

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

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

**RESPONSE OF**  
**KENTUCKY UTILITIES COMPANY**  
**AND**  
**LOUISVILLE GAS AND ELECTRIC COMPANY**  
**TO**  
**THE JOINT INTERVENORS METROPOLITAN HOUSING COALITION,**  
**KENTUCKIANS FOR THE COMMONWEALTH, KENTUCKY SOLAR**  
**ENERGY SOCIETY, AND MOUNTAIN ASSOCIATION'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**

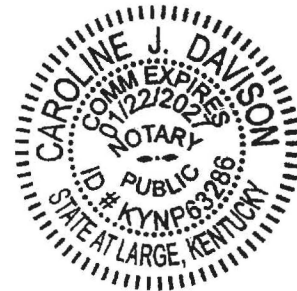
Subscribed and sworn to before me, a Notary Public in and before said County and State, this 14<sup>th</sup> day of February 2024.

*Caroline J. Davison*  
\_\_\_\_\_  
Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027







**KENTUCKY UTILITIES COMPANY  
AND  
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**Response to Joint Intervenors Metropolitan Housing Coalition, Kentuckians for the  
Commonwealth, Kentucky Solar Energy Society, and Mountain Association's Initial  
Request for Information  
Dated January 26, 2024**

**Case No. 2023-00422**

**Question No. 1.1**

**Responding Witness: Lonnie E. Bellar**

Q-1.1. Please refer to the following text on page 11 of the FERC-NERC Report:

LG&E/KU also experienced significant unplanned generation derate during winter peak load conditions on the evening of December 23. To offset the generation derates, LG&E/KU was able to import 400 MW from PJM. At 4:29 p.m., PJM BA curtailed the 400 MW import due to experiencing rapidly increasing levels of unplanned generation outages coincident with increasing system load in its own footprint. In response, LG&E/KU requested emergency energy from the TVA Contingency Reserve Sharing Group, which TVA was able to supply. With its system load increasing, LG&E/KU entered into EEA 3 at 4:45 p.m. Following TVA's return at 5:18 p.m. to EEA 3, by 6:00 p.m. it also could no longer spare its 400 MW emergency power to LG&E/KU. With the loss of the import power to offset the unplanned generation derates, LG&E/KU began over 300 MW firm load shed at 5:58 p.m. This was the first time LG&E/KU had ever ordered firm load shed in response to an energy emergency (EEA) event.

- a. Please confirm whether it is the Companies' position that the quoted text accurately describes events that occurred on December 23, 2022.
- b. If the answer to the previous subpart is anything other than an unqualified confirmation, please explain in detail any material inaccuracies or omissions in the quoted text.

A-1.1

- a. Confirmed. While this general narrative is correct, the Companies note that a more complete explanation and timeline was included in Attachment 1 in the response to AG 1-13 in Case No. 2022-00402.
- b. See the response to subpart (a).

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**Question No. 1.2**

**Responding Witness: Lonnie E. Bellar**

- Q-1.2. Please refer to page 29 of the FERC-NERC Report (Figure 12).
- a. Please confirm whether it is the Companies' position that the information reflected in Figure 12 detailing the number of transmission tie lines between LG&E-KU's balancing authority and adjacent balancing authorities is accurate.
  - b. If the answer to the previous paragraph is anything other than an unqualified confirmation, please explain in detail any material inaccuracies or omissions of which the Companies are aware in Figure 12.
  - c. Please produce a map or maps showing the locations of the transmission tie lines between LG&E-KU's balancing authority and adjacent balancing authorities.
  - d. Please produce a spreadsheet or other document identifying the locations of the transmission tie lines between LG&E-KU's balancing authority and adjacent balancing authorities, along with the dates those transmission tie lines were constructed, the reason(s) why they were constructed, and the docket number(s) of any Commission proceeding(s) in which their construction was approved by the Commission.
  - e. Do the Companies have any pending cases whereby they are seeking to add additional transmission tie lines between LG&E-KU's balancing authority and adjacent balancing authorities? If yes, please identify all such cases. If no, please explain why not.
  - f. Do the Companies have any plans to seek new approvals to add additional transmission tie lines between LG&E-KU's balancing authority and adjacent balancing authorities? If yes, please identify all such plans. If no, please explain why not.

