

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC INVESTIGATION OF)	
LOUISVILLE GAS AND ELECTRIC)	
COMPANY AND KENTUCKY)	CASE NO. 2023-00422
UTILITIES COMPANY SERVICE)	
RELATED TO WINTER STORM)	
ELLIOTT)	

RESPONSE OF
KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
THE SIERRA CLUB'S INITIAL REQUEST FOR INFORMATION

DATED JANUARY 26, 2024

FILED: February 16, 2024

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Chief Operating Officer for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, 220 West Main Street, Louisville, KY 40202, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Lonnie E. Bellar

Lonnie E. Bellar

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 14th day of February 2024.

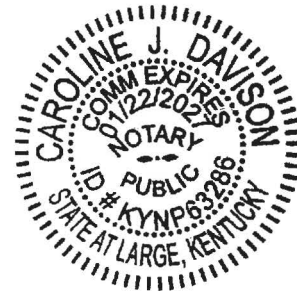
Caroline J. Davison

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Robert M. Conroy**, being duly sworn, deposes and says that he is Vice President, State Regulation and Rates, for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, 220 West Main Street, Louisville, KY 40202, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Robert M. Conroy

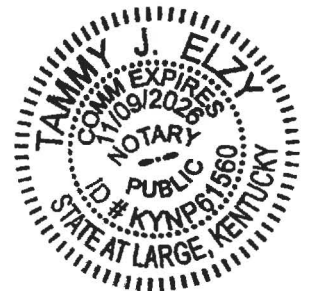
Subscribed and sworn to before me, a Notary Public in and before said County and State, this 14th day of February 2024.

Notary Public

Notary Public ID No. KYNP61560

My Commission Expires:

November 9, 2026



**KENTUCKY UTILITIES COMPANY
AND
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**Response to Sierra Club's Initial Request for Information
Dated January 26, 2024**

Case No. 2023-00422

Question No. 1.1

Responding Witness: Robert M. Conroy

- Q-1.1 Please provide all responses to Requests for Information issued by LG&E/KU or any other party to this proceeding.
- A-1.1 Under 807 KAR 5:001 Section 8, the Companies requested, and the Commission approved, the use of electronic filing procedures in this proceeding. Sierra Club consented to the use of those procedures. All documents are filed electronically and provided to all parties of record.

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Question No. 1.2

Responding Witness: Robert M. Conroy

- Q-1.2. Please provide all testimony, exhibits, work papers, and schedules supporting any testimony by the Companies in these proceedings in electronic, machine-readable format with formulae intact, including all confidential or highly sensitive testimonies, exhibits, work papers, and schedules.
- A-1.2. The Companies have not filed any testimony, exhibits, or schedules supporting testimony in this proceeding. All work papers the Companies are providing in discovery, both public and confidential, are in electronic, machine-readable format with formulae intact (where applicable).

**KENTUCKY UTILITIES COMPANY
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**Response to Sierra Club's Initial Request for Information
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Question No. 1.3

Responding Witness: Stuart A. Wilson

Q-1.3. Have the Companies considered adopting an effective load carrying capability (ELCC) or ELCC-type analysis in any aspect of their resource planning or other work?

- a. If so:
 - i. Please provide any and all documents, analyses, and workpapers regarding the Companies' consideration of an ELCC or ELCC-type analysis.
 - ii. Please provide an explanation of the Companies' decision to adopt an ELCC-type analysis.
- b. If not:
 - i. Please explain why not.
 - ii. Please provide any and all documents, analyses, and workpapers regarding the Companies' decision not to consider an ELCC or ELCC-type analysis.

A-1.3.

- a.
 - i. The Companies used "capacity contribution" to evaluate limited-duration resources in Case No. 2022-00402. See Appendix D to Exhibit SAW-1 provided as Attachment 2 in response to JI 2-60 in Case No. 2022-00402. Capacity contribution is like ELCC but different. Whereas capacity contribution is used in the Companies' portfolio screening analyses to reflect a limited-duration resource's contribution to meeting minimum reserve margin constraints, ELCC is developed by PJM to indicate the amount of UCAP capacity for which a resource is credited in PJM's capacity accreditation process.
 - ii. See the response to part (i).

- b. Not applicable.

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Question No. 1.4

Responding Witness: Stuart A. Wilson

- Q-1.4. Have the Companies conducted an ELCC or ELCC-type analysis in any aspect of their resource planning or other work?
- a. If so:
 - i. Please provide any and all documents, analyses, and workpapers regarding the Companies' ELCC or ELCC-type analysis and its conclusions.
 - b. If not:
 - i. Please explain why not.
- A-1.4. See the response to Question No. 3.

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Case No. 2023-00422

Question No. 1.5

Responding Witness: Lonnie E. Bellar / David S. Sinclair

Q-1.5. In the Companies' view, do any and/or all of LG&E/KU's coal units experience correlated outages?

a. If so:

i. Why and under what circumstances?

ii. Please provide any and all documents, analyses, and workpapers that support the Companies' conclusion.

b. If not:

i. Why not?

ii. Please provide any and all documents, analyses, and workpapers that support the Companies' conclusion.

A-1.5. See the response to PSC 1-23.

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Question No. 1.6

Responding Witness: Lonnie E. Bellar

Q-1.6. Please refer to LG&E/KU Response to Att'y Gen. Question No. 1-13(l) (attachment) ("Winter Storm Elliott: Events in the LG&E and KU Balancing Area Authority (BAA), December 23-24, 2022") in Case No. 2022-402. That document states, "During the time of the load shedding event, derates attributable to the inability of Texas Gas to meet contractual delivery obligations ranged from 785 to 943 MW. Derates unrelated to Texas Gas supply ranged from 45MW to 361MW."

- a. Is each number in that statement accurate?
 - i. If not:
 - i. Which numbers are inaccurate?
 - ii. For each inaccurate number, what is the accurate number?
 - iii. For each inaccurate number, what was the cause or reason that LG&E/KU recorded an inaccurate number?

