COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	**)** **)** **)** **)**	**CASE NO. 2025-00087**

RESPONSES TO STAFF'S SECOND INFORMATION REQUEST

TO EAST KENTUCKY POWER COOPERATIVE, INC.

DATED MAY 15, 2025

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Christopher E. Adams, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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.

Christopher E. Adams

Subscribed and sworn before me on this 5th day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

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 Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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.

Darrin Adams

Subscribed and sworn before me on this 5th day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Greg Cecil, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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.

Greg Cecil

Greg Cecil

Subscribed and sworn before me on this 3rd day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

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 Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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 5th day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

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 Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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 5th day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2025 INTEGRATED RESOURCE PLAN OF EAST KENTUCKY POWER COOPERATIVE, INC.	))))	**CASE NO. 2025-00087**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Jerry Purvis, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Commission Staff's Second Request for Information in the above-referenced case dated May 14, 2025, 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.

Jerry Purvis

Subscribed and sworn before me on this 5th day of June, 2025.

Terri K. Combs

TERRI K. COMBS
Notary Public
Commonwealth of Kentucky
Commission Number KYNP17358
My Commission Expires Dec 20, 2028

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 1
RESPONSIBLE PARTY: Christopher E. Adams

Request 1. Refer to EKPC's 2025 Integrated Resource Plan (IRP), pages 3-4, regarding PJM geographical load forecast for transmission purposes.

a. Verify that EKPC has its own zone for PJM load forecast purposes.

b. State how EKPC and PJM's load forecasts influence each other.

Response 1.

a. Yes. For PJM's load forecasting purposes, it defines a transmission zone for EKPC. The EKPC transmission zone for PJM forecasting purposes is not equivalent to EKPC's entire system load.

b. EKPC's and PJM's load forecasts have different purposes and are developed independently of each other except for EKPC providing PJM information about large load shifts. PJM Manual 19 Attachment B describes guidelines for load adjustments. PJM requests that EKPC provide PJM information regarding large load shifts that should be considered for inclusion in the

PJM load forecast. Additionally, please see the Commission's findings in the May 20, 2025 Order in Case No. 2024-00310 that outlines the difference between EKPC's and PJM's load forecasting.[1]

[1] *Electronic Application of East Kentucky Power Cooperative, Inc. for 1) a Certificate of Public Convenience and Necessity to Construct a New Generation Resource; 2) a Site Compatibility Certificate; and 3) Other General Relief,* Case No. 2024-00310, May 20, 2025 Order at 38 (Ky. PSC. May 20, 2025).

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 2
RESPONSIBLE PARTY: Christopher E. Adams

Request 2. Identify key differences in the EKPC and PJM load forecast methodologies. Refer to IRP, page 9. Explain the difference in methodology between the 2022 load forecast and the 2024 Long Term Load Forecast (LTLF).

Response 2. The key difference between the EKPC and PJM load forecast is that EKPC forecasts its entire system load while PJM forecasts the load defined as the transmission owner's zone.

The methodologies used in the EKPC 2022 and 2024 Long-Term Load Forecasts ("LTLF") are very similar. The data series that are forecast, input data, and model structures did not change between the two vintages. EKPC also included updated assumptions for expected industrial load, demand side management, and an explicit forecast for electric vehicles. See *Rebuttal_-_J._Tucker_-_Final.pdf* as submitted in Case No. 2024-00370 on March 31, 2025.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 3
RESPONSIBLE PARTY: Christopher E. Adams

Request 3. Refer to IRP, page 11.

a. Explain how EKPC calculated and decided to use a 7 percent winter reserve margin for the 2025 IRP.

b. Calculate the extra generation cost associated with the use of a 7 percent winter reserve margin compared with the prior zero percent winter reserve margin, using the preferred portfolio selected.

c. Explain why a winter reserve margin was not previously used.

Response 3.

a. Please see the May 20, 2025 Order in Case 2024-00310 for a discussion by the Commission regarding the shift to a 7% reserve margin.[2] EKPC is a winter peaking system, and thus it is necessary and reasonable to plan for a generation portfolio to both meet expected forecasts and account for these unknown risks. On average, the actual peak load during recent winter storm events was 12% higher than forecasted. A portion of that increase has been included in the revised

[2] Case No. 2024-00310, May 20, 2025 Order.

2024 LTLF; however, there remains the risk of an unexpected extreme weather event or generator outage. EKPC quantified the risk by analyzing the 1 in 10 probability of extreme weather events and spreading that risk over the planning horizon, with an extreme weather event occurring every two years for a 48-hour period within each of those two-year periods. This is consistent with actual events in Winter Storms Elliott, Gerri and Enzo, which were multiple-day cold weather events, driving load saturation from residential consumption. EKPC's load forecast assumes normal winter peak producing temperature of -2°F. The normal assumption for the hourly load shape on the winter peak day is based on EKPC's typical winter load shape with a morning peak followed by a valley and a late afternoon peak. The extreme event used in this analysis assumes -13°F as the peak producing temperature every two years. Rather than a typical winter peak day hourly shape, the event assumes a 48-hour event with a shape similar to Winter Storm Elliott where load reached peak levels for an extended period of time. The Reserve Margin of 7% reflects this inherent risk above the base forecast and enables EKPC to increase reliability while also improving the owner-members' hedge against PJM energy market prices during peak winter periods. The analysis compares the normal one-in-two peak load forecast ("normal") from the 2024 LTLF to a one-in-ten extreme weather ("extreme") event occurring for 48 hours every other forecast year. The result of that comparison is a seven percent difference between normal and extreme weather peak loads. Refer to the attached Excel spreadsheet, Staff 3a - Extreme Event vs Forecast.xlsx.

b. EKPC did not calculate the difference in cost of generation required to meet either a 0% or 7% reserve margin. This would require both a production cost and financial modeling effort that would be unduly burdensome and outside the scope of this IRP, which is a snapshot in time based

on best-available data at the time of preparation. The cost to reach the specified 7% reserves is noted in the 2025 IRP, Section 10, Financial Planning on page 220.

c. Prior to joining PJM in 2013, EKPC planned its system with a 12% winter reserve margin. It was necessary at that time to carry enough reserves to meet the energy displaced by the single largest contingency (Spurlock Unit 2). Part of the benefit of joining PJM is that expenses related to generation capacity are based on the summer demand levels. That meant that EKPC carried enough summer capacity to meet its PJM load obligation and had excess to sell into the capacity market at a net benefit. EKPC could then transact within PJM to meet winter energy requirements through the energy markets or through bilateral Purchased Power Agreements. EKPC was able to purchase energy and serve load during the Polar Vortex of January 2014; however, EKPC was unable to recover purchased power costs in excess of its highest cost unit through the Fuel Adjustment Clause. EKPC purchased the Bluegrass Generation Station shortly after the Polar Vortex in order to carry enough winter capacity to meet its expected peak demand. This level of capacity was thought to be adequate; however, three distinct events occurred which necessitated the reinstatement of a winter capacity margin. One, Winter Storm Elliott in December 2022 resulted in substantially higher peak demand than forecasted. Two, EKPC's 2024 long-term load forecast shows increased peak winter demand needs over the 2022 long-term load forecast. Three, the Commission issued several orders stating that it has no desire for regulated utilities in Kentucky

to rely on wholesale energy markets for capacity and energy.[3] The seven percent reserve margin adequately mitigates the risk of unforeseen events such as extreme winters or unit outages.

