COMMONWEALTH OF KENTUCKY BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:		
ELECTRONIC 2025 INTEGRATED RESOURCE)	
PLAN OF EAST KENTUCKY POWER)	CASE NO.
COOPERATIVE, INC.)	2025-00087

RESPONSES TO SIERRA CLUB'S SECOND INFORMATION REQUEST
TO EAST KENTUCKY POWER COOPERATIVE, INC.

DATED AUGUST 14, 2025

BEFORE THE PUBLIC SERVICE COMMISSION

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ELECTRONIC 2025 INTEGRATED RESOURCE)	
PLAN OF EAST KENTUCKY POWER)	CASE NO.
COOPERATIVE, INC.)	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 Sierra Club's Second Request for Information in the above-referenced case dated August 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 14 day of August, 2025.

KATHY L. MCINTOSH
Notary Public
Commonwealth of Kentucky
Commission Number KYNP96402
My Commission Expires Jan 30, 2029

Notary Public

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 Sierra Club's Second Request for Information in the above-referenced case dated August 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 <u>4</u> day of August, 2025.

Notary Public

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

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)		
OUNTY 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 Sierra Club's Second Request for Information in the above-referenced case dated August 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 swom before me on this 27 day of August, 2025.

JEANNIE M. JONES

NOTARY PUBLIC STATE AT LARGE KENTUCKY

COMMISSION # KYNP41703 MY COMMISSION EXPIRES JANUARY 15, 2028

BEFORE THE PUBLIC SERVICE COMMISSION

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

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Brad Young, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Sierra Club's Second Request for Information in the above-referenced case dated August 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.

Brad Young

Subscribed and sworn before me on this 2 day of August, 2025.

KATHY L. MCINTOSH Notary Public Commonwealth of Kentucky Commission Number KYNP96402 My Commission Expires Jan 30, 2029

Notary Public

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 1

RESPONSIBLE PARTY: Christopher E. Adams

Request 1. Please provide data and supporting calculations for forecasts produced and/or used by EKPC over the past 5 years in machine-readable Excel format for the following:

- a. Winter peak (MW)
- b. Summer peak (MW)
- c. Energy requirements (MWh)
- d. Sales (MWh) by class (e.g., residential, commercial, industrial)
- e. Number of customers by class (e.g., residential, commercial, industrial)

Refer to the *Technical Appendix – Vol 1 – Load Forecast (REDACTED).pdf* initially filed with this IRP and the following attachments that describe the methodology, assumptions, and results for the 2020 LTLF, 2022 LTLF, and 2024 LTLF.

- SC DR2 Response 1 Load Forecast Work Plan 2021-2035.pdf
- SC DR2 Response 1 Load Forecast Work Plan 2023-2037.pdf
- SC DR2 Response 1 Load Forecast Work Plan 2025-2039.pdf
- *SC DR2 Response 1 Model Variable List.pdf*
- *SC DR2 Response 1 Model Equations 2020.pdf*
- SC DR2 Response 1 Model Equations 2022.pdf
- SC DR2 Response 1 Model Equations 2024.pdf
- CONFIDENTIAL SC DR2 Response 1 EKPC LTLF 2020.pdf

• CONFIDENTIAL SC DR2 Response 1 – EKPC LTLF 2022.pdf

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 2

RESPONSIBLE PARTY: Christopher E. Adams

Request 2. Please refer to Table 3-10, where EKPC provides the average growth rates (2025-2039) for consumers and sales by class. Please identify and describe the primary drivers of growth in consumers and sales for each of the following customer classes:

- a. Residential
- b. Small Commercial
- c. Large Commercial & Industrial

Response 2. Please refer to EKPC's response to Request 1.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 3

RESPONSIBLE PARTY: Christopher E. Adams

Request 3. Please refer to Tables 3-5 through 3-9, where EKPC provides historical data (2019- 2023) on energy sales (MWh), energy requirements (MWh), and peak demand (MW). Please provide the same data for 2024.

