**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

| | | |
|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | **)** | **CASE NO. 2022-00098** |

# RESPONSES TO STAFF'S FIRST REQUEST FOR INFORMATION TO EAST KENTUCKY POWER COOPERATIVE, INC.

**DATED JUNE 28, 2022**

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

| | | |
|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | ) ) | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY** )
)
**COUNTY OF CLARK** )

Chris Adams, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Data Requests in the above-referenced case dated June 28, 2022, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Subscribed and sworn before me on this 18th day of July, 2022.

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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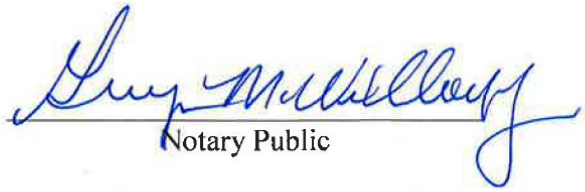
|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | **)** **)** | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY )**
**)**
**COUNTY OF CLARK )**

Darrin Adams**,** being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Initial Data Requests in the above-referenced case dated June 30, 2022, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Subscribed and sworn before me on this 18th day of July, 2022.



Notary Public

GWYN M. WILLOUGHBY
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Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | ) ) | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY** )
)
**COUNTY OF CLARK** )

Denise Foster Cronin, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Data Requests in the above-referenced case dated June 28, 2022, and that the matters and things set forth therein are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

Denise R. Foster Cronin

Subscribed and sworn before me on this 21st day of July, 2022.

William Blake Kinney
Notary Public

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

| | | |
|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | ) ) | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY** )
)
**COUNTY OF CLARK** )

Scott Drake, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Data Requests in the above-referenced case dated June 28, 2022, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Scott Drake

Subscribed and sworn before me on this 18th day of July, 2022.

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | **)** **)** | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY )**
**)**
**COUNTY OF CLARK )**

Robin Hayes**,** being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Data Requests in the above-referenced case dated June 28, 2022, and that the matters and things set forth therein are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

Robin Hayes

Subscribed and sworn before me on this 18th day of July, 2022.

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | ) ) | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY** )
)
**COUNTY OF CLARK** )

Craig Johnson, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Initial Data Requests in the above-referenced case dated June 30, 2022, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

Craig Johnson

Subscribed and sworn before me on this 18th day of July, 2022.

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | **)** **)** | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY )**
**)**
**COUNTY OF CLARK )**

Julia J. Tucker**,** being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Data Requests in the above-referenced case dated June 28, 2022, and that the matters and things set forth therein are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

Julia J. Tucker

Subscribed and sworn before me on this 21st day of July, 2022.

Gwyn M. Willoughby
Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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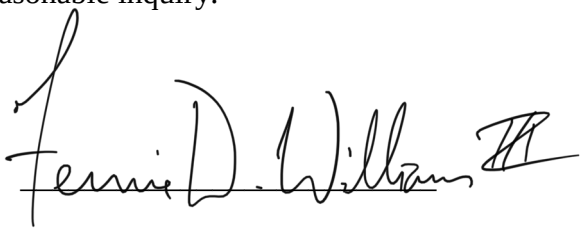
|---|---|---|
| **2022 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.** | **)** **)** | **CASE NO. 2022-00098** |

**CERTIFICATE**

**STATE OF KENTUCKY )**
**)**
**COUNTY OF CLARK )**

Fernie Williams**,** being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission's Initial Data Requests in the above-referenced case dated June 30, 2022, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.



Subscribed and sworn before me on this 21st day of July, 2022.

Notary Public

GWYN M. WILLOUGHBY
Notary Public
Commonwealth of Kentucky
Commission Number KYNP38003
My Commission Expires Nov 30, 2025

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 1**
**RESPONSIBLE PERSON: Chris Adams**

**Request 1.** Refer to Integrated Resource Plan (IRP), Section 1, page 8. Provide EKPC's most recent Annual Report regarding its participation in PJM Interconnection, Inc. (PJM).

**Response 1.** EKPC submitted its Integration Annual Report for 2021 in Post Case Files for Case No. 2012-00169. The Integration Annual Report for 2022 will be filed with the Commission on Friday, July 29, 2022, as prescribed in the Commission's recent Order in Case No. 2021-00103.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 2**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 2.** Refer to the IRP, Section 1, page 18.

**Request 2a.** Explain whether and how each of the four carbon prices listed in the GDS DSM evaluation were applied in the Resource Optimizer to determine a reasonable least cost resource portfolio.

**Response 2a.** The four carbon prices were not explicitly utilized in the Resource Optimizer.

**Request 2b.** Provide EKPC's avoided costs for energy and capacity in PJM.

**Response 2b.** EKPC's avoided energy cost is the EKPC residual aggregate load node Locational Marginal Price ("LMP") clearing price. Its current avoided capacity cost is the PJM Base Residual Auction ("BRA") clearing price for the applicable Delivery Year ("DY"). EKPC previously used the third Incremental Auction to the BRA as its

avoided capacity cost. In order to realize a full BRA avoided cost, EKPC would need to know the capacity could be avoided three years prior to delivery. Since many resources only become known within the final year or less to delivery, the third Incremental Auction pricing seems to be more appropriate for short lead notices. Additionally, EKPC distinguishes between dispatchable and non-dispatchable resources. Dispatchable resources are capable of supplying capacity when requested. Non-dispatchable resources do not have the ability to cause capacity to be available when requested. EKPC does not believe that non-dispatchable resources warrant a full avoided capacity payment.

**Request 2c.** EKPC indicates that it does not anticipate a requirement for a carbon adder to apply to generation resources. Explain whether EKPC ran the mid and high carbon prices applying to generation resources as a hypothetical scenario and, if so, provide a summary of those results.

**Response 2c.** EKPC did not run the mid and high carbon prices.

**Request 2d.** Explain whether EKPC is aware of any discussions at the federal level that are focusing on the potential for $CO_2$ emission limits as opposed to carbon prices as a way to limit carbon.

**Response 2d.** On June 30, 2022, the Supreme Court issued an adverse ruling to EPA on the Clean Power Plan / Affordable Clean Energy Rule stating that EPA is not authorized by Congress to cause generation shifting and reminded EPA that it must regulate under the three major programs, National Ambient Air Quality standards, New Source Performance Standard and hazardous air pollution (HAPs).

The EPA regulatory unified agenda for spring 2022 issued June 20, 2022 provided that the next carbon regulation attempt is scheduled for March 2023 and listed as Emission Guidelines for GHG emissions from fossil fuel-fired existing electric generating units.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 3**
**RESPONSIBLE PERSON: Denise Foster Cronin**

**Request 3.** Refer to the IRP, Section 2, pages 50–51 regarding capacity interconnection rights ("CIRs") for Effective Load Carrying Capability ("ELCC") resources. State whether there is any proposed or potential language being discussed in the PJM Planning Committee ("PC") with respect to CIRs for ELCC resources, and if so, provide any publically available document discussing the proposed or potential language.

**Response 3.** Please see the link below to the PJM PC Special Sessions for Capacity Interconnection Rights for ELCC Resources. The most recent documents are provided under Meeting Materials for June 24, 2022 entitled, "PC Special Session – CIRs for ELCC Resources." https://www.pjm.com/committees-and-groups/committees/pc

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 4**
**RESPONSIBLE PERSON: Denise Foster Cronin**

**Request 4.** Refer to the IRP, Section 2, pages 55–56. Provide an update regarding the PJM backlog of projects, stating what (if any) new information is available or if EKPC's plans with respect to the backlog have changed.

**Response 4**. On June 14, 2022 PJM submitted its "Interconnection Process Reform" filing to FERC. EKPC voted in favor of the PJM proposed changes to the interconnection process in the stakeholder process and joined with the PJM Transmission Owner group to submit supportive comments to FERC. EKPC anticipates the changes will significantly improve the process. If FERC does not approve the filing, PJM will remain in serial consideration of projects in the queue with no way to sift through the projects to allow "ready" projects to move forward.

The FERC recently issued a Notice of Proposed Rulemaking ("NOPR") addressing Generation Interconnection after PJM made its filing. EKPC supports FERC approving the PJM filing and not allowing the rulemaking process to delay the much-needed improvements being adopted for the PJM region. The link to the filing is provided below.

https://pjm.com/directory/etariff/FercDockets/6726/20220614-er22-2110-000.pdf

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 5**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 5.** Refer to the IRP, Section 2, page 56. Explain whether EKPC still believes that even though market and fuel process are significantly higher than they were in the fall of 2021, the bulk of the differences would impact short term operations, and that the market is expected to eventually turn back towards the price assumptions used in this study.