[3] Case No. 2014-00226, In the Matter of an Examination of the Application of the Fuel Adjustment Clause of East Kentucky Power Cooperative, Inc. from November 1, 2013 Through April 30, 2014 (Ky. P.S.C Order, Jan., 30, 2015); Case No. 2022-00402, In the Matter of the Electronic Joint Application of Kentucky Utilities Company and Louisville Gas And Electric Company for Certificates of Public Convenience and Necessity and Site Compatibility Certificates and Approval of a Demand Side Management Plan and Approval of Fossil Fuel-Fired Generating Unit Retirements (Ky. P.S.C. , Nov. 6, 2023)

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 4
RESPONSIBLE PARTY: Christopher E. Adams

Request 4. Refer to IRP, page 12, regarding PJM exclusion of Equivalent Forced Outage Rate Demand (EFORd) from determining reserve margin. State whether and how EFORd is still used in EKPC's generation selection modeling or selection of portfolios.

Response 4. Equivalent Forced Outage Rate Demand (EFORd) remains an industry standard metric representing the portion of time a unit is in demand but is unavailable due to forced outages or deratings.[4] EKPC utilizes its generation units' historical EFORd, and estimated EFORd for planned units, within the RTSim production cost modeling to simulate forced outage or derates.

[4]https://www.pjm.com/-/media/DotCom/documents/manuals/m22.pdf#:~:text=Equivalent%20Demand%20Forced%20Outage%20Rate%20The%20portion,due%20to%20forced%20outages%20and%20forced%20deratings.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 5
RESPONSIBLE PARTY: Christopher E. Adams

Request 5. Refer to IRP, page 13.

a. Confirm that the Hydro Purchased Power Agreement (PPA) was not renewed.

b. Explain how EKPC decided to include the 321 MW of planned solar and the Hydro (PPA) as existing generation resources for the IRP.

c. State how EKPC decided to construct the 321 MW of planner solar. Provide any modeling performed.

d. Provide a description of any changes to EKPC's preferred portfolio based on the non-renewal of the Hydro PPA.

e. Refer to IRP, page 14 and Case No. 2024-00129, Application, Direct Testimony of Julia J. Tucker, Exhibit JJT-1 (filed confidentially), in which EKPC opted to acquire existing, unbuilt solar projects instead of entering into PPAs due to the steep cost increase for PPAs. Describe the current PPA market compared to acquisition of existing facilities, including the cost and availability of both options.

f. Refer to the IRP, page 16. Provide the incentive increases, by dollar amount and percentage, for the 16 owner-members per DSM program. Additionally, provide the incentive increases as a total amount for each 16 owner-member.

Response 5.

a. Confirmed. The Hydro PPA with Brookfield Renewables for Safe Harbor will end December 31, 2025.

b. EKPC completed its modeling for the 2025 IRP in October 2024. At that time, EKPC expected both of these projects to be successfully negotiated and therefore were included.

c. EKPC participated in the Rural Utility Service's Empowering Rural America ("New ERA") competitive process to enable EKPC to receive grants and low-interest financing. EKPC focused on reasonable projects that could meet the required due dates within the New ERA program. The solar facilities will offset purchased power in the market at a competitive price. EKPC intends to file CPCNs this summer for these projects.

d. In order to provide a revised preferred portfolio, EKPC would need to run simulations without the Hydro PPA in place. This is outside the scope of the IRP as EKPC has provided a snapshot in time. However, EKPC has provided updated Table 8-3, EKPC Projected Additions and Reserves (MW), showing the impact of removing the hydro PPA from the generation portfolio. See attached *Staff 2-5d.pdf*. Note, the "Reserve Margin" column in Table 8-3 represents the difference between the total available energy to serve peak load versus the peak load plus reserve requirements. A 0% in the "Reserve Margin" column represents EKPC is meeting the forecasted peak load plus reserve margin. In absence of the Hydro PPA, EKPC will seek to purchase energy

on the bi-lateral market to hedge the expected short position for the winter peak periods of 2025/2026 through 2029/2030, when the Cooper CCGT is expected to come online.

e. The National Renewable Cooperative Organization ("NRCO") issued a public RFP on EKPC's behalf on April 5, 2024 for up to 400 MW of renewable capacity and energy. This was sent to solicit updated offers from EKPC's previous 2023 RFP. Eleven solar projects responded to the RFP with each offer coming in higher than those in the 2023 RFP. NRCO notes in its report, "...that solar cost pressures have not receded from the 2020-2023 run-up." In addition, EKPC's development of the selected projects ensures that the entirety of the project lifecycle remains in-house. The major setback from the third-party solar developers was a firm commitment to pricing. EKPC can better control its exposure to prices by controlling the RFP process for material and labor associated with the project. In addition, any issues that may arise in the project are known immediately when EKPC has full control of the project, as opposed to a third-party. Please see attached report, *Confidential - Staff 2-5e.pdf*, subject to motion for confidential treatment.

f.

	End-use Member			
	Existing Incentive	***Proposed Incentive***	***Incentive Increase***	***Percentage Increase (%)***
Residential Weatherization				
Button Up (Building Shell Measures)	$750	$1,875	$1,125	150%
Button Up (HVAC Duct Seal)	$400	$500	$100	25%
CARES Efficiency Program	$2,000	$3,000	$1,000	50%
Residential HVAC Equipment				
Heat Pump Retrofit Program (Federal Minimum Standard):	$500	$750	$250	50%
Heat Pump Retrofit Program (ENERGY STAR)	$750	$1,000	$250	33%
Heat Pump Retrofit Program (Mini Split-1 Indoor Head Unit)	$250	$500	$250	100%
Heat Pump Retrofit Program (Mini Split-2 Indoor Head Units)	$500	$1,000	$500	100%
Heat Pump Retrofit Program (Mini Split-3 Indoor Head Units)	$750	$1,500	$750	100%
High Efficiency Heat Pump Program (ENERGY STAR) - *NEW*	$0	$500	$500	*NEW*
High Efficiency Heat Pump Program Pump (CCASHP) - *NEW*	$0	$1,000	$1,000	*NEW*
Heat Pump Water Heater - *NEW*	$0	$250	$250	*NEW*
Residential Home New Construction				
TSE Home (HERS Rating of 75)	$750	$750	$0	0%
TSE Home (Prescriptive Path)	$750	$750	$0	0%
Commercial & Industrial				
Commercial Advanced Lighting Program * - *NEW*	$0	$5,000	$5,000	*NEW*
C&I Thermostat Program - *NEW*	$0	$100	$100	*NEW*
Residential Electric Vehicle Off-peak Charging				
Enrolled EVs (incentive per kWh)	$0.01	$0.01	$0.00	0%
Direct Load Control				
Bring Your Own Thermostat (BYOT) - New Enrollments	$110	$110	$0	0%
Existing BYOT Thermostats	$20	$20	$0	0%
Existing Air Conditioner Switches	$20	$20	$0	0%
Existing Water Heater Switches	$10	$10	$0	0%
Residential DR Other				
Backup Generator Program - *NEW*	$0	$250	$250	*NEW*