Response 3. See updated tables below:

Table 3-5

EKPC Recorded Annual Energy Sales (MWh) and Energy Requirements (MWh)

2019 - 2024

	2019	2020	2021	2022	2023	2024
Total Residential	7,036,916	6,915,401	7,127,199	7,218,271	6,598,806	7,005,290
Residential Seasonal	663	662	489	753	1,069	1,091
Small Commercial	1,925,821	1,791,061	1,889,497	1,940,673	1,915,931	2,000,144
Large Commercial/Industrial	3,314,391	3,251,726	3,367,170	3,720,863	4,224,079	4,365,331
Public Authorities	39,829	34,187	38,218	38,012	37,126	38,405
Public Street and Highway Lighting	8,770	8,771	8,249	7,633	7,799	7,634
Total Sales	12,326,390	12,001,809	12,430,821	12,926,204	12,784,809	13,417,896
Office Use	10,232	9,444	9,206	8,758	8,133	7,659
Distribution % Loss	3.6%	3.9%	3.5%	4.1%	3.2%	3.2%
EKPC Sales to Members	12,798,772	12,499,902	12,886,454	13,488,016	13,211,972	13,872,048
EKPC Office Use	7,891	7,313	7,631	7,529	7,207	7,424
Transmission Loss (%)	2.5%	2.2%	2.1%	1.4%	1.8%	1.8%
Net Total Requirements	13,140,704	12,794,457	13,183,458	13,700,232	13,465,331	14,145,882

Table 3-6
Weather Normalized Coincident Peak Demands

Weather Normalized Coincident Peak Demands				
Year	Season	Actual Peak		
real	Season	MW	MW	
2019	Winter	3,073	3,380	
2013	Summer	2,366	2,440	
2020	Winter	2,723	3,144	
2020	Summer	2,312	2,459	
2021	Winter	2,862	3,230	
2021	Summer	2,450	2,460	
2022	Winter	3,017	3,557	
2022	Summer	2,465	2,467	
2023	Winter	3,747	3,532	
2023	Summer	2,497	2,636	
2024	Winter	3,754	3,956	
2024	Summer	2,581	2,545	

Table 3-7

EKPC Weather Normalized Annual Energy Sales (MWh) and

Energy Requirements (MWh)

2019 - 2024

	2019	2020	2021	2022	2023	2024
Total Retails Sales by Member Systems						
Recorded	12,326,390	12,001,809	12,430,821	12,926,204	12,784,809	13,417,896
Weather Normalized	12,792,825	12,762,891	12,689,844	12,952,587	13,498,499	13,719,322
EKPC						
Recorded	13,140,704	12,794,457	13,183,458	13,700,232	13,465,331	14,145,882
Weather Normalized	13,134,522	13,072,780	13,459,354	13,726,668	14,221,993	14,465,718

Table 3-8
Firm Energy Sales and Coincident Peak Demand

	2019	2020	2021	2022	2023	2024
Energy Sales (MWh)	11,428,934	11,171,920	11,471,838	11,835,986	10,963,964	11,431,132
Coincident Peak Demand (MW)	2,906	2,622	2,647	2,838	3,592	3,413

Table 3-9
Non-Firm Energy Sales and Coincident Peak Demand

	2019	2020	2021	2022	2023	2024
Energy Sales (MWh)	1,369,837	1,327,982	1,414,617	1,652,030	2,248,008	2,440,916
Coincident Peak Demand (MW)	167	101	215	179	155	341

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025

REQUEST 4

RESPONSIBLE PARTY: Christo

Christopher E. Adams

Request 4. Please refer to page 50 of the IRP, which states: "EKPC's owner-members will add approximately 49,000 residential consumers during the forecast period. This represents an increase of 0.6 percent per year." Please provide supporting documentation and analysis used by EKPC to develop this projection.

Response 4. Please see EKPC's response to Request 1.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 5

RESPONSIBLE PARTY: Christopher E. Adams

Request 5. Please identify what (if any) data center projects that EKPC has reviewed in the past two years, including:

- a. The owner of the data center
- b. Expected first year of operation
- c. Projected peak demand by year
- d. Probability of the data center becoming operational (if not operational already)
- e. If that data center's load is included in the IRP modeling

Response 5.

