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 SIERRA CLUB'S INITIAL INFORMATION REQUEST

TO EAST KENTUCKY POWER COOPERATIVE, INC.

DATED MAY 16. 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 Sierra Club's First Request for Information in the above-referenced case dated May 16, 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)

Robin Hayes, being duly sworn, states that she has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Sierra Club's First Request for Information in the above-referenced case dated May 16, 2025, 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 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 Sierra Club's First Request for Information in the above-referenced case dated May 16, 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

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)

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 First Request for Information in the above-referenced case dated May 16, 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 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
INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 1
RESPONSIBLE PARTY: Christopher E. Adams

Request 1. Please provide supporting workpapers and modeling files, including (not limited to) all input files, output files, and pre- or post-processing of said inputs and outputs for all resource portfolios and for all years modeled, in machine-readable Excel format.

Response 1. See modeling input assumptions in attached excel sheet, Confidential - *SC 1-1 Inputs 10OCT24.xlsx*, subject to motion for confidential treatment. See modeling output data in attached excel sheet, Confidential - *SC 1-1 Output 22NOV24.xlsx*, subject to motion for confidential treatment.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 2
RESPONSIBLE PARTY: Christopher E. Adams

Request 2. Please provide the underlaying data for all figures in the IRP in machine-readable Excel format.

Response 2. See *SC1-2 Load Forecast Tables.xlsx.*

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 3
RESPONSIBLE PARTY: Christopher E. Adams

Request 3. Please provide the underlaying data for the load forecast scenarios modeled in the IRP, including original sources and any calculations using those sources prior to the final forecast.

Response 3. Please see Case No. 2024-00310, EKPC's Response to Commission Staff's First Request for Information, Item 1 for supporting workpapers and modeling files related to EKPC's 2024 Long Term Load Forecast.[1] Also see, EKPC's Response to Commission Staff's Second Request for Information, Item 7.[2]

[1] Case No. 2024-00370, *Electronic Application of East Kentucky Power Cooperative, Inc. for 1) Certificates of Public Convenience and Necessity to Construct a New Generation Resources; 2) For a Site Compatibility Certificates; 3) Approval of Demand Side Management Tariffs; and 4) Other General Relief*, EKPC Responses to Commission Staff's First Request for Information (filed January 3, 2025).

[2] Case No. 2024-00370, EKPC's Response to Commission Staff's Second Request for Information (filed January 31, 2025).

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 4
RESPONSIBLE PARTY: Robin Hayes

Request 4. Please provide the annual revenue requirements and PVRR calculation for all portfolios and scenarios modeled in machine-readable Excel format.

Response 4. Please see the attached file, *confidential_1-4_PVRR and Revenue Requirements.xlsx*, which provides the annual revenue requirements and PVRR calculations for all portfolios and scenarios modeled. This information is being filed subject to a motion for confidential treatment.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 5
RESPONSIBLE PARTY: Christopher E. Adams

Request 5. Was any capacity expansion modeling used to determine coal retirement and/or conversion dates in EKPC's portfolios?

a. If so, please explain what model was used and how coal retirement and/or conversion dates were determined for EKPC's portfolios.

b. If not, please explain why the Company did allow the model to select for coal retirement and/or conversion dates in its resource portfolios.

Response 5.

a-b. Refer to EKPC response to Staff's Second Request for Information, Item 10.

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 6
RESPONSIBLE PARTY: Christopher E. Adams

Request 6. Refer to IRP pages 186-187.

a. Please explain how the final plan was developed and provide any documentation or analyses used to determine the final plan.

b. Was the final plan modeled itself or was it chosen based on other portfolios that were modeled? Please explain.

Response 6.

a-b. Refer to EKPC's response to Staffs Second Request for Information, Item 22.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 7
RESPONSIBLE PARTY: Chris Adams

Request 7. Please provide the following for each generating unit (or plant-level if unit-level is unavailable) for all resource portfolios, scenarios, and years modeled, in machine readable Excel format with formulas intact:

a. NOx emissions

b. Particulate matter (PM) emissions

c. SO2 emissions

d. CO2 emissions

e. Generation

f. Nameplate capacity

g. PJM accredited capacity

h. PJM energy revenue

i. Variable O&M

j. Fixed O&M

k. Fuel cost

l. Fuel usage (MMBtu)

m. Forced outage rate

n. Planned outage rate

o. Equivalent availability factor

p. Heat rate

q. Non-environmental capital spending

r. Environmental capital spending, including corresponding regulation

s. Capital revenue requirements/costs to customers, including any supporting Calculations

Response 7.

a. Refer to EKPC's response to Item 1.

b. EKPC does not model PM emissions within production cost modeling.

c-i. Refer to EKPC's response to Item 1.

j. See attached spreadsheet, *Confidential – SC 1-7j.xlsx*, subject to motion for confidential treatment.

k-p. Refer to EKPC's response to Item 1.