**Response 5**. Long term price forecasts continue to revert back near the data that was used in the 2022 EKPC IRP. 2023 would be higher than what was published.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST REQUEST FOR INFORMATION RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 6**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 6.** Refer to the IRP, Section 3, page 64. Explain the drivers behind the load factor increasing from 50 percent in 2022 to 54 percent in 2036.

**Response 6.** Winter Peak Demand is expected to increase from 3,309 MW in 2022 to 3,586 MW through 2036 and the summer peak demand is expected to increase from 2,500 MW in 2022 to 2,794 MW in 2036. Net Total Requirements are expected to increase from 14,421,062 MWh in 2022 to 16,838,980 MWh in 2036 representing an average annual increase of 1.1% in net total requirements.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**COMMISSION STAFF'S FIRST INFORMATION REQUEST DATED 06/28/2022**
**REQUEST 7**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 7.** Refer to the IRP, Section 3, page 65. Identify the specific dates upon which EKPC's all-time summer and winter peaks occurred.

**Response 7.** EKPC's all-time summer peak is 2,481 MW which occurred on August 9, 2007 at Hour Ending ("HE") 17:00 and EKPC's all-time winter peak is 3,507 MW which occurred on February 20, 2015 at HE 08:00.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 8**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 8.** Refer to the IRP, Section 3, page 70. Provide a breakdown of the estimated residential customer growth of almost 54,000 by region.

**Response 8.** See table below for total regional residential consumer growth through the forecast period.

| Economic Region | Residential Growth |
|---|---|
| Central | 9,162 |
| East | 960 |
| North | 10,338 |
| North Central | 19,868 |
| North East | 3,789 |
| South | 8,254 |
| South Central | 2,133 |
| Total | 54,504 |

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 9**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 9.** Refer to the IRP, Section 3, Tables 3-5 – 3-9, pages 73–74. Provide an update to the tables for 2021.

**Response 9.** Please see tables below which have been updated for 2021.

**Table 3-5**
**EKPC Recorded Annual Energy Sales (MWh) and Energy Requirements (MWh), 2016 - 2021**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Total Residential | 6,847,090 | 6,502,113 | 7,324,079 | 7,036,916 | 6,915,401 | 7,127,199 |
| Residential Seasonal | 416 | 534 | 621 | 663 | 662 | 489 |
| Small Commercial | 1,951,787 | 1,896,475 | 1,962,505 | 1,925,821 | 1,791,061 | 1,889,497 |
| Large Commercial/ Industrial | 3,296,495 | 3,395,430 | 3,425,613 | 3,314,391 | 3,251,726 | 3,367,170 |
| Public Authorities | 37,627 | 36,578 | 41,142 | 39,829 | 34,187 | 38,218 |
| Public Street and Highway Lighting | 9,940 | 9,325 | 8,796 | 8,770 | 8,771 | 8,249 |
| Total Sales | 12,143,355 | 11,840,456 | 12,762,756 | 12,326,390 | 12,001,809 | 12,430,821 |
| Office Use | 10,270 | 9,992 | 10,647 | 10,232 | 9,444 | 9,206 |
| Distribution % Loss | 4.1% | 4.0% | 3.5% | 3.6% | 3.9% | 3.5% |
| EKPC Sales to Members | 12,674,244 | 12,340,793 | 13,238,766 | 12,798,772 | 12,499,902 | 12,886,454 |
| EKPC Office Use | 8,203 | 8,374 | 8,451 | 7,891 | 9,444 | 7,631 |
| Transmission Loss (%) | 2.7% | 2.5% | 2.4% | 2.5% | 2.1% | 2.1% |
| Net Total Requirements | 13,039,953 | 12,680,111 | 13,576,581 | 13,140,304 | 12,786,403 | 13,154,676 |

**Table 3-6**

**Weather Normalized Coincident Peak Demands**

| Year | Season | Actual Peak MW | Adjusted Peak MW |
|---|---|---|---|
| 2016 | Winter | 2,890 | 3,002 |
| | Summer | 2,293 | 2,384 |
| 2017 | Winter | 2,871 | 3,135 |
| | Summer | 2,311 | 2,421 |
| 2018 | Winter | 3,437 | 3,349 |
| | Summer | 2,375 | 2,363 |
| 2019 | Winter | 3,073 | 3,380 |
| | Summer | 2,366 | 2,440 |
| 2020 | Winter | 2,723 | 3,144 |
| | Summer | 2,312 | 2,459 |
| 2021 | Winter | 2,862 | 3,230 |
| | Summer | 2,450 | 2,460 |

**Table 3-7**
**EKPC Weather Normalized Annual Energy Sales (MWh) and Energy Requirements (MWh),**
**2016 - 2021**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Total Retails Sales by Owner-Member Systems** | | | | | | |
| Recorded | 12,143,355 | 11,840,456 | 12,762,756 | 12,326,390 | 12,001,809 | 12,430,821 |
| Weather Normalized | 12,533,452 | 12,495,139 | 12,937,696 | 12,792,825 | 12,762,891 | 13,099,469 |
| **EKPC** | | | | | | |
| Recorded | 13,039,953 | 12,680,111 | 13,576,581 | 13,140,304 | 12,786,403 | 13,154,676 |
| Weather Normalized | 12,895,262 | 12,838,462 | 13,267,758 | 13,134,522 | 13,064,550 | 13,371,996 |

Note: Data is not normalized by class.

**Table 3-8**
**Energy Sales and Firm Coincident Demand**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Energy Sales (MWh)* | 12,674,244 | 12,340,793 | 13,238,766 | 12,798,772 | 12,499,902 | 12,886,454 |
| Coincident Peak Demand (MW)** | 2,783 | 2,760 | 3,323 | 2,927 | 2,611 | 2,726 |

* Total sales to members.

** Firm peak demand.

**Table 3-9**
**Energy Sales and Non-Firm Demand**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Energy Sales (MWh)* | NA | NA | NA | NA | NA | NA |
| Coincident Peak Demand (MW) | 107 | 111 | 114 | 146 | 112 | 151 |

* Interruptible energy is not recorded separately. Decrease in sales due to interruption is negligible.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 10**
**RESPONSIBLE PERSON: Robin Hayes**

**Request 10.** Refer to the IRP, Section 3, page 81. Provide additional explanation and support for how electricity rates were derived, including whether there has been an updated board-approved Financial Forecast since the 2015-2034 Financial Forecast was approved and if so, why that updated forecast was not used to derive rates.

**Response 10.** The EKPC Board of Directors approved a Long-Range Financial Forecast on May 14, 2019. This Long-Range Financial Forecast was used as the basis of the price assumptions for EKPC's portion of rates. EKPC also requested distribution rate assumptions through the forecast period from each Owner-Member cooperative ("owner-member") to complete the projected price assumptions used in our modeling.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 11**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 11.** Refer to the IRP, Section 3, page 82.

**Request 11a.** For the residential and small commercial sales equations, explain whether all of the variables listed were included in each of the 16-owner-member forecasts. If not, provide the regression equations showing the actual variables used to forecast residential and small commercial sales for each owner-member.

**Response 11a.** Where appropriate, these variables were used directly in the models or in the creation of variables used in the model. See response to Request 34.

**Request 11b.** Refer also to the IRP, Section 3, page 90. Explain why there are two heating degree day (HDD) variables included in the regression equations, the wide divergence of the base (30 versus 55) and whether there is any multicollinearity that needs to be addressed.

**Response 11b.** Two HDD break points are used to capture the increased intensity

of heating load as temperatures get colder. HDD55 being the base with HDD30 capturing the increased intensity of the HDDs occurring below the average temperature of 30 degrees. While these are correlated, they would only be correlated when the average temperature for the day is below 30. This helps the model capture the increased heating intensity of days with an average temperature below 30, thus improving model performance.

**Request 11c.** Refer also to the IRP, Technical Appendix, Vol. I. Load Forecast, page 13–14. Explain where the SAE variables discussed in the technical appendix are used in the equations or variables listed on page 82 of the IRP.

