “The Companies will continue to evaluate and determine if other actions are appropriate to implement the plan or deviate from it.”

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.6**

**Responding Witness: Lonnie E. Bellar**

- Q. 2.6. Please refer to the Companies' response to JI 1.2., stating "[t]he Companies do not anticipate filing any such notices in the first half of 2025. Beyond that, there are no definite plans regarding any such retirement notices." Explain how this complies with the requirement in 807 KAR 5:058 Section 5(5).
- A. 2.6. The Companies object to this request as seeking a legal opinion. Without waiving this objection, see the response to Question No. 5.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.7**

**Responding Witness: Lonnie E. Bellar / Lana Isaacson / Shannon L. Montgomery**

Q. 2.7. Please refer to the Companies’ response to JI 1.3. Stating “[i]t is premature to answer definitely at this time as the Companies are only in year one of a seven-year DSM-EE plan” and answer the following questions:

- a. Explain how this complies with the requirement in 807 KAR 5:058 Section 5(5).
- b. Do the Companies generally anticipate the filing of any updates to their DSM-EE plan in the three-year period from 2025-2027? Please explain.

A. 2.7.

- a. The Companies object to this request as seeking a legal opinion. Without waiving this objection, see the response to Question No. 5.
- b. There are currently no plans to submit a new DSM-EE filing. The Companies continue to deploy programs per the schedule within the approved 2024-2030 DSM-EE Plan. The 2024-2030 DSM-EE Plan also includes the approval for market research and pilot program offerings that the Companies will utilize.

The Companies continue their planning and development process for potential deployment of pilot program offerings related to the three program enhancements outlined in the IRP.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.8**

**Responding Witness: Lana Isaacson**

- Q. 2.8. Please refer to the Companies’ response to JI 1.4.a., and provide each referenced RFP and responses thereto. Indicate which response was selected by the Companies and the stage of implementation for each.
- A. 2.8. The Software as a Service (“SaaS”) for the DSM platform, incentive fulfillment services, customer care center, partner network SaaS, and Online Transactional Marketplace SaaS were awarded to Resource Innovations and made available to customers in January 2024.

The SaaS for the Bring-your-own-device (“BYOD”), Optimized EV Charging programs was awarded to EnergyHub and was available to customers in April 2024.

The SaaS for the Residential Online Audit and Rebates, and Peak Time Rebates programs was awarded to Oracle Opower and is scheduled to be available in the first quarter of 2025.

Program services for WeCare were awarded to TRC and made available to customers in January 2024.

Program services for Small Business Audit and Direct Install, and Business Rebates were awarded to Resource Innovations and made available to customers in March 2024 and January 2024 respectively.

Program services for the Business Demand Response program was awarded to Enel X. As Business Demand Response is an existing program and Enel X is the existing vendor for this program, the program has been available to customers since approximately 2012. Note, at that time, the original contract was with EnerNOC. EnerNOC was purchased by Enel X in 2017.

The Potential Study was awarded to Resource Innovations and work began in September 2024.



Evaluation, Measurement, and Verification (“EM&V”) was awarded to ADM Associates and work began in October 2024.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.9**

**Responding Witness: Peter W. Waldrab**

- Q. 2.9. Please refer to the Companies’ response to JI 1.4.c.
- a. If the Companies do not issue RFPs for distribution projects, does that mean that the Companies do not competitively bid those projects? Please explain.
  - b. Please list distribution projects undertaken in the last three years and cost per project.
- A. 2.9.
- a. In response to JI 1.4.c, which asked for RFP information related to “Distribution resources,” the Companies responded that they do not issue RFPs for distribution resources, i.e., distribution projects. But that does not mean that the Companies do not obtain competitive pricing for the various facets of their distribution work. To the contrary, as a standard business practice, the Companies utilize competitive bidding processes for all Distribution engineering and design, procurement, construction, project management services, and contractor labor. That pricing is then used across all Distribution projects to ensure least reasonable cost for customers.
  - b. See attachment being provided as a separate file.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.10**

**Responding Witness: Elizabeth J. McFarland**

- Q. 2.10. Please refer to the Companies’ response to JI 1.4.d.
- a. If the Companies do not issue RFPs for transmission projects, does that mean that the Companies do not competitively bid those projects? Please explain.
  - b. Please list transmission projects undertaken in the last three years and cost per project.
- A. 2.10.
- a. In response to JI 1.4.d, which asked for RFP information related to “Transmission resources,” the Companies responded that they do not issue RFPs for transmission resources, i.e., transmission projects. But that does not mean that the Companies do not obtain competitive pricing for the various facets of their transmission work. To the contrary, as a standard business practice, the Companies utilize competitive bidding processes for all Transmission engineering and design, procurement, construction, project management services, and contractor labor. That pricing is then used across all Transmission projects to ensure least reasonable cost for customers.
  - b. See attachment being provided as a separate file.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.11**

**Responding Witness: Lonnie E. Bellar / David L. Tummonds**

- Q. 2.11. Please refer to the Companies' response to JI 1.5., and specifically to footnote 1, stating "The Companies assume such bidding processes and results for projects the Companies are pursuing, rather than RFPs for projects 'that may be pursued,' are not within the scope of this request." Provide each RFP and response thereto, for projects the Companies are pursuing.
- A. 2.11. RFPs issued by the Companies for projects they are pursuing and the responses thereto (i.e., those for Mill Creek 5 and Mercer County Solar) are attached in separate files. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.12**

**Responding Witness: Lonnie E. Bellar**

- Q. 2.12. Please refer to the Companies’ response to JI 1.10., stating “[b]eyond those legal timelines and deadlines, any number of factors can affect the timing of a retirement,” and explain what factors may affect the following:
- a. The timing of a retirement;
  - b. The timing of a filing with the Energy Planning and Inventory Commission (EPIC); and
  - c. The timing of a filing with the Public Service Commission.
- A. 2.12.
- a. The number and variety of factors that can affect the timing of retiring a unit are extensive but they generally fit into the concept that a unit should be retired when it is no longer economic to operate it. Factors such as environmental regulations, permitting requirements, reliability considerations, legal requirements related to retirement, age and condition of a unit, failure rates, and maintenance costs are used in making a retirement decision.
  - b. See the response to part (a) and the response to JI 1.10.
  - c. See the response to part (a) and the response to JI 1.10.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.13**

**Responding Witness: Lonnie E. Bellar / Philip A. Imber / Elizabeth J. McFarland**

Q. 2.13. Please refer to the Companies' response to JI 1.13., regarding the increase in capacity at the Cane Run Generating station, and provide the following:

- a. The Companies' evaluation of the project for New Source Review applicability referenced in response to JI 1.13.c.; and
- b. The System Impact Study referenced in 1.13.e.
- c. Once prepared, the Facilities Study referenced in 1.13.e.

A. 2.13.

- a. The Companies object to this request as irrelevant because the information it seeks was not used for the creation of the IRP.
- b. See attachments being provided as separate files. Certain information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.
- c. See attachment being provided in a separate file.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.14**

**Responding Witness: Lana Isaacson / Stuart A. Wilson**

Q. 2.14. Please refer to the Companies’ response to JI 1.14., and respond to the following requests:

- a. Provide the source for the assumed cost of utility-scale solar (\$60.18/MWh).
- b. Provide all results of the evaluation conducted for including customer-owned battery storage within the BYOD program.
- c. Have the Companies conducted any analysis comparing utility-scale battery storage to customer-sited battery storage, including multiple deployment options (e.g. programs to incentivize customer purchase of batteries and participation in a DR program; or programs in which the utility owns the battery and leases it to the customer; etc.), evaluating each as supply resources? Please provide all data, worksheets, and analysis.