A-1.2.

- a. Confirmed.
- b. N/A
- c. See attached being provided in a separate file. The attached map shows the location of each LG&E/KU BA agreed-upon metered tie lines with MISO, PJM, and TVA. The numbers on the map correspond with the numbered tie lines in the spreadsheet provided in response to subpart d below. Note: The map excludes dynamically scheduled or pseudo-tied loads, pseudo-tied generation, and pseudo-tied Jointly Owned Unit generation.
- d. See the attached spreadsheet being provided in a separate file. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection. The remainder of the requested information is either not readily available or not available at all.
- e. No, because there are no lines that require Commission approval under 807 KAR 5:120.
- f. No, because there are no lines that require Commission approval under 807 KAR 5:120.

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**Question No. 1.3**

**Responding Witness: Lonnie E. Bellar**

Q-1.3. Please refer to the following text on page 47 of the FERC-NERC Report:

Beginning at 1:28 a.m. on December 23, then throughout the morning and afternoon, generators experienced derates and outages due to cold weather and mechanical issues; at 1:08 p.m., significant power plant derates due to fuel issues (discussed further in subsection (a) below) led to an approximately 900 MW reduction, including one unit trip and six units that were derated to operate at minimum output for approximately 50 hours (until December 25, 4:00 p.m.); then from 3:39 p.m. to 6:44 p.m., an additional 500 MW of unplanned generation outages occurred.

- a. Please confirm whether it is the Companies’ position that the quoted text accurately describes events that occurred on December 23–25, 2022.
- b. If the answer to the previous subpart is anything other than an unqualified confirmation, please explain in detail any material inaccuracies or omissions in the quoted text.

A-1.3.

- a. Confirmed. “[F]uel issues” refers to low pressure experienced on the Texas Gas Transmission interstate pipeline that affected the Companies’ Cane Run and Trimble County sites.
- b. See the response to subpart (a).



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**Case No. 2023-00422**

**Question No. 1.4**

**Responding Witness: Lonnie E. Bellar**

Q-1.4. Please refer to the following text on page 50 of the FERC-NERC Report:

On December 23, at 1:09 a.m., pipeline pressures for two natural gas-fired generating stations began to drop below the contract limits; and at 1:08 p.m., LG&E/KU experienced approximately 900 MW in generation losses (unit trip and six units derated) arising from low delivery pressures on a pipeline supplying these generating units.

- a. Please confirm whether it is the Companies’ position that the quoted text accurately describes events that occurred on December 23, 2022.
- b. If the answer to the previous subpart is anything other than an unqualified confirmation, please explain in detail any material inaccuracies or omissions in the quoted text.

A-1.4.

- a. Confirmed, except that “1:09 a.m.” should be “11:09 a.m.”<sup>1</sup> See the response to Question No. 3(a).
- b. See the response to subpart (a).

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<sup>1</sup> The quote of the FERC-NERC Report text is accurate; the error is in the FERC-NERC Report text itself.

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**Case No. 2023-00422**

**Question No. 1.5**

**Responding Witness: Lonnie E. Bellar**

Q-1.5. Please refer to the following text on pages 64–65 of the FERC-NERC Report:

With LG&E/KU's system load already at 96 percent of its new alltime record winter peak load which occurred December 23, coupled with significant unplanned generation derates, by 1:36 p.m. on December 23, LG&E/KU declared EEA 3, but recovered to an EEA 2 by 2:52 p.m. At 4:29 p.m., PJM BA curtailed the 400 MW import power due to experiencing rapidly increasing levels of unplanned generation outages coincident with increasing system load in its own footprint. With import power curtailment, at 4:29 p.m., LG&E/KU requested emergency energy from its contingency reserve sharing group. TVA, although in EEA 2 at the time, supplied LG&E/KU with 400 MW of emergency energy. At 4:45 p.m., LG&E/KU reentered EEA 3. However, following TVA's return at 5:18 p.m. to an EEA 3 condition, at 6 p.m. it could no longer spare the 400 MW of emergency power to LG&E/KU. With the loss of its import power schedules to offset the generation derates, and its increasing system load conditions, LG&E/KU began over 300 MW firm load shed at 5:58 p.m. Over the next several hours, LG&E/KU was able to incrementally restore firm load that was shed as system loads decreased after its evening peak, and by 10:11 p.m., restored all firm load.

- a. Please confirm whether it is the Companies' position that the quoted text accurately describes events that occurred on December 23, 2022.
- b. If the answer to the previous subpart is anything other than an unqualified confirmation, please explain in detail any material inaccuracies or omissions in the quoted text.

A-1.5.

- a. Confirmed, except that the report's statement, "With LG&E/KU's system load already at 96 percent of its new all time record winter peak load which occurred December 23...", is inaccurate. At the hour ending 13:00 on December 23, 2022, LG&E/KU LSE load was 6,246 MW. Though that was 97 percent of that day's peak load of 6,407 MW,<sup>2</sup> it was only 88 percent of the Companies' all-time winter peak load of 7,114 MW that occurred on January 6, 2014.
- b. See the response to subpart (a).

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<sup>2</sup> The daily peak load on December 23, 2022, occurred during the hour ending 18:00.

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**Question No. 1.6**

**Responding Witness: David S. Sinclair**

Q-1.6. Please refer to Case No. 2022-00402, Sierra Club Hearing Exhibit No. 10 (LG&E-KU Nov. 2022 RTO Membership Study), at 8, which states that “[t]he Companies will perform another RTO Membership Study in 2023, reassessing any changes in the outlook for RTO reliability as indicated in NERC, RTO, and other reports, as well as updating the inputs to energy and capacity market models.”

- a. Did the Companies perform another RTO Membership Study in 2023?
- b. If yes, please produce the study, along with documents reflecting any updated inputs and any updated modeling files.
- c. If no, please explain in detail why not.

A-1.6.

- a. Yes.
- b. The Companies’ *2023 RTO Membership Analysis* is publicly available on the Kentucky Public Service Commission’s website. See [https://psc.ky.gov/pscecf/2020-00349/rick.lovekamp@lge-ku.com/10312023092327/Closed/02-2023 LGE KU RTO Membership Analysis.pdf](https://psc.ky.gov/pscecf/2020-00349/rick.lovekamp@lge-ku.com/10312023092327/Closed/02-2023%20LGE%20KU%20RTO%20Membership%20Analysis.pdf).
- c. Not applicable.

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**Question No. 1.7**

**Responding Witness: Lonnie E. Bellar / Counsel**

- Q-1.7. Please refer to Case No. 2022-00402, Companies' response to the Office of the Attorney General's Request No. 1-13.
- a. Please identify all steps taken by Texas Gas Transmission since December 2022 to "upgrade equipment and update operational procedures to ensure transportation reliability."
  - b. Please explain whether the Companies believe that the steps identified in response to subpart (a) are sufficient to ensure transportation reliability even during severe winter storm conditions similar to those experienced during Winter Storm Elliott. If so, please explain why. If not, please explain why not and identify what further steps the Companies believe are needed.
  - c. Have the Companies completed any additional reports or other analyses concerning the events of Winter Storm Elliott since the date of this response? If yes, please produce copies of all such reports or analyses.
  - d. Please produce copies of all contracts between the Companies and Texas Gas Transmission or Tennessee Gas Pipeline that were in place in December 2022, as well as all subsequent contracts or contract amendments or modifications, up to the present day.
  - e. Did the issues experienced during Winter Storm Elliott constitute a failure to perform by Texas Gas Transmission pursuant to any contracts that were in place with the Companies? Please explain why or why not.
  - f. Did the issues experienced during Winter Storm Elliott constitute a breach by Texas Gas Transmission of any contracts that were in place with the Companies? Please explain why or why not.

