COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST	)	
KENTUCKY POWER COOPERATIVE,	)	
INC. FOR 1) CERTIFICATES OF PUBLIC	)	**CASE NO.**
CONVENIENCE AND NECESSITY	)	**2024-00370**
TO CONSTRUCT GENERATION	)	
RESOURCES; 2) FOR A SITE COMPATIBILITY	)	
CERTIFICATE RELATING TO THE SAME;	)	
3) APPROVAL OF DEMAND SIDE MANAGEMENT	)	
TARIFFS; AND 4) OTHER GENERAL RELIEF	)	

RESPONSES TO JOINT INTERVENORS' SUPPLEMENTAL REQUESTS FOR

INFORMATION TO EAST KENTUCKY POWER COOPERATIVE, INC.

DATED JANUARY 17, 2025

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	)	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Darrin Adams**,** being duly sworn, states that she has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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.

Darrin Adams

Subscribed and sworn before me on this 30th day of January, 2025.

Gwyn M. Willoughby
Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST	**)**	
KENTUCKY POWER COOPERATIVE,	**)**	
INC. FOR 1) CERTIFICATES OF PUBLIC	**)**	**CASE NO.**
CONVENIENCE AND NECESSITY	**)**	**2024-00370**
TO CONSTRUCT GENERATION	**)**	
RESOURCES; 2) FOR A SITE COMPATIBILITY	**)**	
CERTIFICATE RELATING TO THE SAME;	**)**	
3) APPROVAL OF DEMAND SIDE MANAGEMENT	**)**	
TARIFFS; AND 4) OTHER GENERAL RELIEF	**)**	

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Scott Drake**,** being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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 30th day of January, 2025.

Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	**)**	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Gregory Cecil**,** being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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

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Subscribed and sworn before me on this 30th day of January, 2025.

Gwyn McWilloughby
Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	)	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Mark Horn**,** being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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.

Mark Horn

Subscribed and sworn before me on this 30th day of January, 2025.

Gwyn M. Willoughby
Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	)	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Craig Johnson**,** being duly sworn, states that she has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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.

Craig A Johnson

Subscribed and sworn before me on this 30th day of January, 2025.

Gwyn M. Willoughby
Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	)	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Jerry Purvis, being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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 30th day of January, 2025.

Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	**)))))))))**	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Thomas J. Stachnik**,** being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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.

Thomas J. Stachnik

____

Subscribed and sworn before me on this 30th day of January, 2025.

Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	**)))))))))**	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Julia J. Tucker**,** being duly sworn, states that she has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request Information in the above-referenced case dated January 17, 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.

Julia Tucker

____

Subscribed and sworn before me on this 30th day of January, 2025.

Gwyn M. Willoughby

Notary Public

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

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF EAST KENTUCKY POWER COOPERATIVE, INC. FOR 1) CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT GENERATION RESOURCES; 2) FOR A SITE COMPATIBILITY CERTIFICATE RELATING TO THE SAME; 3) APPROVAL OF DEMAND SIDE MANAGEMENT TARIFFS; AND 4) OTHER GENERAL RELIEF	**)))))))))**	**CASE NO. 2024-00370**

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Brad Young**,** being duly sworn, states that he has supervised the preparation of the supplemental responses of East Kentucky Power Cooperative, Inc. to Joint Intervenor's Supplemental Request for Information in the above-referenced case dated January 17, 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 30th day of January, 2025.

Gwyn M. Willoughby
Notary Public

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

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 1
RESPONSIBLE PARTY: Darrin Adams

Request 1. Please refer to the N-1 and N-1-1 contingency analysis results set forth in JI1-3c 1.xlsx and JI1-3c-2.xlsx, respectively. For each of those analyses:

a. State whether any of the scenarios included the addition of any new generation resources in the area being analyzed. If so, identify each such new generation resource.

b. State whether any of the scenarios included any transmission grid upgrades or additions in the area being analyzed. If so, identify each such upgrade or addition.

Response 1.

a. The scenarios that were analyzed did not include any new generation resources in the area being analyzed.

b. The scenarios that were analyzed did not include any significant transmission grid upgrades or additions in the area being analyzed.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 2
RESPONSIBLE PARTY: Darrin Adams

Request 2. Please refer to your response to JI 1-3(d).

a. With regards to the two transmission projects referenced therein:

i. Identify the estimated capital cost of each project.

ii. Identify the status of each project and the date by which such project could be brought online.

iii. Produce any analysis in which the projects were identified as being needed to improve the reliability of service to customer load in the area with the absence of available generation at Cooper Station.

iv. State whether you have evaluated the level of reliability for the area with the two referenced projects and the Liberty RICE units proposed in Case No. 2024-00310. If so, explain and produce the results of that analysis. If not, explain why not.

b. With regard to the second transmission project referenced therein (i.e., new 345 kV line and associated substation expansion), please identify any portion(s) of that project that overlap(s) with or would be redundant to the potential network upgrades listed at pp. 7-9 of Darrin Adams' Direct Testimony that specifically mention "Alcalde".

c. Explain the meaning of "operating generators at Cooper Station" as used in the referenced response (i.e., specify which generators).

d. Define the geographic scope of each of the terms "area" and "region" as used in the statement that "as load continues to grow in the area and/or other generators in the region are retired, additional transmission reinforcements would be needed to help support a minimum level of reliability." (emphasis added).

Response 2.

a. i. The estimated capital costs are:

- Cooper Station 69 kV, 43.37 MVAR capacitor bank -- $960,000
- 345 kV line from Cooper Station to LG&E/KU's Alcalde 345 kV substation and necessary substation expansion required at both ends -- $69,000,000

ii. EKPC has elected to install the Cooper Station 69 kV capacitor bank by December 2026 in order to provide additional reliability and reactive-power margin for the region for high-load periods when one or both Cooper units are not operating.

The Cooper-Alcalde 345 kV line project is a conceptual project that EKPC does not currently plan to implement due to the planned additions of the Liberty RICE and Cooper CCGT generation facilities. EKPC estimates that it would take approximately 4 years from a decision to proceed with the Cooper-Alcalde project until the line would be operational.

iii. See the response to Request #23, part c, of the Joint Intervenors' First Request for Information in this proceeding. Additionally, *JI2.2a.1.xlsx* is a spreadsheet providing the supporting data from the power-flow analyses that were conducted to determine the amount of load that can be supported in the region without generation at Cooper Station.

iv. EKPC has evaluated the reliability of service provided by the transmission system in the region with each of the two referenced projects installed individually (analysis has not been completed with both implemented together) in conjunction with the Liberty RICE generation facility absent any generation at Cooper Station. The results of the analysis are provided in the response to Request No. 23, part c., of the Joint Intervenors' First Request for Information in this proceeding, as well as in the response provided immediately above. The analysis results show that the installation of the capacitor bank at Cooper Station in conjunction with the Liberty RICE facility will support an additional 288.5 MW of EKPC load beyond the forecasted base amount (50/50 load probability) of 906.7 MW for EKPC in the region. The addition of the Cooper-Alcalde 345 kV line in conjunction with the Liberty RICE facility was determined to support an additional 405.7 MW of EKPC load beyond the forecasted amount.

b. Some overlap exists between the Cooper-Alcalde 345 kV line project identified in the request above and some of the projects listed in the referenced portion of the direct testimony. The three specific projects with some level of overlap are:

- Construct a new Cooper-Alcalde 161 kV line (~5 miles) using 954 MCM ACSS conductor. This line is specified for construction/operation at 161 kV rather than 345 kV, but the projects would overlap as far as the routing of the line – i.e., the lines would most likely follow the same route between the two endpoint substations regardless of the voltage level.

- LG&E/KU constructs a 345 kV bus at the Alcalde substation and installs a second 345-161 kV transformer. The Cooper-Alcalde 345 kV line would require construction of a 345 kV bus at the Alcalde substation but would not require the installation of the second 345-161 kV transformer.
- LG&E/KU expands the 345 kV bus at the Alcalde substation. The Cooper-Alcalde 345 kV line would require expansion of the 345 kV bus at the Alcalde substation, so this project would completely overlap.

c. The phrase "operating generators at Cooper Station" in the referenced response refers to any generators that may be installed and producing real and reactive power. As stated in the response, local generation provides a higher level of support than bolstering transmission can provide. This is regardless of whether the generators that may be operating are the existing coal-fired units or the proposed combined-cycle gas-fired units.

d. The referenced area where load is supported by generation at Cooper Station consists of the following counties: Adair, Casey, Clay, Clinton, Cumberland, Jackson, Knox, Laurel, Lincoln, McCreary, Pulaski, Rockcastle, Russell, Wayne, and Whitley. The reference to the region where generators help support this area encompasses a larger footprint that includes southern and central Kentucky, as well as northern Tennessee. For instance, the E.W. Brown generation site in central Kentucky (Mercer County) provides support to the southern region of central region. Similarly, the Gallatin and Kingston generation sites in northern Tennessee provide support to the southern portion of Kentucky.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 3
RESPONSIBLE PARTY: Craig Johnson

Request 3. Please refer to your response to JI 1-4(j) and the Excel spreadsheet JI1-4j - Planned Outages.xlsx

a. Explain the basis for assuming only two weeks per year of planned outages for Cooper Unit 1 in 2027 through 2029, given that the Excel spreadsheet 7 shows 6 weeks of planned outages for that unit in 2024, and four weeks in each of 2025 and 2026.

b. Explain the basis for assuming only three weeks per year of planned outages for Cooper Unit 2 in 2027 through 2029, given that the Excel spreadsheet shows 6 weeks of planned outages for that unit in 2024, five weeks in 2025, and four weeks in 2026.

Response 3a. and b. The two weeks per unit in 2027 through 2029 are place holders for planned outages. The outages in 2024, 2025 and 2026 are based upon specific scopes of work which required more outage time to complete.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 4
RESPONSIBLE PARTY: Darrin Adams

Request 4. Please refer to the Direct Testimony of Darrin Adams at p. 10, stating that EKPC submitted the proposed Cooper Station CCGT project to the PJM generator-interconnection queue on Jan. 24, 2024.

a. State when EKPC submitted the proposed Liberty RICE to the PJM generator interconnection queue.

b. Identify each other project EKPC submitted to the PJM generator interconnection queue over the last 18 months.

Response 4.

a. The application for interconnection of the Liberty RICE generation facility to the EKPC transmission system was submitted to PJM on August 29, 2024.

b. EKPC has not submitted an application to PJM requesting interconnection of any other generation facilities in the last 18 months other than the Liberty RICE and Cooper CCGT facilities.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 5
RESPONSIBLE PARTY: Objection: Legal

Request 5. Please refer to your response to JI 1-6. With regards to the NewERA program financial support that EKPC has been selected to receive, identify and produce: (1) EKPC's Letter of Interest in applying for such financial support, (2) EKPC's application for such financial support, and (3) RUS and/or USDA's notice informing EKPC that it has been selected to receive such financial support.

Response 5. **Objection.** The projects proposed in this proceeding to not qualify for the NewERA funding and therefore the information requested is not relevant to this proceeding.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 6
RESPONSIBLE PARTY: Julia J. Tucker

Request 6. Please refer to your response to JI 1-8. Confirm that EKPC did not carry out any capacity expansion modeling supporting the proposed Cooper CCGT plant. If not confirmed, identify such modeling and produce any modeling input and output files, workpapers, workbooks, and other documents used in carrying out such modeling.

Response 6. EKPC did model the proposed Cooper CCGT as stated in its response to Joint Intervenor's First Request for Information, Item 8 and its response to Staff's First Request for Information, Item 19. Confidential modeling files were provided within EKPC's response to Staff.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 7
RESPONSIBLE PARTY: Thomas J. Stachnik

Request 7. Please reconcile the statement in your response to JI 1-11 that "[t]he proposed projects were not modeled individually" with the statement in your response to Staff 1-21(a) that "[e]ach of the projects were modeled individually."

Response 7. The statement in the response to JI 1-11 that "[t]he proposed projects were not modeled individually" was responding to the effect of each project on rates and average monthly bills, which is not modelled project by project. The statement in response to Staff's First Data Request 21(a) that "[e]ach of the projects were modeled individually." was discussing input into the generation model.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 8
RESPONSIBLE PARTY: Thomas J. Stachnik

Request 8. Please refer to your response to JI 1-11. With regards to the statement that "our projections indicate that EKPC will be able to implement the complete proposed portfolio of projects (RICE, Cooper CC, Co-firing and New ERA renewables) which meets generation needs and environmental compliance requirements with modest rate increases, averaging less than 2% per year over the next 20 years."

a. Explain how you determined the referenced "modest rate increases," including identifying any modeling that went into such determination.

b. State whether each of the following categories of costs are reflected in this projected "modest rate increase". For each category that is not included, explain why not:

i. Capital

ii. Fixed O&M

iii. Variable O&M

iv. Fuel

v. Gas pipeline infrastructure

vi. Transmission upgrades and/or additions

c. Produce any modeling input and output files, workpapers, workbooks, and other documents used in determining the projected "modest rate increase."