**Response 11c.** Households, personal income, consumer price index, are variables used in creating the SAE variables of Heat, Cool, Water Heat, and other. See response to Request 34 for more detail.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 12**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 12.** Refer to the IRP, Section 3, page 83. Explain further how each owner-member's load factor is derived in order to calculate its peak demand.

**Response 12**. Peaks are forecasted independent of energy using variables such as heating, cooling, base, weather, and other autoregressive terms. The two independent forecasts for peaks and energy are then used to calculate load factors. Load factors are used in analysis of the forecasts to ensure the peak and energy forecasts are rational together.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 13**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 13.** Refer to the IRP, Section 3, pages 84–89 and the IRP Vol. 1, Technical Appendix, Section 5, pages 33–38. Explain and reconcile the differences between the forecasted sales in each of the corresponding tables for each customer class.

**Response 13**. Residential Class - Updated 2020 with actual data. Forecasted monthly average use per customer changed due to new DSM assumption.

Seasonal Class - Updated 2020 with actual data. No change to the forecast.

Public Buildings Class - Updated 2020 with actual data. No change to the forecast.

Small Commercial Class - Updated 2020 with actual data. No change to the forecast.

Industrial Class - Updated 2020 with actual data. Forecast was updated to represent the most recent information available for a large customer's expansion.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 14**
**RESPONSIBLE PERSON: Scott Drake**

**Request 14.** Refer to the IRP, Section 3, page 95. If available, provide an explanation of any findings or lessons learned from the smart home pilot program offered by two different EKPC owner-members.

**Response 14.** EKPC and two owner-members are still gathering participation data pertaining to the Smart Home Pilot. Analysis of energy and demand data is not completed and findings are not summarized.

**EAST KENTUCKY POWER COOPERATIVE, INC.**
**PSC CASE NO. 2022-00098**
**FIRST INFORMATION REQUEST RESPONSE**

**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 15**
**RESPONSIBLE PERSON: Craig Johnson**

**Request 15.** Refer to the IRP, Section 4, page 97, stating "Spurlock 1 and 2 have had extensive modification and enhancements to comply with coal combustion residuals and effluent limitation guidelines." Provide a timeline of when these modifications and enhancements were made and provide details on each modification made to the Spurlock units.

**Response 15.** Bottom Ash Handling System - The 2015 EPA Effluent Limitations Guidelines rule required Spurlock units 1 and 2 existing wet bottom ash handling equipment to change to dry bottom ash handling equipment. In addition, a separate pyrites handling system with dewatering bins and settling basin was also installed. The new dry ash system eliminates the use of water to transport bottom ash to the ash pond. The bottom ash system for each unit has been replaced with a dry bottom ash collection system, which allows pneumatically conveyed bottom ash to the new silo located adjacent to the units. From the silo, the bottom ash is loaded onto trucks and

hauled to EKPC's onsite landfill. Construction began in January 2019. These new systems were placed into operation on December 31, 2020.

Wastewater Treatment System - A new wastewater treatment plant has been constructed to process FGD blowdown wastewater from Spurlock Units 1 and 2. The wastewater treatment plant provides a physical/chemical treatment of the FGD blowdown, which was required because of the proposed closure of the ash pond. The physical/chemical treatment removes solids and conditions the wastewater for certain usage. The sludge produced by the physical/chemical process is dewatered and transported by truck to the onsite landfill, with the water being recycled through the system. Construction began on January 2019. These new systems were placed into operation on August 29, 2021 for the Physical/Chemical Treatment and October 22, 2021 for the Thermal Evaporation System.

Fly Ash Handling System - A new fly ash storage silo has been constructed to handle fly ash generated by Spurlock Units 1 and 2. The new fly ash storage silo was necessary to ensure redundancy for fly ash removal because sluicing the ash to the ash pond is no longer be available. The construction on this silo began on January 2019 with the silo placed into operation on December 31, 2020.

Ash Pond Closure - Because the CCR Rule prohibits sluicing of CCR materials to the ash pond post April 11, 2021, EKPC applied via the EPA CCR PART A rule pursuant to the 103(f)(1) demonstration, technically infeasibility regulation to request EPA to authorize and grant EKPC more time to clean close by removal the existing 67-acre ash

pond. EKPC needed to repurpose 17 acres of the 67-acre ash pond due to its physical real estate constraints and no place to discharge these non-CCR flows. EPA granted a conditional approval in January 2022. EKPC responded to the conditional approval. However, EPA has not responded to the EKPC conditional approval at this time. EKPC is not wasting any time with the clean closure by removal. The CCR material is currently being transported and placed into the onsite dry ash landfill. After CCR materials are removed, the ash pond's existing dams will be left in place, new topsoil and seed will be applied over disturbed areas, and, as discussed below, a new Water Mass Balance ("WMB") pond is being established within the footprint of the original impoundment. Closure of the ash pond will begin after completion of the water mass balance pond and is expected to start no later than November 30, 2022. The ash pond closure is currently scheduled for completion in October 2025.

WMB Pond Chemical Treatment System - EKPC is repurposing 17 acres of the existing ash pond as a new lined WMB Pond, which will aid in settling constituents from various plant process flows including coal pile runoff stream, neutralization basins, clarifiers and air heater wash wastewater, non-chemical metal cleaning wastes, and storm water. The WMB Pond is needed because the existing ash pond, which received all plant process water, is being closed and the treatment provided by WMB Pond will allow EKPC to remain in compliance with its KPDES discharge permit. Construction of the WMB began in March 2021, after completion of the dry ash systems, and is expected to be completed by November 30, 2022.

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**REQUEST 16**
**RESPONSIBLE PERSON: Fernie Williams**

**Request 16.** Refer to the IRP, Section 4, pages 98–99. Provide the Capital Improvement Plan developed by the Nashville District Corps of Engineers Hydropower Program.

**Request 16.** Please see attached PDF *PSC DR16 - Capital Improvement MP for HYD_FINAL 09172021.pdf*.

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**REQUEST 17**
**RESPONSIBLE PERSON: Fernie Williams**

**Request 17.** Refer to the IRP, Section 4, page 99. Provide the number of subscribers to the Cooperative Solar Farm One as of June 30, 2022.

**Response 17.** As of June 30, 2022, there are 222 subscribers with 1,553 panels licensed in the Cooperative Solar Farm One.

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**REQUEST 18**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 18.** Refer to the IRP, Section 4, pages 105–110. Explain what changed in the Fixed Operating and Maintenance (O&M) costs and the Variable O&M costs from 2021 to 2022 for Spurlock, Gilbert, Smith CT, and Bluegrass CT.

**Response 18.** The Fixed Operating and Maintenance (O&M) costs and the Variable O&M costs from 2021 are actual values, while 2022 and forward are forecasted values.

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**REQUEST 19**
**RESPONSIBLE PERSON: Scott Drake**

**Request 19.** Refer to the IRP, Section 5.2, DSM Planning Process, page 112. Explain why EKPC did not evaluate or propose new demand-side management (DSM) programs for this IRP.

**Request 19.** The reason EKPC isn't proposing new DSM programs is a programmatic strategy. EKPC's current portfolio of DSM programs best meets the selection criteria for DSM programs. Those criteria include targeting cost-effective measures, minimizing lost opportunities and free-riders, addressing the priorities of our End-Use Retail Members ("retail member"), and matching the capabilities of our owner-members and contractors.

EKPC included two additional programs in the medium and high carbon cases. See Technical Appendix Volume 2, pages DSM-9 through DSM-12 for more information about the DSM analysis for the carbon cases.

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**REQUEST 20**
**RESPONSIBLE PERSON: Darrin Adams**

**Request 20.** Refer to the IRP, Section 6, pages 125-126.

**Request 20a.** Provide any potential operating problems identified by SERC Reliability Corporation ("SERC") for EKPC since the filing of EKPC's 2019 IRP report.

**Response 20a.** No operating issues have been identified on the EKPC system in the SERC annual assessments since the filing of EKPC's 2019 IRP report.

**Request 20b.** Explain if there are potential operating problems identified by SERC in its most recent study that are scheduled to be addressed by EKPC.

**Response 20b.** No operating issues were identified on the EKPC system in the most recent SERC assessment (which simulated conditions for the 2022 summer period).