A-1.6.

- a. See AG 1-2 for updates to Case 2022-00402 AG-DR-1-13 (L) Attachment.

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Question No. 1.7

Responding Witness: Charles R. Schram

Q-1.7. Please refer to LG&E/KU Response to Sierra Club Post-Hearing Data Request No. 4.1(a)-(b) (attachment) and LG&E/KU Response to Sierra Club Post-Hearing Data Request No. 4.1(d) (attachment), both in Case No. 2022-402.

- a. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows an average daily forced outage rate of roughly 5,000 MWh across the nine years.
 - i. If not confirmed, please explain why not.
- b. Please confirm that summing the unit-specific MWh lost data in Response to Request No. 4.1(d) (attachment) shows a much lower figure for MWh lost for December 23, 2022 than Response to Request No. 4.1(a)-(b) (attachment).
 - i. If not confirmed, please explain why not.
 - ii. If confirmed, please explain the discrepancy between these two responses by LG&E/KU.

A-1.7.

- a. Confirmed.
 - i. Not applicable.
- b. Confirmed.
 - i. Not applicable.
 - ii. The referenced Question No. 4.1(a)-(b) asked the Companies to provide all MWh lost, regardless of cause. The referenced Question No. 4.1(d) asked the Companies specifically about the Cold Weather Event Days graph from the Sinclair Rebuttal Testimony. The days on this graph were intended to show outages that occurred during the cold weather,

exclusive of other events that were ongoing prior to onset of the cold weather event.

In the process of responding to this data request, the Companies discovered the original data for the cold weather event days in this graph inadvertently used GADS data for summer seasonal unit ratings instead of the incrementally higher winter ratings. In addition, the data associated with retired coal generating units Cane Run 4, 5, and 6 was omitted from the cold weather days, but not from the annual data; the data also included 100% of Trimble County 1 and 2 instead of the 75% owned by the Companies. After these updates, the conclusion of the graph is not materially impacted; only the December 23, 2022 cold weather event exceeded the annual average daily lost MWh. See the updated data and graph being provided in a separate attachment.

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Case No. 2023-00422

Question No. 1.8

Responding Witness: David S. Sinclair

- Q-1.8. Please refer to the graph provided in Witness Sinclair's rebuttal testimony at 80:1, "Daily MWh Lost – Annual Averages and Cold Weather Event Days" (hereinafter "Sinclair Graph"), in Case No. 2022-402. Please describe the criteria for selection of "cold weather event days" for the Sinclair Graph.
- A-1.8. The Cold Weather Event Days chosen were the five coldest days, by low temperature measured at the Louisville airport (SDF), since 2014.

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Question No. 1.9

Responding Witness: Charles R. Schram / David S. Sinclair

- Q-1.9. Please refer to the Sinclair Graph. Please also refer to LG&E/KU Response to Sierra Club Post-Hearing Data Request No. 4.1(a)-(b) (attachment).
- a. Please confirm that the Sinclair Graph does not include January 3 or January 8, 2014 as cold weather event days.
 - b. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows that on January 3, 2014, LG&E/KU had 12,068 MWh of forced outages.
 - i. If not confirmed, please explain why not and provide the accurate number.
 - ii. If confirmed, please confirm that that number is accurate.
 - iii. If that number is not accurate, please explain why not and provide the accurate number.
 - c. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows that on January 8, 2014, LG&E/KU had 10,065 MWh of forced outages.
 - i. If not confirmed, please explain why not and provide the accurate number.
 - ii. If confirmed, please confirm that that number is accurate.
 - i. If that number is not accurate, please explain why not and provide the accurate number.
 - d. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows that on January 6, 2014, LG&E/KU had 6,030 MWh of forced outages.
 - i. If not confirmed, please explain why not and provide the accurate number.

- ii. If confirmed, please confirm that that number is accurate.
 - i. If that number is not accurate, please explain why not and provide the accurate number.
- e. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows that on January 7, 2014, LG&E/KU had 4,655 MWh of forced outages.
 - i. If not confirmed, please explain why not and provide the accurate number.
 - ii. If confirmed, please confirm that that number is accurate.
 - i. If that number is not accurate, please explain why not and provide the accurate number.
- f. Please confirm that on January 3, 2014, LG&E/KU had more MWh offline than on either January 6, 2014 or January 7, 2014.
 - i. If not confirmed, please explain why not.
- g. Please confirm that on January 8, 2014, LG&E/KU had more MWh offline than on either January 6, 2014 or January 7, 2014.
 - i. If not confirmed, please explain why not.
- h. Please explain why January 3, 2014 was not included on the Sinclair Graph as a “cold weather event day.”
- i. Please explain why January 8, 2014 was not included on the Sinclair Graph as a “cold weather event day.”
- j. For February 19, 2015:
 - i. Please confirm that Response to Request No. 4.1(a)-(b) (attachment) shows 11,529 MWh of forced outages.
 - i. If not confirmed, please explain why not and provide the accurate number.
 - ii. If confirmed, please confirm that that number is accurate. If that number is not accurate, please explain why not and provide the accurate number.
 - ii. Please confirm that the Sinclair Graph shows roughly 3,000 MWh of outages for that date.

- ii. If confirmed, please confirm that that number is accurate. If that number is not accurate, please explain why not and provide the accurate number.
- ii. Please confirm that the Sinclair Graph shows less than 14,000 MWh of forced outages on December 23, 2022.
 - i. If not confirmed, please explain why not and provide the accurate number.
 - ii. If confirmed, please confirm that that number is accurate. If that number is not accurate, please explain why not and provide the accurate number.
- iii. Please explain any discrepancy between the numbers for Response to Request No. 4.1(a)-(b) (attachment) and the Sinclair Graph, including which unit(s) were omitted from the Sinclair Graph, if any, and the MWh omitted.

A-1.9.