A. 2.14.

- a. \$60.18/MWh is the levelized cost of energy of a 2030 solar resource including production tax credits, as shown in Cell C63 of the “Model” worksheet in KPSC Case No. 2024-00326 -- LGE-KU 2024 IRP Resource Planning Workpapers--CONFIDENTIAL.zip at “Screening\CONFIDENTIAL\_20240901\_ResourceScreeningModel\_2024IRP\_0328.xlsx,” with Generation Alternative 39, “LKE Solar with PTC-2030” selected in Cell C9. The cost and assumptions for solar resources are based on the Companies’ cost estimates and assumptions for Mercer County Solar and escalation assumptions from NREL’s 2024 ATB, as discussed in IRP Volume III Technology Update, Section 3.2.1.
- b. The projection of demand response for the potential BYOD Energy Storage program and the basis for that projection are included in attachments submitted in response to JI 1-52(c)(iii) titled “JI DR1 LGE KU Attach to

Q52(c)(iii) - DemandResponseCapacityForecast.xlsx” and “JI DR1 LGE KU Attach to Q52(c)(iii) - BYOD Energy Storage.xlsx.”

- c. According to NREL’s 2024 ATB “Moderate” scenario, the cost of utility-scale battery storage is lower than the cost of commercial or residential battery storage (see table below). The Companies included customer-owned battery storage within the BYOD program in part for this reason.

**Overnight Capital Cost for 4-hr BESS (2030 Installation, Real 2022 \$)**

	Overnight Capital Cost (\$/kW)
Utility-Scale BESS	1,300
Commercial BESS	1,542
Residential BESS	3,440



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.15**

**Responding Witness: Lana Isaacson / Stuart A. Wilson**

- Q. 2.15. Please refer to the Companies' Responses to JI 1.14 and 1.45. Have the Companies evaluated or caused to be evaluated the potential for distributed capacity procurement or virtual power plants? If so, please provide the results of such evaluation, including supporting workpapers. If not, please explain why not.
- A. 2.15. The Companies have not evaluated or caused to be evaluated the potential for distributed capacity procurement or virtual power plants, but the Companies continue to monitor these items. Currently there is no need to evaluate these items in view of the Companies' effective use of the demand response and distributed generation offerings. The Companies currently offer six demand-response-related programs, five of which give the Companies the ability to affect or influence participating customers' usage from various heating and cooling loads and electric vehicle charging, and one of which provides discounts to obtain devices that allow customers to participate in such programs.<sup>3</sup> The Companies also offer net metering and qualifying facility rates, a Solar Share Program, and Green Tariff Options #2 and #3, all of which provide different ways for customers to engage in renewable energy production with varying degrees of utility control or ownership. Finally, as noted in response to Question 2.7(b), the Companies are continuing their planning and development process for potential deployment of pilot program offerings related to the three program enhancements outlined in the IRP (Business Demand Response greater than 50 kW and less than 200 kW, BYOD Energy Storage, and BYOD Whole Home Generator).

---

<sup>3</sup> See Kentucky Utilities Company, P.S.C. No. 20, Sixth Revision of Original Sheet Nos. 86.7 – 86.9; Louisville Gas and Electric Company, P.S.C. Electric No. 13, Sixth Revision of Original Sheet Nos. 86.7 – 86.9.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.16**

**Responding Witness: John Bevington / Elizabeth J. McFarland**

- Q. 2.16. Please provide an updated response to request JI 1.16.d., and for each data center project referenced provide the following:
- a. The phase of the project;
  - b. Size, in MW;
  - c. Which Company is working with the project;
  - d. Location, if known, with as much specificity as known; and
  - e. Any engineering or transmission interconnections studies.
- A. 2.16. As of January 26, 2025, the Companies are working with 18 data center projects with a potential load of over 6.2 GW peak capacity need.
- a.-d. See attachment being provided in a separate file for details regarding those projects. Certain information requested is confidential proprietary and is being provided under seal pursuant to a petition for confidential protection.
  - e. See attachments being provided in response to Question No. 25(d) and attachments being provided in separate files. Certain information requested is confidential and proprietary and are being provided under seal pursuant to a petition for confidential protection.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.17**

**Responding Witness: John Bevington / Shannon L. Montgomery**

- Q. 2.17. Please provide any economic development or other special contract entered into within the last five years, including those referenced in the Companies’ response to JI 1.18., and any entered into since, on a continuing basis.
- A. 2.17. All economic development and special contracts are required to be filed and approved by the Commission. All special contracts referenced in JI 1.18 response were provided as a footnote or could be found on the Commission’s website with the referenced case number.

All other special contracts can be found on the Commission’s website:

Kentucky Utilities:

<https://psc.ky.gov/Home/Library?type=Tariffs&folder=Electric%5CKentucky%20Utilities%20Company%5CContracts%5CCurrent>

Louisville Gas and Electric:

<https://psc.ky.gov/Home/Library?type=Tariffs&folder=Electric%5CLouisville%20Gas%20and%20Electric%20Company%5CContracts%5CCurrent>

Other economic development contracts within the last five years for < 25MW were also filed with and approved by the Commission can be found for:

- Kruger Packaging – Refer to Case No. 2022-00395  
[https://psc.ky.gov/pscscf/2022%20cases/2022-00395//20221028\\_Kentucky%20Utilities%20Company%20Contract%20Filing.pdf](https://psc.ky.gov/pscscf/2022%20cases/2022-00395//20221028_Kentucky%20Utilities%20Company%20Contract%20Filing.pdf)
- Bitiki – Refer to Case No. 2022-00371  
[https://psc.ky.gov/pscscf/2022%20cases/2022-00371//20221007\\_KU%20Contract%20Filing.pdf](https://psc.ky.gov/pscscf/2022%20cases/2022-00371//20221007_KU%20Contract%20Filing.pdf)
- North American Stainless – Refer to Case No. TFS2025-00033.  
[https://psc.ky.gov/trf4/uploadedFiles/400\\_Kentucky\\_Utilities\\_Company/01282025102314/02\\_-\\_KU\\_NAS\\_RTS\\_EDR\\_Application.pdf](https://psc.ky.gov/trf4/uploadedFiles/400_Kentucky_Utilities_Company/01282025102314/02_-_KU_NAS_RTS_EDR_Application.pdf)

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.18**

**Responding Witness: Tim A. Jones / Peter W. Waldrab**

Q. 2.18. Please refer to the Companies’ response to JI 1.20.a., and answer the respond to the following requests:

- a. Explain at what degree of specificity Companies can estimate the number of customers that would have “heavy resistive loads” and the demand of such loads;
- b. Provide that information at the greatest level of specificity the Companies are able; and
- c. If some greater level of specificity is anticipated in the future explain when and how.

A. 2.18.

- a. The degree of specificity is not at the “number of customers” level. As set forth in the response to JI 1.20.b, potential savings from conservation voltage reduction (“CVR”) are described in Mr. Bellar’s Direct Testimony in Case Nos. 2020-00349 and 2020-00350. See Exhibit LEB-3, Appendix D (entitled “CVR Potential Study”) for the Companies’ analysis of this issue, which shows that, based on a study of 12 distribution circuits, 404 circuits are candidates for CVR.
- b. See the response to part a above.
- c. Following the deployment of AMI metering at the end of 2025, the Companies will have greater ability to estimate the composition of individual customers’ load.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.19**

**Responding Witness: Lonnie E. Bellar**

Q. 2.19. Please refer to the Companies’ response to JI 1.26., and respond to the following requests:

- a. Referencing the Companies’ response to JI 1.26.f. confirm the Companies do not track planned outages. If anything other than confirmed explain and provide tracked data.
- b. Referencing the Companies’ response to JI 1.26.h. confirm the Companies do not track or assign a capacity value for its generating resources.
  - i. If confirmed, please explain how Companies determine the reliability and availability of their resources for resource planning purposes, and provide data on any metrics used.
  - ii. If anything but confirmed explain and provide tracked data.
- c. Please provide the data in 1.26.b.-d. and p.-s. on an hourly basis, or at the most refined temporal scale available.

A. 2.19.

- a. Not confirmed. JI 1.26.f requested “Planned outage rate (%)” which the Companies do not track. The Companies do track planned outages and schedule them appropriately to balance maintenance needs and resource constraints. This information is shared semi-annually with the Commission through the Fuel Adjustment Clause mechanism. See attachment being provided in a separate file for the list of planned outages by year and unit for the original requested time frame (2019 – 2023).
- b. Not confirmed. JI 1.26.h requested historical “Capacity value (%) (also referred to as capacity credit, effective load carrying capacity, etc.)” As noted in the response JI 1.26.h, the Companies do not track this metric historically.