- a-c. EKPC does not currently have any contracts with any data center.
- d. There are no data center loads active today in EKPC Owner-Member territory.
- e. Data center load is only included in the IRP modeling performed for EKPC's response to Staff's first request for information. The IRP as originally filed did not include any assumptions for data center load growth.

EAST KENTUCKY POWER COOPERATIVE, INC.

CASE NO. 2025-00087

SECOND REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025

REQUEST 6

RESPONSIBLE PARTY:

Scott Drake

Request 6. Please refer to pages 117-123 of the IRP, where EKPC describes the load

impacts of its DSM programs. Please provide supporting documentation and analysis used to

develop these load impacts.

Response 6. Please refer to:

1. Technical Appendix Volume 2 Demand Side Management, Exhibit DSM-1. EE Potential

Report

2. Technical Appendix Volume 2 Demand Side Management, Exhibit DSM-3. Program

Assumption Sheets

For Energy Efficiency programs:

The annual Impact on Total Requirements (MWh) is calculated by multiplying the number

of participants by the net annual impact per participant. The number of participants is based on

several factors, including historic participation rates, level of incentives, and the savings associated

with the cost-effective measures.

The annual impact per participant is provided in the EE Potential Report, an impact evaluation report, or a Technical Reference Manual (TRM). The net annual impact is the annual impact times the net-to-gross factor. Net-to-gross factors are typically given in an impact evaluation or a TRM.

The Net Annual Impact on Summer Peak is the annual impact per participant times the number participants times the net-to-gross ratio. The Summer Peak impact per participant is provided in the Potential Report from GDS.

The annual Impact on Winter Peak is the annual impact per participant times the number participants times the net-to-gross ratio. The annual Winter Peak impact per participant is derived from the planning load profile for the winter peak day.

For Demand Response programs:

The general calculation is the net number of participants times the impacts per participant. Each program has its own approach to determining the impacts per participant. The DLC program relies on the annual impact evaluations available for review. The Electric Vehicle Off-Peak Charging program relies on a borrowed load profile and a net-to-gross ratio estimate that accounts for likely free rider savings in this program design. The Backup Generator Control program annual load relief is based on the GDS Technical Potential study. The participation and impacts are cumulative starting in 2025.

For programs and measure-specific values, please see Technical Appendix Volume 2

Demand Side Management, Exhibit DSM-1, EE Potential Report, Appendix DSM-3, Program

Assumptions Sheets.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 7

RESPONSIBLE PARTY: Craig Johnson

Request 7. Please refer to Company response attachment "SC_1-8.xlsx."

- a. Please identify the units for historical emissions data provided in tabs: A, B, C, and D.
- b. Please provide a breakdown of the following for each of the Cooper and Spurlock units:
 - i. Fuel cost (\$)
 - ii. Fuel usage (MMbtu)
 - iii. Variable O&M (\$)
 - iv. Fixed O&M (\$)

Response 7.

a. Tabs A, C, and D already contain the breakdown for each unit. The unit breakdown for tab B is included below.

2020 - 2025 Cooper & Spurlock Particulate matter (PM) emissions

	2020	2021	2022	2023	2024
Cooper	0.005	0.005	0.004	0.004	0.004
Spurlock 1	0.003	0.002	0.002	0.002	0.002
Spurlock 2	0.002	0.002	0.001	0.001	0.001
Spurlock 3	0.006	0.008	0.010	0.007	0.009
Spurlock 4	0.002	0.004	0.003	0.002	0.004

^{*} Cooper Station is combined since both units run thru the same scrubber

b (i-iv). Refer to Section 4 of the IRP, pages 93 through 110, for fuel cost, variable O&M, and fixed O&M for Cooper and Spurlock stations, subject to motion for confidential treatment. Refer to *Confidential - SC 1-1 Output 22NOV24.xlsx* for fuel usage, provided in EKPC's response to Sierra Club's First Request for Information, Item 1. See row 1237 through 2629, which shows fuel usage in tons (coal), mcf (natural gas), and gallons (fuel oil), by unit.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025

REQUEST 8

RESPONSIBLE PARTY: Chr.