- a. Confirmed.
- b. Confirmed.
 - i. Not applicable.
 - ii. Confirmed.
 - iii. Not applicable.
- c. Confirmed.
 - i. Not applicable.
 - ii. Confirmed.
 - i. Not applicable.
- d. Confirmed.
 - i. Not applicable.
 - ii. Confirmed.
 - i. Not applicable
- e. Confirmed.

- i. Not applicable.
- ii. Confirmed.
 - i. Not applicable.
- f. Confirmed.
 - i. Not applicable.
- g. Confirmed.
 - i. Not applicable.
- h. See the response to Question No. 1.8. Louisville had a high temperature of 25° F and a low of 12° F on January 3, 2014.
- i. See the response to Question No. 1.8. Louisville had a high temperature of 35° F and a low of 11° F on January 8, 2014.
- j.
 - i. Confirmed.
 - i. Not applicable.
 - ii. Confirmed.
 - ii. Confirmed.
 - i. Not applicable.
 - ii. The number should be 3,789 MWh. See the response to Question No. 1.7(b)(ii)
 - iii. As stated in the Sinclair rebuttal testimony at page 79, lines 18-20, outages that occurred prior to the onset of cold weather are not included. This was made up of events for (1) Brown CTs 5, 8, 9, 10, 11 (turbine blade design limitations since 1/1/2015), (2) Paddy's Run 11, 12, and 13 (inadequate gas pressure from the LG&E LDC since 2/14/2015), (3) Cane Run 11 (turning gear motor failure since 2/16/2015), (4) Trimble County 1 (air heater fouling since 2/11/2015), and (5) Trimble County 2 (turbine valve leakage since 1/12/2015), for a total of 7,740 MWh.

- k.
 - i. Confirmed
 - i. Not applicable.
 - ii. Confirmed.
 - ii. Confirmed.
 - i. Not applicable.
 - ii. The number should be 3,388 MWh. See the response to Question No. 1.7(b)(ii).
 - iii. See the response to part (j)(iii). This day excluded the same events and the same MWh as 2/19/2015.
- l.
 - i. Confirmed.
 - i. Not applicable.
 - ii. Confirmed.
 - ii. Confirmed.
 - i. Not applicable.
 - ii. The number should be 14,889 MWh. See the response to Question No. 1.7(b)(ii).
 - iii. See the response to part (j)(iii). Outages were excluded for Brown CT 10 (exhaust stack issues since 12/3/2022) and Trimble County 1 (broken bottom ash chain conveyor since 12/22/2022) for a total of 12,186 MWh.

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Case No. 2023-00422

Question No. 1.10

Responding Witness: Charles R. Schram

Q-1.10. Please confirm that LG&E/KU Response to Sierra Club Post-Hearing Data Request No. 4.1(a)-(b) (attachment) shows that six of the ten highest forced outage days in 2022 occurred from December 24 to December 29, 2022.

a. If not confirmed, please explain why not.

A-1.10.

a. Confirmed. However, excluding the impact of the Texas Gas Transmission low pressure event reduced the number of the highest forced outage days from six to four.

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Question No. 1.11

Responding Witness: Charles R. Schram

Q-1.11. Please confirm that LG&E/KU Response to Sierra Club Post-Hearing Data Request No. 4.1(a)-(b) (attachment) in Case No. 2022-402 shows forced outages on December 24 higher than December 23.

a. If not confirmed, please explain why not.

A-1.11.

a. Confirmed. Some events that began partway through the day on December 23, including a derate at Brown 3 and Texas Gas Transmission low pressure related derates at Trimble County, continued throughout the entirety of December 24, resulting in a larger number of MWh lost.

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Question No. 1.12

Responding Witness: Lonnie E. Bellar

Q-1.12. Please confirm that on December 25, 26, and 27, 2022, LG&E/KU lost no MWh to maintenance.

a. If not confirmed, please explain why not.

A-1.12.

a. Confirmed. No MWh were lost due to maintenance derates or outages.

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Question No. 1.13

Responding Witness: David S. Sinclair

Q-1.13. Why did the Sinclair Graph identify only December 23, 2022 and no other date in December 2022 as a cold weather event day?

A-1.13. See response to Question No 1.8.