- i. Not applicable.
  - ii. For the Companies' planning assumptions for capacity contributions for existing and potential future resources, see the response to Question No. 20.
- c. There are two attachments provided for this question.

The first attachment contains monthly data for JI 1.26 b-d, tabbed by year, as well as monthly data for JI 1.26 p-s, where available, in a standalone tab. Note that in the attachment the Companies provided in response to JI 1.26.c, the fuel usage in MMBTU supplied for Combustion Turbines at EW Brown (Units 8, 9, 10 and 11) did not include a small amount of fuel oil consumed during dual fuel operation for the requested years. The monthly fuel consumption values presented in the attached spreadsheet to this response does include the additional fuel oil used by those units.

The second attachment contains hourly data for JI 1.26.b.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.20**

**Responding Witness: Michael S. Sebourn**

- Q. 2.20. Please refer to the Companies’ response to JI 1.28.h., and respond to the following requests:
- a. Please provide the information in the able on a unit-level basis, (or plant-level if unit level is unavailable);
  - b. Please define “Fully Dispatchable Resources”.
  - c. Please explain why “Fully Dispatchable Resources” are forecast to achieve a 100% capacity contribution, given the information in in Table 14 of the Resource Adequacy Analysis in Volume III.
    - i. Please explain why “Solar” is forecast to achieve 0% Winter Capacity Contribution.
- A. 2.20. (This space is intentionally blank. Responses begin on the following page.)

a. See the table below.

Resource	Summer Capacity Contribution	Winter Capacity Contribution
<b>Fully Dispatchable Resources:</b> (Trimble County 1-2, 5-10; Ghent 1-4; Brown 3, 5-11; Mill Creek 2-4; Paddy’s Run 11; Cane Rune 7; Mill Creek 5; OVEC; Expansion NGCC, SCCT, and SMR)	100%	100%
<b>Dix Dam Hydro:</b> (Dix Dam 1-3)	100%	100%
<b>Ohio Falls Hydro</b> (Ohio Falls 1-8)	64%	40%
<b>Solar</b> (Brown, Marion, and Mercer Solar; Solar Share; Expansion Solar)	84%	0%
<b>4-hr BESS</b>	See the response to JI 1.17.	
<b>8-hr BESS</b>	93%	93%
<b>Dispatchable DSM</b> DSM Programs and CSR	39%	39%

b. See Section 3.1 on p. 15 of Volume III, 2024 IRP Resource Assessment.

c. See the response to SREA 1-11(a).

i. See the response to PSC 2-5.



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.21**

**Responding Witness: John Bevington**

Q. 2.21. Please provide an updated response to JI 1.50 for potential new loads in the  
“imminent” and “announced” stages.

A. 2.21. The responses to JI 1.50 remain the same.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.22**

**Responding Witness: John Bevington**

- Q. 2.22. Please refer to the Confidential Attachment provided in response to JI 1.64.
- a. Please explain the basis for the estimated cost per kWh provided on Slide 9.
  - b. Please explain the basis for the estimated cost for the service provided on Slide 9.
- A. 2.22.
- a. The basis for the estimated cost per kWh provided is the Retail Transmission Service (RTS) tariff and the customer's projected load profile within slide 9 at the time and date listed in the presentation.
  - b. The Companies assume the question is about the cost of infrastructure projects necessary to serve the load that is communicated on slide 9. The basis for the estimated infrastructure cost is a preliminary and high-level engineering estimate based on information provided to the Companies by the customer at the time the presentation was given.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.23**

**Responding Witness: Lana Isaacson / Tim A. Jones**

- Q. 2.23. Please refer to the Residential End Use Survey Report, provided as Attachment 1 in response to JI 1.47.
- a. Were the results of this survey only used for load forecasting, or were they also used to inform DSM-EE planning? Please explain.
  - b. Page 1 of Attachment 1 to JI1.47 states that a quota method was used to ensure representation of low income customers. Clarify how this quota was met:
    - i. What was the definition of “low income”
    - ii. How was the size of the quota determined? Does it reflect the proportion of “low income” customers in KU/LGE territory?
    - iii. Clarify recruitment of low income customers i.e. Were all KU/LGE customers contacted to participate, and then respondents were classified by their income, and recruitment continued until the quota was met? Or, were all customers previously identified as low income sent a request to participate? Were there some additional criteria used to select among low-income customers to be recruited?
    - iv. Does the percent of the sample by income bracket, displayed in Figure 21, reflect the percentages of people at each income bracket in KU/LGE territory?
  - c. In the analysis of home size by energy use, please specify what housing types are included in this analysis (e.g., based on single-family homes only?).
  - d. Footnote 12 on page 5 says that housing type was not considered in your analysis of energy usage. Please explain why not.

- e. In figures 7 and 8, are renters and customers in multi-family dwellings included in these analyses?
- f. Please state whether the analyses in figures 7 through 10 with respect to thermostats, energy efficiency measures, and thermostat settings were done on the basis of income?
  - i. If those analyses were done on the basis of income, please explain why.
  - ii. To the extent known, how would those analyses change if performed on the basis of housing type? Please explain.
  - iii. To the extent known, how would those analyses change if performed on the occupant type, i.e., owner- or renter-occupied.
  - iv. Are the Companies able to provide the analysis of thermostat settings by age of house? If such an analysis has been performed, please provide the results of that analysis, with supporting workpapers, if any.
- g. Section 2.6.2 discusses “Overgeneration” by customer-owned solar. Please clarify the meaning of that term as used in the referenced section. For example, does Overgeneration refer to any and all energy ever fed to the grid at any moment by a customer’s panels, does this refer to energy fed to the grid over and above the amount of energy taken from the utility by the end of the billing period, or something else?

A. 2.23.

- a. The survey was used to support load forecasting assumptions and was not used to inform DSM-EE planning. The survey results were not available until after the most recent DSM filing was made, but the results of the survey support the DSM programs that were approved. For example, EV customers responding to the survey largely supported the Companies’ forecast assumptions that the vast majority of EV charging occurs at home and overnight (specifically, between the hours of 6:00 p.m. and 6:00 a.m.). If charging occurs closer to 6:00 p.m. in the winter, this runs the risk of an increased winter evening peak. The Optimized EV Charging program could shift more charging to later hours that typically have lower demand for electricity.
- b. The Companies relied upon Bellomy’s expertise when it came to setting quotas.

- i. As the Companies do not collect income data on their customers, low-income for quota purposes was defined as a customer who had a low-income pledge payment for their bill in the past year.
- ii. A subset of 5,300 customers with low-income pledge payments indicated on their bill was selected using a random number generation methodology employed by Bellomy. Of this subset, 141 customers completed the survey, resulting in a 2.7% response rate for the low-income pledge customers, which was a higher response rate than the overall total (1.57%). However, one of the survey items asked customers for household income information. The number and proportion of respondents by household income group for the survey can be seen in the table below, along with the proportion of Kentucky residents that fall into those household income groups. The Kentucky proportions are based on American Community Survey (“ACS”) census data. As can be seen from the table, the proportion of income groups for the survey is similar to the distribution of incomes for residents of Kentucky.

Household income (\$)	Number of respondents	Proportion of survey respondents	Proportion of Kentucky
Less than \$25,000	356	15%	21%
\$25,000 to less than \$50,000	491	21%	22%
\$50,000 to less than \$75,000	389	17%	17%
\$75,000 to less than \$100,000	279	12%	13%
\$100,000 to less than \$150,000	284	12%	15%
\$150,000 to less than \$200,000	86	4%	6%
\$200,000 to less than \$250,000	39	2%	6% <sup>4</sup>
\$250,000 or more	39	2%	NA
Prefer not to answer <sup>5</sup>	383	16%	NA

<sup>4</sup> The survey used two household income groups for >\$200,000 (\$200,000 to less than \$250,000 and \$250,000 or more), whereas ACS estimates combined both groups.

<sup>5</sup> Customers were not required to provide income information in order to participate in the survey.