The Commercial Advanced Lighting Program has varying levels of incentives based on the type of light fixture or bulb change. The maximum incentive per qualifying facility per year is $5,000. The incentive increases as a total per owner-member are dependent on the DSM programs each owner-member implements and on the participation level of their membership each year. Therefore, EKPC can't provide the incentive increase as a total amount for each of the owner-members individually.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 6
RESPONSIBLE PARTY: Scott Drake

Request 6. Refer to the IRP, page 26, Table 1-1. Provide explanation for the 2025 IRP's impact on Energy Requirement for the year 2025 being lower than the same projection in the 2022 IRP.

Response 6. The 2025 IRP impact on Energy Requirement for the year 2025 is lower than the 2025 value in the 2022 IRP because the participation in energy efficiency programs in that year is lower for the 2025 IRP than for the 2022 IRP.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 7
RESPONSIBLE PARTY: Christopher E. Adams

Request 7. Refer to the IRP, page 27. Refer also to the Technical Appendix Load Forecast, page 28, table titled "EKPC: Own or Lease an EV?". Provide explanation on how electric vehicle charging is expected to contribute 536,000 MWh to total energy requirements when only 12.7 percent of EKPC residential customers are likely to purchase an EV within the next five years.

Response 7. Refer to the IRP, page 27. EKPC clarifies the statement regarding EV charging. "In the 2025 IRP, electric vehicle charging in 2035 is expected to contribute 563,000 MWh to total energy requirements...". Please note that the Staff's request states 536,000 MWh. The correct value is 563,000 MWh.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 8
RESPONSIBLE PARTY: Scott Drake

Request 8. Refer to the IRP, page 35. Provide any available data regarding the AMI usage pilot program, including how long the pilot program was in effect.

Response 8. The AMI usage Pilot known as the My Co-op Power Program (MCP) began in early 2021 and wrapped up in late 2022. The pilot offered real-time energy consumption data and control of many appliances through an online application for a small participant group. Another participant group had access to the online application only with usage data from the previous day. The real-time energy participants (36 users) experienced an annual 1.9% energy savings (151kWh) and the App only group (52 users) experienced a 2.5% energy savings (380kWh). These numbers are median savings estimates calculated from weather-normalized Pre and Post kWh estimates. The annual energy savings for both participant groups were much lower than expected.

In addition to the groups detailed above, there was a group of participants that also installed Wi-Fi enabled thermostats and participated in summer air conditioning load control events.

Participant homes were pre-cooled before events, and the temperature setting was raised 3° during the 3-hour long events. The analysis showed that the kW savings were as follows:

Hour	kW savings
1 (hour beginning 15)	1.83
2 (hour beginning 16)	1.56
3 (hour beginning 17)	1.07

The energy savings from MCP were modest. The demand reductions were very similar to the Bring Your Own Thermostat portion of the Direct Load Control program already offered by EKPC and its owner-member cooperatives. As a result, the program was not made into a permanent DSM offering.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 9
RESPONSIBLE PARTY: Christopher E. Adams

Request 9. Refer to IRP, page 40, and Case No. 2022-00098 (2022 EKPC IRP), page 27-28. Explain why EKPC decided not to use carbon sensitivity scenarios in its 2025 IRP.

Response 9. The carbon sensitivities referenced in the 2022 IRP were driven by DSM and EE assumptions which impact the overall load forecast(s) used in the IRP modeling. At the time, the political landscape was a major unknown factor with regards to the electric industry. Since then, the Section 111 New Source Performance Standards for Greenhouse Gas Emission ("Section 111 GHG Rule") was published on May 9, 2024. The Section 111 GHG Rule provided political clarity as to the intention of the EPA with regards to current and future GHG emitting resources; thus, there was no longer a need to model carbon pricing for the 2025 IRP.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 10
RESPONSIBLE PARTY: Christopher E. Adams

Request 10. Refer to IRP, page 41. Explain why economic retirement or conversion of generation was not included in the model.

Response 10. The resource optimization was run for the 2025 through 2030 time period. During that period, EKPC has no plans to retire any generation units given its need for additional capacity. Conversion of generation was included in the IRP modeling base case and matched the CPCNs requested for natural gas co-firing of Spurlock units 1 through 4 and Cooper unit 2. EKPC did assume Cooper 1 to be unavailable beginning 2032 consistent with Case No. 2024-00310 and Case No. 2024-00370.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 11
RESPONSIBLE PARTY: Christopher E. Adams

Request 11. Refer to the IRP, page 50, item 4. Explain in what ways the preliminary forecast is revised. Additionally, provide an outline of the revision process.

Response 11. Please see the May 20, 2025 Order where the Commission details the process by which the load forecast is created.[5] EKPC presents model results for each consumer class to each owner-member cooperative. During discussions with each owner-member, EKPC seeks information regarding local consumer growth that is not captured at the macroeconomic level. For example, owner-members may be aware of subdivisions and near-term consumer growth that should be addressed prior to finalizing the LTLF. Additionally, details regarding new and expanding industrial consumers or expected industrial reductions are discussed and incorporated where appropriate.

[5] Case No. 2025-00310, May 20, 2025 Order.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 12
RESPONSIBLE PARTY: Christopher E. Adams

Request 12. Refer to IRP, page 51.

a. Explain why EKPC used a 20-year period of weather data.

b. Explain how EKPC's load forecasting would be affected if the National Weather Service were disbanded.

Response 12.

a. EKPC monitors assumptions used by its peers for energy forecasting. EKPC recently participated in Itron's 2024 Forecasting Benchmark Survey. Results from the survey indicate the twenty-year period is the dominant normal weather period.

b. Weather data is critical to load forecasting. If the National Weather Service were disbanded, EKPC would need to evaluate options for accurate weather data across Kentucky.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 13
RESPONSIBLE PARTY: Christopher E. Adams

Request 13. Refer to the IRP, page 51, item 5. Provide a table with the residential consumer growth rate and economic growth rate for each region of EKPC's service territory.