**KENTUCKY UTILITIES COMPANY
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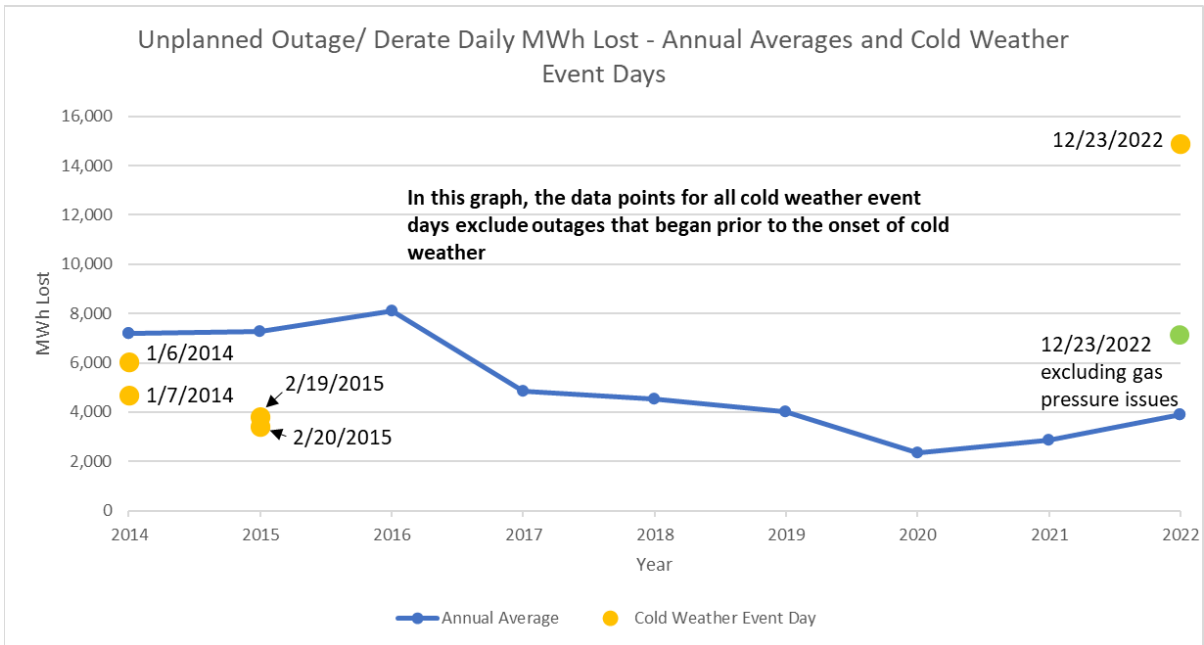
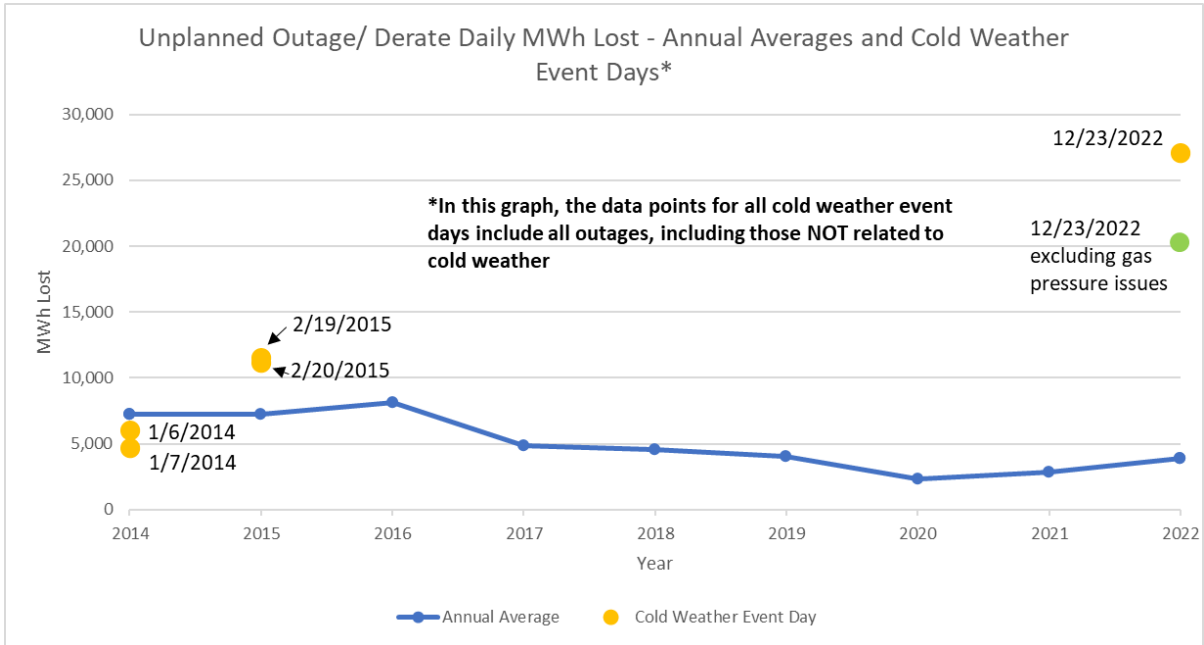
**Response to Sierra Club's Initial Request for Information
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Question No. 1.14

Responding Witness: David S. Sinclair

- Q-1.14. Please replicate the Sinclair Graph with (a) an average line that does not include maintenance outages and (b) the inclusion of forced outages that occurred prior to the onset of cold weather in the green dots for the cold weather event days.
- A-1.14. See graph below. Including outage and derate events that began prior to the onset of cold weather does not provide an accurate depiction of the potential effects of cold weather on generation availability. For comparison, the second graph excludes such events. The Excel file underlying these graphs is attached as a separate file.



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Question No. 1.15

Responding Witness: Lonnie E. Bellar

Q-1.15. Was LG&E/KU in EEA-1 or higher at any time in 2022 other than the times listed in LG&E/KU Response to Att'y Gen. Question No. 1-13(l) (attachment) in Case No. 2022-402?

A-1.15. No.

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Case No. 2023-00422

Question No. 1.16

Responding Witness: Lonnie E. Bellar / David S. Sinclair

Q-1.16. Has LG&E/KU considered diversifying its generation fleet in light of Winter Storm Elliott?

- a. If so:
 - i. Please provide any and all documents, analyses, and workpapers regarding the Companies' consideration of generation fleet diversification in light of Winter Storm Elliott.
 - ii. Please describe any decisions that the Companies have made regarding generation fleet diversification in light of Winter Storm Elliott.
 - iii. Please provide any and all documents, analyses, and workpapers regarding any decisions that the Companies have made as to generation fleet diversification in light of Winter Storm Elliott.
 - iv. Please explain the Companies' next steps, if any, regarding generation fleet diversification.
 - v. Please provide any and all documents, analyses, and workpapers regarding the Companies' next steps, if any, as to generation fleet diversification.
- b. If not:
 - i. Please explain why not.
 - ii. Please provide any and all documents, analyses, and workpapers regarding the Companies' decision not to consider generation fleet diversification in light of Winter Storm Elliott.
- c. Specifically, has LG&E/KU considered increasing solar generation in light of Winter Storm Elliott?

- i. Please ensure that the answers to 1.9(a) and (b) include any consideration, decisions, and next steps as to solar generation.
- d. Specifically, has LG&E/KU considered increasing wind generation in light of Winter Storm Elliott?
 - i. Please ensure that the answers to 1.9(a) and (b) include any consideration, decisions, and next steps as to wind generation.
- e. Specifically, has LG&E/KU considered increasing battery storage in light of Winter Storm Elliott?
 - i. Please ensure that the answers to 1.9(a) and (b) include any consideration, decisions, and next steps as to battery storage.