- iii. See response to parts (i) and (ii).
- iv. See response to parts (i) and (ii).
- c. Confirmed – the analysis of home size by energy use was based on single-family homes only.
- d. Housing type was excluded as another variable from the usage by income analysis because of sample size. Seventy-four percent of the sample indicated that they lived in a single-family home. Grouping the other housing types by income would result in very small numbers of customers in the grouping.
- e. Yes.
- f. Yes, each of the cited figures divides the data shown into three income brackets.
  - i. The Companies were curious if the survey data suggested that income level impacted ownership of programmable or smart thermostats or that income level affected the temperature at which customers keep their homes in summer and winter.
  - ii. This analysis has not been performed.
  - iii. See response to part (ii).
  - iv. See response to part (ii).
- g. As it pertains to this report, “overgeneration” refers to any and all electricity fed to the grid by the customer’s installation at any moment during the billing period.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.24**

**Responding Witness: Tim A. Jones**

- Q. 2.24. Please describe the data that the Companies have available on housing type and housing ownership (e.g., owner- or renter-occupied), and answer the following requests.
- a. To the extent known, please provide the average energy intensity of each residential housing type (e.g., single family, multifamily, manufactured home).
  - b. To the extent known, please provide the average monthly energy usage of each residential housing type (e.g., single family, multifamily, manufactured home) over at least one twelve-month period.
  - c. To the extent known, please provide the average monthly energy usage for each of owner- and renter-occupied housing units over at least one twelve-month period.
- A. 2.24. The Companies only have the data set from the survey referenced in Question No. 23. The Companies provided all data from this survey in response to JI 1-47.
- a. The Companies have not performed this analysis.
  - b. The Companies have not performed this analysis.
  - c. The Companies have not performed this analysis.

LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY

Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024

Case No. 2024-00326

Question No. 2.25

Responding Witness: John Bevington / Robert M. Conroy / Elizabeth J. McFarland

Q. 2.25. Regarding the data center project recently announced for west Louisville by PowerHouse Data Centers and Poe Companies,<sup>6</sup> please answer the following questions:

- a. Will the Companies' customer be PowerHouse Data Centers, Poe, Companies, or some other entity?
- b. Who will be paying for the new LG&E switch station and on-site substation?
- c. Have the Companies entered an economic development or other special contract with the customer? If yes, provide that contract; if no, please explain under what tariff the customer will be taking service.
- d. To the extent not already provided in response to initial data requests, please provide the engineering studies, transmission-interconnection studies, and evaluation of site characteristics conducted by or for the Companies.
- e. Will the data center participate in the Companies' "Green Tariffs"? If unknown, please explain at what stage in the process of negotiating the customer that the Companies would be aware of interest in the Green Tariffs?
- f. To the extent known, what is the likelihood that the customer would be interested in participating in demand response programs. If unknown, please explain at what stage in the process of negotiating with the customer

---

<sup>6</sup> See <https://www.prnewswire.com/news-releases/lge-announces-first-major-data-center-electric-customer-302353539.html>.



that the Companies would be aware of interest in demand response programs?

- g. To the extent known, what is the likelihood that the customer will rely on behind-the-meter resources, including solar, battery storage, and fuel-dependent generators.

A. 2.25.

- a. Unknown and to be determined.
- b. Any infrastructure built and dedicated to only and specifically the customer will be paid for by the customer. All other network upgrades, projects, substations or infrastructure will be paid for through normal business practices and tariffs. See the response to SC 2-22(a).
- c. No. See the response to PSC 2-9. The Companies have only entered into the engineering and procurement agreement submitted in response to Sierra Club 1-12 c (i) in this case.
- d. The Companies have submitted two (2) Transmission Service Requests for this project to its Independent Transmission Organization, TranServ—one for a 335MW load and another for an additional 67MW load for the same site. The System Impact Study and Facilities Study for the first TSR are attached. The second TSR has only completed the System Impact Study (see attached). Regarding the System Impact Studies, certain information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.
- e. Unknown. See the response to PSC 2-9. As referenced in part (a), the ultimate customer is to be determined. Interest in the Green Tariff might be known prior to the execution of a contract for electric service or at any time thereafter, even years after a customer begins taking service.
- f. Unknown. See the response to PSC 2-9, the response to JI 1-50 (b), and the response to part (e).
- g. Unknown.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.26**

**Responding Witness: Tim A. Jones**

- Q. 2.26. Have the Companies conducted or caused to be conducted any economic analysis or forecasts of customer adoption of batteries specifically for back-up power purposes? If so, please provide the results of each such analysis and supporting workpapers. If not, please explain why not.
- A. 2.26. The Companies have not performed this analysis because there is no reason to believe it would have a material impact at any point during the time period considered in this IRP. By definition, customer adoption of batteries specifically for back-up power purposes only could have no load-reducing impact because customers would discharge their batteries only when they were not receiving electricity from the grid. Such customers could only *increase* load at other times when their batteries were charging.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.27**

**Responding Witness: Michael S. Sebourn / Stuart A. Wilson**

Q. 2.27. Please refer to the Companies’ Response to Staff Request 1.14.b., which refers to an article in the journal *Energies*, that concluded that “moderate amounts of regionally dispersed solar PV generation, up to approximately 20%, could be integrated into the current portfolio at low costs without significant imbalances.”<sup>7</sup> The article also states, “[d]eep decarbonization and renewable integration, from 20 to 80%, can be achieved with the replacement of older coal-fired units, which are unable to effectively adjust output for variable generating resources, with new natural gas generation.... Complete decarbonization between 80 and 100% necessitates the implementation of higher cost, emerging technologies, such as large-scale energy storage, potentially from EVs in V2G operation, large-scale demand response and electric power distribution virtual power plants, advanced nuclear, carbon capture, or renewable green hydrogen sources.”<sup>8</sup>

Considering the context of this IRP, in which potential coal retirements, new natural gas generation, large-scale battery storage, and demand response programs are contemplated, why didn’t the Companies’ consider that much higher percentages of renewable integration would be possible? Please explain.

A. 2.27. The Companies modeled the 20 to 25 percent renewable energy limits given the IRP’s relatively short 15-year planning horizon and challenges faced to date completing PPAs for much smaller quantities of solar (see footnote 31 on page 20 of Volume III, 2024 IRP Resource Assessment).

---

<sup>7</sup> Donovin D. Lewis, et al., *Decarbonization Analysis for Thermal Generation and Regionally Integrated Large-Scale Renewables Based on Minutely Optimal Dispatch with a Kentucky Case Study*, *Energies* at 18 (Feb. 17, 2023), available at

<https://enr.uky.edu/sites/default/files/PEIK/2023%20Energies%20UK%20SPARK%20Decarbonization%20Optimal%20Dispatch%20Regional%20Kentucky%20Author's%20Manuscript.pdf>

<sup>8</sup> *Id.* at 18-19

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.28**

**Responding Witness: Tim A. Jones / Stuart A. Wilson**

- Q. 2.28. Please provide data on the impact of electrifying large sectors of the U.S. economy over the period of the IRP and the implications for low-income customer affordability and access. What steps are the Companies taking to ensure equitable distribution of benefits and costs on low-income customers? Please provide any and all analysis. Please provide data by census tract and zip code, if available.
- A. 2.28. The Companies have not performed this analysis. The Companies' resource planning objective is to provide all customers, irrespective of income or other demographic criteria, with safe and reliable service at the lowest reasonable cost. The Companies' IRP reflects this objective.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.29**

**Responding Witness: Stuart A. Wilson**

- Q. 2.29. Please provide any and all energy burden analysis considered as a part of the Integrated Resource Plan (IRP) process. Please provide any and all internal analysis and discussion materials from the Companies of these studies.
- A. 2.29. See the response to JI 1-54. The Companies have not performed such analysis.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.30**

**Responding Witness: Stuart A. Wilson**

- Q. 2.30. Please provide any and all strategy screens the Companies applied during the development of the proposed Integrated Resource Plan (IRP) process to advance equity and the outcomes from applying these strategy screens. Please provide any and all internal analysis and discussion materials from the Companies of these studies.
- A. 2.30. The Companies have not performed this analysis. The Companies' resource planning objective is to provide all customers, irrespective of income or other demographic criteria, with safe and reliable service at the lowest reasonable cost. The Companies' IRP reflects this objective.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.31**

**Responding Witness: Shannon L. Montgomery / Stuart A. Wilson**

- Q. 2.31. Please provide the following data, and any and all internal analysis and discussion materials, on how this influenced the preparation of the proposed Integrated Resource Plan (IRP) and how COVID-19 pandemic data impacted the analysis in anticipating future pandemic instability, if at all:
- a. Please provide data for the number of people who are eligible for gas or electric disconnection by census tract.
  - b. Please provide data on the number of people who are behind on their gas or electric payments by census tracts.
  - c. Please provide data on the average amount owed on past due bills by census tract.
  - d. Please provide data on the number of people who have a signed repayment plan by census tract.
  - e. Please provide data on the number of people who are behind on their payments, but do not have a signed payment plan in place by census tract.
  - f. Please provide data on the number of people who have a signed payment plan who are currently on that payment plan by census tract.
  - g. Please provide data on the number of people who have a signed payment plan who have missed one or more payments by census tract.
  - h. Are the people who have missed one or more payments on their payment plan included in the overall number of people who are eligible for disconnection? Please explain.
  - i. Please provide data on the number of people who have received support from pandemic utility assistance programs by census tract.