<u>Response 8.</u>

a. and c. Please see attached for the Long-Range Financial Forecast ("LRFF") Summary. EKPC is also uploading an Excel spreadsheet of the last page of the LRFF Summary which is the LRFF. Both of these attachments are being filed under seal pursuant to a motion for confidential treatment. See attachments *Confidential-JI2.8.c1.pdf* and *Confidential-JI2.8.c2.xlsx*.

b. All of the above were included in the modelling.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 9
RESPONSIBLE PARTY: Julia J. Tucker

Request 9. Please refer to your response to JI 1-12(d) and (e).

a. Identify the total number of hours in December 23, 2024 through the end of 2024 during which EKPC's peak demand exceeded its installed peak winter generation capacity.

b. Identify the total number of hours in each of the years 2025 through 2034 in which EKPC's peak demand would exceed its current installed peak winter generation capacity assuming the 1 in 10 probability of extreme weather events described in the Direct Testimony of Julia Tucker at p. 14 lines 16 to 19.

Response 9.

a. 0 hours

b. Should the Commission approve the pending CPCNs, as assumed in Figure 2 in the Direct Testimony of Julia J. Tucker on page 18, the number of hours from 2025 to 2034 in which EKPC's peak demand plus a 7% planning reserve, to account for unknown risks in weather, would exceed its installed capacity is listed below:

- 2025 – 1

- 2026 – 1
- 2027 – 3
- 2028 – 8
- 2029 – 1
- 2030 – 2
- 2031 – 0
- 2032 – 0
- 2033 – 0
- 2034 - 0

EAST KENTUCKY POWER COOPERATIVE, INC.

CASE NO. 2024-00370

SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 10

RESPONSIBLE PARTY: Scott Drake

Request 10. Please refer to your response to JI 1-14 and to the Direct Testimony of Don Mosier, p. 13 lines 8-12.

a. Produce any document or written communication with NRCO regarding the cost of utility-scale BESS.

b. Produce any analysis, report, or other documentation supporting the BESS cost estimate that NRCO provided to EKPC.

c. Identify the date of the utility-scale BESS cost estimate that was provided to EKPC.

d. Identify at what cost EKPC would consider a utility-scale BESS to be competitive.

e. Did EKPC evaluate the impact of the Inflation Reduction Act's ITC on the cost of a utility-scale BESS? If so, explain the result of that evaluation. If not, explain why not.

Response 10a through e. See attachment *JI2.10.pdf* complete email track of information received from NRCO regarding BESS cost estimates. NRCO did not provide any additional analysis, report or documentation supporting the BESS estimate to EKPC. EKPC has not developed a cost for which EKPC would consider a utility-scale BESS to be competitive. EKPC did not evaluate the impact of the Inflation Reduction Act's ITC on the cost of a utility-scale BESS. No other alternatives considered by EKPC approach the cost estimated for the BESS option and EKPC did not explore the alternative any further.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 11
RESPONSIBLE PARTY: Brad Young and Julia J. Tucker

Request 11. Please refer to your response to AG 1-10.

a. Identify and produce any documentation of the exploration of the addition of batteries at Cooper Station referenced therein.

b. Identify and produce any documentation that you have carried out or reviewed of the performance of pumped storage resources during Winter Storm Elliott or other severe weather event.

c. Identify and produce any analysis that you have carried out or reviewed of the performance of battery energy storage systems during Winter Storm Elliott or other severe weather event.

Response 11.

a. EKPC, working with Burns & McDonnell, did conduct a technical assessment which produced a feasibility report for a 300 megawatt, 4-hour battery project at EKPC's existing Cooper Station. Please refer to attachment *JI2.11-EKPC Cooper Station BESS Evaluation.pdf*.

b. EKPC has not produced a review of pumped hydro performance during Winter Storm Elliot. Refer to the report issued by PJM detailing the events of Winter Storm Elliott[1] page 32, "During a typical midnight period, load reduces, and PJM would operate pumped storage resources as pumps to fill their ponds so that they have the ability to generate for the upcoming peak. Operating a pumped storage resource in pumping mode increasing load on the system because electricity is consumed to operate the resource as a pump. Given the tight conditions, PJM was not able to pump at any of the pumped storage facilities prior to the morning peak. This left PJM with extremely limited run hours for pumped storage generation. As previously stated, going into the morning peak on Dec. 24, resource unavailability was approximately 47,000 MW, including the unavailability of pumped storage hydro generation."

c. EKPC has not produced a review of battery performance during Winter Storm Elliot. PJM does not address batteries directly within the report, however batteries are energy storage devices that, once discharged, must be recharged. It is reasonable to consider the issues PJM noted in the report which led to pumped hydro assets being unavailable could also occur in relation to batteries.

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[1] https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/20230717-winter-storm-elliott-event-analysis-and-recommendation-report.ashx

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 12
RESPONSIBLE PARTY **Julia J. Tucker**

Request 12. Please refer to your response to JI 1-21(b). Identify the referenced Commission Orders.

Response 12. Refer to the Direct Testimony of Julia J. Tucker, page 16, lines 3-4, and footnote 4.

EAST KENTUCKY POWER COOPERATIVE, INC.
CASE NO. 2024-00370
SUPPLEMENTAL REQUEST FOR INFORMATION RESPONSE

JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 13
RESPONSIBLE PARTY: Julia J. Tucker

Request 13. Please refer to your responses to JI 1-21(d) and Staff 1-9(a and b). Other than Winter Storms Elliot and Gerri, does EKPC have any additional analytical support for the assumed occurrence of an extreme weather event every two years for a 48-hour period? If so, please identify each such analysis, study, forecast, or other document.

Response 13. There are no additional details to provide.

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REQUEST 14
RESPONSIBLE PARTY: Julia J. Tucker

Request 14. Please refer to your response to JI 1-21(f), which refers to EKPC's response to JI 1-11. Confirm that EKPC has no analysis of the impact to its rates of using a 7% Capacity Planning Reserve Margin for each of the winter and summer seasons as compared to any other Capacity Planning Reserve Margin. If anything but confirmed, produce each such analysis.

Response 14. EKPC's analysis of rate impacts, as stated in EKPC's response to Joint Intervenor's First Request for Information, Items 11 and 21, include the complete portfolio of projects (RICE, Cooper CCGT, Co-firing, and New ERA renewables). These projects are projected to meet EKPC's 7% capacity planning reserve need. EKPC did not analyze the impact between a 0% to a 7% planning reserve as anything less than 7% would not meet EKPC's current need.

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REQUEST 15

RESPONSIBLE PARTY: Julia J. Tucker

Request 15. Please refer to page 9 of the attachment to your response to JI 1-23(b). Explain the status of the potential Campbellsville RICE engines referenced therein. If those RICE engines are no longer being considered, explain why not.

Response 15. Campbellsville was one location being considered for the RICE facility. Liberty, Kentucky was eventually chosen as the final location for the RICE facility. Campbellsville was not in addition to the Liberty assets.

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REQUEST 16
RESPONSIBLE PARTY: Darrin Adams

Request 16. Please refer to page 9 of the attachment to your response to JI 1-23(c).

a. Explain what the "Total EKPC MW Added 50/50" column refers to.

b. Explain what the "% Scaled Above Base" column refers to.

Response 16.

a. This is the amount of incremental EKPC load that can be added in the area (southern Kentucky region) based on EKPC's 50/50 probability load forecast without creating regional voltage or thermal-loading criteria violations.

b. This is the percentage increase in EKPC's 50/50 probability load forecast for the area that the MW value in the "Total EKPC MW Added 50/50" column represents. For example, the first row indicates that EKPC can add 216.4 MW of load to the 50/50 probability load forecast value for the area, which was 906.7 MW when the analysis was completed. An additional 216.4 MW represents a 24% increase above 906.7 MW.

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REQUEST 17
RESPONSIBLE PARTY: Julia J. Tucker

Request 17. Please refer to your response to JI 1-24(c) and attachment JI1-24c - NG Coal ADHub.xlsx.

a. Identify the source and date of the AD Hub market energy price forecast set forth in the referenced attachment.

b. Identify the source and date of the natural gas and coal price forecasts set forth in the referenced attachment.

c. Identify which of the AD Hub market energy prices set forth in the attachment was used in determining the Net Cost Benefits set forth in Attachment JJT-5 and updated attachment JI1-24e, and explain how they were used.

Response 17.

a. ACES Power Marketing provided the forecast for AD Hub market energy prices on April 10, 2024.

b. For years 2025 and 2026, the coal prices were provided by the EKPC Fuels Department on April 2, 2024. ACES Power Marketing provided the natural gas and coal price forecasts on April 10, 2024 for years 2027 through 2039.c. The production cost model uses the "5x16" values for on-peak and the "Wrap" values for off-peak periods.

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REQUEST 18
RESPONSIBLE PARTY: Julia J. Tucker

Request 18. Please identify and produce EKPC's most recent forecast of PJM BRA capacity market clearing prices for any of the planning years 2024/25 through 2038/39 for which EKPC has a forecast.

Response 18. The BRA for delivery years 2024/25 and 2025/26 have already cleared at $28.92/MW-Day and $269.92/MW-Day, respectively. Please see BRA clearing price forecast below for delivery years 2026/27 through 2038/39, provided by ACES Power Marketing on December 19, 2024. These values were not used to determine the range of $5.8 million to $56.4 million as EKPC chose conservatively to utilize historic BRA clearings instead of these forecasted prices. If EKPC were to use these forecasted prices, the Cooper CCGT would be forecasted to provide between $75 million in the 2026/27 BRA and $126 million in the 2038/39 BRA.

DY	$/MW-day
26/27	$362
27/28	$377
28/29	$383
29/30	$558
30/31	$404
31/32	$420
32/33	$437
33/34	$469
34/35	$500
35/36	$467
36/37	$575
37/38	$590
38/39	$606

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REQUEST 19
RESPONSIBLE PARTY: Thomas J. Stachnik

Request 19. Please refer to your response to JI 1-32.

a. Identify in cents per kwh the 2024 wholesale rate, or other applicable rate, to which the 2025 % change would be applied.

b. State whether the annual forecasted % change in wholesale rates identified in your response include the cost of the Cooper CCGT, Spurlock Co-Firing, Cooper 2 Co-Firing, or Liberty RICE projects. If not, explain why not.

Response 19.

a. [redacted] per kwh.

b. The % change in wholesale rates assumed in the 2024 LTLF was developed during the first quarter of 2024. The costs associated with Cooper CCGT, Spurlock Co-Firing, Cooper 2 Co-Firing, and Liberty RICE projects are not included. These projects were studied after the 2024 LTLF was in progress.

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REQUEST 20
RESPONSIBLE PARTY: Julia J. Tucker

Request 20. Confirm that EKPC's 2022 Integrated Resource Plan modeling did not account for tax credits or other energy-related programs and funding streams authorized, modified, or extended by the Inflation Reduction Act. If anything but confirmed, 10 please explain your response in detail and provide modeling input files or other supporting workpaper(s) showing which IRA provisions were incorporated in the 2022 IRP modeling.

Response 20. The 2022 Integrated Resource Plan modeling did not account for tax credits or other energy-related programs and funding streams authorized, modified, or extended by the Inflation Reduction Act.

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REQUEST 21
RESPONSIBLE PARTY: Julia J. Tucker

Request 21. Please identify each variation or configuration of a combined cycle gas turbine evaluated in the production cost modeling and/or net revenue and energy production projections offered in support of the proposed 745 MW 2x1 unfired F-class combustion turbine at Cooper Station (e.g., 2x1 configurations of H- or X-class combustion turbine; 1x1 configurations of F-, H-, or X-class combustion turbine; once-through or recuperative Heat Recovery Steam Generator design; and variations in nameplate capacity).

a. For each variation or configuration evaluated in the modeling and/or net revenue and energy production projections, provide all inputs used to characterize the unit, output files, and associated workpaper(s) (all in electronic machine readable unprotected format with original formulas intact).

b. If the only combined cycle gas turbine variation or configuration evaluated in the modeling and/or net revenue and energy production projections was the proposed 745 MW 2x1 unfired F-class combustion turbine, please explain in full the analysis used by EKPC to select that particular CCGT configuration.