Christopher E. Adams

Request 8. Please refer to "Confidential - SC 1-1 Output 22NOV24.xlsx".

- a. Please explain why fixed O&M is \$0 for all units in the model outputs?
- b. Please provide the revised fixed O&M outputs.
- c. Are new annual capital expenditures at existing units included in the modeling?
 - i. If so, please provide the assumptions for new capital spending.
 - ii. If not, please explain why not.
- d. Please provide a breakdown of coal and gas usage and costs by unit.

Response 8.

a-c. Fixed O&M and capital costs are not included in production cost modeling. Production cost modeling is used to determine the variable production cost of the system. Capital costs are included in the resource optimization modeling. Table 8-2 (Revised) shows the capital costs used in the resource optimization modeling performed for the IRP. Table 8-4, included in the IRP, is the output of that resource optimization modeling.

d. This breakdown is already provided in *Confidential - SC 1-1 Output 22NOV24.xlsx*. See row 1237 through 2629, which shows fuel usage in tons (coal), mcf (natural gas), and gallons (fuel oil), by unit.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025

REQUEST 9

RESPONSIBLE PARTY:

Christopher E. Adams

Request 9. Refer to Company response to PSC Request 1.

a. Please provide all modeling inputs and outputs, including any pre- or post-

processing.

b. Please provide the estimates of the capital costs for new gas CC capacity added.

Response 9.

a and b. EKPC utilized the same inputs as used in the 2025 IRP; however, it added

1,000 MW of demand at 95% load factor to the 2024 long-term load forecast and then performed

a resource optimization run on that revised load forecast. The resulting output specified two 2-on-

1 CCGTs as the preferred resources to serve the theoretical load. Capital costs used in the resource

optimizer are included in Table 8-2 (Revised).

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 10

RESPONSIBLE PARTY: Christopher E. Adams

Request 10. Did EKPC evaluate or model full conversion to natural gas (i.e. no potential coal burning in the future) at Spurlock 1 through 4 or Cooper 2?

- a. If so, please provide the estimated capital costs for full gas conversion at each unit (to the extent available).
- b. If so, please provide all modeling inputs and outputs, including any pre- or post-processing of inputs and outputs.
- c. If so, if another type of evaluation was done of full gas conversion, please provide the supporting documentation and analyses.
 - d. If not, please explain why full gas conversion was not considered at these units.

Response 10.

a. EKPC modeled up to 50% co-firing on natural gas for Spurlock 1 through 4 and up to 100% co-firing for Cooper 2. Refer to PSC Case 2024-00370 for capital costs related to the co-fire conversions for those resources.

- b. Refer to EKPC's response to Sierra Club First Request for Information, Item 1, subject to motion for confidential treatment.
- c and d. EKPC did not evaluate or model full conversion to natural gas. Following recent severe weather events, such as Winter Storm Elliott, EKPC understands the value of fuel security in maintaining a reliable electric grid. If a full gas conversion was considered, this would put EKPC in full reliance on natural gas suppliers with limited backup fuel capacity (fuel oil). That approach would be very problematic during events like Winter Storm Elliott as evidenced by EKPC's experience with EKPC's Bluegrass Generating Station during Storm Elliott. Note, EKPC increased its backup fuel capacity as a result of that event at Bluegrass Generating Station. Unfortunately, fuel oil capacities are limited to a few days of full unit capacity run time, while coal reserves can approach 30-60 days, or more, as space allows.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 11

RESPONSIBLE PARTY: Christopher E. Adams

Request 11. Refer to Company response to Staff 2-23, Table 8-2 (revised)

- a. Please provide the documentation for the capital cost sources listed, including any calculations performed by or for EKPC using this source data.
- b. Please provide all estimates of the capital costs for new gas CC and/or CT's reviewed by EKPC in the past 2 years.
- c. Please provide any forecasts of capital costs for new gas CC and/or CT's reviewed by EKPC in the past year.
 - d. Has EKPC conducted an RFP (or RFPs) for new resources in the past two years?
- i. If so, please provide these REFs, the responding bids, and any calculations performed by or for EKPC using the bid response values.
 - e. Please explain why battery storage projects were assumed to be 400 MW.
- f. Is the Company aware of any existing or planned battery storage project in PJM of that size or larger? If so, please identify such projects.