- j. Please provide data on the amount of money received by the Companies from pandemic utility assistance programs.
  - k. How many households have the companies disconnected from electrical service since February 2020? Including multiple disconnections to households, how many total disconnections have been carried out?
    - i. What was the average length of these disconnections?
  - l. Which ten zip codes (or census tracts in Louisville/Lexington) had the highest disconnection rates?
    - i. How much would it have cost to forgive those arrearages instead of making those disconnections?
- A. 2.31. Without waiving any of the objections raised below, none of the requested data explicitly influenced the preparation of the proposed Integrated Resource Plan (IRP) and how COVID-19 pandemic data impacted the analysis in anticipating future pandemic instability (anything that affects historical usage is implicitly accounted for in the Companies' load forecasting). The COVID-19 pandemic appears not to have had a lasting impact on the Companies' energy requirements, as noted in Volume I of the IRP: "Energy requirements declined significantly in 2020 due to the COVID-19 pandemic but have recovered to the slightly declining trend observed prior to the pandemic."<sup>9</sup>
- a. The Companies object to this request as irrelevant because the information it seeks was not used for the creation of the IRP. Without waiving this objection, the Companies do not maintain the requested information by census tract because they do not have a business reason to do so.
  - b. See the response to part (a).
  - c. See the response to part (a).
  - d. See the response to part (a).
  - e. See the response to part (a).
  - f. See the response to part (a).
  - g. See the response to part (a).
  - h. See the response to part (a).

---

<sup>9</sup> IRP Vol. I at 5-2.



- i. See the response to part (a).
- j. The Companies object to this request as irrelevant. Without waiving this objection, the Companies received \$16.2 million from pandemic utility assistance programs.
- k. The total number of electric residential disconnections from February 2020 to June 2024 is 318,323.
  - i. The average length of the disconnections is not readily available.
- l. The Companies object to this request as irrelevant. Without waiving this objection, see the Companies' attachment to JI 1-55(b), in which the Companies provided the monthly number of disconnections for nonpayment by zip code.
  - i. The Companies object to this request as irrelevant. The Companies do not have the ability to forgive arrearages unless the utility finds a billing error that was the fault of the utility. Without waiving this objection, for the 12 months ending June 30, 2024, the total amount of all Kentucky electric residential customer arrearages was approximately \$22.2 million.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.32**

**Responding Witness: Shannon L. Montgomery**

- Q. 2.32. Please describe what concrete actions the Companies are taking to ensure and increase universal access to electricity, especially to underserved communities such as low-income households and communities of color?
- A. 2.32. The Companies have assistance programs for all customers who qualify. Those programs can be found at: [Assistance programs | LG&E and KU \(lge-ku.com\)](https://lge-ku.com/assistance-programs) (<https://lge-ku.com/assistance-programs>).

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.33**

**Responding Witness: Shannon L. Montgomery**

- Q. 2.33. How are the companies helping low-income households and communities of color access DER's to lower their energy bills? Are the companies encouraging more accessible and equitable solar policy like the monetization of tax incentives, virtual net metering, third-party ownership, etc? If not, why?
- A. 2.33. The Companies object to this request as irrelevant. Without waiving this objection, the Companies' current Solar Share Program Rider (tariff sheet No. 75) includes as Option 1 the ability to purchase shares of solar via a one-time payment and transfer the benefit of the share(s) to a customer within the service territory. Recipients are given an energy offset credit as well as an energy credit on their monthly bill. Habitat for Humanity Kentucky has purchased as many as 300+ shares and transferred the benefit to 20 of their clients. The most recent purchase of 53 shares in November 2024 was supported by a grant from the Kentucky Office of Energy and Environment. This provides access to renewable options (solar) to customers in our service territories (who otherwise may not participate in such programs) without the added monthly cost.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.34**

**Responding Witness: Lana Isaacson**

- Q. 2.34. Please provide data on programmatic DSM charges and disbursements (incentives, rebates, and weatherization assistance) for low-income and communities of color, either by census tract or zip code.
- A. 2.34. The Companies object to this request as irrelevant. Without waiving this objection, the disbursement of funds for measures of the Income Qualified programs by zip code from 2020 through 2024 is included in a separate attached file. Note that there are additional funds of approximately \$1.4 million for the period of 2020-2024 for vendor administration costs, which cannot be separated by census tract or zip code.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.35**

**Responding Witness: Lana Isaacson / Stuart A. Wilson**

Q. 2.35. How have the companies engaged stakeholders, including residential customers, in the development of this IRP?

A. 2.35. The Companies did not have a pre-filing IRP stakeholder engagement process and have not had such a process for any previous IRP. Unlike demand-side management plan filings for which there is a statutory requirement to consider the involvement of “customer representatives and the Office of the Attorney ... in developing the plan,”<sup>10</sup> the Commission’s IRP regulation neither requires nor contemplates a pre-filing stakeholder process.<sup>11</sup> Rather, the IRP regulation provides a process by which the Commission Staff and intervenors may issue discovery requests and submit comments about an IRP *after* a utility files it.<sup>12</sup> Likewise, the Commission may schedule conferences to discuss an IRP *after* a utility files it.<sup>13</sup> But the regulation does not require or even suggest a pre-filing public or stakeholder process; rather, the post-filing IRP process prescribed by the Commission’s regulation *is* the stakeholder process.

That notwithstanding, the Companies did engage with their DSM Advisory Group, including residential customer representatives, in two meetings prior to the IRP filing (June 3 and July 16, 2024). The topic of the IRP arose in both meetings.<sup>14</sup>

---

<sup>10</sup> KRS 278.285(1)(f).

<sup>11</sup> 807 KAR 5:058.

<sup>12</sup> See, e.g., 807 KAR 5:058 Sec. 11(1).

<sup>13</sup> See, e.g., 807 KAR 5:058 Sec. 11(2).