q-s. See attached spreadsheet, *Confidential - SC 1-7qrs.xlsx,* subject to motion for confidential treatment. EKPC did not separate environmental from non-environmental capital projects in the context of the IRP. Refer to the 2025 IRP, Section 10, Financial Planning, for average rate projections.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 8
RESPONSIBLE PARTY: Craig Johnson and Jerry Purvis

Request 8. Please provide the following annual historical data for EKPC's Cooper and Spurlock coal-fired units from 2020 through 2025 year-to-date (or latest available), in machine readable Excel format with formulas intact:

a. NOx emissions

b. Particulate matter (PM) emissions

c. SO2 emissions

d. CO2 emissions

e. Generation

f. Nameplate capacity

g. PJM accredited capacity

h. PJM energy revenue

i. Variable O&M

j. Fixed O&M

k. Fuel cost

l. Fuel usage (MMBtu)

m. Forced outage rate

n. Planned outage rate

o. Equivalent availability factor

p. Heat rate

q. Non-environmental capital spending

r. Environmental capital spending, including corresponding regulation

Response 8.

a-r. See attachment *SC 1-8.xlsx.* Items a-d can also be seen at the following website: https://www2.ekpc.coop/Environmental_Air_Quality_Performance.html.

Note: EPA requires EKPC to meet fPM numeric limitations under MATs. EKPC is providing the same link to achieve compliance with this request.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 9
RESPONSIBLE PARTY: Christopher E. Adams

Request 9. Please provide the underlying source data of the capital costs and operating characteristics for each supply-side resource type modeled by the Company in machine-readable Excel format, including supporting analyses and/or documents

Response 9. Refer to EKPC's response to Staff's Second Request for Information, Item 23, for underlying capital costs for each supply-side resource type. Refer to EKPC's response to Item 1for operating characteristics for each resource.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 10
RESPONSIBLE PARTY: Robin Hayes

Request 10. Please provide the assumed tax credits applied in the modeling by year and resource.

Response 10. Please see the attached file, *CONFIDENTIAL_1-10_ITC for Sierra Club.xlsx*, which provides the assumed tax credits applied in the modeling by year and by resource. This information is being filed subject to a motion for confidential treatment.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 11
RESPONSIBLE PARTY: Christopher E. Adams

Request 11. Please provide the underlying source data of the PPAs modeled by the Company in machine-readable Excel format, including supporting analyses and/or documents.

Response 11. Please see the response to Item 1. ACES provides the information to EKPC.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 12
RESPONSIBLE PARTY: Christopher E. Adams

Request 12. Please provide any RFPs issued for new supply-side resources in the past two years, including the bids received and any analyses of the bids done by or for the Company.

Response 12. EKPC issued an RFP in April 2024 for up to 400 MW of renewable energy with the goal of securing a PPA proposal to replace the short-term 300 MW Hydro PPA and solicit indicative wind and solar offers for up to 100 MW. Refer to EKPC's response to Staff's Second Request for Information, Item 5e, for more detail.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 13
RESPONSIBLE PARTY: Christopher E. Adams

Request 13. Please provide forecasts of ELCC values used in modeling in all years, by resource type.

Response 13. Refer to EKPC response to Staff's Second Request for Information, Item 28b.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 14
RESPONSIBLE PARTY: Christopher E. Adams

Request 14. Did the Company consider hybrid resources, such as solar PV plus battery storage, as a supply-side resource option within its IRP modeling? If not, please explain why not.

Response 14. No, EKPC did not consider PV plus battery storage as a supply-side resource option. EKPC requires resources with firm capacity attributes that have the ability to generate and deliver energy during peak winter periods with sustained high-demand periods of 48 hours or more, as witnessed during Winter Storms Elliott, Gerri and Enzo. Hybrid PV plus battery storage systems do not provide this service. Solar generation is not coincident with EKPC's winter peak hours and thus does not provide winter capacity benefit to the portfolio. EKPC did evaluate stand-alone 4-hour battery energy storage system ("BESS") resources as part of its resource optimization modeling but found them to be uneconomic as compared to purchasing short-term winter PPAs.

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 15
RESPONSIBLE PARTY: Christopher E. Adams

Request 15. Did the Company conduct a sensitivity or scenario analysis using high or low capital cost forecasts of new supply-side resources?

a. If so, please describe and provide all underlying data and assumptions in machine-readable Excel format.

b. If not, please explain why not.

Response 15. a-b. EKPC did not evaluate a high or low capital cost forecast. It utilized the best available information from either its own experience or NREL. In addition, see EKPC's response to Staff's Second Request for Information, Item 23.

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 16
RESPONSIBLE PARTY: Jerry Purvis

Request 16. On page 208 of Section 9.0 of the IRP, the Company discusses Section 111(d) compliance options for existing coal-fired units. In particular, the Company estimates that the use of CCS to comply with Section 111 would cost $10.7 billion at Spurlock. Please provide all the underlying source data used to produce this estimate in machine-readable Excel format, including supporting analyses and/or documents.