Response 21.

a. The proposed 745 MW 2x1 F-Class combined cycle gas turbine is the only configuration modeled in the production cost and/or net revenue and energy production projections.

b. EKPC's owner engineer provided a technical assessment and screening level cost estimates for several different combined cycle configurations including 1x1 F, 2x1 F, 3x1 F, 1x1 G/H, 2x1 G/H, 1x1 J, 2x1 E and 4 x 1 E. EKPC chose the 2x1 F-Class configuration due to the proven reliability, installed cost, operating cost, efficiency and aftermarket support for the F-Class engine.

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REQUEST 22
RESPONSIBLE PARTY: Julia J. Tucker

Request 22. Please refer to Attachment JJT-2, EKPC's 2025-2039 Load Forecast. Sec. 3.0, p. 12, explains that the "preliminary forecast is revised based on mutual agreement of EKPC staff and Owner-Member's President/CEO and staff."

a. Provide documentation of all revisions made to the preliminary forecast. If no such documentation exists, please explain why not.

b. Identify each revision proposed, including explanation of the basis for each such revision.

c. For each revision identified in response to subpart (b), state whether EKPC staff and Owner-Member's President/CEO and staff did or did not mutually agree to revise the preliminary forecast accordingly.

Response 22a through c. Meaningful revisions to preliminary forecasts are to the large commercial class related to expected growth during the short-term period through 2029. As explained in the response to item 31 of Joint Intervenor's first data request, this is confidential information between the Owner-Member and large commercial consumers. All revisions were mutually agreed upon by EKPC and Owner-Member President/CEO and staff.

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REQUEST 23
RESPONSIBLE PARTY: Julia J. Tucker

Request 23. Please refer to Attachment JJT-2, p.13-14. Provide county-level forecasts from IHS used as inputs to EKPC's load forecasting in spreadsheet format.

Response 23. See attachment *2024 Economic Forecast - CONFIDENTIAL.zip.*

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REQUEST 24

RESPONSIBLE PARTY: Julia J. Tucker

Request 24. Please refer to Attachment JJT-2, p.14. Provide IHS forecasts used as inputs to EKPC's load forecasting aggregated to the co-op and/or EKPC region in spreadsheet format.

Response 24. See attachment *2024 Economic Forecast - CONFIDENTIAL.zip.*

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REQUEST 25

RESPONSIBLE PARTY: Julia J. Tucker

Request 25. Please refer to Attachment JJT-2, p.47. Provide the data used to create this graph ("High and Low Case Winter Demand Difference (MW)") in spreadsheet form. Include data for the mid, low and high cases by year and by demand type.

Response 25. See attachment *JI2.25 and 2.26.xlsx*.

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REQUEST 26

RESPONSIBLE PARTY: Julia J. Tucker

Request 26. Please refer to Attachment JJT-2, p.49. Provide the data used to create this graph ("High and Low Case Summer Demand Difference (MW)") in spreadsheet form. Include data for the mid, low and high cases by year and by demand type.

Response 26. See attachment *JI2.25 and 2.26.xlsx*.

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REQUEST 27

RESPONSIBLE PARTY: Julia J. Tucker

Request 27. Please refer to Attachment JJT-2, p.43.

a. Provide all research, analysis, and background materials used to develop the assumption of plus/minus 90 MW of industrial/large commercial load.

b. Would this 90 MW of potential load include data centers?

Response 27.

a. No formal analysis was performed to determine the plus/minus 90 MW for industrial/large commercial load. For scenario purposes, EKPC sought only to illustrate the potential for load to increase due to unplanned industrial consumers or alternatively for load to decrease due to expected industrial consumers not coming to fruition or existing consumers leaving the system unexpectedly.

In recent history, EKPC has experienced the industrial load increases and decreases described above, driven in part by crypto currency mining companies which can start and stop operations quickly. A scenario of +/- 90 MW accounts for some uncertainty in the industrial load forecast without creating overly optimistic or pessimistic views.

b. No, the 90 MW of potential load does not specifically consider data centers. EKPC did not include any data center load in the EKPC forecast included in the scenarios.

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REQUEST 28
RESPONSIBLE PARTY: Julia J. Tucker

<u>Request 28.</u> Please refer to the Direct Testimony of Don Mosier, p.13, stating, "It is important to note that unlike wind and solar, BESS was excluded from the USDA's New ERA program," and see EKPC's response to JI 1-15: "According to the Notice of Funding Opportunity (NOFO) published in the Federal Register on 5/16/2023 (Vol. 88 No. 94) page 31223 C. 1. ii, b. 2, "Energy Storage Systems in support of GHG emission reduction or Renewable Energy Systems" are eligible projects. Standalone BESS or BESS to support fossil generation was not included."

a. Please discuss EKPC's decision to not consider solar+storage resources as viable alternatives to meeting its capacity needs.

b. Did EKPC evaluate proposing for NewERA financial support battery energy storage systems that would support GHG emission reductions? If so, explain the results of that evaluation. If not, explain why not.

c. Did EKPC evaluate proposing for NewERA financial support battery energy storage systems that would support renewable energy systems? If so, explain the results of that evaluation. If not, explain why not.

d. Did EKPC inquire with RUS or USDA whether battery energy storage systems could be included as part of the NewERA application referenced in response to JI 1-6(b). If so, identify and produce any response to such inquiry. If not, explain why not.

<u>Response 28a through d.</u> EKPC did not consider BESS, either standalone or combined with solar, as capacity options for its system. The technology is relatively new and unproven, it is costly based on the estimates received, and storage systems of any technology that must be re-charged during peak periods are not reliable peak capacity options.

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REQUEST 29
RESPONSIBLE PARTY: Julia J. Tucker

Request 29. Please refer to the Direct Testimony of Julia J. Tucker, p.23. Has EKPC ever issued an RFP for capacity resources for which BESS and/or solar+storage resources could submit proposals?

a. If yes, please provide the RFP and the bidders responses.

b. Have BESS and/or solar+storage resources ever submitted a bid to an EKPC RFP? If so, what resources and what RFP. Please provide the relevant bids.

Response 29. No, EKPC has not solicited for BESS or solar + storage facilities and EKPC has not received bids for BESS or solar + storage facilities.

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REQUEST 30
RESPONSIBLE PARTY: Julia J. Tucker

Request 30. Please provide all research, analysis, and background materials conducted by EKPC or on EKPC's behalf related to the cost and availability of BESS resources. If EKPC is relying on outside expertise for this determination please provide all materials supplied to EKPC to support that information.

Response 30. EKPC did not consider BESS, either standalone or combined with solar, as capacity options for its system. The technology is relatively new and unproven, it is costly based on the estimates received, and storage systems of any technology that must be re-charged during peak periods are not reliable peak capacity options. See Response 10.

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REQUEST 31

RESPONSIBLE PARTY: **Julia J. Tucker**

Request 31. Please refer to the Direct Testimony of Don Mosier, p.13, stating, "Without this grant opportunity, BESS could not compete with solar and hydro resources, nor 12 with more traditional forms of dispatchable generation." EKPC finds that BESS resources are not cost competitive but does not present information regarding the suitability of solar+storage as a potential capacity resource. Please explain EKPC's rationale for excluding solar+storage from consideration.

Response 31. See Response 10.

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REQUEST 32
RESPONSIBLE PARTY: Julia J. Tucker

Request 32. Please provide all research, analysis and background materials conducted by EKPC or on EKPC's behalf related to solar+storage resources. If EKPC is relying on outside expertise for this determination please provide all materials supplied to EKPC to support that information.

Response 32. See Response 10.

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REQUEST 33
RESPONSIBLE PARTY: Julia J. Tucker

<u>Request 33.</u> Please refer to the VOM tab of the Excel spreadsheet CONFIDENTIAL - INPUTS - 3May24.xlsx. With regards to Cooper Unit 2 and each of the Spurlock units:

a. State whether the VOM ($/MWh) costs for each of the years 2030 through 2039 reflect the proposed gas co-firing at those units.

i. If so, explain how those costs are consistent with the statements in the Direct Testimony of Craig Johnson, p. 10 lines 12-17 and p. 13 lines 10-14 regarding the non-fuel O&M costs for the Cooper 2 and Spurlock co-fire projects.

ii. If not, identify the projected variable O&M costs in $/MWh for each of the years 2030 through 2039 for Cooper Unit 2 and each of the Spurlock units under the proposed gas co-fire projects.

b. Identify the VOM in $/MWh input into the RTSim modeling for each of the years 2030 through 2039 for the proposed Cooper CCGT.

c. Identify the VOM in $/MWh input into the RTSim modeling for each of the years 2030 through 2039 for the proposed Liberty RICE units.

<u>Response 33.</u>

a. i and ii. No, the VOM costs reflect the currently known and projected VOM costs for the coal-fired units, without the co-fire conversions. As stated in the Direct Testimony of Craig Johnson, costs are reduced by co-firing Cooper 2 and Spurlock 1 through 4 on natural gas by 49% for variable costs and 7% for maintenance costs. Refer to the attached spreadsheet, *Confidential-JI2.33a-Cofire-VOM.xlsx*, subject to Motion for Confidential Treatment, which includes updated VOM estimates for Cooper 2 and Spurlock co-fire projects. The estimates were calculated using the historical ratios between operations and maintenance costs as part of the total VOM cost, multiplied by the 49% operations and 7% maintenance reductions, as stated in testimony.

b. Refer to the attached spreadsheet, *Confidential-JI2.33b-CC-VOM.xlsx*, subject to Motion for Confidential Treatment.

c. Refer to the attached spreadsheet, *Confidential-JI2.33c-RICE-VOM.xlsx*, subject to Motion for Confidential Treatment.

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REQUEST 34

RESPONSIBLE PARTY: Brad Young

Request 34. Please refer to page 1 of Attachment BY-4 - Project Feasibility Report.pdf. Produce the reports regarding synchronous condensers and solar generation referenced therein.

Response 34. Please find the requested reports: attachments *JI2-34-Cooper Unit 1 Syncon Conversion Project Feasibility Report.pdf* along with attachment *Confidential-JI2.34-EKPC Solar Generation Program Proposal Response.pdf.*

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REQUEST 35
RESPONSIBLE PARTY: Julia J. Tucker

Request 35. Please refer to your response to JI 1-36(c).

a. Identify through what date in November 2024 the 12,517,665 MWh of year-to-date energy sales figure is for.

b. Identify EKPC's total energy sales to Owner-Members through all of 2024.

c. State whether the 2024 energy sales forecasts set forth in Attachment JJT-3 are weather adjusted. If so, explain how they are adjusted, and identify the non-weather adjusted 2024 energy sales forecasts from each of the 2020, 2022, and 2024 Load Forecasts.

Response 35.

a. November 30, 2024

b. 13,855,115 MWh. This is not RUS Form 7 data as typically presented. This is data from EKPC's billing reports and is not weather adjusted.

c. The forecasts of total energy requirements in 2024 shown in JJT-3 are not weather adjusted. In each forecast vintage (2020, 2022, and 2024), 2024 is a projection based on normal weather assumptions. There is nothing to adjust in the projections.

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REQUEST 36
RESPONSIBLE PARTY: Darrin Adams

Request 36. Please refer to your response to JI 1-41(a). With regards to the statement that "several projects have been identified and implemented in the area to address violations of EKPC planning criteria identified due to an outage of a transmission element in the area along with a simultaneous outage of one or both Cooper Units," identify each such project, when it was implemented, the reason for the project, and the cost of the project.

Response 36. See the table below listing the projects that have been implemented in the southern Kentucky region by EKPC since 2007.