<sup>14</sup> The meeting minutes and other meeting documents are available at <https://lge-ku.com/dsm>.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.36**

**Responding Witness: Shannon L. Montgomery**

- Q. 2.36. Please refer to the Companies' response to JI 1.55, and provide:
- a. Monthly average number of customers with a past due balance by zip code or census tract.
  - b. Monthly average past due balance amount by zip code or census tract.
- A. 2.36. The Companies object to this request as irrelevant. Without waiving this objection, see the attachment being provided in a separate file.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.37**

**Responding Witness: Lana Isaacson**

- Q. 2.37. Please refer to the Companies' response to JI 1.79.
- a. Explain the Company's plan to continue stakeholder engagement on implementation of DSM-EE programs offered?
  - b. Please describe the work of this DSM advisory group since the last IRP, and what recommendations and inputs from stakeholders have been included in this IRP or what recommendations and inputs the companies are currently following or planning to follow in the next 15 years.
- A. 2.37.
- a. The Companies believe stakeholder engagement has been a key contributor to the DSM program planning and development process and ultimate success of the programs. The Companies plan to continue to have at least an annual stakeholder meeting with the only exception if there is an active DSM case. Additionally, they encourage regular communication from stakeholders whenever an issue, topic, or question arises rather than waiting for the scheduled meeting. To facilitate more regular discussions throughout the year, the Companies created an online submission form in 2024. Also see the response to JI 1-79.
  - b. See the response to JI 1-79.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.38**

**Responding Witness: Lana Isaacson / Michael S. Sebourn**

- Q. 2.38. What data and DSM pilot programs will be associated with the implementation of the AMI?
- a. Detail possible ways implementation of AMI will lead to energy reductions and to demand impacts and give details of the estimated size of impacts.
  - b. How does the cost of existing or planned demand side resources compare to the cost of supply side resources in meeting customer demand?
- A. 2.38. Several programs that launched in 2024 and 2025 utilize AMI data. Directly, both Peak Time Rebates and Residential Online Audit require AMI interval data to operate as intended. Indirectly, for the demand response programs (i.e. BYOD, Optimized Charging, and DLC), AMI data allows the Companies to measure performance more accurately during and after events. This is also true for the potential enhancement of the Business Demand Response program to customers between 50 kW – 200 kW base demand. In this potential program enhancement, AMI data could not only assist in the identification of customers who meet the eligibility requirements, but again allow the Companies the ability to more accurately measure performance during and after events.
- a. The ways that AMI will contribute to energy and demand reductions are most evident in the new programs that require AMI data (Peak Time Rebates and Residential Online Audit) to operate. Some possible ways include:
    - For the residential customers who complete their online audit, they will gain a better understanding of not only how their usage is segmented (heating, cooling, lighting, etc.) but when the energy is used. This understanding will empower them to use energy more wisely and be motivated to make the right improvements based on the feedback received through the online assessment. This feedback



is customized and provides multiple options on potential actions and/or behaviors for the participating customer to reduce their energy usage.

- During a period of high load, a Peak Time Rebates customer will be notified to take actions that lower their usage and allow them to earn financial rewards. This communication method and messaging from this program are meant engage the customer and enable them to be initiative-taking as they discover and learn what ways are best to reduce their energy usage and maximize rewards.

The details of the impacts are provided by program and year and are summarized starting in Sections 1.7 through Section 4.3 of Exhibit JB-1 in Case No. 2022-00402.

- b. The costs of demand-side programs (i.e., demand response) and supply-side resources are not comparable due to their dissimilar characteristics. Demand-side programs have the potential to reduce or curtail limited amounts of load, typically for short periods, and rely on customer behaviors to do so. Supply-side resources supply energy to meet load and prevent customer outages. While they can both be effective in combination to support system reliability at the lowest reasonable cost, comparing the costs of items with such different attributes can be misleading.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.39**

**Responding Witness: Lana Isaacson**

- Q. 2.39. Please provide all data and analysis performed regarding all DSM programs considered for implementation during the planning period.
- a. Please include all Benefit-Cost analyses and all cost tests utilized for each program and identify each program that was evaluated.
  - b. Did cost benefit analyses include potential avoided transmission or distribution investments? If not, why not?
- A. 2.39. See the response to JI 1-52(c)(iii).
- a. See the response to JI 1-52(c)(iii).
  - b. No, these were not included because a cost-benefit analysis was not performed.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.40**

**Responding Witness: Shannon L. Montgomery / Peter W. Waldrab**

- Q. 2.40. Have the Companies evaluated how to provide the greatest benefits to their customers through the strategic utilization of Distributed Energy Resources in all its forms (DERs, including but not limited to DSM, energy efficiency, distributed generation, battery storage, demand response)? Have the Companies evaluated how the benefits of DERs can be shared most broadly among their customers, especially low-income, and historically underserved and marginalized communities?
- A. 2.40. The Companies continue to explore DER (Solar and Battery Storage) options and delivery methodologies that are inclusive of all customers. The Companies regularly attend utility conferences and trainings and engage in partnerships like EPRI to understand industry best practices related to DER program offerings and optimized management of DERs on the electric system.

The 2024-2030 DSM-EE Plan includes multiple new programs and program enhancements with options for all types of customers to participate in one or more programs. The Companies continue to deploy various strategies for customer awareness and participation into the programs, which the Companies evaluate and adjust as necessary.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.41**

**Responding Witness: Lana Isaacson / Shannon L. Montgomery**

- Q. 2.41. Please provide a detailed explanation as to why no analysis was considered during the development of the proposed IRP pertaining to the planning and development of new DSM programs targeted to low- or moderate-income households.
- A. 2.41. The Companies continuously look for opportunities to improve DSM program offerings, including those that serve low- or moderate-income households, through the DSM Advisory Group, the DSM and Energy Efficiency Suggestions webpage, discussions with peer utilities, and attendance of energy efficiency and demand response conferences. Prior to filing the 2024 IRP, the Companies' ongoing DSM-EE efforts had not identified any potentially cost-effective new DSM programs targeted to low- or moderate-income households to analyze for the IRP (i.e., programs not already included in the Companies' current 2024-2030 DSM-EE Program Plan).

The Companies' current DSM-EE Program Plan includes two programs that exclusively serve income qualified customers and multifamily properties with income qualified residents. These are the Low-Income Weatherization and Whole-Building Multifamily programs. The Companies have enhanced these programs in several ways. The Companies have added enrollment options; customers can sign up through an online self-service portal, over the phone, or by completing paper forms available in English and Spanish. The Companies have streamlined eligibility verification; customers can provide a record of income eligibility by attaching an image to their application or by self-attesting to their eligibility and the income eligibility section in the application is automatically completed for Customers that have received a LIHEAP pledge in the last 24 months. The Companies have simplified the landlord consent process with an electronic form that can be signed from a mobile phone, tablet, or computer. The Companies have increased the average allowable measure spend to \$1,650 for each single-family home and included an additional \$200 per project for smart thermostats where applicable. As part of the 2024-2030 Program Plan filing, the Companies proposed to make these income qualified programs available to more

customers by increasing the income eligibility limits to 300% of the federal poverty level—however, the Joint Intervenors’ request to retain the limit at the 200% level was ultimately approved.

The Companies’ current DSM-EE Program Plan also includes Peak-Time Rebates and the Residential Online Audit program which will be available to customers in the first quarter of 2025. These programs will be available to residential customers at no additional cost and without a requirement to have wireless internet or purchase equipment which makes them well suited for low- or moderate-income households.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.42**

**Responding Witness: Stuart A. Wilson**

- Q. 2.42. Please refer to the Companies’ response to JI 1-25(b): “The Recommended Resource Plan is the direct result of the modeling summarized in the Resource Assessment for 12 load and environmental scenarios. Given the uncertainty in load and environmental regulations, this is a prudent way to develop a ‘no regrets’ resource plan that is least-cost across a range of futures.”
- a. Please provide all modeling assumptions and modeling results associated with the Recommended Resource Plan itself. (For clarity, this is not a request for modeling assumptions and results of portfolios other than the Recommended Resource Plan that provided insight into the Recommended Resource Plan.)
  - b. In addition, please provide an explanation of how the assumptions associated with the modeling run resulting in the Recommended Resource Plan compare to other modeled portfolios discussed in the IRP.
- A. 2.42.
- a. As discussed in Section 4.5 of the Resource Assessment in Vol. III of the IRP, the Companies started with the least-cost portfolio from the Mid Load, Ozone NAAQS + ELG scenario and modified it to (1) support the potential for high economic development load growth and CO<sub>2</sub> regulations and (2) have no regrets should high economic development load growth or CO<sub>2</sub> regulations not come to fruition. Specifically, the additions of the Ghent 2 SCR and 400 MW of battery storage were accelerated to 2028, the addition of the second NGCC was accelerated to 2031, and the retirement of Brown 3 was deferred to 2035. In addition, 500 MW of solar was added in 2035 after prices fall to hedge natural gas price volatility and future CO<sub>2</sub> regulation risk. Except these modifications, all modeling assumptions are unchanged from the Mid Load, Ozone NAAQS + ELG scenario.

- b. See the response to part (a).