A-1.16. No.

- a (i-v). Not applicable.
- b.
 - i. The portfolio resulting from the Commission's November 2023 order in Case No. 2022-00402 includes the broadest resource diversification in the Companies' history with the retirement of 600 MW of coal-fired units and the addition of a 640 MW gas-fired unit, over 1,000 MW of solar resources across six new facilities, a 125 MW battery storage resource, and almost 200 MW of various energy efficiency programs. This portfolio is expected to provide excellent reliability. See the response to AG 1-18. The Companies have not evaluated further potential options for fleet modifications but will do so in their 2024 Integrated Resource Plan.
 - ii. No such documentation exists.
- c. No. Solar was not generating during the load curtailments that occurred during Winter Storm Elliott, which occurred during evening hours.¹ See the response to part (b)(i). Furthermore, the Companies' experience with solar generation during Winter Storm Heather (January 14 to 21, 2024) indicates that darkness, clouds, and snow cover make solar generation a poor resource option to address winter reliability. See the response to JI 1-19(d).

¹ See Case No. 2022-00402, Attachment to Companies' Response to JI 1-164(b), available at: https://psc.ky.gov/psccef/2022-00402/rick.lovekamp%40lge-ku.com/03102023110523/70-JI_DR1_LGE_KU_Attach_to_Q164%28b%29_-_Net_Generation_by_Unit_2022.12.20_-_2022.12.28.xlsx.

- i. See the response to part (b)(i).
- d. See the response to part (b)(i).
 - i. See the response to part (b)(i).
- e. See the response to part (b)(i).
 - i. See the response to part (b)(i).

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Question No. 1.17

Responding Witness: Lonnie E. Bellar / Charles R. Schram / David S. Sinclair

Q-1.17. Has LG&E/KU considered taking any steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA)?

- a. If so:
 - i. Please provide any and all documents, analyses, and workpapers regarding the Companies' consideration of steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).
 - ii. Please describe any decisions that the Companies have made regarding steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).
 - iii. Please provide any and all documents, analyses, and workpapers regarding any decisions that the Companies have made as to steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).
 - iv. Please explain the Companies' next steps, if any, regarding steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).
 - v. Please provide any and all documents, analyses, and workpapers regarding the Companies' next steps, if any, as to steps to secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).
- b. If not:
 - i. Please explain why not.
 - ii. Please provide any and all documents, analyses, and workpapers regarding the Companies' decision not to consider taking any steps to

secure power from outside the LG&E/KU Balancing Authority in future energy emergency alerts (EEA).

A-1.17. No.

a. i-v. Not applicable.

b.

i. As demonstrated in Case No. 2022-00402, the Companies' recommended generation portfolio would have provided much better reliability than required by the 1 day in 10 years loss of load expectation ("1-in-10 LOLE") reliability standard. Also, as shown in response to AG 1-18, the portfolio that resulted from the Commission's final order in Case No. 2022-00402 will also provide much better reliability than required by than the 1-in-10 LOLE reliability standard. Hence, attempting to procure capacity from outside the LG&E/KU balancing area and the associated firm electric transmission necessary to bring energy into the system would unnecessarily increase costs for customers.

ii. See the response to part (b)(i).

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Question No. 1.18

Responding Witness: Counsel / Lonnie E. Bellar

- Q-1.18. Please describe any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to generation.
- A-1.18. The Companies do not accept the premises to the data request, i.e., that LGE/KU failed to meet its obligations during Winter Storm Elliot and the steps LGE/KU took following Winter Storm Elliot in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliot. Without waiver of this objection, see the responses to PSC 1-21 and 1-26.

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Question No. 1.19

Responding Witness: Counsel / Lonnie E. Bellar

- Q-1.19. Please provide any and all documents, analyses, and workpapers regarding any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to generation.
- A-1.19. The Companies do not accept the premises to the data request, i.e., that LGE/KU failed to meet its obligations during Winter Storm Elliot and the steps LGE/KU took following Winter Storm Elliot in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliot. Without waiver of this objection, see the response to PSC 1-26e.

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Question No. 1.20

Responding Witness: Counsel / Lonnie E. Bellar

- Q-1.20. Please describe any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to transmission.
- A-1.20. The Companies do not accept the premises to the data request, i.e., that LG&E/KU failed to meet its obligations during Winter Storm Elliott and the steps LG&E/KU took following Winter Storm Elliott in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliott. Without waiver of this objection, from a transmission equipment perspective, there were no customer outages as a result of Winter Storm Elliott other than those resulting from the need to load shed during the capacity and energy emergency.

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Question No. 1.21

Responding Witness: Counsel / Lonnie E. Bellar

Q-1.21. Please provide any and all documents, analyses, and workpapers regarding any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to transmission.

A-1.21. The Companies do not accept the premises to the data request, i.e., that LG&E/KU failed to meet its obligations during Winter Storm Elliott and the steps LG&E/KU took following Winter Storm Elliott in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliott. Without waiver of this objection, from a transmission equipment perspective, there were no customer outages as a result of Winter Storm Elliott other than those resulting from the need to load shed during the capacity and energy emergency.

Notwithstanding the foregoing, LG&E/KU BA and TOP subject matter experts participated in the after action review processes performed by the Companies for continuous improvement. See the response to PSC 1-85.

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Question No. 1.22

Responding Witness: Counsel / Lonnie E. Bellar

- Q-1.22. Please describe any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to distribution.
- A-1.22. The Companies do not accept the premises to the data request, i.e., that LGE/KU failed to meet its obligations during Winter Storm Elliot and the steps LGE/KU took following Winter Storm Elliot in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliot.

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Question No. 1.23

Responding Witness: Counsel/Lonnie E. Bellar

Q-1.23. Please provide any and all documents, analyses, and workpapers regarding any and all remedial steps that LG&E/KU has taken following Winter Storm Elliott with respect to distribution.