**Request 20c.** Explain how SERC prioritizes the potential problems that need to be addressed on EKPC's system.

**Response 20c.** SERC does not explicitly prioritize issues identified through its assessment. SERC conducts studies annually to evaluate performance of the interconnected electric transmission systems within SERC for the upcoming summer and winter peak seasons. These studies are utilized to provide information to the North American Electric Reliability Corporation ("NERC") for its reliability assessment process and to SERC member companies to assist in their overall evaluation of reliability. SERC members are not required to take actions to address problems identified in the SERC assessments. These assessments are designed to be informative and provide awareness to SERC members regarding potential problems that could occur in the upcoming peak season. This allows those members to prepare to the extent possible and deemed necessary for those operating issues that may be encountered.

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**REQUEST 21**
**RESPONSIBLE PERSON: Darrin Adams**

**Request 21.** Refer to the IRP, Section 6, pages 127–130. Provide EKPC's planned transmission line re-conductors/rebuilds for the next three-year period.

**Response 21.** Please refer to Table 6-7, page 138, which provides a list of planned transmission line rebuilds by expected completion date. One additional transmission line rebuild is listed in Table 6-11, page 140 – this is the rebuild of the Griffin 69 kV tap line in association with a planned rebuild of the Griffin distribution substation scheduled for June 2023. EKPC does not anticipate any re-conductor projects (that is, replacement of conductor only without replacement of the transmission structures) in the three-year period.

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**REQUEST 22**
**RESPONSIBLE PERSON: Darrin Adams**

**Request 22.** Refer to the IRP, Section 6, page 129, regarding the planned improvements to the EKPC transmission system for the period from 2022 to 2024.

**Request 22a.** Identify the projects that EKPC plans to file future Certificate of Public Convenience and Necessity ("CPCNs") for and when EKPC plans to file the CPCNs, if any.

**Response 22a.** EKPC anticipates potentially filing an application for a CPCN for one of the projects referenced in the 2022-2024 period. This is a planned rebuild of the Fawkes-Duncannon Lane 69 kV line, which is scheduled for completion in December 2024. EKPC is considering rebuilding this line as a double-circuit 138 and 69 kV transmission line, which would be the rationale for the CPCN application for this project.

**Request 22b.** Provide the case number for any CPCNs that EKPC has already filed for that are related to the planned projects.

**Response 22b.** No applications for a CPCN have been filed by EKPC for any transmission projects referenced in this IRP.

**Request 22c.** If EKPC does not plan to file CPCNs for any of the listed projects, then explain how EKPC plans to fund those projects.

**Response 22c.** EKPC initially funds capital projects with available cash and proceeds from its syndicated credit facility, and, as projects close, seeks long-term financing from the Rural Utilities Service/Federal Financing Bank.

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**REQUEST 23**
**RESPONSIBLE PERSON: Craig Johnson**

**Request 23.** Refer to the IRP, Section 7, pages 143-144, regarding the paragraph entitled "Methodology for Five-Year Major Project Plan."

**Request 23a** Provide examples of recent smaller projects that did not require approval from the EKPC Board of Directors for implementation.

**Response 23a.** A good example of a smaller project would be maintenance of an asset such as the refractory lining in one of EKPC's Circulating Fluidized Bed boilers in Spurlock 3 and 4. The refractory protects and lines part of the inside of the boiler wall to protect the tubing from wear. The annual repair expense for this refractory is approximately $1.4 million per unit. Another example would be the overhaul of the mills that grind coal at each of the stations. Mill overhauls range in cost from $100,000 to $250,000. The frequency of the mill overhauls is based upon the amount of coal that has been processed. Maintenance to the electrostatic precipitators is another good example.

These devices capture fly ash particulate from the flue gas exiting the boilers. Repair to the ESP system is approximately $300,000.

**Request 23b.** Explain how EKPC differentiates between projects that require approval from the EKPC Board of Directors for implementation and those projects that do not require such approval.

**Response 23b.** Projects that are below $5 million do not require Board authorization. The Board has delegated this authority to the EKPC President and CEO. The Board does approve EKPC's annual budget which has the details of the work plan for the next year included.

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**REQUEST 24**
**RESPONSIBLE PERSON: Craig Johnson**

**Request 24.** Refer to the IRP, Section 7, pages 144–156. Explain how EKPC factors in possible supply chain constraints when planning its current five-year major projects timeline.

**Response 24.** EKPC plans for projects well in advance of the work. EKPC planning teams work with the Supply Chain department on mitigating the risk of delivery of critical items. For maintenance projects that tend to be cyclical, EKPC has established an inventory level of items that are needed for the work. EKPC works with equipment manufacturers on developing the scopes of work with a goal of identifying long lead time items.

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**REQUEST 25**
**RESPONSIBLE PERSON: Craig Johnson**

**Request 25.** Refer to the IRP, Section 7, Table 7-5, page 156. Refer also to the IRP, Section 8, page 164.

**Request 25a.** Explain the steps EKPC has taken to improve performance of the six landfill gas-to-energy facilities.

**Response 25a.** EKPC has taken multiple steps to improve performance in the LFGTE plants, looking towards the future and reliability. In the last couple of years, EKPC has updated all the switchgears to more modern technology, eliminating the obsolete controls previously in place, also standardizing the fleet for ease of operation. EKPC has also upgraded the fuel skids controls in the first three plants (Bavarian, Green Valley, Laurel Ridge) for a more precise fuel skid gas pressure that leads to more stable generation. The fuel skid upgrade also incorporated a variable frequency drive, which will reduce station load. EKPC is currently in the process of upgrading the individual generator set controllers, eliminating obsolete technology that will not be available for purchase in the future. EKPC has also installed on most of the fleet electronic air fuel

ratio controls, trying to get more stable generation as our fuel supply tends to move around throughout the day. Each unit in the fleet also gets some form of yearly overhaul maintenance depending on where it is in the life cycle[1] of the engine, thus increasing the ability to maintain full load as parts wear out.

**Request 25b.** Explain the process for overhauling a landfill gas unit.

**Response 25b.** Each unit in the fleet will get one of these overhauls yearly to replace worn parts and increase generation back to full load:

1. Top End Overhaul – Removal of cylinder heads and cleaning and removal of siloxane from top of pistons, install new cylinder heads. This is typically completed in one day, the unit is taken offline in the morning and put back on that evening.

2. In Frame Overhaul – Removal of cylinder heads and pistons and cylinder liners, install new liners, pistons and cylinder heads. This is typically completed in two days.

3. Major Overhaul – Disconnect mechanical and electrical connections on unit, remove unit from building and send to Caterpillar to take engine completely apart and replace worn parts. The generator end is also checked for problems and cleaned up.

[1] The normal life cycle of an engine from new is for it to get yearly maintenance of top end overhaul year 1, top end overhaul year 2, in frame overhaul year 3, top end overhaul year 4, top end overhaul year 5, major overhaul year 6, then the process repeats. Please see the response to Request 25b.

The unit comes back and EKPC reinstalls returns the fresh unit to operations. This is typically completed between 1 month to 1.5 months.

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**REQUEST 26**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 26.** Refer to the IRP, Section 8, page 164. State whether or not the hydro- generation facilities on the Kentucky River lock and dam system listed are the same ones detailed in EKPC's response to Commission Staff's First Request for Information, Item 48 in EKPC's 2019 IRP in Case No. 2019-00096.[2] If not, then explain what happened to the facilities since EKPC's 2019 IRP.

[2] *See* Case No. 2019-00096*, Electronic 2019 Integrated Resource Plan of East Kentucky Power Cooperative, Inc.* EKPC's Response to Commission Staff's First Request for Information (filed Mar. 16, 2020), Item 48.

**Response 26.** Yes, these are the same facilities.

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**REQUEST 27**
**RESPONSIBLE PERSON: Fernie Williams**

**Request 27.** Refer to the IRP, Section 8, page 167 and Table 8-4, page 167 and Table 8-5, page 168. EKPC indicates that the Resource Optimizer was set to run up to 2,500 unique expansion plans. Both Tables 8-4 and 8-5 illustrate the five lowest cost plans. However, the final plan, listed in Table 8-5, does not correspond to any of the five lowest cost plans.

**Request 27a.** Provide an outline of the input constraints used in the Resource Optimizer to obtain the five cases and final plan in the Tables 8-4 and 8-5.

**Response 27a.** The RTSim Resource Optimizer utilizes an expected load requirement range over the study period. This guides in the creation of the unique resource additions to meet the requirement in each of the runs. The system creates a selection of resources and performs several iterations of the RTSim production cost model to arrive at the least cost configurations.