Response 13. The source data EKPC used in creating the below charts is IHS Global Inc., an Entity of S&P Global, Market Intelligence, Dataset: Economic Forecast Released March 2024: "US Regional." See below table showing 2025 – 2039 Compound Annual Growth Rates ("CAGR").

Region	Residential Consumers	Households	Non-Manufacturing Employment
South Central	0.6%	[redacted]	[redacted]
North Central	0.8%		
South	0.4%		
Central	0.8%		
North	1.2%		
North East	0.4%		
East	0.3%		

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 14
RESPONSIBLE PARTY: Christopher E. Adams

Request 14. Refer to IRP, pages 72-73.

a. Explain how EKPC calculated electric vehicle (EV) adoption rates and estimated usage.

b. State whether and to what extent EKPC expects a reduction in expected EV adoption rates or usage due to the potential expiration or termination of federal financial stimulus tied to EV adoption based upon recent actions and statements of federal government officials that can be interpreted as intended to de-incentivize EV adoption.

Response 14.

a. See the response to Item 32.

b. EKPC has not analyzed the effects of the potential expiration or termination of federal financial stimuli.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 15
RESPONSIBLE PARTY: Scott Drake

Request 15. Refer to the IRP, pages 117 through 122. Explain how the participant counts for each program were calculated. Additionally, provide the current participation count for active DSM programs, by program and by Owner-Member

Response 15. The participant counts for each program on pages 117 through 122 are cumulative. For existing programs, year 2025 values are based on the planned participation for year 2024. For years 2026-2039, the additional participation for each year is based on several factors. For existing programs, those factors include the increased number of cost-effective measures, increased incentives, and program design changes (when applicable). For new programs, those factors include the market size and the likely demand for the program.

What follows is the table of program participation by program and Owner-Member for the calendar year 2024:

Owner-Member	Big Sandy RECC	Blue Grass Energy	Clark Energy	Cumberland Valley Electric	Farmers RECC	Fleming-Mason Energy	Grayson RECC	Inter-County Energy	Jackson Energy	Licking Valley RECC	Nolin RECC	Owen Electric	Salt River Electric	Shelby Energy	South Kentucky RECC	Taylor County RECC	Totals YTD by Program	MWh and MW Saved through Dec 31, 2024		
Group / Program																	**Qty**	**MWh**	**Winter MW**	**Summer MW**
Residential	5	399	15	21	11	24	64	32	39	8	130	268	480	4	99	11	1,610	5,246.784	1.863	0.658
Button Up - Level I		2				1		2			5	12			8		30	151.449	0.117	0.036
CARES HEAT PUMP ELIGIBLE	3		5	18	1	4	18	1	38	3		3		2	8		104	492.024	0.150	0.075
CARES HEAT PUMP IN-ELIGIBLE				1			3		1					0			5	23.655	0.007	0.004
Energy Audit - Billing Insights Audit							39			1	34	2	442				518	214.953	0.000	0.000
ENERGY STAR MANUFACTURED HOME															2		2	8.120	0.002	0.001
Heat Pump Retrofit		64	2		7	9	4	11		2	10	41	14	2	45	8	219	1,544.156	0.000	0.071
Heat Pump Retrofit (14 SEER)	1	31	1		2	2						16			9	1	63	467.046	0.000	0.020
Heat Pump Retrofit (15 SEER & up / Geo)		11		2	1	1		5		2	1	22	1		13	2	61	416.805	0.000	0.020
TSE Home (Performance) (HERS 79 or below)	1	291	7			7		8			68	167	21		11		581	1,842.932	1.516	0.413
TSE Home (Prescriptive)								5			12	5	2		3		27	85.644	0.070	0.019
Switches		-230			-6	-4			-23			-93					-356	-3.040	-0.131	-0.197
DLC AC		4			-5	-2			-9			-92					-104	-0.520	0.000	-0.104
DLC WH		-234			-1	-2			-14			-1					-252	-2.520	-0.131	-0.093
Total	5	169	15	21	5	20	64	32	16	8	130	175	480	4	99	11	1,254	5,243.744	1.732	0.460

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 16
RESPONSIBLE PARTY: Scott Drake

Request 16. Refer to the IRP, page 117, table titled "Button-Up Weatherization Program." Explain the reasons behind the rapid growth in the participant count.

Response 16. Since 2019, the Button-Up Weatherization Program has offered only two measures; air sealing and ceiling insulation. The program specifies that each home must have blower door air-leakage test prior to upgrades and after upgrades to measure energy efficiency improvements. The requirement for the blower door test along with the limited number of measures in the Button-Up Program resulted in low participation levels. On May 29, 2025, the Commission approved a revised Button-Up Program that removes the requirement for the blower door test, greatly increases the number of qualifying measures, and increases the potential incentives to the end-use member.[6] The rapid growth reflected in this table is an estimation of how the Button-up Program will grow once knowledge of the program with end-use members and local contractors improves along with reflecting the impact of an increased incentive.

[6] Case No. 2024-00370, May 29, 2025 Order (Ky. PSC May 29, 2025).

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SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 17
RESPONSIBLE PARTY: Christopher E. Adams

Request 17. Refer to the IRP, pages 138-139. Explain whether the co-firing of the Spurlock units was included in EKPC's generation expansion plan.

Response 17. Yes, the co-firing of the Spurlock units was included in EKPC's generation expansion plan.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 18
RESPONSIBLE PARTY: Darrin Adams and Greg Cecil

Request 18. Refer to the IRP, page 137 and 141.

a. Provide the identity and location of the five merchant generation facilities with a total maximum facility output of 320 MW referenced on page 137.

b. Explain whether any of the seven solar projects that have reached the final agreement phase (an executed Generator Interconnection Agreement) are related to the four solar projects totaling 321 MW referenced on page 141.

c. Explain when EKPC anticipates filing Certificate of Public Convenience and Necessity (CPCN) for the four solar projects listed on page 141.

Response 18.

a. The five referenced projects are listed in the table below:

PJM Queue ID	County	Point of Interconnection to EKPC System	Maximum Output (MW)
AC1-074	Harrison	Jacksonville-Renaker 138 kV Line	80
AC2-075	Harrison	Jacksonville-Renaker 138 kV Line	20
AE2-071	Metcalfe	Patton Road Junction-Summer Shade Junction 69 kV Line	35
AE2-254	Garrard	Garrard County-Tommy Gooch 69 kV Line	50
AF1-203	Metcalfe	Patton Road Junction-Summer Shade Junction 69 kV Line	20

b. None of the seven solar projects that were indicated as having reached the final-agreement phase correspond directly to any of the four EKPC self-build projects listed on page 141. However, one of the seven projects with an executed Generator Interconnection Agreement ("GIA") is EKPC's planned solar facility in Marion County that has been approved by the Commission. One of the four self-build projects listed on page 141 is a planned expansion of this solar facility. However, that expansion project has not yet been entered into the PJM generator-interconnection queue and therefore does not have an executed GIA.

c. EKPC anticipates filing Certificate of Public Convenience and Necessity (CPCN) for the four solar projects in 2025.