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.43**

**Responding Witness: Lonnie E. Bellar**

Q. 2.43. Please refer to the Companies’ response to JI 1-33: “For clarity, the Companies are aware of the EIR program and have previously engaged with the U.S. Department of Energy’s Loan Programs Office (‘LPO’) concerning possible eligibility for Commission-approved projects from the 2022 CPCN (Case No. 2022-00402).” What steps have the Companies taken in investigating and applying for financing through the EIR program and/or other similar programs administered by the U.S. Department of Energy’s LPO? Please provide all relevant materials.

A. 2.43. The Companies prepared a draft of the Part I Application for the LPO to review related to the Marion Solar, Mercer Solar, and Brown Battery Energy Storage System (“BESS”) projects that were approved by the 2022 CPCN Case No. 2022-00402. The draft included copies of site and environmental assessments, project descriptions, project timelines, and project expenditure schedules.

Based on feedback from the LPO’s environmental compliance team, the solar projects were not invited to officially submit a Part I Application. The LPO referenced the timing constraints around the necessary Environmental Assessments under NEPA (National Environmental Policy Act) to be eligible for a categorical exclusion and the site mobilization schedule for these projects.

The Brown BESS was also not invited to officially submit a Part I Application. The project was determined to have potential NEPA related issues due to the location of the facility and project timeline, which would have potentially precluded the project from being eligible for the categorical exclusion.

Notwithstanding the NEPA issues, the DOE Program Committee determined that the Brown BESS project was unlikely to be eligible for the EIR Program due to the inability of ensuring that the battery storage unit would be charged with non-GHG emitting power or that the project would reduce GHG emissions on the grid. This was primarily due to the co-location of the battery and the operating fossil infrastructure at the E.W. Brown site.



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.44**

**Responding Witness: Michael S. Sebourn / Stuart A. Wilson**

- Q. 2.44. Please refer to the Companies’ response to JI 1-34(a): “In all scenarios, the Companies’ PLEXOS model evaluated coal unit retirements on an economic basis for all units starting in 2030.” What is the Companies’ rationale for evaluating coal unit retirements on an economic basis starting in 2030 rather than allowing the PLEXOS model to evaluate pre-2030 retirement dates?
- A. 2.44. Kentucky law requires replacing retiring coal units with “dispatchable” resources that have “the same or higher capacity value and net capability, unless the utility can demonstrate that such capacity value and net capability is not necessary to provide reliable service.”<sup>15</sup> In the 2024 IRP, there is no load scenario in which the Companies could retire a coal unit and not replace its capacity while maintaining reliable service. Thus, “dispatchable” capacity would have to replace the retiring coal unit. The statute defines “dispatchable” in a way that effectively requires replacement resources to be fossil fuel-fired, “hydropower ... [or] pumped storage hydropower” that is “capable of providing energy on demand,” or nuclear.<sup>16</sup> No such replacement resources can be developed and placed in service before 2030, so it would be inappropriate to model coal retirements before 2030.

---

<sup>15</sup> KRS 278.264(2)(a)(4). *See generally* KRS 278.264(2)(a).

<sup>16</sup> KRS 278.264(5). Battery energy storage is also permissible, but it cannot be “equivalent to less than forty-eight (48) hours of the average peak generation of the unit it is used to offset[.]” (KRS 278.264(5)(b)(4).)

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.45**

**Responding Witness: Tim A. Jones**

- Q. 2.45. Please refer to the Companies' response to JI 1-42(b): "While not modeled as a function of electricity prices, the construction of the low load scenario with high distributed solar, low EVs, accelerated energy efficiency, and low space heating electrification is consistent with high prices. Similarly, high EV adoption alongside low distributed solar and EE adoption in the high load forecast is consistent with low electricity prices."
- A. 2.45. No response is requested. The Companies assume Question Nos. 46 and 47 were intended to be subparts of a single request for which the text above would serve as context.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.46**

**Responding Witness: Tim A. Jones**

- Q. 2.46. Please provide the Companies analysis (any calculations, background materials, and citations) supporting the conclusion that the Companies “low load scenario with high distributed solar, low EVs, accelerated energy efficiency, and low space heating electrification is consistent with high prices”.
- A. 2.46. The Companies have not completed a specific analysis. If electricity prices are high relative to other costs and wages, the incentive to reduce energy usage through adoption of items such as distributed generation and improved energy efficiencies will be higher, and the incentive to purchase an electric vehicle will be lower due to increased fuel cost relative to internal combustion engine vehicles. In a case where electricity prices are low relative to other costs and wages, the incentives are reversed, leading to slower adoption of distributed generation and energy efficiency measures, with increased incentive for electric vehicles. However, the Companies reiterate that the effects of relative electricity costs are not specifically modeled. The High Case, for example, generally correlates with what could happen with relatively inexpensive electricity but is focused on a discrete scenario where all energy reducing measures are low and all energy increasing measures are high.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.47**

**Responding Witness: Tim A. Jones**

- Q. 2.47. Please provide the Companies analysis (any calculations, background materials, and citations) supporting the conclusion that “high EV adoption alongside low distributed solar and EE adoption in the high load forecast is consistent with low electricity prices”.
- A. 2.47. See the response to Question No. 46.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.48**

**Responding Witness: Tim A. Jones**

- Q. 2.48. Please refer to "5. Cost of Service" on page 7-17 in Section 7 of IRP Volume I, in which the Companies provide a range of elasticities used in modeling: Forecast models incorporate class-specific estimates of price elasticity between -0.1 and -0.15, which are supported by estimates from both the EIA and energy consultant Itron." Rather than a range of values across scenarios, please provide the specific elasticity values used in modeling each scenario.
- A. 2.48. In all scenarios, residential price elasticity is -0.1 and commercial price elasticity is -0.15.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.49**

**Responding Witness: Tim A. Jones**

- Q. 2.49. Please refer to the Companies' response to JI 1-44(a), where the Companies provide data related to residential customer counts, usage, and use-per-customer (UPC) by scenario.
- A. 2.49. No response is requested. The Companies assume Question Nos. 50 through 53 were intended to be subparts of a single request for which the text above would serve as context.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.50**

**Responding Witness: Tim A. Jones**

- Q. 2.50. Please provide the calculations, background materials, and citations used to develop these specific rates of customer growth for each scenario.
- A. 2.50. See the first two paragraphs of IRP, Volume I at page 7-34. The range of annual customer growth rates is reasonable compared to recent history and household growth projections. The average historical annual residential customer growth rate was 0.71% from 2012-2024 and 0.77% from 2021-2024. As mentioned in Section 7 of IRP Volume I, the Companies assume in the mid customer growth scenario a residential customer growth rate of just over 0.5% in the IRP forecast period. While this may seem pessimistic based upon the table below and residential customer growth rates in recent years, S&P Global, which provides some of the inputs the Companies use in their residential models, projects annual household growth of 0.51% per year in Kentucky from 2025-2040. Therefore, the Companies' mid customer growth scenario is aligned with S&P's household growth forecast. The high scenario aligns with recent customer growth rates. See the table below.

**Historical Residential Customer Growth**

<b>Year</b>	<b>Contracts</b>	<b>YOY Growth Rate</b>
2012	798,058	0.4%
2013	802,995	0.6%
2014	807,822	0.6%
2015	811,711	0.5%
2016	816,609	0.6%
2017	822,361	0.7%
2018	828,915	0.8%
2019	835,099	0.7%
2020	845,013	1.2%
2021	849,501	0.5%
2022	854,981	0.6%
2023	860,650	0.7%
2024	869,200	1.0%



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.51**

**Responding Witness: Tim A. Jones**

- Q. 2.51. Please explain these rates of growth in the context of the IRP description of Kentucky's rapid increase in housing starts (see page 7-18 in IRP Volume I).
- A. 2.51. Customer growth is not directly correlated to housing starts. There are delays between the beginning of construction and when a premise actually joins the system as a customer. Additionally, there are also multifamily sites that will introduce different numbers of new customers. As explained in JI 2-46, the Companies attempted to show a range of overall load possibilities with the Low, Mid, and High forecast scenarios and noted rapid growth in the state's housing market as qualitative support for the high customer growth scenario and a source of upside in Kentucky's economy (see Volume I, page 7-18).