**Request 27b.** Explain how EKPC settled on the final plan as the optimal resource plan going forward.

**Response 27b.** The top plan as determined by the Resource Optimizer was the foundation for the creation of the optimal plan. Review of the top plans, and the inclusion of the EKPC Sustainability goals, was performed to provide the final plan.

**Request 27c.** Provide a final decision-making criteria, including cost used to select the final plan to the ten lowest cost plans, including the lowest five plans listed in Table 8-5, from the 2,500 Resource Optimizer runs.

**Response 27c.** The projected fuel and market prices, along with the projected capital costs are the primary drivers for the plan creation. The capital costs for generation resources are listed on Table 8-2, on page 163. The resulting table below, in dollars, is from the Resource Optimizer for the top ten (10) plans:

Best 1: System profit: $146,459,040.
Best 2: System profit: $115,061,552.
Best 3: System profit: $83,863,144.
Best 4: System profit: $39,368,296.
Best 5: System profit: $7,970,816.
Best 6: System profit: $0.
Best 7: System profit: -$23,227,596.
Best 8: System profit: -$107,090,736.
Best 9: System profit: -$136,847,360.
Best 10: System profit: -$168,245,664.

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**REQUEST 28**
**RESPONSIBLE PERSON: Fernie Williams**

**Request 28.** Refer to the IRP, Section 8, Table 8-5, page 168 and Table 8-7, page 171. Table 8-7 lists multiple energy purchases in the second column of the table. Table 8-5 makes a distinction between seasonal PPA purchases and renewable resource additions. Many of the energy purchases listed in Table 8-7 appear as renewable resource additions, yet only the energy addition in 2022 corresponds to a seasonal PPA purchase. All the other purchases correspond to renewable resource additions. Explain whether the renewable resource additions are seasonal in nature in order to satisfy EKPC's winter energy exposure. If not, explain how the renewable purchase fit into Table 8-7.

**Response 28.** The renewable additions are expected to be annual products, summer as well as winter resources. The seasonal energy purchase is specifically aligned with the winter period, as a hedge for price certainty.

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**REQUEST 29**
**RESPONSIBLE PERSON: Fernie Williams**

**Request 29.** Refer to the IRP, Table 3-2, page 65, Table 8-6, page 170, footnote 14 and Table 8-7, page 171, and corrected Table 8-10 (filed May 17, 2022). Tables 3-2 and 8-10, though not an exact match, show projected energy needs over the forecast period.

**Request 29a**. Explain and reconcile the projected energy additions in Table 8-7 (column 2) with the projected purchases listed in corrected Table 8-10.

**Response 29a.** The projected energy purchases include the 100MW winter purchase and the projected addition of solar energy for the EKPC Sustainability Plan. The winter purchase is included in the Purchases-PJM Market, while the solar energy is included in the solar generation data.

**Request 29b.** Footnote 1 in Table 8-6 states that EKPC seeks to hedge its winter energy exposure for price stability, but has no winter capacity obligation to satisfy its PJM load serving obligation. Table 8-7 indicates that EKPC is capacity short in winter

beginning in 2028. Prior to joining PJM, EKPC planned its system to satisfy its winter capacity obligations. Explain whether EKPC still has an obligation to have sufficient capacity to satisfy its winter capacity obligations and, if not, explain why joining PJM relieved EKPC of that obligation.

**Response 29b.** PJM capacity planning is based on summer needs, and there is no specific requirement for winter capacity requirements at this time. As such, the IRP is focused on summer capacity requirements.

**Request 29c.** Footnote 1 in Table 8-6 and footnote 14 together indicate that all intermittent and seasonal purchases are to hedge EKPC's winter energy price exposure for price stability. Confirm that the final plan calls for EKPC to contract with renewable resources for the winter period only.

**Response 29c.** The winter energy purchase is not specifically limited to renewable resources, and will be a dependable, reliable energy purchase.

**Request 29d.** Explain whether solar renewable resources are as reliable or efficient at delivering energy during the winter as in the summer, including during the winter peak, and, if not, explain whether the MW purchases in the Final Plan are gross MW or delivered MW.

**Response 29d.** Solar resources are reliable and efficient in winter, but not at the winter peak demand period. The winter peaks typically occur before the sun is fully in position for maximum generation.

The table below is an example of a higher load day in winter, and the corresponding hourly generation of the Cooperative Solar Farm One (values are in MW):

| EPT | Load | CS1 |
|---|---|---|
| 1 | 2,238 | 0 |
| 2 | 2,255 | 0 |
| 3 | 2,268 | 0 |
| 4 | 2,367 | 0 |
| 5 | 2,431 | 0 |
| 6 | 2,543 | 0 |
| 7 | 2,691 | 0 |
| 8 | 2,674 | 0 |
| 9 | 2,696 | 0 |
| 10 | 2,505 | 1 |
| 11 | 2,294 | 0 |
| 12 | 2,094 | 1 |
| 13 | 2,006 | 3 |
| 14 | 1,900 | 5 |
| 15 | 1,780 | 7 |
| 16 | 1,766 | 6 |
| 17 | 1,753 | 4 |
| 18 | 1,822 | 0 |
| 19 | 1,993 | 0 |
| 20 | 2,070 | 0 |
| 21 | 2,099 | 0 |
| 22 | 2,130 | 0 |
| 23 | 2,073 | 0 |
| 24 | 2,077 | 0 |

The MW listed for renewable resources would be delivered maximum levels.

**Request 29e.** Provide a table showing the seasonal output differences EKPC has experienced with its own 8.5 MW solar installation on a monthly basis for the last five years.

**Response 29e.**

| MWh | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| JAN | | 666 | 544 | 715 | 596 | 567 |
| FEB | | 707 | 748 | 722 | 533 | 889 |
| MAR | | 1,293 | 1,280 | 1,030 | 1,380 | 1,192 |
| APR | | 1,432 | 1,421 | 1,314 | 1,368 | 1,190 |
| MAY | | 1,668 | 1,460 | 1,415 | 1,505 | 1,188 |
| JUN | | 1,595 | 1,477 | 1,590 | 1,232 | 1,310 |
| JUL | | 1,596 | 1,675 | 1,613 | 1,491 | - |
| AUG | | 1,479 | 1,647 | 1,453 | 1,331 | - |
| SEP | | 1,041 | 1,560 | 1,238 | 1,308 | - |
| OCT | | 1,218 | 1,215 | 987 | 952 | - |
| NOV | 890 | 605 | 895 | 978 | 855 | - |
| DEC | 694 | 571 | 604 | 594 | 652 | - |

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**REQUEST 30**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 30.** Refer to the IRP, page 171, Table 8-7, columns 7-8, which indicated that EKPC is adding capacity in both winter and summer beginning in year 2026-2031.

**Request 30a.** Explain why there are no capacity additions listed in any of columns 5-6.

**Response 30a.** There are no plans for base load capacity additions during the IRP study period.

**Request 30b.** Explain the nature of the capacity additions shown in columns 7-8.

**Response 30b.** These values are the projected capacity requirements, based on the load forecast, reserve requirements, and existing capacity in the EKPC portfolio.

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**REQUEST 31**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 31.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, pages 12-13.

**Request 31a.** Explain in greater detail how IHS Global Insight, Inc.'s (IHS) county level data is appropriated to each owner-member.

**Response 31a.** County level forecast data is retrieved from IHS Global Insights. Utilizing GIS shape files of each owner-member's service territory, the portion of each county served by each owner-member is determined. The owner-member's share of each county is applied to the county level data. This provides a representation of the owner-member's share of the county level data. Owner-member's portion of their counties served is added up to get their service territory totals. EKPC has divided its owner-members' service areas into seven economic regions based on the owner-member service territorial boundaries.

As an example, the county level economic data retrieved from IHS, shows the population of Estill County to be 14,240 in 2018. The GIS shape file reports that Jackson Energy serves 89.7% of Estill County. Multiplying the county total, by the percentage served yields a representation of the population served. In this example, Jackson serves 89.7% or 12,773 people of Estill County's total population of 14,240.

**Request 31b.** Explain whether any two owner-members in different regions have customers residing in the same county, and if so, how that situation is treated in assembling the seven regions and individual owner-member class forecasts.