EAST KENTUCKY POWER COOPERATIVE, INC.
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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 19
RESPONSIBLE PARTY: Darrin Adams

Request 19. Refer to the IRP, Tables 6-2 and 6-3 located on page 152. Also refer to Table 6-5 located on page 153.

a. Explain the differences between 556 ACSR, 795 ACSR, and a transmission conductor that has a carbon fiber core as opposed to a steel core. Include in the response differences in useful life, whether the useful life varies with the voltage of the line, cost, efficiency in carrying electricity, and whether there are any expected operational or Operating & Maintenance (O&M) saving advantages of one over the other.

b. In Table 6-5, for the Rebuild the 556 ACSR Crooksville-West Berea line section project, explain why it is advantageous or necessary to replace 556 ACSR with 795 ACSR.

c. Explain whether a cost benefit study has ever been conducted to evaluate whether any advantages are attributable to carbon fiber cored transmission conductor versus steel-cored conductor over the useful lives of the two types of conductors.

d. If not, explain how EKPC knows that using carbon fiber-cored conductor is the least reasonable cost over the useful life of the steel-cored conductor.

Response 19.

a. Aluminum Conductor Steel Reinforced ("ACSR") is a conductor type that consists of hardened aluminum wires that are stranded around a galvanized steel core. A variety of potential sizes are available from conductor manufacturers. The size is specified in terms of kilo-circular mils (kcmil), which is a unit of cross-sectional area equivalent to 0.0007854 in^2. Therefore, a 556.5 kcmil ACSR has a cross-sectional area of the aluminum conductors of 556,500 circular mils or 0.437 in^2. A 795 kcmil ACSR has a cross-sectional area of the aluminum conductors of 0.6244 in^2, which is approximately 43% larger than that of 556.5 ACSR. Larger-diameter conductors result in higher current-carrying capability, due to the larger surface area of the conductors. For EKPC, 795 ACSR is rated for approximately 25% higher current-carrying capability than 556.5 ACSR.

A conductor with a carbon-fiber core, such as Aluminum Conductor Composite Core ("ACCC") consists of a composite core that includes carbon fibers embedded in a thermoset epoxy matrix. Either annealed (soft) aluminum or a hard high-temperature aluminum alloy is stranded around the composite core.

Some advantages of ACSR conductor types are:

- Most common conductor type used for transmission lines, resulting in highest efficiency for construction and maintenance activities;
- Lower cost compared to other conductor types;
- Higher resiliency – conductor is highly resistant to damage; and,
- Relatively long useful life (lifespan is 50 to 75 years, depending on environmental conditions prevalent and historical operating profile.

Some disadvantages of ACSR conductor types are:

- Limited operation at high conductor temperatures due to conductor annealing and increased sag;
- Lower current-carrying capacity due to operating temperature limitations; and,
- Corrosion issues with steel core becomes an issue in the latter part of the conductor's useful lifespan.

Some advantages of carbon-fiber core conductor types are:

- Provides much higher capacity compared to ACSR type;
- Lower sag profile than ACSR type;
- High strength to weight ratio;
- The core is resistant to corrosion; and,
- Reduced line losses at lower operating temperatures compared to ACSR.

Some disadvantages of carbon-fiber core conductor types are:

- The cost is much higher than ACSR type (200-400% higher);
- More brittle than ACSR type;
- Excessive sag may occur under ice loading;
- More susceptible to damage during installation and maintenance;
- Requires special fittings and installation equipment, further increasing the cost difference compared to ACSR; and,
- Unknown useful life due to its use only occurring within the last 25 years.

b. EKPC studies determined that utilizing 795 kcmil ACSR conductor provides some improvement in contingency voltage levels in the area, deferring the need to implement more

expensive transmission projects in the area to address voltage-criteria violations. The estimated impact of using the larger conductor is a deferral of the voltage-criteria violation to 2035 based on current planning models.

c. EKPC has not performed a cost-benefit analysis comparing carbon-fiber core conductors with steel core conductors.

d. EKPC has not yet identified general advantages of carbon-fiber core conductors versus use of traditional steel-core conductors. Carbon-fiber core conductors are much more expensive, more difficult to install and maintain, more susceptible to damage, require maintaining additional stock materials, and have an uncertain lifespan at this stage. EKPC's transmission lines are generally not thermally limited, and further, do not experience power flows that are anywhere near thermal limits of the conductors. At this point, EKPC believes that carbon-fiber core conductors should only be considered for the EKPC system for a very narrow set of use cases. These use cases include:

- Reconductoring an existing line while preserving existing structures
- For lines that require very long spans, especially river crossings and ridge-to-ridge construction

EKPC will continue to evaluate use of carbon-fiber core conductors when these use cases arise, but at this time EKPC does not believe a cost-benefit analysis is warranted to justify continued utilization of ACSR conductor as our preferred conductor for typical transmission-line projects.

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 20
RESPONSIBLE PARTY: Craig Johnson

Request 20. Refer to the IRP, Table 7-2 on page 161 and Table 7-3 on page 162.

a. Explain whether most or all the listed projects would be undertaken during a planned maintenance outage.

b. Explain how EKPC disposes the material dredged from the Cooper coal pile pond.

Response 20.

a. Most of the projects mentioned in Table 7-2 and Table 7-3 that maintain the boiler, steam turbine and pollution control equipment would require a planned maintenance outage. Items such as structure maintenance would not require a planned maintenance outage.

b. Material dredged from the Cooper coal pile pond are disposed of properly by being hauled to the on-site engineered landfill and commingled with existing coal ash.

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SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 21
RESPONSIBLE PARTY: Christopher E. Adams

Request 21. Refer to IRP, page 177.

a. Explain the factors used by EKPC to determine reliability of its overall system and to compare individual existing and potential generation resources.

b. Explain how reliability factors into selection of EKPC's preferred portfolio.

Response 21.

a-b. EKPC assumes EFORd for each existing and potential future generator within its resource optimization modeling. The assumed EFORd for existing units is sourced from EKPC historical 5-year average EFORd for each generator or generator type, while the EFORd values for potential future generator options are based on similar existing unit EFORd values.

EAST KENTUCKY POWER COOPERATIVE, INC.
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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 22
RESPONSIBLE PARTY: Christopher E. Adams

Request 22. Refer to the IRP, page 185 and Table 8-4. EKPC indicated that Table 8-4 shows the five lowest cost plans. Provide the costs of the ten lowest cost plans from the 2,500 plans simulated, including the five plans shown in Table 8-5.

Response 22. See attached PDF, *Staff 2-22.*pdf, for an updated Table 8-4 and Table 8-5, expanded for the ten lowest cost plans and including total "system profit", or the measure by which the Resource Optimizer scores each plan. Lower system profit in this case means lower overall system cost.