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.52**

**Responding Witness: Tim A. Jones**

- Q. 2.52. According to the data provided by the Companies in Attachment to JI 1-44(a)(ii), UPCs are almost identical among the three load scenarios (both absolute and rates of growth). Please provide an explanation of why the mid, low, and high load scenarios all use the same UPC forecasts.
- A. 2.52. JI 1-44(a) asked the Companies to “provide the following data for the Companies’ customer growth projections . . . : . . . ii. Average annual use-per-customer (kWh), disaggregated by customer class.” The three load scenarios all used the same UPC forecasts to isolate the effects of residential customer growth in each scenario. As noted in response to JI 1-44(a)(i), “Only residential customer growth changes by scenario.”

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

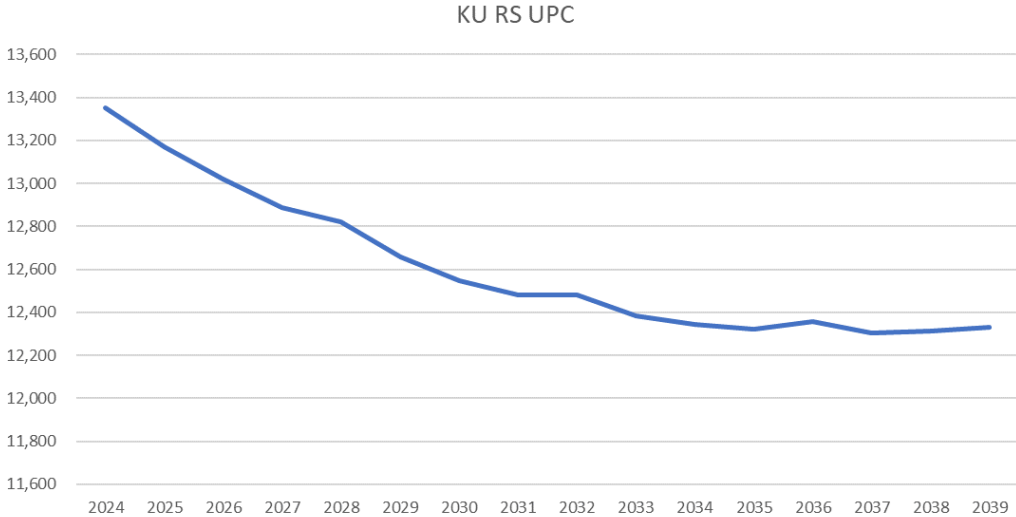
**Case No. 2024-00326**

**Question No. 2.53**

**Responding Witness: Tim A. Jones**

Q. 2.53. Why does the rate of change of UPC growth (from year to year) vary widely throughout the modeling period?

A. 2.53. The Companies disagree with the assertion that UPC growth “varies widely” throughout the forecast period. Any significant variation in the annual UPCs provided in the response to 1-44(a) is the result of leap years, as shown in the figure below.



**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.54**

**Responding Witness: Tim A. Jones**

- Q. 2.54. Please refer to the Companies' response to JI 1-45(a), where they reference PSC Case No 2024-00326 -- LGE-KU 2024 IRP Load Forecasting Workpapers—PUBLIC.zip at IRP\_Workpapers\Vol\_I\_Data\RS\_Cust\_Growth\_CAGR.xlsx." Are the customer counts provided in "RS\_Cust\_Growth\_CAGR.xlsx" for all customer types or do they only correspond to residential customers? Please provide customer counts by customer type (even if customer counts for some customer types remain constant).
- A. 2.54. The Companies assume the Joint Intervenors intended to reference JI 1-44(a). Yes, "RS\_Cust\_Growth\_CAGR.xlsx" only pertains to residential customers. As stated in response to JI 1-44(a) and in IRP, Volume I at page 7-34, only residential customer growth changes in the high and low customer scenarios. For all customer count forecasts see KPSC Case No 2024-00326 -- LGE-KU 2024 IRP Load Forecasting Workpapers—CONFIDENTIAL.zip at Electric\_Load\_Forecast\Electric\Forecasts\Summary\_of\_Billed\_Forecasts\CONFIDENTIAL\_2025BP\_Electric\_Billed\_Forecast\_With\_UPC (no MA data).xlsx.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information**

**Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.55**

**Responding Witness: Michael E. Hornung / Tim A. Jones**

- Q. 2.55. Please refer to the Companies’ response to JI 1-45(a): “Additionally, for customers served on the Residential Time-of-Day Energy rate, the cost differential between on- and off-peak hours does not provide a significant battery arbitrage opportunity. The NMS-2 rate is similar in that the costs of offsetting electricity is not materially different than the rate paid for selling electricity back to the grid, so once again there is no significant arbitrage opportunity that a battery provides to NMS-2 customers.” Is it the Companies’ testimony that their time-of-use (TOU) rates are ineffective in influencing customer demand? If so, what is the purpose of Companies’ TOU rates?
- A. 2.55. No. On its face, the quoted text concerns the sufficiency of price arbitrage to justify battery purchases, not the effect of Residential Time-of-Day Energy rate differences on participating customers’ usage patterns.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition’s Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.56**

**Responding Witness: Tim A. Jones**

- Q. 2.56. Please refer to the Companies’ response to JI 1-45(a): “ROI more accurately reflects the metric that customers would use if comparing distributed batteries to distributed solar.” In the Companies’ experience, do electric customers have any other motivations, other than ROI, relevant in their decision to adopt behind-the-meter solar and/or storage resources?
- A. 2.56. Yes. This is discussed in IRP, Volume I, Section 7.7(b), Subsection 7, which begins on page 7-18. “The Companies’ experience with their customers’ adoption of distributed solar generation shows that customers generally become more inclined to adopt it as its economics improve, but also that most customers have adopted solar even when it was not clearly economical.” The same can be said for battery storage resources, although there is a much smaller level of adoption in batteries today as compared to solar. The Companies’ distributed generation model accounts for the historical trend of customers adopting distributed solar even when it was not clearly economical and other motivations may have driven this adoption. Likewise, the Companies’ modeling approach implies that customers will continue to adopt battery storage at the same rate as they have historically. Explicitly forecasting distributed battery storage would not affect the decisions being contemplated in this IRP.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.57**

**Responding Witness: Tim A. Jones**

- Q. 2.57 Please refer to the Companies' response to JI 1-45(b), where they reference separate analyses of solar and storage resources. The original request for JI 1-45(b) asked the Companies to "provide the quantitative comparison of solar and storage resources assumed capabilities and limitations used by the Companies in developing the 2024 IRP." Based on the Companies' response, is it correct to understand that the Companies have not conducted a comparison of these resources?
- A. 2.57. Correct. See the responses to JI 1-45(a) and (b) and Question Nos. 1(a), 26, and 56. There is no reason to believe that any such analysis would have affected this IRP.

**LOUISVILLE GAS AND ELECTRIC COMPANY  
AND  
KENTUCKY UTILITIES COMPANY**

**Response to Mountain Association, Kentuckians for the Commonwealth, Kentucky  
Solar Energy Society and Metropolitan Housing Coalition's Supplemental Requests  
for Information  
Dated January 22, 2024**

**Case No. 2024-00326**

**Question No. 2.58**

**Responding Witness: Tim A. Jones**

- Q. 2.58. Please refer to the Companies' response to JI 1.48.a., and respond to the following requests:
- a. Did the Companies also run high and low scenarios for ODP? If so, please provide the files. If not, please explain.
  - b. The response only provides data on projections for residential customers. Do the Companies have any projections for non-residential customer types (i.e., commercial and industrial) or was space heating electrification only evaluated for residential customers?
- A. 2.58.
- a. The Companies did not run a high and low scenario for ODP space heating because ODP already has a very high saturation of electric space heating, and that is not anticipated to change. However, ODP was included in high and low scenarios for customer growth, distributed generation, electric vehicles, and energy efficiency. In some cases, such as distributed generation and electric vehicles, the Companies took a top down approach to the High and Low load scenarios, so ODP is not broken out separately.
  - b. Space heating was only evaluated for residential customers. Any adoption that occurs among commercial and industrial customers above and beyond what is implied in the forecast would mean upside potential for the winter peak and overall energy forecast.