**Response 31b.** Owner-members from different regions can both serve portions of the same county. Regions are divided up at the owner-member level instead of the county level. The owner-member's share of the counties they serve are summed to get their total. The sum of the owner-members in a geographic region are then summed to create the regions total. By using county shares to sum to the owner-member and region, a single county can contribute a portion to more than one region.

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**REQUEST 32**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 32.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, pages 13-17 generally.

**Request 32a.** Provide a copy of the final forecasting reports provided to the 16-owner members.

**Response 32a.** Please see attached zip file, "PSC DR32.a - Owner-member Forecast Reports.zip"

**Request 32b.** Provide a brief explanation of the regional differences that have emerged from the regional forecasts.

**Response 32b.** Forecasts are generated by owner-members. The owner-members' forecasts are added together by their assigned region to create a regional view. Largely, the differences that have emerged are based upon the economic differences that those

regions are experiencing. As an example, the Eastern region shows a reduction in population through the forecast period, while other regions are growing in population size.

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**REQUEST 33**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 33.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, page 13. Explain how the regional forecasts are used, if at all, in making the individual owner-member forecasts.

**Response 33.** Annual county-level projections are used to create a representation of the owner-member's service territory. This representation is converted to monthly values to be used in their modeling. The owner-member's portions of counties are summed to create regional views. Regional forecasts are not used for modeling, but used for analysis and reporting purposes.

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**REQUEST 34**

**RESPONSIBLE PERSON:** **Julia Tucker**

**Request 34.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, page 14. Provide a more detailed explanation of the derivation of the Heat, Cool, Water Heat and Other variables, and provide a numerical example as an illustration.

**Response 34.**

$$Use_{y,m} = Heat_{y,m} + Cool_{y,m} + Water\ Heat_{y,m} + Other_{y,m}$$

The above equation segments monthly electric use into heating, cooling, water heating, and other monthly components.

The heating component is expanded below.

$$Heat_{y,m} = HeatUse_{y,m} \times ResEIHeating$$

$$HeatUse_{y,m} = HHSizeIdx^{HHSizeElasticty} \times HHIncIdx^{HHincElasticity} \times ResPricIdx^{ResPriceElasticity} \times ResHDDIdx$$

The following elements of the equations incorporate historical and future heating appliance intensities, household size, income, electricity prices, and weather (heating degree days).

- ResEIHeating: Residential equipment intensity for heating appliances
- HHSizeIdx: Household size index
- HHSizeElasticity: Household size elasticity
- HHIncIdx: Household income index
- HHIncElasticity: Household income elasticity

- ResPriceIdx: Residential electricity price index
- ResPriceElasticity: Residential electricity price elasticity
- ResHDDIdx: Residential heating degree day index

The cooling component is expanded below.

$$Cool_{y,m} = CoolUse_{y,m} \times ResEICooling$$

$$CoolUse_{y,m} = HHSizeIdx^{HHSizeElasticty} \times HHIncIdx^{HHincElasticity} \times ResPricIdx^{ResPriceElasticity} \times ResCDDIdx$$

The following elements of the equations incorporate historical and future cooling appliance intensities, household size, income, electricity prices, and weather (cooling degree days).

- ResEICooling: Residential equipment intensity for cooling appliances
- HHSizeIdx: Household size index
- HHSizeElasticity: Household size elasticity
- HHIncIdx: Household income index
- HHIncElasticity: Household income elasticity
- ResPriceIdx: Residential electricity price index
- ResPriceElasticity: Residential electricity price elasticity
- ResCDDIdx: Residential cooling degree day index

The water heating component is incorporated with other.

The other component is expanded below.

$$Other_{y,m} = OtherUse_{y,m} \times OtherEqpIndex$$

$$OtherUse_{y,m} = HHSizeIdx^{HHSizeElasticty} \times HHIncIdx^{HHincElasticity} \times ResPricIdx^{ResPriceElasticity} \times DaysIdx$$

The following elements of the equations incorporate historical and future other appliance intensities, household size, income, electricity prices, and days per month.

- OtherEqpIndex: Index of other appliances (electric water heaters, electric cooking, refrigerators, freezers, dishwashers, clothes washers, electric driers, televisions, lighting)

- HHSizeIdx: Household size index
- HHSizeElasticity: Household size elasticity
- HHIncIdx: Household income index
- HHIncElasticity: Household income elasticity
- ResPriceIdx: Residential electricity price index
- ResPriceElasticity: Residential electricity price elasticity
- DaysIdx: Number of days per month (indexed to the average number of days per month)

A simplified numerical example for October 2019 is included below.

$$HeatUse_{2019,10} = 1.00^{0.15} \times 1.09^{0.25} \times 0.89^{-0.15} \times 0.02 = 0.0208$$

$$Heat_{2019,10} = 0.0208 \times 2{,}648.91 = 55.10$$

$$CoolUse_{2019,10} = 1.00^{0.15} \times 1.09^{0.25} \times 0.89^{-0.15} \times 0.12 = 0.1248$$

$$Cool_{2019,10} = 0.1248 \times 2{,}813.78 = 351.1597$$

$$OtherUse_{2019,10} = 1.00^{0.15} \times 1.09^{0.25} \times 0.89^{-0.15} \times 1 = 1.0398$$

$$Other_{2019,10} = 1.0398 \times 733.17 = 762.3501$$

$$Use_{2019,10} = 55.10 + 351.1597 + 762.3501 = 1{,}168.6098$$

The previous discussion and example is applied to multiple months and years resulting in dependent variables that are used in a least squares regression analysis.

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**STAFF'S FIRST REQUEST FOR INFORMATION DATED 06/28/2022**
**REQUEST 35**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 35.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, pages 12 and 21. Explain whether the regional forecast for the North Central region is the summation of the individual owner-member forecasts.

**Response 35.** Yes. Forecasts are generated by owner-member. Adding the owner-members' forecasts within the region together would yield the total for the region.

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**REQUEST 36**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 36.** Refer to the IRP, Technical Appendix Vol. 1, Load Forecast, page 18.

**Request 36a.** Explain whether IHS included pessimistic and optimistic economic forecasts in the data provided to EKPC and if so, why it did not use those forecasts.

**Response 36a.** IHS does not provide pessimistic and optimistic economic forecasts. Our forecast is based upon the economic forecast. Scenarios representing pessimistic and optimistic economic outcomes are generated from our final forecast.

**Requests 36b.** Explain the method by which EKPC settled on the formula to simulate the lower and higher economic growth scenarios and whether the ten-year periods for the two scenarios overlap.

**Response 36b.** To determine the low and high economic growth scenarios, a ten-year running average of the percent change in weather normalized energy sales was analyzed to determine the a minimum and maximum percent changes. The lowest 10-year average between 2000 and 2020 was 0%, while the highest was 1.8%. The rolling average was 0.6%. The differences between the rolling average and the low and high were applied to generate the high and low scenarios. This reduced the base by 0.6% for the low case, and increased the base by 1.2% for the high case.

**Request 36c.** Explain what the lower and high percentage growth rates are as a base forecast.

**Response 36c.** For the base case the 15-year growth rate is 1.5%, the low case is 0.9% and the high case is 2.7%.

| | Low | Base | High |
|---|---|---|---|
| 5 year | 2.2% | 2.7% | 3.6% |
| 10 year | 1.1% | 1.7% | 2.7% |
| 15 year | 0.9% | 1.5% | 2.7% |

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**REQUEST 37**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 37.** Refer to the IRP, Technical Appendix Vol. I, Load Forecast, pages 16, and 26–29. Provide a complete copy of the 2020 Residential end-use survey report.

**Response 37.** Please see attached PDF *37. 2020 Owner-member End-Use Survey Report – CONFIDENTIAL.*pdf.".

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**REQUEST 38**
**RESPONSIBLE PERSON: Scott Drake**

**Request 38.** Refer to the IRP, Technical Appendix Vol. 2, page DSM-4.

**Request 38a.** Discuss how EKPC had a Total Resource Cost ("TRC") historically higher than 1.0 for the Cares – Low Income Program.

**Response 38a.** The following table shows the TRCs for the CARES Low-Income program for the 2012, 2015, 2019, and 2022 IRPs:

| *IRP* | *Low Income TRC* |
|---|---|
| *2012* | 1.71 |
| *2015* | 1.34 |
| *2019* | 0.96 |
| *2022* | 1.15 |

Historically, the CARES Low-income program's TRCs have been at or above 1.0, excluding the 2019 IRP, due to the avoided energy and capacity costs the program offsets versus the cost to implement the program.