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CASE NO. 2025-00087
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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 23
RESPONSIBLE PARTY: Christopher E. Adams

Request 23. Refer to the IRP, Table 8-2, page 180, Case No. 2024-00310,4 and Case No. 2024-00370, 5 EKPC's Response to Commission Staff's Fourth Request for Information, Item 4, Attachment JJT-4 Revised. Explain whether the cost information for the Reciprocating Internal Combustion Engines (RICE), combined cycle generation, purchase power agreement (PPA) Winter, and PPA Summer power purchases in Table 8-2 provide the same cost information used in the RTSimm Resource Optimizer and Production Cost modules to derive the resource portfolio in Attachment JJT-4 Revised. If not, explain why consistent costing information was not used for the IRP and EKPC's CPCN filings.

Response 23. The Combined Cycle capital cost was incorrectly stated within Table 8-2 as filed in the 2025 IRP. However, it was correct in the Resource Optimizer model completed for the 2025 IRP. In addition, the capital source costs were not clearly labeled within the original table. The 7EA SCGT, Combined Cycle, and RICE capital costs were based on design-level estimates provided by the Owner's Engineer. Table 8-2 (Revised) now lists the correct capital cost for the

Combined Cycle and has updated sources for each capital cost assumed within the Resource Optimizer. See attached, *Staff 2-23 – Table 8-2 (Revised).pdf.*

The Hydro PPA, Liberty RICE and Cooper CCGT units were included in the base case for the IRP resource optimization modeling. Once those resources come online within the model, there is no longer a need for the Resource Optimizer to select a resource from the resource list provided in Table 8-2 (Revised). Only the near-term years from 2025 through 2030 create a scenario for the model to choose a resource. Of those resources, the model only selected the seasonal Winter PPA as the preferred option.

The RICE and Combined Cycle costs do not match the CPCNs submitted in Case Nos. 2024-00310 and 2024-00370 because the capital costs do not represent those costs submitted for Liberty RICE or Cooper CCGT. The resources in Table 8-2 (Revised) represent costs estimates for each resource and does not include transmission expenses that would be incurred for any future project. Purchased power costs for the Winter PPA were sourced from the ACES Power Marketing forward price forecasts, both for the CPCN cases and the IRP. However, the IRP used an updated vintage of these price forecasts and therefore are not the same prices used in the CPCN cases. The CPCN case power prices were pulled as of May 2024, while the IRP case prices were pulled as of October 2024.

EAST KENTUCKY POWER COOPERATIVE, INC.
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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 24
RESPONSIBLE PARTY: Christopher E. Adams

Request 24. Refer to IRP, page 184, Table 8-3. If EKPC is planning for a seven percent winter reserve margin, state why no generation is being added in 2035 to cover the estimated capacity shortfall.

Response 24. The "Reserve Margin" column in Table 8-3 represents the difference between the total available energy to serve peak load versus the peak load plus the seven percent reserve requirement. A 0% in the "Reserve Margin" column represents EKPC is meeting the forecasted peak load plus reserve margin. A more accurate label for that column would be the surplus or deficit to the total generation requirement (including reserve margin).

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 25
RESPONSIBLE PARTY: Christopher E. Adams

Request 25. Refer to IRP, pages 193-219.

a. State whether the cost of compliance with each regulation referenced in the Environmental Compliance section was included in the original 2025 modeling.

b. State whether the cost of compliance with each regulation referenced in the Environmental Compliance section will be included in modeling performed pursuant to Commission Staff's First Request for Information.

Response 25.

a. The environmental compliance cost was included as base assumptions to the IRP modeling. Therefore, it was not included in the specific plan options as referenced in Table 8-4.

b. EKPC will include all reasonable options under the current regulatory rules to serve large load consumers.

EAST KENTUCKY POWER COOPERATIVE, INC.
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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 26
RESPONSIBLE PARTY: Jerry Purvis

Request 26. Refer to IRP, page 198, which states that EKPC is in compliance with the Mercury and Air Toxics Standards (MATS) rule.

a. Explain whether that means that EKPC is in compliance (with the exception of Spurlock Unit 3) with the 0.030 lb/MMBtu or the 0.010 lb/MMBtu standard.

b. State whether EKPC will discontinue MATS compliance spending on Spurlock Unit 3 based on President Trump's April 8, 2025 Proclamation6 providing a MATS exemption.

Response 26.

a. EKPC Spurlock Station Units 1,2, and 4 and Cooper Units 1 and 2 are in compliance with the MATs filterable particulate matter (fPM) numeric emission limitations. However, as indicated previously, the Spurlock Unit 3 CFB pollution control equipment, pulse jet baghouse, would need to be upgraded or modified to meet the new numeric emission limitations. Additionally, EKPC installed PM continuous emission monitors but is concerned if technology is capable of reading extremely low new fPM numeric limitations accurately and consistently.

b. The Presidential Exemption granted by the Trump Administration will provide an extra two years to prepare. EKPC plans to comply with all federal EPA regulations. Failing to do so is not an acceptable risk by EKPC and its Board.

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 27
RESPONSIBLE PARTY: Christopher E. Adams

Request 27. Refer to the IRP, page 13, Table 8-3 on page 184, and Table 8-5 on pages 186-187.

a. Confirm that the Final Plan column in Table 8-5 reflects the capacity additions in Table 8-3 for the years 2025-2029. If not confirmed, explain what the table reflects in that column.

b. The Energy Additions column in Table 8-3 does not appear to reflect the 300 MW hydro energy PPA referenced on page 13. Explain where this is reflected in Table 8-3.

c. Explain where in Table 8-3 the four new solar generation facilities are reflected.

Response 27.

a. The capacity additions noted in Table 8-3, Liberty RICE in 2029 (2028 COD) and Cooper CCGT in 2031 (2030 COD), are included in the base case for the IRP modeling. Table 8-5 does not include those two capacity resource additions because they are already included in the expansion plan in the base case.

b. Similar to Liberty RICE and Cooper CCGT, the 300 MW Hydro PPA should have been listed in Table 8-3 as an additional resource. In addition, it was found that one of the solar projects

was missing from the energy additions column in the year 2030. This has been updated. Please see updated Table 8-3 (Revised) attached as *Staff 2-27b.*pdf, which now includes the Hydro PPA and updated solar generation addition for the year 2030.

c. Table 8-3 (Revised) includes the solar project additions in the energy column for the year 2027 (136 MW), 2028 (92 MW), 2029 (84 MW), and 2030 (145 MW). These are annual additions, not cumulative. The Total Capacity column represents the cumulative available capacity in any given year within the study period.