	In-Service Month & Year	Reason for Project	Project Cost
Laurel County-Keavy/Pine Grove New 69 kV Transmission Line	March 2007	Low Voltage Violation	$160,000
Tyner 69 kV, 16.33 MVAR Capacitor Bank Addition	July 2007	Low Voltage Violation	$232,000
Thomas Gooch 69 kV, 12.25 MVAR Capacitor Bank Addition	January 2008	Low Voltage Violation	$324,000

Denny 69 kV, 33.17 MVAR Capacitor Bank Addition	August 2008	Low Voltage Violation	$319,000
Tyner-Fall Rock 69 kV Line Conversion to 161 kV & Installation of a 161/69 kV Transformer at Fall Rock	October 2008	Low Voltage Violation	$1,647,000
Wayne County-Wayne County Junction New 69 kV Transmission Line	February 2009	Low Voltage Violation	$650,000
Eberle-Maplesville 69 kV Transmission Line Rebuild	April 2009	Low Voltage Violation	$1,112,000
McCreary County 161/69 kV Transformer Upgrade	June 2009	Thermal Overload	$2,176,000
Annville-Eberle 69 kV Transmission Line Rebuild	August 2009	Low Voltage Violation	$2,376,000
Peytons Store 69 kV Capacitor Bank Upgrade to 14.29 MVAR	August 2009	Low Voltage Violation	$36,000
Tyner-Annville 69 kV Transmission Line Rebuild	September 2009	Low Voltage Violation	$657,000
Tyner-Fall Rock New 69 kV Transmission Line	September 2009	Low Voltage Violation	$3,972,000
Maplesville-North London 69 kV Transmission Line Rebuild	December 2009	Low Voltage Violation	$910,000
Tyner-McKee 69 kV Transmission Line Rebuild	May 2010	Low Voltage Violation	$2,171,000
Girdler 69 kV, 12.25 MVAR Capacitor Bank Addition	July 2010	Low Voltage Violation	$570,000
Bass-Creston 69 kV Transmission Line	August 2010	Thermal Overload	$17,600

Conductor Operating Temperature Increase			
East Somerset-Norwood Junction 69 kV Transmission Line Conductor Operating Temperature Increase	November 2010	Thermal Overload	$7,000
Liberty Church 69 kV, 18.37 MVAR Capacitor Bank Addition	December 2010	Low Voltage Violation	$750,000
Big Creek-Goose Rock 69 kV New Transmission Line	March 2011	Low Voltage Violation	$3,325,000
Cooper 161 kV Bus Tie Breaker Addition	June 2011	Low Voltage Violation	$870,000
Knob Lick-McKinney's Corner 69 kV Transmission Line Conductor Operating Temperature Increase	July 2011	Thermal Overload	$32,000
Pine Knot-Whitley City 69 kV Transmission Line Conductor Upgrade	December 2017	Thermal Overload	$22,000
KU Farley-Liberty Church 69 kV Transmission Line Conductor Operating Temperature Increase	March 2018	Thermal Overload	$8,000
Russell County-KU Russell Springs 69 kV Transmission Line Switch Upgrade	March 2020	Thermal Overload	$260,000
Three Links Junction-Brodhead 69 kV Line Rebuild	August 2022	Low Voltage Violation	$4,019,000
Floyd-Woodstock New 69 kV Transmission Line	September 2023	Low Voltage Violation	$5,565,000

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REQUEST 37

RESPONSIBLE PARTY: Mark Horn and Julia J. Tucker

Request 37. Please refer to your response to JI 1-44. With regards to the pipeline expansion for which "the interstate pipeline company will recoup its capital investment from EKPC over a twenty-year period"

a. State whether EKPC intends to recover from its Owner-Members and their ratepayers the costs that the interstate pipeline company will recoup from EKPC.

i. If so, explain how. ii. If not, explain why not and how EKPC intends to pay for those costs.

b. State whether the costs of the pipeline expansion was factored into any economic evaluation of the Spurlock co-fire project.

i. If so, explain how and produce any supporting documentation.

ii. If not, explain why not.

<u>Response 37.</u>

a. EKPC intends to recover from its Owner-Members and their ratepayers the cost that the interstate pipeline will recoup from EKPC.

The fixed cost directly related to the pipeline expansion will likely be recovered through base rates.

b. The costs of the pipeline expansion were qualitatively considered in the Spurlock co-fire evaluation. Based on the green-house gas rules, Spurlock must either add Carbon Capture and Sequestration technology (which is not feasible nor economic), shut down or co-fire with natural gas. When considering shut down versus co-fire it is quickly obvious that EKPC cannot replace over 1300 MW of reliable baseload capacity for the cost of what the gas pipeline expansion will cost. It is not cost effective or feasible from a timing perspective either. In addition, the fuel cost used in the economic evaluations was delivered gas cost, which means the gas cost includes the fees associated with the pipeline expansions.

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REQUEST 38

RESPONSIBLE PARTY: Thomas J. Stachnik and Mark Horn

Request 38. Please refer to your response to JI 1-45. With regards to the pipeline expansion for which "the interstate pipeline company will recoup its capital investment from EKPC over a twenty-year period"

a. State whether EKPC intends to recover from its Owner-Members and their ratepayers the costs that the interstate pipeline company will recoup from EKPC.

i. If so, explain how.

ii. If not, explain why not and how EKPC intends to pay for those costs.

b. State whether the costs of the pipeline expansion was factored into any economic evaluation of the Cooper Co-Fire and/or Cooper CCGT.

i. If so, explain how and produce any supporting documentation.

ii. If not, explain why not.

c. Identify the extent to which the cost of securing a natural gas supply for the Cooper site would change if gas supply were needed only for the Cooper CCGT and not for the Cooper Co-Fire project. Explain your answer and produce any supporting analysis or documentation.

<u>Response 38.</u>

a. EKPC intends to recover from its Owner-Members and their ratepayers the cost that the interstate pipeline will recoup from EKPC.

i. The fixed cost directly related to the pipeline expansion will likely be recovered through base rates.

b. The costs of the pipeline expansion were qualitatively considered in the Cooper co-fire and Cooper CCGT evaluation. There was a need for additional capacity which the Cooper CCGT would fill. Based on factors including but not limited to transmission and potential fuel availability, Cooper was determined to be the best site to locate the CCGT. Furthermore, based on the green-house gas rules, Cooper must either add Carbon Capture and Sequestration technology (which is not feasible nor economic), shut down or co-fire with natural gas. The pipeline expansion will allow Cooper 2 to retain approximately 225 MW of reliable baseload capacity. In addition, the fuel cost used in the economic evaluations was delivered gas cost, which means the gas cost includes the fees associated with the pipeline expansions.

c. From the perspective that securing a natural gas supply for the Cooper site is a reference to the pipeline expansion to be completed by the interstate pipeline company, the interstate pipeline company has designed the pipe to meet the needs for the Cooper Co-Fire project, the Cooper CCGT project, a potential future expansion case for Cooper, and potential economic development projects in the area. EKPC is currently the anchor shipper for the proposed pipeline expansion project. All future shippers have open access to the interstate pipeline company's natural gas transportation infrastructure. Should an economic development project have the need to flow natural gas on this pipeline expansion, EKPC as the anchor shipper, the Owner-Members, and the ratepayer would ultimately benefit from a Facilities Rate Adjustment that works as a credit mechanism to reduce EKPC's rate for the balance of the Term. Theoretically, installing a smaller pipe in the ground compared to a pipe of a larger size, the cost for the smaller physical pipe itself would be slightly lower, but the all-in cost of a pipeline expansion project is more than just the size of the pipe. When all the cost of securing natural gas are fully evaluated, if the smaller pipe required compression to move more molecules of natural gas or if a higher pressure was required, the cost of the smaller pipe would actually be higher. As designed, neither the Cooper Co-Fire project nor the Cooper CCGT project require additional compression for the pipeline expansion. As negotiations continue on the Precedent Agreement for Cooper, supporting analysis and documentation is confidential.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 39
RESPONSIBLE PARTY: Mark Horn

Request 39. Please refer to your response to JI 1-47. Identify and explain the "new and more accurate information" that became available that led to the acceleration of the Cooper CCGT expected Commercial Operation Date from February 2033 to December 31, 2030.

Response 39. As previously stated in response to JI 1-47, the February 2033 was referenced in the December 2023 Request For Proposal that was developed prior to its issuance. As EKPC's needs for generation assets changed with new and more accurate information such as load forecast that became available during calendar year 2024, the expected Commercial Operation Date was accelerated from February 2033 to December 31, 2030.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 40
RESPONSIBLE PARTY: Scott Drake

Request 40. Please refer to your response to JI 1-58(b).

a. Explain why EKPC did not evaluate the impact of incentive levels that were higher than historic levels.

b. Explain how allowing for "direct comparisons between technical potential studies over times" relates to the stated intent of the potential study to "provide a roadmap and identify the energy efficiency and demand response measures having the greatest potential savings and the measures that are the most cost-effective," as stated on p. 2 of Attachment SD-7.

Response 40.

a. EKPC did evaluate the impact of incentive levels that were higher than historic levels. There are two levels of achievable potential. The "maximum achievable potential" (MAP) evaluates impact of incentives levels that are higher than historic levels. The MAP uses 100% of the measure costs as the assumed incentive. The "realistic achievable potential" (RAP) uses historic incentive levels. This is consistent with other utility and statewide potential studies, such as the Iowa Utilities Board, Ameren Missouri, and the state of Illinois.

b. The Economic Potential can be used to identify the energy efficiency and demand response measures that have the greatest potential savings and the measures that are the most cost-effective.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 41
RESPONSIBLE PARTY: Scott Drake

Request 41. Please refer to your response to JI 1-61.

a. Explain in detail how EKPC and its Owner-Member expert staff decided whether potential DSM programs were "top priority," and provide any documentation of such decision making.

b. State whether EKPC and its Owner-Member expert staff ever considered whether achieving all or most of the Realistic Achievable Potential for the Residential and Commercial/Industrial Sectors identified in the 2024 Potential Study should be identified as a "top priority" in deciding what DSM programs to propose. If not, explain why not.

Response 41.

a. Owner-Members and EKPC have energy advisors that implement existing DSM programs in homes and businesses of end-use members in all 16 Owner-Member cooperatives service territories. Many energy advisors hold residential building science certifications from RESNET and BPI. These individuals interact with end-use members on a daily basis engaging them on their needs with respect to efficient use of energy. The group of Owner-Member and

EKPC energy advisors are experts in their field, all have at least 15 years' experience performing this work, and, as a group, hold more direct knowledge of rural Kentucky DSM program needs than any group of similar experts. This group of experts met on March 25, 2024. Based on cost-effective DSM programs identified by the 2024 Potential Study, the group of experts pinpointed needed changes to existing DSM programs and which new DSM programs are most needed by and most useful for the rural end-use members. EKPC is requesting Commission approval for the DSM programs recommended by the experts. No documentation of the decision making was generated.

b. See Response 41a. above.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 42
RESPONSIBLE PARTY: Scott Drake

Request 42. Please refer to your response to JI 1-62. Confirm that EKPC is not proposing in this CPCN any new demand response programs, or to expand any existing demand response programs. If not confirmed, identify each new or expanded demand response program EKPC is proposing.

Response 42. The proposed tariff for the Backup Generator Control Program is a new demand response program that EKPC is requesting Commission approval.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 43
RESPONSIBLE PARTY: Julia J. Tucker

Request 43. Please refer to your response to Staff 1-1. With regards to the "well-designed, comprehensive resource plan" referenced therein:

a. State whether there are any other resource proposals besides the three pending CPCN applications and the to-be-filed NewERA CPCN application that are "part of" the referenced resource plan. If so, identify each such proposal.

b. Explain how you believe the Commission should go about looking "at the plan in total."

c. Explain in sufficient detail to allow independent verification how you determined that the referenced resource plan is the "least-cost solution," and provide all analyses, modeling input and output files, workpapers, workbooks, and other documentation supporting that determination.

Response 43a. through c. See Response to Commission Staff's Second Request for Information Item 1.

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REQUEST 44

RESPONSIBLE PARTY: Julia J. Tucker

Request 44. Please refer to your response to Staff 1-7(a-b). Explain how the statement in the third paragraph of that response that "By selling at least as much as it buys from the market, EKPC ensures the cost that is borne by the Owner-Members is capped at the cost of EKPC's generation resources." is consistent with the statement in the fourth paragraph of that response that "Recent experience shows that EKPC is buying 30-40% of its energy from the market on an on-going basis."

Response 44. The two statements demonstrate that EKPC has low-cost generation to serve roughly two thirds of its load requirements. In other words, 60 to 70% of the time EKPC's generation is at or below the cost of the PJM energy market so EKPC's generation is netting against its load. The other 30 to 40% of the time, the PJM market is less than the next incremental cost of generation from the EKPC system. Spurlock Station supplies reliable low- cost energy to a large portion of the EKPC load. The incremental cost to dispatch either gas fired combustion turbines or Cooper Station is more expensive than buying from the market 30 to 40% of the time. However, the gas fired combustion turbines and Cooper Station provide a hedge against the maximum amount that EKPC will have to pay for energy during that 30 to 40% of the time. If and/or when energy prices exceed those generation alternatives, then EKPC can dispatch those units and cap their cost exposure. Since EKPC needs to add capacity to serve its peak load and it is buying a significant amount of energy from the market, then it is in EKPC's owner members interest to add capacity that helps cap the energy price it is subject to through a portion of the 30 to 40% of time. Adding new capacity offers the opportunity to drive the market exposure down closer to 10 – 15% of the time.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 45
RESPONSIBLE PARTY: Darrin Adams

Request 45. Please refer to your response to Staff 1-20.

a. Produce any written documentation of the two Post Contingency Local Load Relief Warnings referenced therein, and any communications with PJM regarding either or both of those warnings.

b. Produce any written documentation of the post-Winter Storm Elliott review of the manual load shed and rolling blackout procedure that EKPC carried out.

c. Identify any lessons learned from Winter Storm Elliott that were incorporated into EKPC's manual load shed and rolling blackout procedure.