**Request 38b.** Explain what happened to the cost effectiveness of the program.

**Response 38b.** The major drivers of the program's cost-effectiveness are (1) the avoided costs for energy and capacity; (2) the participation levels; (3) measure mix; and (4) the discount rate. The avoided energy and capacity costs from PJM fluctuates resulting in slight changes in the TRC.

**Request 38c.** Explain why EKPC should continue the residential energy audit program.

**Response 38c.** The Residential Energy Audit program is the online Virtual Energy Assessment tool retail members can utilize to evaluate the efficiency of their home and obtain energy efficiency improvements along with rebate program information. The use of this new technology reduces the number of trips to the home by an energy advisor, which reduces costs. All 16 owner-members of the EKPC system offer this tool. Owner-members' energy advisors, customer service representatives and other staff, promote the use of the online assessment prior to dispatching a truck to the residence. The cost-effectiveness of the program is based on EKPC's costs to provide the service without taking into account the cost savings from reduced truck runs for the 16 owner-members.

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**REQUEST 39**
**RESPONSIBLE PERSON: Scott Drake**

**Request 39.** Refer to the IRP, Technical Appendix Vol. 2, Exhibit DSM-1, 2021 Potential Study, page 1. Provide the most recent avoided energy and capacity cost projections for electricity.

**Response 39.** The following table contains the avoided energy and capacity cost projections for electricity that are referenced in Exhibit-1, 2021 Potential Study, page 1.

**Winter is season beginning in the year. i.e. 2021 is 2021-2022** **UPDATED for 2021**

| | Avoided Cost Inputs (Nominal Dollars) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Year* | Electric Energy Avoided Costs (EE) | | | | | Capacity Avoided Costs | | | Avoided T&D Costs |
| | Winter Peak Energy | Winter Off-Peak Energy | Summer Peak Energy | Summer Off-Peak Energy | | Summer Generation Capacity | Winter Generation Capacity | | Avoided Transmission Capacity |
| | (¢/kWh) | (¢/kWh) | (¢/kWh) | (¢/kWh) | | ($/kW-YR) | ($/kW-YR) | | ($/kW-YR) |
| *2021* | 3.44 | 2.64 | 3.24 | 2.22 | | $ 9.13 | $ - | | $ 23.76 |
| *2022* | 3.18 | 2.46 | 3.10 | 2.10 | | $ 36.50 | $ - | | $ 24.31 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *2023* | 3.19 | 2.47 | 2.99 | 2.03 | | $ 55.16 | $ - | | $ 24.87 |
| *2024* | 3.22 | 2.53 | 2.97 | 2.05 | | $ 60.45 | $ - | | $ 25.44 |
| *2025* | 3.29 | 2.57 | 3.03 | 2.12 | | $ 67.51 | $ - | | $ 26.02 |
| *2026* | 3.37 | 2.60 | 3.08 | 2.14 | | $ 74.62 | $ - | | $ 26.62 |
| *2027* | 3.41 | 2.60 | 3.12 | 2.17 | | $ 77.92 | $ - | | $ 27.23 |
| *2028* | 3.45 | 2.65 | 3.15 | 2.17 | | $ 80.04 | $ - | | $ 27.86 |
| *2029* | 3.49 | 2.67 | 3.19 | 2.23 | | $ 78.33 | $ - | | $ 28.50 |
| *2030* | 3.53 | 2.68 | 3.23 | 2.23 | | $ 79.50 | $ - | | $ 29.16 |
| *2031* | 3.53 | 2.69 | 3.27 | 2.23 | | $ 85.00 | $ - | | $ 29.83 |
| *2032* | 3.53 | 2.73 | 3.25 | 2.24 | | $ 87.72 | $ - | | $ 30.51 |
| *2033* | 3.69 | 2.87 | 3.26 | 2.28 | | $ 90.00 | $ - | | $ 31.21 |
| *2034* | 3.94 | 3.09 | 3.55 | 2.50 | | $ 92.58 | $ - | | $ 31.93 |
| *2035* | 4.21 | 3.34 | 3.89 | 2.77 | | $ 95.07 | $ - | | $ 32.67 |
| *2036* | 4.57 | 3.68 | 4.28 | 3.07 | | $ 99.04 | $ - | | $ 33.42 |

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**REQUEST 40**
**RESPONSIBLE PERSON: Scott Drake**

**Request 40.** Refer to the IRP, Technical Appendix Vol. 2, Exhibit DSM-1, 2021 Potential Study, pages 3–4.

**Request 40a.** List all owner-members of EKPC that currently have AMI for their DSM programs.

**Response 40a.** All 16 owner-members of EKPC have Automated Meter Reading ("AMR") systems capable of obtaining at least daily usage readings. Many have advanced meter reading systems, Automated Meter Infrastructure ("AMI"), capable of obtaining hourly usage readings and capable of fast communication with down-line equipment such as direct load control switches. All owner-members either are fully deployed with AMI or are transitioning to AMI.

**Request 40b.** State whether or not any of the Potential Residential or Commercial/Industrial DSM Programs will be implemented, as well as any reasons why or why not.

**Response 40b.** EKPC offers the following Demand Response programs listed on page 4:

a. Residential Programs
   i. DLC AC (Smart Thermostat)
   ii. DLC AC (Switch)
   iii. DLC Water Heating – maintenance of existing program only

b. C&I Programs
   i. DLC AC (Switch)
   ii. Interruptible Rate

EKPC and its owner-members are evaluating a potential new Demand Response program to incentive residential Electric Vehicle ("EV") owners to charge their EVs during off-peak demand hours.

**Request 40c.** Explain if EKPC has plans for incorporating any additional DSM programs.

**Response 40c.** After evaluating all cost-effective DSM programs, both energy efficiency and demand response programs, EKPC has no current plans to incorporate additional DSM programs with the exception mentioned in the response in 40.b. EKPC and its owner-members reviewed structure and operations of the existing programs. As a result of the reviews, EKPC requested modifications to two (2) existing DSM programs (CARES Low-income program and the Button-up Weatherization program). The Commission approved those modifications on May 23, 2022.

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**REQUEST 41**
**RESPONSIBLE PERSON: Scott Drake**

**Request 41.** Refer to the IRP, Technical Appendix Vol. 2, Exhibit DSM-1, 2021 Potential Study, Appendix C, pages C-3 through C-9.

**Request 41a.** Explain the different scenarios represented in the tables on those pages.

**Response 41a.** Appendix C includes tables of Maximum Achievable Potential ("MAP") and Realistic Achievable Potential ("RAP") for three segments: Residential energy efficiency, commercial and industrial energy efficiency, and demand response.

Pages C1-C3 cover residential energy efficiency by end use.

Pages C4-C7 cover commercial and industrial energy efficiency by end-use.

Pages C8-C9 cover demand response by program.

Within each segment, MAP and RAP are shown separately for energy (MWh) and demand (MW) savings. Finally, each category of MAP and RAP is presented both as incremental potential by year, and cumulative potential by year. The cumulative potential is simply the sum of the incremental potential from the start year (2022) to the year in question.

**Request 41b.** Explain the rationale for not implementing each of the commercial and industrial programs and the cost effectiveness scores for each program listed.

**Response 41b.** Please see EKPC's response to Request 19, which explains the rationale for not including commercial and industrial programs. The Technical Potential Study provided by GDS Associates did not provide cost-effectiveness scores for the commercial & industrial programs listed in Appendix C. These programs were not evaluated for the DSM portfolio in this IRP.

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**REQUEST 42**
**RESPONSIBLE PERSON: Scott Drake**

**Request 42.** Refer to the IRP, Technical Appendix Vol. 2, page DSM-6. Provide all presentations from the EKPC DSM collaborative meetings in 2021.

**Response 42.** Please see attached zip folder *PSC DR 42 - Collaborative Presentations.zip*.

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**REQUEST 43**
**RESPONSIBLE PERSON: Scott Drake**

**Request 43.** Refer to the IRP, Technical Appendix Vol. 2, page DSM-13. Explain how the $3 million budget for the EE Program was determined.

**Response 43.** The $3 million budget for the EE program was determined by reviewing actual results in 2020 and increasing participation for several DSM programs. The $3 million budget is also consistent with the budget guidelines from the 2019 IRP.