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SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 28
RESPONSIBLE PARTY: Christopher E. Adams

Request 28. Refer to the IRP, Table 8-3 on page 184 and Table 8-6 on page 188.

a. Explain whether the energy purchases column represents winter seasonal energy purchases and not capacity.

b. Refer to Case No. 2024-00370, EKPC's Response to Commission Staff's Fourth Request for Information, Attachment JJT-4 Revised. In that attachment, EKPC adjusted its summer capacity and reserve margin requirements to account for PJM summer obligations. Explain why a similar adjustment was not made in the IRP. Include in the response an explanation of whether Table 8-3 and 8-6 would match the data presented in Attachment JJT-4 Revised.

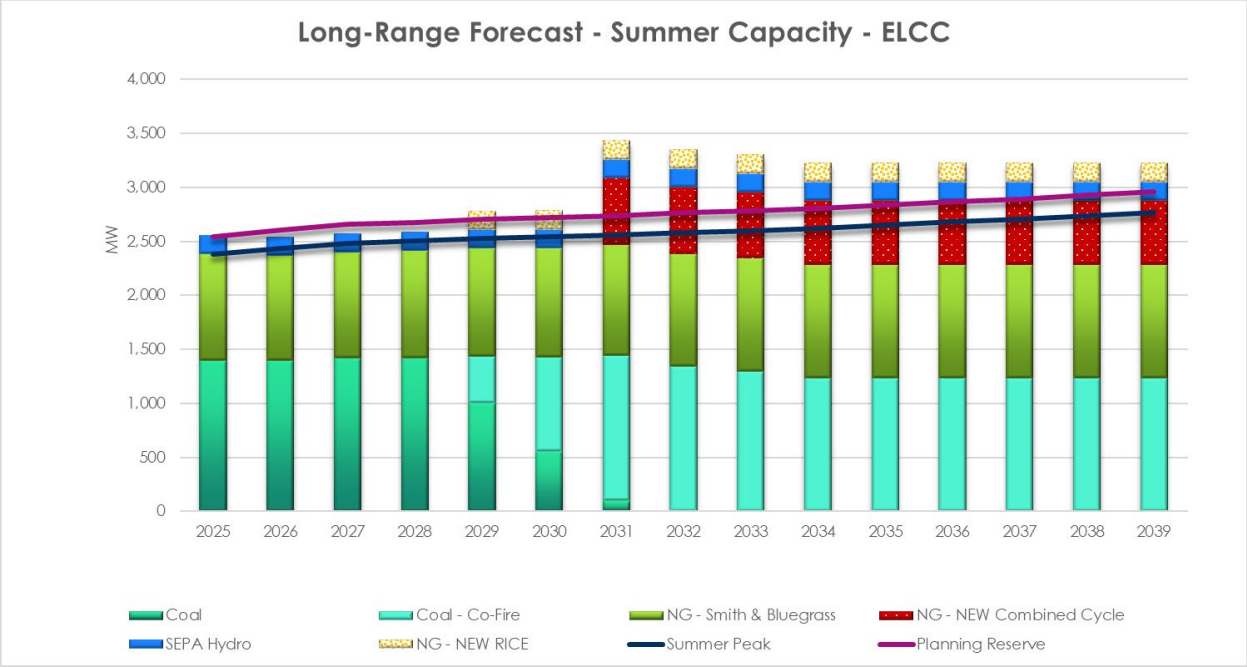
c. Explain the cause of the different capacity amounts, 745 MW and 725 MW, shown as the intermediate capacity difference in 2031.

d. Explain whether Table 8-3 is EKPC's final preferred resource portfolio from the RTSimm production cost module.

Response 28.

a. The "Energy Additions" column represents seasonal Winter PPAs.

b. EKPC chose to be consistent with past IRPs regarding the Summer capacity values as shown in Table 8-3. The data presented in Attachment JJT-4 Revised is close, but not exactly the same as an ELCC-adjusted summer capacity value from Table 8-3 as the PJM-published ELCC class-average data has been updated since Attachment JJT-4 Revised was produced. An updated version of Attachment JJT-4 Revised is attached to this response, see *Staff 2-28b - EKPC IRP 2025 Resource Expansion Plan.pdf*. The RICE and Cooper CCGT resources are already accounted for in the base plan in the years 2029 and 2031, respectively, and therefore are not labeled as additions within the plan. See updated chart below showing ELCC-adjusted generation and summer PJM load obligation.



c. The Cooper CCGT is a 2-on-1 combined cycle generator, meaning that two simple cycle combustion turbines feed into one single steam turbine. Ambient air temperature impacts the available capacity from the two simple cycle CTs. Warmer temperatures result in lower available capacity, while cooler temperatures result in higher available capacity. This is common for most combustion turbines throughout the industry.

d. Yes, with the addition of the Hydro PPA noted in EKPC's response to Item 27b, above.

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 29
RESPONSIBLE PARTY: Christopher E. Adams

Request 29. Refer to the IRP, Table 8-3 on page 184 and Table 8-6 on page 188. Explain whether the data and modeling results presented in these tables are compatible and represent EKPC's final preferred resource portfolio.

Response 29. See response for Request 28d, above.

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SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 30
RESPONSIBLE PARTY: Christopher E. Adams

Request 30. Refer to the IRP, Table 8-3 on page 184 and Table 8-4 on page 185.

a. Explain why the Resource Optimizer was run from 2025-2030 only.

b. If the Resource Optimizer was run from 2025 -2030, explain how the model chose to add the RICE units and the combustion turbine in 2029 and 2031 respectively.

c. Refer also to Case No. 2024-00310 and Case No. 2024-00370, EKPC's Response to Commission Staff's Fourth Request for Information, Attachment JJT-4 Revised, which contains 300 MW of hydro capacity that is not included as a modeled capacity addition. Explain why EKPC included the hydro capacity addition in its CPCN cases, but not the IRP.

Response 30.

a. The Resource Optimizer was ran from 2025-2030 only as the reserve requirement was met with the addition of the Cooper CCGT.

b. The RICE and Cooper CCGT were added as base case assumptions.

c. The 300 MW hydro resource was included in the IRP beginning in 2026, same as shown in Attachment JJT-4 Revised. However, like the RICE and Cooper CCGT resources, the hydro PPA was modeled as a base case assumption.

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 31
RESPONSIBLE PARTY: Christopher E. Adams

Request 31. Refer to Technical Appendix, Vol. I, page 11 and 14. Explain in greater detail how EKPC derives individual owner member service territories from regional models and county level data.

Response 31. Each owner member serves portions of several counties. To weight county-level forecasts appropriately, EKPC calculated the land share of each county that an owner-member serves. This ensures that an owner-member that only serves a small portion of a county does not incorporate the full growth of the county. The economic forecasts used for modeling are unique to each owner-member due to the weight analysis previously described. The regions described on pages 11 through 14 of the Technical Appendix, Vol. 1 are to illustrate larger regional economic activity and are prepared for understanding purposes. The regions are not direct model inputs.