Response 16. EKPC modeled itself pursuant to the "Tundra Project" at Minnkota Milton R. Young Station by scaling to H.L. Spurlock nameplate MW capacity, utilizing the EPRI latest mapping to locate suitable underground storage. This spreadsheet model is to be viewed as indicative high-level classic MBA case study to model what H.L. Spurlock would cost to deploy CCUS technology. For more information, please see Confidential Attachment SC 16_Spurlock CCS Analysis, which is being filed under-seal pursuant to a motion for confidential treatment.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 17
RESPONSIBLE PARTY: Jerry Purvis

Request 17. Did the Company assess the cost of all Section 111(d) compliance options for each existing coal-fired unit at the Cooper and Spurlock facilities?

a. If so, please describe and provide all underlying data and assumptions in machine-readable Excel format.

b. If not, please explain why not.

Response 17.

a. Please refer to Case 2024-000370, Application, Exhibit 4, Attachments BY-2 and BY-3.[3] EKPC with its owner-engineer, Burns & McDonnell, developed project scoping reports for Cooper and Spurlock Station. EKPC reviewed the options under the final EPA GHG Rule which in summary are "Do Nothing" and retire by January 1, 2032, co-fire with natural gas 40% and operate to one day before January 1, 2039, or deploy carbon capture and sequestration to continue to operate as baseload unit after 2039. EKPC cannot replace its fleet of coal fired units before January 1, 2032, nor afford to build twice as many CCGT's since the rule limits capacity factor to

[3] Case No. 2024-00317, Application (filed November 20, 2024).

40% for new CCGT's. Based upon this, EKPC chose the least cost most suitable option to preserve its coal capacity and lower its GHG footprint by co-firing Spurlock Units 1-4 and Cooper Unit 2. The PSRs referred to suggest indicative pricing to co-fire the coal units to meet the objective to comply, lower GHG footprint, and to preserve affordability and the existing coal fleet.

b. EKPC chose to present the least cost option and means to comply with the existing and final EPA GHG rule.

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 18
RESPONSIBLE PARTY: Christopher E. Adams

Request 18. See IRP pages 193-219, please provide all modeling where the Company tested greenhouse gas limit compliance options for gas resources, including all inputs and outputs, in machine-readable Excel format.

Response 18. EKPC did not explicitly model greenhouse gas compliance within the IRP. Its portfolio expansion plan, which was assumed as the base modeling assumption, included the natural gas co-fire conversions for five of its coal-fired resources as previously discussed in Case No. 2024-00370.

EAST KENTUCKY POWER COOPERATIVE, INC.
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INITIAL REQUEST FOR INFORMATION RESPONSE

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 19
RESPONSIBLE PARTY: Christopher E. Adams

Request 19. Does the Company assume that hydrogen co-firing with natural gas will be employed to achieve carbon emission reductions in the IRP?

a. If so, please provide the associated costs included in the IRP modeling that account for these retrofits, list the scenarios where they are included, and provide the modeling outputs that include these costs.

Response 19. No, EKPC did not assume hydrogen co-firing within the IRP modeling.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 20
RESPONSIBLE PARTY: Christopher E. Adams

Request 20. Did the Company develop cost estimates for carbon capture and sequestration (CCS) at Cooper and Spurlock?

a. If so, please provide the capital and operating cost estimates for CCS at each unit or plant.

b. If so, please provide the assumed operating characteristics, such as carbon removal rate and whether carbon was assumed to be stored or transported elsewhere.

c. If so, please provide any modeling that was performed assuming CCS on any of these units. d. If not, please explain why not.

Response 20. a-c. EKPC developed CCS cost estimates for Spurlock Station only, see EKPC response to Item 16.

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 21
RESPONSIBLE PARTY: Brad Young and Christopher E. Adams

Request 21. Did the Company develop cost estimates for gas conversion of Cooper and Spurlock coal-fired units?

a. If so, please provide the capital (including pipeline costs) and operating cost estimates for the gas conversion at each unit or plant.

b. If so, please provide any modeling that was performed assuming gas conversion of any of these units.

c. If not, please explain why not.

Response 21.

a. Yes, refer to Case 2024-00370, Application, Exhibit 4, Direct Testimony of Brad Young, page 14 and page 17; Application, Exhibit 5, Direct Testimony of Craig Johnson, page 10 and page 13.

b. See EKPC response to Item 1.

c. N/A

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

SIERRA CLUB'S REQUEST DATED MAY 16. 2025
REQUEST 22
RESPONSIBLE PARTY: Jerry Purvis

Request 22. On page 212 of Section 9.0 of the IRP, the Company states that it is "currently evaluating the new CRL limitations." Did the Company assess the cost of compliance with the new 9 CRL limitations set forth in the 2024 ELG Rule at the Cooper and Spurlock facilities?

a. If so, please describe and provide all underlying data and assumptions in machine-readable Excel format.

b. If not, please explain why not.

Response 22.

a. EKPC is currently evaluating the new CRL limitations under the ELG.

b. EKPC is not finished with this evaluation at this time.