A-1.23. The Companies do not accept the premises to the data request, i.e., that LGE/KU failed to meet its obligations during Winter Storm Elliot and the steps LGE/KU took following Winter Storm Elliot in any way constitute evidence of negligence or culpable conduct or otherwise evidence of any failure to meet the Companies' obligations during Winter Storm Elliot. Without waiver of this objection, LGE-KU's Distribution Operations group responded to significant wind-related outages related to Winter Storm Elliott. There were no specific remedial actions from this storm. The LG&E/KU Emergency Preparedness and Response Team performed an After Action Review of the event for the sake of continuous improvement, which is common industry practice following all major storm events. This review captures actions of the groups that went well as part of the event as well as any areas of improvement. The results of the review are provided in the response to PSC 1-85.

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Question No. 1.24

Responding Witness: David S. Sinclair

Q-1.24. Please describe any and all consideration by LG&E/KU as to joining a regional transmission organization following Winter Storm Elliott.

A-1.24. See the response to JI 1-6.

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Question No. 1.25

Responding Witness: David S. Sinclair

- Q-1.25. Please provide any and all documents, analyses, and workpapers regarding any and all consideration of joining a regional transmission organization that LG&E/KU has taken following Winter Storm Elliott.
- A-1.25. See the response to JI 1-6 and Mr. Sinclair's Rebuttal Testimony, Section 3, pp. 34-49, in Case No. 2022-00402.

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Question No. 1.26

Responding Witness: Lonnie E. Bellar

Q-1.26. Please refer to LG&E/KU's Response to Sierra Club's Second Supplemental Request for Information 3.4(a) in Case No. 2022-402.

- a. Please confirm that the document provided is the current reliability coordinator agreement between LG&E/KU and Tennessee Valley Authority.
- b. If not confirmed, please provide the current agreement.

A-1.26.

- a. Confirmed.
- b. N/A

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Question No. 1.27

Responding Witness: Lonnie E. Bellar

Q-1.27. Please describe the relationship between the LG&E/KU Balancing Authority and LG&E/KU.

- a. Do LG&E/KU and the LG&E/KU Balancing Authority share staff?
 - i. If so, please describe which staff.
- b. Do LG&E/KU share office space?
 - i. If so, please describe which office space?

A-1.27.

- a. See the response to PSC 1-1. The staff performing the operating functions for the LG&E/KU BA are employees of LG&E and KU Services Company. LG&E and KU Services Company performs the BA services on behalf of and acts as agent for LG&E and KU.
 - i. See PSC 1-1
- b. It is not clear what is meant by "share office space". However, assuming the question is asking whether individuals performing tasks on behalf of either company may do so in the same building as individuals performing tasks for the other company. Yes, this is fairly common due to the role of LG&E and KU Services Company employees. However, in accordance with the FERC standards of conduct, LG&E and KU Services Company employees who are considered market function employees (MFEs) function independently from LG&E and KU Services Company employees considered transmission function employees (TFEs). In addition, such MFEs cannot access locations where non-public transmission function information is present and/or where transmission functions are conducted.
 - i. Please see response above. If more detail is needed, clarify the question.

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Question No. 1.28

Responding Witness: Lonnie E. Bellar

Q-1.28. What is the leadership structure of the LG&E/KU Balancing Authority?

A-1.28. See the response to PSC 1-1.

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Question No. 1.29

Responding Witness: Lonnie E. Bellar

Q-1.29. What is the corporate structure of the LG&E/KU Balancing Authority?

A-1.29. See the response to PSC 1-1.

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Question No. 1.30

Responding Witness: Lonnie E. Bellar / Charles R. Schram

Q-1.30. Please describe the nature of communications between LG&E/KU and the LG&E/KU Balancing Authority from December 21 to December 31, 2022.

- a. Please list all such communications for which LG&E/KU has records.
- b. Please provide any such written communications.

A-1.30. The LG&E/KU LSE (generation dispatch) frequently communicates by phone with the LG&E/KU Balancing Authority (BA) to keep the BA informed of the status of the LG&E/KU owned generation units. The LG&E/KU LSE also provides the BA with the LG&E/KU load forecast each business day for the current day and 41 days in the future.

- a. See attachments being provided in separate files.
- b. See attached for the forecast files.²

² Hourly values require multiplying by 24 to result in 24-hour clock values.

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Question No. 1.31

Responding Witness: Lonnie E. Bellar

Q-1.31. Was any individual terminated from LG&E/KU due to events that occurred from December 21 to December 31, 2022 and that were related to Winter Storm Elliott, either during or after that time period? (Note that this question does not include termination for events unrelated to LG&E/KU's performance during Winter Storm Elliott.)

- a. If so, please provide the total number of individuals who were terminated.
- b. For each individual terminated, please provide the job title, the date of termination, and the reason for termination.

A-1.31. No.

- a. Not applicable.
- b. Not applicable.

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Question No. 1.32

Responding Witness: Lonnie E. Bellar

Q-1.32. Was any employee disciplined or otherwise given adverse consequences due to events that occurred from December 21 to December 31, 2022 and that were related to Winter Storm Elliott, either during or after that time period? (Note that this question does not include discipline or adverse consequences for events unrelated to LG&E/KU's performance during Winter Storm Elliott.)

- a. If so, please provide the total number of individuals who were disciplined or otherwise experienced adverse consequences.
- b. For each individual, please provide the job title, the date of discipline or adverse consequences, the reason for discipline or adverse consequences, and the nature of discipline or adverse consequences.

A-1.32. No.

- a. Non applicable.
- b. Not applicable.

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Question No. 1.33

Responding Witness: Lonnie E. Bellar

Q-1.33. Have the Companies projected any coal units' performance in future extreme weather events in light of increasing age?

- a. If so: please provide any and all such projections and any and all documents, analyses, and workpapers.
- b. If not: why not?

A-1.33. No.

- a. Not applicable.
- b. The Companies currently assume that units with planned and assumed near-term retirements will have increasing outage rates as they approach their planned retirement dates due to decreasing planned capital investments. The Companies plan to maintain units that are not currently planned or assumed to be retired in the near-term by continuing historical investment levels.