Response 45.

a. See attachment *JI2.45a.1.pdf* for documentation of email communications from PJM regarding the issuance of a Post Contingency Local Load Relief Warning ("PCLLRW") for the Cooper-Elihu 161 kV line MVA flow beginning at 8:26 AM on 12/23/2022 and ending at 1:38 AM on 12/26/2022. This attachment also includes documentation of email communications from PJM regarding issuance of a PCLLRW for Liberty Junction 69 kV bus voltage beginning at 5:33 AM on 12/23/2022 and ending at 1:40 AM on 12/26/2022.

b. See attachment *JI.2.45b.1.pdf*, which provides documentation of internal email communications between EKPC transmission operations personnel regarding the post-Winter Storm Elliott review of EKPC's manual load shed and rolling blackout procedures, and the associated changes made to those procedures.

c. See attachment *JI2.45c.1.pdf*, which provides documentation of email communications from EKPC's Senior Vice President of Power Delivery & System Operations to representatives of EKPC's Owner-Member systems regarding information gathered and lessons learned after the Winter Storm Elliott event.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 46
RESPONSIBLE PARTY: Julia J. Tucker

Request 46. Please refer to your response to Staff 1-21(b)-(c). In your RTSims production cost modeling of the Spurlock Co-Fire Project, was the model allowed to run the Spurlock units at a level of natural gas below 50%?

a. If so, at what level of natural gas did the model choose to run each of the Spurlock units?

b. If not, explain why not.

Response 46 a. and b. Refer to EKPC's response to Staff's Supplemental Request for Information, Item 14.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 47
RESPONSIBLE PARTY: Jerry Purvis

Request 47. Please refer to your response to JI 1-43. With regards to the feasibility of gas co-firing at the Spurlock 3 and 4 CFB units:

a. Confirm that your responses to subpart JI 1-43(a) and (b) should have referenced Attachment BY-3 to the application, rather than Attachment BY-1. If not confirmed, identify where in Attachment BY-1 the feasibility of gas co-firing at the Spurlock 3 and 4 CFB units is addressed.

b. Confirm that the Burns MCDonnell Project Scoping Report provided in Attachment BY-3 identifies as risks that "conversion of the Unit 3 and Unit 4 CFB's for co-firing natural gas requires novel design solutions that are unproven" and that the proposed co-firing modifications for the Unit 3 and Unit 4 CFB boilers "have not been executed to BMcD's knowledge."

c. Referring to p. 7-2 of Attachment BY-3, identify and produce any report or other documentation of the Reaction Engineering, Inc. model results that "show that co-firing the units on 50% gas at full load appears technically feasible."

d. Explain in detail any other engineering studies or research that Burns McDonnell or EKPC carried out or reviewed to determine if conversion of Spurlock Units 3 and 4 for co-firing natural gas is "feasible, doable and practicable." Identify and produce any documentation of such studies and research.

<u>Response 47.</u>

a. Confirmed.

b. Confirmed. Burns & McDonnell's Project Scoping Report (PSR) provided in Attachment BY-3 does identify the novel and unproven design solutions associated with converting the Spurlock Unit 3 and 4 CFB's and the lack of known execution experience converting similar commercial CFB units as potential project risks. It should be noted that the available and anticipated gas-firing technology associated with converting the Spurlock Units 3 & 4 CFB's to co-fire on gas is well established and proven for startup (the technology is not unproven or novel in and of itself). However, its application in co-firing gas in a CFB boiler is limited in practice and experience. Therefore, this was identified as a potential project risk.

c. See attachment *Confidential-JI2.47c.pdf* for documentation supporting that statement filed under seal.

d. No additional engineering studies or research was performed outside of the CFD modeling referenced in 2.47.c, above, as part of the PSR.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 48
RESPONSIBLE PARTY: Gregory Cecil

Request 48. Please provide the unredacted, confidential version of EKPC's 2022 Integrated Resource Plan.

Response 48. See Response 22 to Commission Staff's Second Request for Information.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 49
RESPONSIBLE PARTY: Gregory Cecil

Request 49. Please provide the confidential version of the corrected report by Energy Future's Group on behalf of the Joint Intervenors in Case No. 2022-00098.

Note: Although previously in the possession and control of the Joint Intervenors during the pendency of Case No. 2022-00098, that filing was made under seal and Joint Intervenors possession and use the confidential document is restricted pursuant to a non-disclosure agreement.

Response 49. This confidential document was provided via email by counsel on January 12, 2025 at 8:20 p.m.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 50

RESPONSIBLE PARTY: Julia J. Tucker

Request 50. To the extent that the version of CONFIDENTIAL-JI1-SUMMARY - 3MAY24.xlsx provided in response to JI 1-3(a) contains errors, as was the case with the attachment CONFIDENTIAL – Staff1-24 – 3May24.xlsx originally produced in response to Staff Request 24, produce a corrected version of CONFIDENTIAL-JI1-SUMMARY - 3MAY24.xlsx.

Response 50. Refer to the spreadsheet in EKPC's supplemental filing, *Staff DR1-24 - SUMMARY - 3MAY24 - corrected (Confidential).xlsx*, which should replace the original *CONFIDENTIAL-JI1-SUMMARY - 3MAY24.xlsx*.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 51
RESPONSIBLE PARTY: Jerry Purvis

Request 51. Please refer to the Direct Testimony of Jerry Purvis at page 6, lines 7-13 and state whether each of Cooper Units 1 & 2 and Spurlock Units 1-4 are currently capable of compliance with the updated MATS rule, or whether updates will be needed.

a. If they are currently able to comply please explain how.

b. If not, please explain what upgrades will be needed and the timeline.

Response 51.

a. EKPC H. L. Spurlock 1-4 and J.S. Cooper 1 & 2 have been in compliance with the 2015 MATs rule since April 2015 - 2016. EPA final rule dated May 7, 2024 MATs rule lowers the PM limits from 0.030 lbs. PM /MMBtu to 0.010 lbs. PM/MMBtu a 67% reduction in particulate matter, requires the use of PM continuous emission monitors as method of compliance, provides no changes to mercury emission limitations for bituminous coal is fed to EKPC coal-fired units, not lignite and removes startup definition #2 that allowed 4 hours after the start of generation or use thermal energy.

EKPC uses continuous emission monitors (PM CEMS) as indication of compliance currently and demonstrates compliance via annual stack tests. The filterable particulate matter (fPM) control device performance at Spurlock Units 1, 2, and 4 and Cooper Units 1 and 2 can achieve compliance with the new MATS limitations. The performance data from these units demonstrates that the current control technology change achieves the fPM reductions. Spurlock Unit 3 is not presently capable of meeting the new fPM Limitation of 0.010 lb/mmBtu on a sustained basis. East Kentucky has devised an initial strategy to improve fPM removal performance of the Spurlock Unit 3 baghouse. EKPC will initiate a Spurlock Unit 3 study and upgrade to its baghouse (the Baghouse Upgrade Project) to improve performance. The timeline is to be determined pending litigation outcome.

b. EKPC is preparing and developing refined capital costs for H.L. Spurlock unit 3 to comply with MATs, by May 7, 2027, pending litigation outcome. When this information becomes available, EKPC will communicate with the Public Service Commission and submit it as an environmental surcharge project for consideration. The balance of the operating units is in compliance with the 2024 MATs rule pursuant to https;//campd.epa.gov/data/custom-data-download. Please select in CAMPD the time frame, state, facility, unit type (Spurlock is CFB, dry bottom and T fired), fuel (coal) and control technology which is highlighted and self-explanatory. The data reflects compliance.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 52
RESPONSIBLE PARTY: Jerry Purvis

Request 52. Please refer to the Direct Testimony of Jerry Purvis at page 8, lines 1-3, and provide hourly emissions, on an individual unit basis, for each of Cooper Units 1 & 2 and Spurlock Units 1-4 for the past five (5) years of SOX, NOX, ozone season NOx , and particulate matter (PM) (both filterable PM, as regulated by MATS, as well as PM10 and PM2.5), as well as hourly heat-rate inputs.

a. Also provide annual ozone season NOX credit allocations and use by unit.

b. Also provide rolling 30-day PM emissions on a lb/MMBtu basis.

Response 52.

a. Please see https://campd.epa.gov/data/custom-data-download Please see this EPA web site and follow the drop down boxes for data type, (compliance), data sub type, 'allowance based or emission based'), filter, program, annual programs (CSAPR, Acid Program, CSAPR Ozone Season NOx, ...) facility (Spurlock, Cooper), state (KY), and hit preview data for time period requested.

EPA CAMPD site provides the hourly emissions, individual unit basis for Cooper unit 1,2 and Spurlock 1,2,3, and 4 for the time periods requested and more for SOx, NOx, ozone season NOx, and particulate matter. Filterable PM speciated into PM10 and PM2.5 is not available. Hourly heat inputs are included in EPA CAMPD data via MATs.

b. Please see the link www.ekpc.coop to obtain the PM CEMS 30-day rolling averages as requested. Once the web site is pulled up select Operations, Environmental Air Quality Performance to view the particulate matter data.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 53
RESPONSIBLE PARTY: Scott Drake

Request 53. Please refer to the Direct Testimony of Scott Drake, p. 17, which presents a table with the PCT, TRC, UCT, and RIM values for the proposed programs. Provide all workpapers (with formulae intact) used to generate this table.

Response 53. The workpapers that were used to generate this table are the Summary Sheets. They can be found in Attachment SD-9 of the original application filing.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 54
RESPONSIBLE PARTY: Scott Drake

Request 54. Please refer to attachment SD-2 which states that "Among changes in scoring, many tax credits were included this time." Explain which of the programs included in the filing are projected to receive tax credits, whether the tax credits were included in the cost test values presented in p.17 of witness Drake's testimony, and provide the estimated tax credit per measure.

Response 54. The tax credits are accounted for as benefits in the Participant Cost and Total Resource Cost tests. The following table lists the programs/measures in the filing that are projected to receive tax credits, and the estimated tax credit per measure:

EKPC program/measure	Estimated Tax Credit
Button-Up Weatherization	$ 400
HP Retrofit - ENERGY STAR	$1,882
HP Retrofit – Mini-Split 1 head	$ 667
HP Retrofit – Mini-Split 2 head	$1,334
HP Retrofit – Mini-Split 3 head	$1,552
HP to High Eff HP – ENERGY STAR	$2,000
Cold Climate Heat Pump	$2,000
Heat Pump Water Heater	$ 651

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 55
RESPONSIBLE PARTY: Scott Drake

Request 55. Please refer to the Direct Testimony of Scott Drake, p. 17, which presents a table with the PCT, TRC, UCT, and RIM values for the proposed programs. Please provide an excel spreadsheet that includes the following for all selected programs, as well as for programs that the Company evaluated but chose not to pursue:

a. Utility cost:

i. incentive costs (both in $/measure and as a percentage of incremental cost)

ii. non incentive costs iii. Inflation Reduction Act or other tax credits

b. Participant cost

c. Measure cost

i. Total measure cost

ii. Incremental cost over baseline equipment 17

iii. Baseline Equipment

iv. Cost of baseline equipment.

v. Specify whether the total or incremental cost was used to calculate the cost test values.

d. Measure Life

e. Annual energy and demand savings (MWh and MW) per measure per participant

f. Adoption rate per measure (number of participants and % of forecast or % of economic potential, however these are determined. Please explain how the adoption rates are determined for each measure.)

g. Annual cumulative and incremental energy and demand savings (MWh and MW) per measure for all participants.

Response 55.

a. - f. The requested information for each DSM program was provided in Attachment SD-8 (DSM Program Assumption Sheets) of the Application. See attachment *JI2.55.xlsx* for an Excel copy.

g. The following tables provide the projected annual energy, summer peak demand and winter peak demand changes for each DSM program included in the plan. These load changes have been accounted for in the Load Forecast. Energy efficiency impacts are cumulative starting in 2025. Demand response impacts are based on all available devices in a given year. All impacts represent net savings at the customer meter. Negative values indicate savings.