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**REQUEST 44**
**RESPONSIBLE PERSON: Scott Drake**

**Request 44.** Refer to the IRP, Technical Appendix Vol. 2, Exhibit DSM-3. Explain in detail how a 5 percent discount rate for TRC and RIM was determined.

**Response 44.** The 5 percent discount rate was based on a forecast of EKPC's Weighted Average Cost of Capital for 2021 when the DSM program cost-effectiveness evaluations were being developed.

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**REQUEST 45**
**RESPONSIBLE PERSON: Scott Drake**

**Request 45.** Refer to the IRP, Technical Appendix Vol. 2, Exhibit DSM-9.

**Request 45a.** Explain what the PJM Peak Shaving Adjustment (PSA) is.

**Response 45a.** PJM offers the Peak Shaving Adjustment program to load serving entities having direct load control resources (i.e. switches and thermostats) or similar load reducing resources or services.

**Request 45b.** Explain how the PJM PSA operates.

**Response 45b.** EKPC would develop a plan that defines a temperature-humidity index ("THI") threshold. Once the defined threshold is crossed, EKPC would dispatch the demand response resources, reducing the load during the peak energy consumption event.

**Request 45c.** Explain how EKPC can monetize the direct load control through the PJM PSA.

**Response 45c.** EKPC would be able to realize a savings due to having the direct load control switches and thermostats recognized through PJM's Peak Shaving Adjustment program to reduce EKPC load forecast and related capacity obligation.

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**REQUEST 46**
**RESPONSIBLE PERSON: Scott Drake**

**Request 46.** State how the MAP and RAP cost effectiveness changes under different carbon scenarios.

**Response 46.** GDS Associates did not calculate the MAP and RAP cost-effectiveness results for the different carbon scenarios. However, the TRC ratio of 1.54 for EKPC's base case EE portfolio is comparable to the base case RAP TRC ratio of 1.67. The base case EE portfolio can serve as a useful proxy for the RAP when it comes to cost-effectiveness. In preparing this response, EKPC calculated the cost-effectiveness of its EE portfolio using the MID carbon case adder ($24.44/MWh in 2022). The TRC for the EE portfolio using the MID carbon case adder is 2.60. This is approximately 70% higher than the base case TRC. Using the same % increase, the RAP TRC for the MID carbon case would be 2.82.

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**REQUEST 47**
**RESPONSIBLE PERSON: Denise Foster Cronin**

**Request 47.** Identify those sections of PJM's current tariff and any current PJM manual that establish the capacity requirements for EKPC discussed on page 5 of the IRP.

**Response 47.** EKPC is both a Load Serving Entity and a Capacity Market Seller in PJM. The PJM Reliability Assurance Agreement ("RAA") sets forth the responsibilities of a Load Serving Entity; the PJM Open Access Transmission Tariff ("OATT") sets forth the responsibilities of a Capacity Market Seller.

Load Serving Entity

"Load Serving Entity" ("LSE") is defined in the RAA as "any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region. LSE shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own

supply of electric power and energy and use of transmission and ancillary services. EKPC acts as agent for its 16 owner-members and takes on the LSE role in PJM.

The purpose of the RAA is "to ensure that adequate Capacity Resources, including planned and Existing Generation Capacity Resources, planned and existing Demand Resources, and Energy Efficiency Resources will be planned and made available to provide reliable service to loads within the PJM Region, to assist other Parties during Emergencies and to coordinate planning of such resources consistent with the Reliability Principles and Standards." RAA, Article 2.

Article 7 of the RAA pertains to the LSE's capacity obligation. It allows LSEs to Self-Supply their capacity obligation by submitting Sell Offers of their resources into the BRA in accordance with PJM Tariff, Attachment DD. See also, PJM Tariff, Attachment DD, Section 5.1.[2] PJM Tariff, Attachment DD details the various parameters of the BRA and the mechanics for conducting the auction.

[2] "In accordance with the Reliability Assurance Agreement, each Load Serving Entity is obligated to pay a Locational Reliability Charge for each Zone in which it serves load based on the Daily Unforced Capacity Obligation of its loads in such Zone. An LSE may offset the Locational Reliability charge for a Delivery Year, in whole or in part, by: (a) Self-Supply of Capacity Resources in the Base Residual Auction or an Incremental Auction; (b) offering and clearing Capacity Resources in the Base Residual Auction or an Incremental Auction (but only to the extent of the additional resources committed to meet Unforced Capacity Obligations through such Incremental Auction); (c) receiving payments from Capacity Transfer Rights; or (d) offering and clearing Qualifying Transmission Upgrades in the Base Residual Auction." PJM Tariff, Attachment DD, Section 5.1.

RPM auctions clear supply against a Variable Resource Requirement Curve. That curve is constructed pursuant to the requirements in PJM Tariff, Attachment DD. PJM Tariff, Attachment DD, Section 5.10(a). The Reserve Margin data point essential to the construction of the curve is defined in RAA. PJM Tariff, Attachment DD, Section 5.10(a)(1). The determination of the Reserve Margin required to be met for any particular Delivery Year includes many factors. Key among them is the Forecast Pool Requirement, which is calculated by PJM pursuant to Schedule 4 of the RAA. PJM Manual 18, Section 3 provides additional detail about the PJM Installed Reserve Margin and Reliability Analysis.

The Forecast Pool Requirement shall be established to ensure a sufficient amount of capacity to meet the forecast load plus reserves adequate to provide for the unavailability of Generation Capacity Resources, load forecasting uncertainty, and planned and maintenance outages. RAA, Schedule 4 sets forth guidelines with respect to the Forecast Pool Requirement. Specifically, Schedule 4 requires, "No later than three months in advance of each Base Residual Auction for a Delivery Year, and after consideration of the recommendation of the Members Committee, the PJM Board shall establish the Forecast Pool Requirement, including the PJM Region Installed Reserve Margin for all Parties, including FRR Entities, for such Delivery Year. Unless otherwise agreed by the PJM Board, the Forecast Pool Requirement and PJM Region Installed Reserve Margin for such Planning Period shall be considered firm and not subject to re-determination

thereafter." Section C of Article 4 sets forth the calculation methodology for the Forecast Pool requirement.

PJM Tariff, Attachment DD, Section 5.10(a)(1) sets forth the methodology for establishing the Variable Resource Requirement Curve used in conducting capacity auctions. They are locational and are calculated prior to each auction conducted.

Article 8 of the RAA details how the monthly billing for the capacity obligation of entities that do not elect the Fixed Resource Requirement is calculated. Since there is a BRA and Incremental Auctions, there is need to account for the resource commitments from all the auctions for a particular Delivery year in calculating the capacity charges applicable to an LSE. Thus, the ultimate capacity obligation of an LSE is a function of the clearing of the various auctions for a delivery year.

Capacity Market Seller

As noted above, EKPC is also a Capacity Market Seller and is required to offer its existing capacity generation resources, including resources under bilateral contract commitment to EKPC, into the PJM capacity auctions. See PJM Tariff, Attachment M, Section II.C. PJM determines the quantity of megawatts of available installed capacity that Capacity Market Sellers must offer in any RPM auction. See RAA, Section 5.6.6.

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**REQUEST 48**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 48.** Given PJM's reported reserve margins in the summer of 2022 and locational marginal prices (LMPs) seen during certain peak periods so far this summer, explain whether EKPC believes that PJM is assigning appropriate capacity values to generation resources.

**Response 48.** PJM does not assign capacity values to generation resources. Capacity values are determined based on the market clearing fundamentals. Excess generation creates low clearing prices and generation scarcity sets higher clearing prices. EKPC remains active in the PJM committee structures to ensure that its views on the capacity market are being considered.

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**REQUEST 49**
**RESPONSIBLE PERSON: Julia Tucker**

**Request 49.** Describe the effects, if any, of extremely high LMPs during certain summer peak periods (such as recent LMPs in excess of $3,000/MW) on costs for EKPC members' customers, and describe what actions EKPC is currently taking and plans to take to mitigate exposure to such costs.

**Response 49.** EKPC hedges its exposure to high market prices by ensuring it has adequate resources to cover its load. When the market prices are lower than EKPC's resources, then EKPC purchases from the market and its resources are not dispatched. When the PJM market price is higher than the EKPC resources, then the EKPC generating resources are dispatched into the market. This allows the EKPC owner-members to be hedged against the high market prices.