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 32
RESPONSIBLE PARTY: Christopher E. Adams

Request 32. Refer to Technical Appendix, Vol. I, pages 18-19. Provide the electric vehicle study performed by GDS Associates (GDS).

Response 32. See the following attachments:

Staff 2 – 32 – GDS EV Forecast Details.pdf

CONFIDENTIAL_Staff 2 – 32 EV Stock by Member .xlsx

*CONFIDENTIAL_ Staff 2 –32 EV Energy by Member.xlsx (*Note that in the 2024 LTLF, EKPC added distribution and transmission losses and included an additional day of energy for leap years).

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STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 33
RESPONSIBLE PARTY: Scott Drake

Request 33. Refer to the Technical Appendix Vol. I, page 26.

a. Explain whether each owner member offers all cost-effective DSM programs as determined by the DSM potential study. If not, identify and explain any empirical evidence used by the owner members to show that any particular DSM program should not be offered within its service territory.

b. For the DSM forecast, explain the assumed retail customer participation levels across the owner member systems supporting the additional effects of DSM programs on the load forecast.

c. Explain whether EKPC has ever estimated the potential energy and capacity savings if all eligible retail customers participated in the DSM programs proposed by EKPC. Include in the response whether the EKPC and or the EKPC Board has ever entertained the proposition that DSM programs should be offered by EKPC and not the individual owner members.

Response 33.

a. See below the current DSM programs offered by EKPC's owner-member cooperatives:

DSM Programs Offered by EKPC's Owner-Member Cooperatives as of April 24, 2025						
	Button-Up Weatherization Program *	**Community Assistance Resources for Energy Savings (CARES)**	**Heat Pump Retrofit Program**	**Touchstone Energy® Home Program**	**Direct Load Control Program with BYOT ****	**Residential Electric Vehicle Off-peak Charging Program**
Big Sandy RECC	YES	YES	YES	YES	YES	
Blue Grass Energy Cooperative	YES	YES	YES	YES	YES	YES
Clark Energy Cooperative	YES	YES	YES	YES	YES	YES
Cumberland Valley Electric	YES	YES	YES	YES	YES	YES
Farmers RECC	YES	YES	YES	YES	YES	YES
Fleming-Mason Energy Cooperative	YES	YES	YES	YES	YES	YES
Grayson RECC	YES	YES	YES	YES	YES	YES
Inter-County Energy	YES	YES	YES	YES	YES	YES
Jackson Energy Cooperative		YES			YES	YES
Licking Valley RECC	YES	YES	YES	YES	YES	YES
Nolin RECC	YES	YES	YES	YES	YES	YES
Owen Electric Cooperative	YES	YES	YES	YES	YES	YES
Salt River Electric Cooperative			YES	YES	YES	YES
Shelby Energy Cooperative	YES	YES	YES	YES	YES	YES
South Kentucky RECC	YES	YES	YES	YES	YES	YES
Taylor County RECC	YES		YES	YES	YES	YES
* Big Sandy RECC, Clark Energy, and Taylor Co RECC offers the Button-Up Weatherization Program, but not the Rebate for HVAC Duct Sealing						
** Jackson Energy offers the Direct Load Control Program, but not the Bring Your Own Thermostat (BYOT) option						

EKPC is unaware of empirical evidence used by the owner-members when choosing not to offer a DSM program.

b. The forecasted DSM program participation levels are derived from historical participation levels. Some programs like the Button-up Weatherization program are changing to include many more measures. However, EKPC and its owner-members offered Button-up years prior to that had similar measures. Thus, EKPC utilized data from those prior program years to forecast participation in Button-up and other programs.

c. EKPC has not estimated the potential energy and capacity savings if all eligible retail customers participated in the DSM programs proposed by EKPC. EKPC has not entertained the proposition that DSM programs should be offered by EKPC and not the individual member cooperatives.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 34
RESPONSIBLE PARTY: Christopher E. Adams

Request 34. Refer to Technical Appendix, Vol I, pages 27-28. Provide the survey(s) in which the residential appliance saturation data and electric vehicle data were sourced. Also provide the data from the survey(s) and any supporting analysis document.

Response 34. See the following attachments:

CONFIDENTIAL_ Staff 2-34 2022 Residential Appliance Saturation Survey Report.pdf

CONFIDENTIAL_ Staff 2-34 2022 Survey Data.xlsx

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 35
RESPONSIBLE PARTY: Christopher E. Adams

Request 35. Provide the EV load shape assumptions used in the load forecast, including:

a. Charging profile by hour (weekday vs. weekend).

b. Annual EV energy usage per vehicle type.

c. Source(s) of miles driven and energy consumption per mile.

Response 35.

a. EKPC used the EVI-Pro Lite Load Profile Tool ("EVI") from the U.S. Department of Energy's ("DOE") Alternative Fuels Data Center ("AFDC"). EKPC executed the tool multiple times with different assumptions to develop seasonal weekend and weekday hourly charging profiles. Please see *Staff 2-35 Hourly EV Profiles.xlsx* for charging profile by hour. Note that the profiles are used for load shape (relevant for demand) but don't represent the energy in the forecast.

b. The base case EV forecast assumes 0.345 kWh per mile driven for both cars and light trucks. The base case EV forecast assumes 12,500 miles driven per year for both cars and lights trucks.

c. GDS estimated from its in-house databases typical miles driven per year and annual energy consumption per mile driven for charging. The product of stock (number of vehicles), miles driven, and kWh per mile results in cumulative EV energy sales.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 36
RESPONSIBLE PARTY: Darrin Adams

Request 36. Provide a map or GIS shapefile showing transmission constraints, congestion areas, or zones where the Liberty RICE facility or other resources are intended to support reliability.

Response 36. Please see *Staff 2-36 Liberty RICE Regional Support Map.pdf* for a map showing the area of Kentucky that will be supported by the operation of the Liberty RICE generating facility.

Please see *Staff 2-36 Cooper CCGT Regional Support Map.pdf* for a map showing the area of Kentucky that will be supported by the operation of the Cooper CCGT generating facility. These maps are being filed under seal pursuant to a motion for confidential treatment.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 37
RESPONSIBLE PARTY: Christopher E. Adams

Request 37. For each owner-member, provide historical and forecasted residential consumers, average electricity use per customer, and total class sales (in MWh) for the years 2014-2039, in Excel format

Response 37. See *Staff 2-37 Residential Summary.xlsx*

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2025-00087
SECOND REQUEST FOR INFORMATION RESPONSE

STAFF'S REQUEST DATED MAY 15, 2025
REQUEST 38
RESPONSIBLE PARTY: Christopher E. Adams

Request 38. Explain how EKPC forecast capacity prices.

Response 38. EKPC utilizes a forecast originally provided by ACES and then risk-adjusts that forecast based on its own assessment of the current state of the PJM capacity market.