Load Impacts of DSM Programs

Button-Up Weatherization Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	28	-76	-0.1	0.0
2026	625	-1,588	-1.2	-0.5
2027	1,222	-3,100	-2.3	-1.0
2028	1,819	-4,612	-3.4	-1.5
2029	2,416	-6,124	-4.5	-1.9
2030	3,013	-7,636	-5.6	-2.4
2031	3,610	-9,148	-6.7	-2.9
2032	4,207	-10,660	-7.8	-3.4
2033	4,804	-12,172	-8.9	-3.8
2034	5,401	-13,684	-10.0	-4.3
2035	5,998	-15,196	-11.1	-4.8
2036	6,595	-16,708	-12.3	-5.3
2037	7,192	-18,220	-13.4	-5.8
2038	7,789	-19,732	-14.5	-6.2
2039	8,386	-21,244	-15.6	-6.7

CARES-Low Income program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	120	-688	-0.5	-0.2
2026	240	-1,376	-1.0	-0.4
2027	360	-2,065	-1.5	-0.7
2028	480	-2,753	-2.0	-0.9
2029	600	-3,441	-2.5	-1.1
2030	720	-4,129	-3.0	-1.3
2031	840	-4,817	-3.5	-1.5
2032	960	-5,506	-4.0	-1.7
2033	1,080	-6,194	-4.5	-2.0
2034	1,200	-6,882	-5.1	-2.2
2035	1,320	-7,570	-5.6	-2.4
2036	1,440	-8,258	-6.1	-2.6
2037	1,560	-8,947	-6.6	-2.8
2038	1,680	-9,635	-7.1	-3.0
2039	1,800	-10,323	-7.6	-3.3

Heat Pump Retrofit program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	361	-2,175	-0.4	0.0
2026	875	-5,273	-0.9	-0.1
2027	1,389	-8,371	-1.5	-0.2
2028	1,903	-11,470	-2.1	-0.2
2029	2,417	-14,568	-2.6	-0.3
2030	2,931	-17,666	-3.2	-0.4
2031	3,445	-20,764	-3.7	-0.4
2032	3,959	-23,862	-4.3	-0.5
2033	4,473	-26,960	-4.8	-0.6
2034	4,987	-30,058	-5.4	-0.6
2035	5,501	-33,157	-6.0	-0.7
2036	6,015	-36,255	-6.5	-0.8
2037	6,529	-39,353	-7.1	-0.8
2038	7,043	-42,451	-7.6	-0.9
2039	7,557	-45,549	-8.2	-1.0

Touchstone Energy® Home Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	494	-1,531	-1.2	-0.4
2026	988	-3,063	-2.3	-0.9
2027	1,482	-4,594	-3.5	-1.3
2028	1,976	-6,125	-4.7	-1.8
2029	2,470	-7,657	-5.8	-2.2
2030	2,964	-9,188	-7.0	-2.7
2031	3,458	-10,719	-8.2	-3.1
2032	3,952	-12,251	-9.3	-3.6
2033	4,446	-13,782	-10.5	-4.0
2034	4,940	-15,313	-11.7	-4.4
2035	5,434	-16,845	-12.9	-4.9
2036	5,928	-18,376	-14.0	-5.3
2037	6,422	-19,907	-15.2	-5.8
2038	6,916	-21,439	-16.4	-6.2
2039	7,410	-22,970	-17.5	-6.7

High Efficiency Heat Pump Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	-	0	0.0	0.0
2026	1,910	-2,128	-1.3	-0.4
2027	3,820	-4,257	-2.7	-0.8
2028	5,730	-6,385	-4.0	-1.3
2029	7,640	-8,514	-5.3	-1.7
2030	9,550	-10,642	-6.7	-2.1
2031	11,460	-12,771	-8.0	-2.5
2032	13,370	-14,899	-9.3	-3.0
2033	15,280	-17,027	-10.7	-3.4
2034	17,190	-19,156	-12.0	-3.8
2035	19,100	-21,284	-13.3	-4.2
2036	21,010	-23,413	-14.7	-4.7
2037	22,920	-25,541	-16.0	-5.1
2038	24,830	-27,669	-17.3	-5.5
2039	26,740	-29,798	-18.7	-5.9

Commercial Advanced Lighting Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	-	0	0.0	0.0
2026	1,000	-3,825	-0.4	-0.6
2027	2,000	-7,650	-0.8	-1.2
2028	3,000	-11,475	-1.2	-1.7
2029	4,000	-15,300	-1.6	-2.3
2030	5,000	-19,125	-2.0	-2.9
2031	6,000	-22,950	-2.4	-3.5
2032	7,000	-26,775	-2.8	-4.0
2033	8,000	-30,600	-3.2	-4.6
2034	9,000	-34,425	-3.6	-5.2
2035	10,000	-38,250	-4.0	-5.8
2036	11,000	-42,075	-4.5	-6.3
2037	12,000	-45,900	-4.9	-6.9
2038	13,000	-49,725	-5.3	-7.5
2039	14,000	-53,550	-5.7	-8.1

Commercial & Industrial Thermostat Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	-	0	0.0	0.0
2026	25	-21	0.0	0.0
2027	50	-42	0.0	0.0
2028	75	-63	0.0	0.0
2029	100	-84	0.0	0.0
2030	125	-105	0.0	0.0
2031	150	-126	0.0	0.0
2032	175	-147	0.0	-0.1
2033	200	-168	0.0	-0.1
2034	225	-189	0.0	-0.1
2035	250	-211	0.0	-0.1
2036	275	-232	0.0	-0.1
2037	275	-232	0.0	-0.1
2038	275	-232	0.0	-0.1
2039	275	-232	0.0	-0.1

Direct Load Control of Air Conditioners and Water Heaters: Switches and Bring Your Own Thermostat (BYOT)

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	30,819	-313	-4.5	-23.6
2026	31,819	-319	-4.5	-24.6
2027	32,819	-326	-4.5	-25.7
2028	33,819	-332	-4.5	-26.7
2029	34,819	-339	-4.5	-27.8
2030	35,819	-345	-4.5	-28.8
2031	36,819	-352	-4.5	-29.9
2032	37,819	-358	-4.5	-30.9
2033	38,819	-365	-4.5	-32.0
2034	30,598	-262	-2.5	-27.1
2035	31,598	-268	-2.5	-28.2
2036	32,598	-275	-2.5	-29.2
2037	33,598	-281	-2.5	-30.3
2038	34,598	-288	-2.5	-31.3
2039	35,598	-294	-2.5	-32.4

Residential Electric Vehicle Off-Peak Charging Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	-	0	0.0	0.0
2026	500	1	-0.1	-0.5
2027	1,000	1	-0.2	-1.0
2028	1,500	2	-0.3	-1.5
2029	2,000	2	-0.3	-2.0
2030	2,500	3	-0.4	-2.5
2031	3,000	4	-0.5	-3.0
2032	3,500	4	-0.6	-3.5
2033	4,000	5	-0.7	-4.0
2034	4,500	6	-0.8	-4.5
2035	5,000	6	-0.9	-5.0
2036	5,000	6	-0.9	-5.0
2037	5,000	6	-0.9	-5.0
2038	5,000	6	-0.9	-5.0
2039	5,000	6	-0.9	-5.0

Backup Generator Control Program

(negative value = reduction in load)

Year	Participants	Impact on Total Requirements (MWh)	Impact on Winter Peak (MW)	Impact on Summer Peak (MW)
2025	-	0	0.0	0.0
2026	50	-20	-0.5	-0.3
2027	100	-41	-1.0	-0.6
2028	150	-61	-1.5	-0.9
2029	200	-82	-2.0	-1.2
2030	250	-102	-2.5	-1.5
2031	300	-123	-3.0	-1.8
2032	350	-143	-3.5	-2.1
2033	400	-164	-4.0	-2.4
2034	450	-184	-4.5	-2.7
2035	500	-205	-5.0	-3.0
2036	500	-205	-5.0	-3.0
2037	500	-205	-5.0	-3.0
2038	500	-205	-5.0	-3.0
2039	500	-205	-5.0	-3.0

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 56
RESPONSIBLE PARTY: Scott Drake

Request 56. Please refer to the Company's response to JI Request 57.

a. Refer to part b(iv) stating that "The avoided cost for natural gas was $3.94 per Mcf."

i. Justify and/or provide the source for the $3.94 per Mcf natural gas price.

ii. Explain whether the price remains constant for all years of the DSM program life (in real or nominal terms). If the price escalates based on inflation, or other factor, please provide the natural gas price for all years studied.

iii. Please explain how the natural gas price informed the avoided cost calculation.

b. Refer to part b(i). Please provide the source of the forward price market and explain whether this is in real or nominal dollars.

c. Refer to part b(ii). Please provide a workpaper with formulae intact for Table 57-ii.

d. Refer to part c(iii). Please provide the numerical values (and the respective workpaper with formulae intact) for each tax credit included in the calculation of the costs and benefits of each DSM measure.

<u>Response 56.</u>

a.

i. The source for the $3.94 per Mcf natural gas price is the Natural Gas Forward price, Henry Hub plus basis.

ii. The price escalates according to the forward price forecast curve in nominal terms. The following table provides the natural gas forward price forecast ($/Mcf) that was used for the years 2025-2044:

2025	$3.94
[redacted]	[redacted]

iii. The avoided cost is the equivalent of the forward price.

b. The forward price market is the AEP Dayton hub in PJM. The values are in nominal dollars.

c. See attachment *Confidential-JI2.56c.xlsx*.

d. Please see the response to Request 54.

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REQUEST 57

RESPONSIBLE PARTY: Scott Drake

Request 57. Please refer to Page 9 of the 2024 DSM Potential Study, where it states, "This study utilizes benefit/cost screening tools for the residential and non-residential sectors to assess the cost effectiveness of energy efficiency measures. These cost effectiveness screening tools are Excel-based models that integrate technology-specific impacts and costs, customer characteristics, utility avoided cost forecasts, and more."

a. Provide the Excel-based model, with formulae intact, for all measures and programs included in the 2024 DSM Potential Study.

b. Indicate which measures and programs assessed for cost effectiveness and included in the 2024 Potential Study but not pursued by the Company.

c. Provide the avoided cost and financial inputs, and all associated workpapers.

Response 57.

a. These Excel-based models are proprietary work products of GDS Associates.

b. The following lists provide the measures and programs that are included in the 2024 Potential Study but are not being pursued by EKPC at this time:

Residential Efficiency

Measure/Program	**Notes**
Residential ENERGY STAR® appliances	Clothes Dryers, Refrigerators, and Dishwashers are not cost-effective. Low potential
AC & ASHP Tune-Up	Not cost-effective
Central and Room Air Conditioner	Not cost-effective
Residential Lighting	Savings are low as a result of lower baseline
Heat Pump Pool Heater	Low potential
Well Pump	Low potential
Plug Load	Low potential
Water heating conservation measures	

C&I Efficiency

Measure/Program	**Notes**
Compressed Air	
Cooking	Low potential
Heating	
Hot Water	Low potential
Motors	
Plug Load	
Refrigeration	
Cooling	Not cost-effective; pursuing Smart Thermostat
Ventilation	
Whole-Building	
Process – Industrial	

Demand Response

Measure/Program	**Notes**
DLC Swimming Pool Pump	Low potential
DLC Agricultural Irrigation	Low potential
Capacity Bidding	Low potential
Demand Buyback	Low potential
Critical Peak Pricing	Requires member cooperative rate cases
Thermal Energy Storage Rate	Not cost-effective
Golf Cart Charging Rate	Not cost-effective
Battery Storage	Not cost-effective

c. The avoided costs were previously provided in responses to Joint Intervenor First Data Request 57. A discount rate of 5.2% was used in the Potential Study.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 58
RESPONSIBLE PARTY: Scott Drake

Request 58. Please refer to the Direct Testimony of Scott Drake, p. 5-6., which describes the process EKPC follows to calculate program-level cost-effectiveness and set 18 budgets for measures and programs "identified by the Owner-Members' staff as needed by and appropriate for their end-use members."

a. Provide a copy of the DSMore evaluation models, with formulae intact, for each program and measure included in EKPC's existing and proposed new program offerings.

b. Provide an excel spreadsheet with the final adopted or proposed budget figures by program and year for the next program cycle.