Response 11.

a. Refer to Staff's Third Request for Information, Item 3.

b and c. Capital cost estimates listed in Table 8-2 (Revised) were used in the resource optimization model in the 2025 IRP. Capital costs for Liberty RICE and Cooper CCGT can be found in PSC Case No. 2024-00310 and 2024-00370, respectively.

- d. EKPC issued two RFPs to serve resource supply needs over the past two years, one in 2023 for solar resources, and a second in 2024 for all types of renewable resources. Refer to Staff's Second Request for Information, Item 5e, subject to motion for confidential treatment.
 - e. Refer to the Attorney General's Second Request for Information, Item 5.
- f. EKPC is generally aware of interconnection requests at PJM. PJM posts information regarding service requests on their website. There are currently 12 BESS projects active in the queue at or above 400 MW nameplate capacity¹.

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¹ https://www.pjm.com/planning/service-requests/serial-service-request-status

EAST KENTUCKY POWER COOPERATIVE, INC.

CASE NO. 2025-00087

SECOND REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025

REQUEST 12

RESPONSIBLE PARTY:

Brad Young

Request 12. Refer to Company response to AG-1-19. Given the recent rollback of

federal clean energy tax credits, does EKPC expect gas turbine costs to increase due to an increase

in demand for gas resource? Please explain.

Response 12. In recent years the gas turbine costs have increased and the market appears

to be continuing on that same trend. In EKPC's opinion, this is due mainly to an increase in demand

for gas resources, inflation the United States has seen over that same time period, and tariffs (going

forward). EKPC does not believe the recent roll back in federal clean energy tax credits will be a

large factor in increasing the demand for gas resources; since renewables are not dispatchable, they

cannot be solely relied upon for capacity. The large drivers for increase in demand for gas

resources are the market pressures of retiring base load facilities (mostly coal), increase in energy

demand from large high load factor users (mostly data centers), and the lack of other affordable

resource options to construct that are 100% dispatchable.

SIERRA CLUB'S REQUEST DATED AUGUST 14, 2025 REQUEST 13

RESPONSIBLE PARTIES: Christopher E. Adams and Brad Young

Request 13. Refer to Case No. 2024-00370.

- a. Please provide all modeling inputs and outputs, including any pre- or post-processing of inputs and outputs.
- b. If the modeling performed in the CPCN case differed from the IRP in this case, please explain those differences.
- c. Do the assumed capital costs for the Cooper CCGT assumed in the CPCN case match those modeled in the IRP?
- i. If not, please explain why not and provide the costs assumed in the CPCN case.
- d. Do the assumed capital costs for co-firing assumed in the CPCN case match those modeled in the IRP?
- i. If not, please explain why not and provide the costs assumed in the CPCN case.
- e. Please provide details on the availability, lead times, and procurement status of the gas turbines needed for the Cooper CCGT project, including supporting documentation.

Response 13.

- a. EKPC objects to this request. This information was filed confidentially in Case No .2024-00370, and the Sierra Club was not a party to that proceeding and has not signed confidentiality agreements for the information. Additionally, the modeling data utilized in Case No. 2024-00370 is not relevant to this proceeding. The modeling done in Case No. 2024-00370 was for a specific purpose, and not for the IRP. All modeling done for the IRP has been provided to the Sierra Club.
 - b. See the response to Response 13(a).
- c. The Cooper CCGT capital costs are not considered in the 2025 IRP as the resource was included within the base case assumptions for the 2025 IRP.
- d. The co-firing capital costs are not considered in the 2025 IRP as those resources were included within the base case assumptions for the 2025 IRP.
- e. EKPC entered an agreement with Siemens Energy on August 4, 2025 to procure two SGT6-5000F gas turbine units for the Cooper CCGT project. The contractual delivery dates of the units are October and November of 2027.