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Question No. 1.34

Responding Witness: Lonnie E. Bellar

- Q-1.34. For each of the Companies' existing generators, please provide Generator Availability Data System (GADS) data in Excel format showing all forced outage events during the years 2014-2023, including the start and end time for the outage, the MW on outage, and the cause code or any other information reported to NERC about the cause of the outage.
- A-1.34. See attachment being provided in a separate file.

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Question No. 1.35

Responding Witness: Charles R. Schram

Q-1.35. Please list all instances of force majeure declarations or other supply interruptions on gas pipelines serving the Companies’ gas generators since January 1, 2014, and please describe and quantify any impact each event had on the availability or performance of each generator.

A-1.35. See the table below and the response to JI 1-17. Texas Gas Transmission did not issue a Force Majeure during the December 22-25, 2022 low pressure event.

Date	Pipeline	LG&E/KU Generation Impact
10/31/2019	Texas Eastern Critical Constraint	No impact
6/23/2020	Texas Eastern Force Majeure	No impact
12/23/2022	Texas Eastern Force Majeure	No impact

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Question No. 1.36

Responding Witness: Charles R. Schram

Q-1.36. For each of the Companies' existing and planned gas generators, please provide all current:

- a. Gas supply contracts
- b. Gas transportation contracts

A-1.36.

- a. Fuel related contracts can be found on the commission website at <https://psc.ky.gov/WebNet/FuelContracts>.
- b. Fuel related contracts can be found on the commission website at <https://psc.ky.gov/WebNet/FuelContracts>. The recently executed contract for firm transportation from Texas Gas for MC5 is included as an attachment.

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Question No. 1.37

Responding Witness: Lonnie E. Bellar

Q-1.37. Please provide any analysis the Companies have conducted or commissioned since January 1, 2014, related to reliability or economic risks from interruptions to gas supply or transportation.

A-1.37. Prior to the events of Winter Storm Elliott, the Companies had not experienced generation curtailments due to issues related to "interruptions to gas supply or transportation." The Companies' did not experience any reliability or economic events related to gas supply during Winter Storm Elliott. The only gas event that occurred during Winter Storm Elliott was a reduction in gas pressure due to equipment issues at the Texas Gas Transmission Slaughters compressor station. See the response to PSC 1-87.

Notwithstanding the foregoing, as part of the annual Transmission Expansion Plan, the Companies must comply with NERC TPL-001-5.1 Table 1 which requires studying the loss of two generating stations resulting from the loss of a large gas pipeline. This analysis can be found in the Transmission Expansion Plan report. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

- i. Attachment 23 of the 2015 Transmission Expansion Plan Report
- ii. Attachment 18 of the 2016 Transmission Expansion Plan Report
- iii. Attachment 24 of the 2017 Transmission Expansion Plan Report
- iv. Attachment 23 of the 2018 Transmission Expansion Plan Report
- v. Attachment 22 of the 2019 Transmission Expansion Plan Report
- vi. Attachment 22 of the 2020 Transmission Expansion Plan Report
- vii. Attachment 22 of the 2021 Transmission Expansion Plan Report
- viii. Attachment 22 of the 2022 Transmission Expansion Plan Report
- ix. Attachment 22 of the 2023 Transmission Expansion Plan Report
- x. Attachment 22 of the 2024 Transmission Expansion Plan Report

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Question No. 1.38

Responding Witness: David S. Sinclair

- Q-1.38. Please list all instances of coal supply or delivery delays or interruptions to the Companies' coal generators since January 1, 2014, and please describe and quantify any impact each event had on the availability or performance of each generator.
- A-1.38. The Companies have not experienced any availability or performance issues with its coal-fired generation units as a result of coal supply or delivery delays or interruptions. The Companies recognize the inherent risks with the coal supply chain and model these risks when establishing coal inventory target ranges for each coal-fired generation station. The Companies also have the ability to redirect coal deliveries between stations and adjust the dispatch of units to ensure sufficient inventory is maintained across the system. See the response to AG 1-23 for coal inventory levels on-site at each of the Companies' coal-fired generation stations on December 23, 2022.

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Question No. 1.39

Responding Witness: Lonnie E. Bellar

- Q-1.39. For each of the Companies' coal and gas generators, please list all instances in which cooling water availability or temperature affected the generator's availability or performance since January 1, 2014, and please describe and quantify any impact each event had on the availability or performance of each generator.
- A-1.39. There are no events in which the availability or temperature of cooling water sources affected a generator's availability or performance.

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Question No. 1.40

Responding Witness: Lonnie E. Bellar

- Q-1.40. Please provide any analysis the Companies have conducted or commissioned since January 1, 2014, related to the cost or feasibility of potential weatherization projects for any of the Companies' generators to improve availability during winter weather. Please list all potential weatherization projects that were identified in those analyses but not implemented, including the cost and why the project was not implemented.
- A-1.40. The Companies regularly evaluate cold weather practices and as well as share lessons learned across the fleet. No specific analyses have been commissioned. Projects have been implemented as described in response to Question No. 41.

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Question No. 1.41

Responding Witness: Lonnie E. Bellar

- Q-1.41. Please list each winter weatherization project that has been implemented at each of the Companies' generators since January 1, 2014, including the cost and when it was implemented.
- A-1.41. See attachment being provided in a separate file.