Response 58.

a. The models are the proprietary work product of GDS Associates.

b. See Attachment *JI2.58-EKPC DSM Budgets.xlsx.*

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 59
RESPONSIBLE PARTY: Scott Drake

Request 59. Please refer to the Direct Testimony of Scott Drake, p. 29-31, which provides information about the Touchstone Energy Program.

a. If not already produced in response to another request, provide the total measure cost, participant cost, and utility cost used to calculate the cost test values for the Touchstone Energy Program.

b. If not already explain in response to another request, explain in detail whether the total measure cost is based on the total cost of the selected heat pump or the incremental cost of the efficient heat pump relative to "less efficient forms of heating and cooling".

i. If the measure cost includes the entire cost of the selected heat pump, then provide the numerical value of this cost and its source and/or justification.

ii. If the measure cost includes only the incremental cost over a less efficient form of heating and cooling (baseline measure), please provide a rationale for the selection of the baseline measure, its cost, and the source of that information.

Response 59.

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN Application.

b. The measure cost is based on incremental cost.

i. Not applicable

ii. End-use members constructing new all-electric site-built homes in EKPC's Owner-Member territory typically choose to heat and cool their home with a Department of Energy (DOE) Federal minimum level air source heat pump. An incentive is not needed to promote installation of the DOE federal minimum heat pump. Therefore, the Touchstone Energy® Home analysis uses the incremental cost of upgrading to an ENERGY STAR® level heat pump over the DOE federal minimum.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 60
RESPONSIBLE PARTY: Scott Drake

Request 60. Please refer to the Direct Testimony of Scott Drake, p. 32, which provides information about the Direct Load Control Program.

a. Provide the total measure cost, participant and utility cost for this program.

b. Explain whether the Company assumes that the utility will not incur technology costs as it will not be installing new switches.

c. Explain whether participants are assumed to install new thermostats or participate through already installed thermostats and what the assumed participant cost is.

Response 60.

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN application filing - Application_New_Gen_-_Final_to_File.pdf.

b. No additional technology costs are assumed.

c. Participants can either participate through new thermostats or previously installed thermostats. Assumed costs are given in the "Direct Load Control of Residential Air Conditioners and Heat Pumps: Bring Your Own Thermostat" sheet in Attachment SD-8 of the Application.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 61
RESPONSIBLE PARTY: Scott Drake

Request 61. Please refer to the Direct Testimony of Scott Drake, p. 33, which provides information about the Residential EV Off-Peak Charing Program.

a. Provide the total measure cost, participant, and utility cost for this program.

b. Explain in detail whether participants are assumed to incur any incremental cost to be able to participate in the program, how this is calculated, and provide its numerical value.

Response 61.

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN application filing - Application_New_Gen_-_Final_to_File.pdf.

b. Participants in the EV Off-Peak Charging Program do not incur any incremental cost to participate in the program. Therefore, no incremental cost is built into the program analysis.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 62

RESPONSIBLE PARTY: Scott Drake

Request 62. Please refer to the Direct Testimony of Scott Drake, p. 34-35, which provides information about the High Efficiency Heat Pump Program.

a. Provide the total measure cost, participant cost, and utility cost used to calculate the cost test values for the program.

b. Explain in detail whether the total measure cost is based on the total cost of the selected heat pump/water heater or the incremental cost of the efficient heat pump/water heater relative to a heat pump/water heater that would not qualify for the program.

i. If the measure cost includes the entire cost of the selected heat pump/water heater, then provide the numerical value of this cost and its source and/or justification.

ii. If the measure cost includes only the incremental cost over a less efficient heat pump/water heater, please provide a rationale for the selection of the baseline measure, its cost, and the source of that information.

Response 62.

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN application filing - Application_New_Gen_-_Final_to_File.pdf.

b. The measure cost is based on incremental cost.

   i. Not applicable

   ii. The measure cost only includes the incremental cost over the DOE federal minimum level heat pump or electric water heater. The rationale behind this assumption is that any end-use member choosing to install or replace a heat pump will have to install a DOE federal minimum level unit. No incentive is needed to promote the end-use member to install this level of equipment. The goal of the High Efficiency Heat Pump Program is to promote end-use members to upgrade to one of two higher efficiency levels. The same is true for an end-use member installing or replacing a water heater. No incentive is needed to encourage the members to install a DOE federal minimum electric water heater. The High Efficiency Heat Pump program promotes the end-use member to install a high efficiency heat pump water heater over the DOE federal minimum unit. Thus, the incremental costs above the DOE federal minimum are used.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 63
RESPONSIBLE PARTY: Scott Drake

<u>Request 63.</u> Please refer to the Direct Testimony of Scott Drake, p. 37-38, which provides information about the Backup Generator Control Program.

a. Provide the total measure cost, participant and utility cost for this program.

b. Confirm that the utility will not incur technology or other costs beyond administrative costs and the incentives provided. If not confirmed, please explain.

c. Confirm that participants will not incur technology costs as they are already assumed to own backup generators. If not confirmed, please explain.

<u>Response 63.</u>

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN application filing - Application_New_Gen_-_Final_to_File.pdf.

b. EKPC may incur the cost of a relay module to communicate with that will dispatch the module. EKPC is currently investigating technologies and costs. The cost is expected to be a one-time cost per participant.

c. The participant will not incur any additional technology costs for participating in the backup generator program.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 64
RESPONSIBLE PARTY: Scott Drake

Request 64. Please refer to the Direct Testimony of Scott Drake, p. 38-40, which provides information about the Commercial Advanced Lighting and Commercial and Industrial Thermostat Programs.

a. Provide the total measure cost, participant cost, and utility cost used to calculate the cost test values for each program.

b. Explain in detail whether the total measure cost assumes that the commercial or industrial customer will be replacing lighting fixtures/thermostats (that would otherwise keep operating) or whether they would be selecting high efficiency fixtures or self-learning thermostats at the end-of-life of their previous fixtures/thermostats.

i. If the total measure cost assumes a new fixture/device, please provide the Company's reasoning for this assumption.

Response 64.

a. The costs requested for each DSM program are provided in Attachment SD-8 (DSM Program Assumption Sheets) of EKPC's CPCN application filing - Application_New_Gen_-_Final_to_File.pdf.

b. The participants will replace non-LED fixtures that are operating with LED fixtures/lamps. The participants will be replacing non-self-learning thermostats with self-learning thermostats.

i. The total measure cost assumes that the participant will replace a device currently in operation, with a new efficient device. In both cases (lighting or thermostats) it's assumed that participants would have continued to utilize the less efficient (non-LED or non-self-learning thermostat) as it continues to be the cheapest option. The baseline for commercial lighting program paths 2 and 4 was set by utilizing wattages from the Illinois Technical Resource Manual and the weighted average for the paths having similar utilization to was modeled in the potential study. For paths 1 and 3, a commercial and industrial lighting market characterization performed for Massachusetts provided the typical wattage for a high-bay non-LED light and outdoor non-LED light. **(Note: this response covers Request 64.b.i and the first sentence of Request 65)**

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REQUEST 65
RESPONSIBLE PARTY: Scott Drake

Request 65. If the total measure cost is based on the incremental cost of an efficient fixture/self-learning thermostat over a device that would not qualify for the respective program, please explain how the baseline was set and provide the cost of that baseline for each program. Please refer to the Direct Testimony of Scott Drake, pp. 18-19, which describes the energy (MWh) and seasonal peak demand (MW) impacts that were applied to the load forecast provided in this CPCN.

a. Clarify whether the impact on summer and winter peak MW in the table on p. 19 reflect only energy efficiency programs, or include MW associated with demand response programs as well.

b. Provide an excel spreadsheet with the values shown in the table on p. 19 broken out by program. 20

c. Explain the reasons for the large difference between the MW values on the table in p. 19 with the cost effective, "realistic achievable potential (RAP)" from the EKPC 2024 Potential Study. Specifically, the Company includes only 38 MW of cumulative winter peak demand reduction in 2030, whereas EKPC estimate upwards of 337 MW as a conservative estimate of the

RAP from just the DR potential for that same year. EKPC estimated by leveraging values provided in Table 4-3, Table 5-3, and Table 6-7 of the 2024 DSM Potential Study. (Note: EKPC final estimate of 337 MW was derived from values in Table 6-7. EKPC took the total sector-level RAP % of forecast values from table 6-9 and table 6-11 and applied these to the economic potential of Table 6-7, since there were no annual values provided for the RAP, only 15-year cumulative. EKPC used winter RAP values to be conservative, so actual values could be higher).

Response 65.

a. The impacts on summer and winter peak MW in the table reflect MW associated with demand response programs as well as energy efficiency programs.

b. See the response to Request 2.55 (above).

c. Interruptible loads are not included in the MW values in the table on page 19. Interruptible loads are accounted for in the load forecast. Also, the table on page 19 does not include MW savings from programs that are not being pursued currently. See the response to Request 2.57 b (above). Finally, the participation assumptions for the RAP are higher than those for the table on page 19.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 66
RESPONSIBLE PARTY: Scott Drake

<u>Request 66.</u> Please refer to the EKPC 2024 Potential Study. If not already provided, provide an excel workbook containing the following:

a. Annual incremental and annual cumulative Peak Demand MW for the technical, economic, MAP, and RAP scenarios for the entire forecast period, and segmented by season.

b. Results from a) broken out by DR measure

c. Annual incremental and annual cumulative participant or unit counts for each scenario

d. Referring to Table 7-1, please include results (MWh and MW) of the three program funding scenarios broken out by measure or program area. Please break the demand MW into summer and winter by measure or program area.

<u>Response 66.</u>

a. Please see attachment *JI2.66.xlsx*. Tab 66a has the requested information.

b. Appendix C (pages C-4 and C-5) of the Potential Study report provide the requested information.

c. Please see attachment *JI2.66.xlsx*. Tab 66c has the requested information.

d. Please see attachment *JI2.66.xlsx.* Tab 66d (Part 1 EE) and Tab 66d Part 2 DR) has the requested information.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 67

RESPONSIBLE PARTY: Scott Drake

Request 67. Please refer to the EKPC 2024 Potential Study, Table 6-8. Explain why the residential DLC Water Heaters MAP and RAP % of forecast adoption rate is 0.0% for summer and winter.

Response 67. EKPC informed the consultant performing the 2024 Potential Study that EKPC is not installing new water heater DLC switches at this time. The consultant did not model the residential DLC Water Heater MAP and RAP. The residential DLC Water Heater MAP and RAP should have been modeled even though EKPC is currently not pursuing new water heater DLC installations. This was a miscommunication between EKPC and the consultant.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 68
RESPONSIBLE PARTY: Scott Drake

Request 68. Please explain whether the level of DSM programs included in the Company's proposed portfolio is the result of capacity expansion modeling, including DSM as an available resource for selection.

Response 68. The load forecast each year is reduced by the DSM program energy and demand impacts forecasted for each year. The DSM resources are not listed as a selectable resource in the capacity expansion modeling because the DSM program impacts are already incorporated in the load forecast.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 69

RESPONSIBLE PARTY: Scott Drake

Request 69. Please explain whether demand response resources were allowed to endogenously dispatch in the Company's capacity expansion and production cost modeling. Please explain whether DR dispatch was subject to any constraints in the Company's modeling.

Response 69. See Response 68. The reduction in load forecast from DSM programs includes demand response program impacts.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 70
RESPONSIBLE PARTY: Scott Drake

Request 70. Please provide the hourly (8760) profile for each DSM measure included in the Company's modeling. Please explain if there are any differences in the load profile used to score measures in the cost effectiveness screening conducted for the EKPC 2024 Potential Study and the load profile used for energy efficiency in the Company's IRP modeling.

Response 70. Hourly (8760) profiles are not used for DSM cost-effectiveness screening or the DSM modeling in the IRP. Monthly energy and peak savings are used for the cost-effectiveness screening. 48-daytype profiles are used for the IRP modelling.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 71
RESPONSIBLE PARTY: Scott Drake

Request 71. If DSM was included as load adjustment, please provide the 8760 profile of each measure for all years studied.

a. If DSM was included as a selectable resource, please provide the 8760 profile of each measure (on a per unit basis).

b. If the Company does not have 8760 data per measure, please provide the total DSM adjustment on an hourly basis.

Response 71a.and b. EKPC does not have measure-specific hourly (8760) load profiles. EKPC aggregates 48-daytype profiles (see Response to DR2 JI 70 above). The aggregate 48-daytype profile is then mapped into the calendar year.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 72
RESPONSIBLE PARTY: Scott Drake

<u>Request 72.</u> Please refer to the Company's response to JI 1-49.

a. Provide an excel spreadsheet of these tables on a per measure basis.

b. Explain which measures are included in each table. Also please clarify whether the impact on summer and winter peak MW in the two tables reflect only energy efficiency programs, or include MW associated with demand response programs as well.

c. Confirm that the EV charging program is not included in any of the two tables and provide the estimated energy and demand savings for it.

d. If any other measure (of the 10 DSM programs included in the filing) is not included in the two tables, please provide its expected energy and demand savings.

<u>Response 72.</u> The annual impacts on MWH and peak MW Summer and Winter) by program/measure are provided in Response 2.55 g. (see above).

a. Please see page 22 of Scott Drake's Testimony for a complete list of the individual programs in the DSM-EE plan. They are grouped by Existing Programs with Tariff Changes, Existing Programs with NO Proposed Tariff Changes, and New Programs.

The following table lists the programs/ measures included in each table of JI 1-49:

New DSM Programs	**Existing DSM Programs with New Tariffs**
High Efficiency Heat Pump: ENERGY STAR®	Button-Up Weatherization: Home Shell
High Efficiency Heat Pump: Cold Climate Heat Pump/Geothermal	Button-Up Weatherization: Duct Sealing
High Efficiency Heat Pump: Heat Pump Water Heater	CARES Low-Income
Backup Generator Control	Heat Pump Retrofit: Federal Standard
Commercial Advanced Lighting	Heat Pump Retrofit: ENERGY STAR®
Commercial and Industrial Thermostat	Heat Pump Retrofit: Heat Pump Water Heater
	Heat Pump Retrofit: Mini-Split

b. The EV Charging program is not included in either table. The annual MWh and MW numbers are included in Response 55 g above.

c. Existing Programs with NO tariff changes are not included in either table. The annual MWh and MW amounts are included in Response 55 g above.

Here is the list of Existing Programs with NO tariff changes:

Existing DSM Programs with NO Tariff Changes
Touchstone Energy
Direct Load Control of Air Conditioners and Water Heaters
Electric Vehicle Off-Peak Charging

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REQUEST 73
RESPONSIBLE PARTY: Scott Drake

Request 73. Please refer to the Company's response to JI 1-49, which projects savings of 29,577 MWh from existing DSM Programs with New tariffs, and 29,975 MWh from new DSM Programs. Witness Drake estimates savings of 69,792 MWh by 2030. Please explain whether this difference is only the result of not including the EV charging DSM program.

Response 73. This difference is a result of not including any of the Existing Programs with NO Tariff Changes. See Response to 72 d. above.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 74
RESPONSIBLE PARTY: Scott Drake

Request 74. Please refer to the EKPC 2024 Potential Study, Table 3-3, and explain what these percentages represent.

a. For example, are residential water heating measures estimated to have a 75.7% adoption rate over the entire residential market, the technical potential, or over the economic potential?

b. How is "long term" defined? What level of adoption would be expected on a per year basis?

Response 74.

a. The percentages in Table 3-3 represent the estimated long-term adoption rates of the installation of energy efficient measures, by end-use, relative to the level of incentive (as a percentage of measure costs) offered by the electric utility. "Adoption rates" are estimates of the percentage of customers who could install an efficient measure who would then ultimately install the efficient measure, in the achievable potential scenario.

b. “Long-term” represents the timeframe of the study, or 15 years. In the requested example, this means that for a water heating measure which the electric utility paid for 100% of the incremental measure costs for customers to install, across the timeframe of the study, 75.7% of customers would install the measure. This is associated with the achievable potential scenario. The technical and economic potential scenarios do not consider financial or other market barriers to participation and therefore assume all eligible measures could be installed. The annual level of adoption depends on the measure life and generally ramps up, to eventually reach the long-term adoption rates identified in the table.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 75
RESPONSIBLE PARTY: Scott Drake

Request 75. Would the 100% incentive level projection be equivalent to the MAP? If not, why not? Please refer to the EKPC 2024 Potential Study, Table 6-3.

a. Please explain whether the study assessed non-residential battery storage.

b. Were static time of use (TOU) rates evaluated in the EKPC 2024 Potential Study in addition to the CPP programs listed here? Please provide rationale for not including if they were not.

c. Please provide a summary of which member-cooperatives have previously offered or are currently implementing static TOU pricing pilots or programs. Please provide any accompanying evaluation reports or other assessments of the load shift / peak demand reduction achieved by these TOU rates.

Response 75. The Study did not assess non-residential battery storage.

a. and b. Static TOU rates in addition to CPP were not evaluated. Some member cooperatives have TOU rates. Participation in TOU rates are very low.

c. Please refer to the Commission website to identify TOU pricing offered by Owner-Member cooperatives. No evaluations or assessments have been performed.

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REQUEST 76

RESPONSIBLE PARTY: **Scott Drake**

Request 76. Please refer to the EKPC 2024 Potential Study, Tables 6-8, 6-9, 6-10, and 6-11.

a. Please confirm that CPP with enabling technology and interruptible rates programs are estimated to have the highest RAP in the residential and C/I categories.

b. Please explain why the Summer DR RAP potential for DLC Agricultural Irrigation is 0% (Table 6-10).

c. Please provide any and all analysis that the Company conducted to evaluate whether each of those programs should be implemented.

d. Please explain in detail how and why the Company decided not to implement those programs

Response 76.

a. The measures indicate a high RAP

b. Agricultural Irrigation is not utilized much in EKPC's service territory.

c. No analysis was performed because CPP, TOU pricing, and demand rates for residential members have not been popular options chosen by rural Kentuckians. The simplest of these rates for residential members to understand are TOU rates. Several Owner-Members offer TOU rates and have very minimum participation. EKPC and all Owner-Member cooperatives offer an interruptible rider and have good participation by large industrial members.

d. See Response 76c.

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REQUEST 77

RESPONSIBLE PARTY: Scott Drake

Request 77. Please refer to the EKPC 2024 Potential Study. Please provide the Appendices in spreadsheet format

Response 77. See attachment *JI2.77.xlsx.*

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 78

RESPONSIBLE PARTY: Scott Drake

Request 78. Please refer to the EKPC 2024 Potential Study, Figure 4-4 and 5-4.

a. Please provide the numerical values for MAP and RAP for residential and C/I programs by 2030, and confirm that the cumulative RAP is over 150,000MWh.

b. Please explain what incentive levels are included in this RAP projection. If incentive levels are based on historical estimates, please provide these historical estimates (in $ and % of incremental cost) per measure.

c. Please explain why the Company is only pursuing 69,792 MWh by 2030 (inclusive of DR programs) instead of the full RAP.

Response 78.

a. The following table provides numerical values for MAP and RAP, for residential, commercial and industrial programs, by 2030.

	MAP MWh	RAP MWh
Residential	135,854	105,078
C&I	65,131	48,739
Total	200,985	153,817

Yes, the cumulative RAP is over 150,000 MWh.

b. The RAP incentive levels by measure are given in 2024 Potential Study, Appendices A and B, and are expressed as a percentage of the measure cost. See Response 41a.

c. See Response 41a. EKPC is pursuing priority DSM programs.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 79
RESPONSIBLE PARTY: Scott Drake

Request 79. Please explain whether the Company evaluated other EE measures or other incentive levels which they chose not to include in this filing. Provide any and all analysis conducted.

Response 79. The 2024 Potential Study evaluated all EE measures evaluated by EKPC.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025

REQUEST 80

RESPONSIBLE PARTY: **Scott Drake**

Request 80. Please refer to the EKPC 2024 Potential Study, Appendix A.

a. Provide a definition of "Base Saturation" and explain why it can go above 100%, and what it is a percentage of.

b. Provide a definition of EE Saturation and explain its relationship (if any) to "Base Saturation"

c. Confirm that the "Measure $" reflects only incremental costs.

d. Explain whether the RAP adoption rate is expressed as a percentage of the total market, the technical potential, or other metric.

e. Explain whether any of the table entries expresses the potential in MWh for all units available (total market, technical economic, MAP, or RAP).

f. Explain whether the table entries can be used to calculate RAP in MWh (in addition to the RAP adoption rate).

g. Confirm that the "Base Annual Electric" is expressed in kWh.

Response 80.

a. The base saturation is the average number of units per home. If there is more than 1 unit on average in residences, the base saturation will be greater than 100%. For example, the base saturation for ENERGY STAR® refrigerators in 126 %. This means the average home has 1.26 refrigerators.

b. The EE saturation is the % of units that are already energy efficient. The Remaining Factor is 100% minus the EE Saturation. For example, the EE saturation for ENERGY STAR® refrigerators is 57%, This means that 57% of refrigerators are already ENERGY STAR® refrigerators. The Remaining Factor is 43%. The Base Saturation times the Remaining Factor are multiplied together in the formula for Technical Potential. See page 13 of the Potential Report.

c. Replace-on-burnout applies to equipment replacements that are normally made in the market when a piece of equipment is at the end of its useful life. A retrofit measure can be replaced at any time in the equipment or building. Replace-on-burnout measures are characterized by incremental measure costs and savings (e.g. the costs and savings of a high-efficiency versus standard efficiency air conditioner); whereas retrofit measures are generally characterized by full costs and savings (e.g. the full costs and savings associated with adding ceiling insulation into an existing attic).

d. The RAP adoption rate is expressed as a percentage of incremental annual economic potential.

e. No. The values in Appendix A are based on one measure each.

f. No. The calculation of RAP requires additional information, including the number of households, the feasibility factor, and the TRC.

g. Yes, the “Base Annual Electric” values are expressed in kWh.

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JOINT INTERVENORS' REQUEST DATED JANUARY 17, 2025
REQUEST 81
RESPONSIBLE PARTY: Scott Drake

Request 81. Please refer to EKPC response to JI 1-55, which states that "The DSM programs offered by EKPC to its Owner-Member cooperatives are a la cart. EKPC is unaware of which programs each Owner-Member will offer to its end-use members."

a. Is this consistent with how EKPC and owner member cooperatives have updated their DSM programs historically.

i. If the answer is yes, please explain whether owner member cooperatives have historically selected to offer all of the EKPC DSM programs or smaller subsets.

ii. If the answer is no, please explain what the process has been in the past.

b. Please explain how EKPC tracks the budgets and savings targets for each Owner-Member for each program year. Please provide total budget and savings targets by program for each Owner-Member for the time period of the 2021-2023 Annual reports provided in SD4-6 of Direct Testimony of Scott Drake.

c. Please explain how EKPC projects DSM savings and adjusts its load without knowing which programs the cooperatives will eventually offer. Please explain any analysis or process between EKPC and cooperatives that is used to refine the EKPC DSM forecast as a combination of member cooperative DSM programs.

d. Please explain whether a separate proceeding would be needed for each distribution cooperative that would want to adjust its tariff in light of EKPC's incentive changes or new program offerings.

Response 81.

a. Yes. Historically, the DSM programs have been offered to EKPC's Owner-Member cooperatives al a carte.

i. The development of EKPC's DSM programs and tariffs is the result of EKPC working collaboratively with Owner-Member staff. Therefore, the vast majority of Owner-Members participate in all DSM programs offered by EKPC.

ii. Not Applicable.

b. EKPC plans and budgets DSM programs as a whole and not by Owner-Member cooperative individually. EKPC rarely sees significant swings in annual DSM program participation levels unless there is a significant change in DSM program tariffs.

DSM Budgets			
	2021 Budget	**2022 Budget**	**2023 Budget**
Button Up	$31,920	$35,000	$25,000
CARES	$134,750	$150,000	$232,500
ES Manufactured Home	$11,000	$11,000	$12,000
Heat Pump Retrofit	$550,000	$550,000	$600,000
Residential Lighting	$50,000	$65,000	$75,000
Touchstone Energy Home	$362,500	$400,000	$450,000
Total Energy Efficiency Programs	$1,140,170	$1,211,000	$1,394,500
Direct Load Control	$1,700,000	$1,750,000	$1,800,000
DSM Administration	$817,777	$850,000	$900,000
Total DSM Programs	$3,657,947	$3,811,000	$4,094,500

c. EKPC has years of historical DSM program participation levels as noted in the DSM Annual Reports. EKPC Owner-Member cooperatives, individually, rarely change the EKPC DSM programs they offer to their end-use members. Therefore, annual DSM program energy and demand savings are fairly predictable.

d. After Commission approves, changes, or rejects EKPC's DSM tariffs that will be offered to the Owner-Members, those Owner-Members offering EKPC's DSM programs will file their own DSM tariffs that conforms to the structure of the EKPC DSM tariffs as approved by the Commission. A separate proceeding is a decision of the Commission.