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Question No. 1.42

Responding Witness: David S. Sinclair / Stuart A. Wilson

- Q-1.42. For each of the Companies' existing and planned generators:
- a. Please document the assumptions and calculations that are used to derive summer and winter rates for forced outages and derates.
 - b. Please provide the results of those calculations, and the calculation of each generator's total availability.
 - c. For summer derate assumptions, please include any assumptions related to weather, such as temperature.
 - d. For summer derate assumptions in forward-looking analysis, do the Companies account for the impact of increasing temperatures due to climate change? If so, please explain the assumptions used by the Companies. If not, why not.
- A-1.42.
- a. For forced outage rate assumptions and calculations for the Companies' existing generators, see attachment being provided in a separate file. For forced derate assumptions and calculations for the Companies' existing generators, see "`\\06_ModelInputs\EFOR\20220628_CHW_EFORTemplateForPROSYM.xlsx`" provided as part of Exhibit SAW-2 in Case No. 2022-00402. Forced outages and derates planned for Mill Creek 5 are assumed to be equivalent to those of Cane Run 7.
 - b. See column H of the '2.6UnitAvail' tab for the equivalent unplanned outage rates for each of the Companies' existing generating units in "`\\06_ModelInputs\CONFIDENTIAL_Model Inputs.xlsx`" provided as part of Exhibit SAW-2 in Case No. 2022-00402. The Companies did not explicitly calculate the planned outage rates for each year in the forecast period, but the planned outage schedule is reflected on the same tab.
 - c. The Companies do not make any weather-related derate assumptions.

- d. See the response to part (c). Any impacts related to climate change would be incorporated into historical data.

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Question No. 1.43

Responding Witness: David S. Sinclair / Stuart A. Wilson

- Q-1.43. In Excel format, please provide hourly data indicating the MW of load, generation, imports, and exports for the Companies' service territory (not the Balancing Authority Area) for each hour in the period 2014-2023.
- A-1.43. See attachment being provided in a separate file.

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Question No. 1.44

Responding Witness: Lonnie E. Bellar

Q-1.44. Please describe and document all communications since January 1, 2019, the Companies have had with other SouthEastern Regional Transmission Planning (SERTP) members regarding:

- a. Interregional transmission planning or cost allocation with MISO
- b. Interregional transmission planning or cost allocation with PJM
- c. The Economic Study request submitted by the Southern Renewable Energy Association in 2023 to evaluate imports from MISO to LG&E/KU to evaluate capacity and energy alternatives to the Companies' proposed Mill Creek or Brown combined cycle generators.

A-1.44.

- a. SERTP meets annually with the MISO and PJM regions to discuss transmission planning coordination between the regions. Additionally, members of the SERTP planning team have weekly phone calls to discuss all regional transmission planning topics, which may include interregional transmission planning and cost allocation. Any substantive communication between SERTP members regarding interregional transmission planning or cost allocation with MISO or PJM takes place at these meetings. At these meetings, no interregional transmission projects have been proposed by any party. The Company doesn't recall any communication and is unaware of any meeting minutes or documentation from these meetings.

Below is the list of dates of the interregional transmission planning meetings with MISO and PJM since January 1, 2019:

- May 8, 2019 – MISO
- May 22, 2019 – PJM
- March 25, 2020 – MISO
- May 7, 2020 – PJM
- September 2, 2021 – PJM
- September 2, 2021 – MISO

- September 15, 2022 – MISO
 - September 23, 2022 – PJM
 - August 29, 2023 – MISO
 - September 14, 2023 – PJM
- b. See response to part a.
- c. LG&E/KU does not recall any communications with other SERTP members specifically related to the Economic Study request received from the Southern Renewable Energy Association and does not have any documentation of communications. Each SERTP member analyzes each economic study's effects upon its system independently, based upon models that are developed with all SERTP members' input. Those results are then collected to form the full SERTP analysis. While there are no minutes from the quarterly or weekly SERTP meetings, below is a description of the economic planning study process and meetings where any substantive communication would have taken place.

At the SERTP 1st Quarter Meeting, the Regional Planning Stakeholder Group (RPSG) is formed. Stakeholders may submit any number of requests for consideration, but ultimately the RPSG agrees on and submits up to five economic planning studies for SERTP to perform. During this portion of the meeting, there is substantive communication between all SERTP members (including LG&E/KU) and stakeholders to ensure all parties understand the scope of the selected economic planning studies.

After the SERTP 1st Quarter Meeting, SERTP will create a scope document for each of the selected economic planning studies. SERTP will again meet with the RPSG to review the scope document. At this meeting there is substantive communication between SERTP members (including LG&E/KU) and stakeholders.

At the SERTP 3rd Quarter Meeting, the preliminary results of the economic planning studies are discussed and there is substantive communication between SERTP members (including LG&E/KU) and Stakeholders.

At the SERTP 4th Quarter Meeting, the final results of the economic planning studies are discussed and there is substantive communication between SERTP members (including LG&E/KU) and Stakeholders.

Additionally, throughout the process described above, the SERTP planning team may discuss the economic planning studies on their weekly phone call, as described further in the response to part a.

See also attachment to Question No. 45, page 166 of the pdf for the LG&E/KU request submitted to SERTP by LG&E/KU in 2022. The request was not chosen by SERTP to study in their planning process.

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Question No. 1.45

Responding Witness: Lonnie E. Bellar

Q-1.45. Please provide all Economic Study Requests or Public Policy Study Requests the Companies have submitted to SERTP since January 1, 2014, as well as any studies that resulted from those requests. If the Companies have not submitted any such requests, please explain why.

A-1.45. See attachment being provided in a separate file.

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Question No. 1.46

Responding Witness: Lonnie E. Bellar

- Q-1.46. Please provide any studies the LG&E/KU Transmission Planning Group has conducted or commissioned since January 1, 2014, related to increasing transfer capacity with other utilities or Balancing Authorities.
- a. Please identify the change in transfer capacity, cost, and completion date for each transfer capacity upgrade that was completed.
 - b. Please identify the change in transfer capacity and cost for each transfer capacity upgrade that was identified in those studies but not completed, and please explain why each upgrade was not completed.
 - c. If no such studies were conducted, please explain why.
- A-1.46. See the response to JI 1-19(f). LG&E/KU Transmission Planning has not conducted any studies since January 1, 2014 for the sole purpose of increasing transfer capacity with other utilities or Balancing Authorities.
- a. N/A
 - b. N/A
 - c. See the response above.