- g. Have the Companies taken any steps to seek damages or other legal or equitable relief from Texas Gas Transmission due to the issues experienced during Winter Storm Elliott? Please explain why or why not.

A-7.

- a. See the response to PSC 1-19.
- b. Yes. While temperatures during Winter Storm Heather in January 2024 were slightly warmer than during Winter Storm Elliott, no low-pressure excursions were encountered on the Texas Gas Transmission pipeline. See the response to PSC 1-19.
- c. See the response to PSC 1-85.
- d. See the response to SC 1-36.
- e. See the response to KCA 1-16.
- f. The Companies object to this request insofar as it seeks a legal conclusion, i.e., what constitutes a breach of contract. Without waiving that objection, see the response to KCA 1-16.
- g. See the response to KCA 1-16.

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**Case No. 2023-00422**

**Question No. 1.8**

**Responding Witness: Lonnie E. Bellar**

- Q-1.8. Please refer to slide 5 of the February 2, 2023 presentation by LG&E/KU Chief Operating Officer Lonnie E. Bellar, “Generation Reliability Planning and Winter Storm Elliott,” which is attached to the Commission’s December 22, 2023 Order in this proceeding as Appendix B.
- a. Please identify and explain all steps that the Companies have taken to date in “working with Texas Gas Transmission to address the event.
  - b. Please identify and explain all steps that the Companies have taken to date to “reduce risk of future occurrence” of the event.
  - c. Please identify the status of the Companies’ review of their winter operating procedures and produce any documentation of that review or its results.
- A-1.8.
- a. See the response to Question No. 7.
  - b. See the response to Question No. 7.
  - c. The Companies completed review of winter operating procedures. The results of that review are summarized in response to PSC 1-25 and the cold weather checklists provided in response to PSC 1-26(b).

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**Case No. 2023-00422**

**Question No. 1.9**

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

Q-1.9. Please refer to Case No. 2022-00402, Companies’ response to Joint Intervenors’ Request No. 1-22.

- a. Please explain what is meant by “pseudo-ties” and “dynamic schedules.”
- b. Please explain what steps, in addition to the steps identified in response to Joint Intervenors’ Request 1-22(c)(ii), the Companies would take today to manage additional load if they anticipated or experienced a similar increase in load under similar conditions as that on December 23, 2022.

A-1.9.

- a. The terms “pseudo-tie” and “dynamic schedule” are defined in the North American Electric Reliability Corporation (NERC), Glossary of Terms Used in NERC Reliability Standards (dated December 1, 2023).<sup>3</sup> Specifically, the terms when used by the Companies, are defined as follows.
  - Pseudo-Tie: A time-varying energy transfer that is updated in Real-time and included in the Actual Net Interchange term (NIA) in the same manner as a Tie Line in the affected Balancing Authorities’ control Area Control Error (ACE) equations (or alternate control processes).
  - Dynamic Schedule: A time-varying energy transfer that is updated in Real-time and included in the Scheduled Net Interchange (NIS) term in the same manner as an Interchange Schedule in the affected Balancing Authorities’ control ACE equations (or alternate control processes).

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<sup>3</sup> Available at [https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary\\_of\\_Terms.pdf](https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf).



- b. No additional steps would be required by the Companies to manage loads associated with the conditions experienced on December 23, 2022. The Companies followed the same approach to manage the loads experienced during Winter Storm Heather in January 2024, which were similar to the loads experienced during Winter Storm Elliott. See the response to PSC 1-22.

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**Case No. 2023-00422**

**Question No. 1.10**

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

Q-1.10. Please refer to Case No. 2022-00402, Companies' response to Joint Intervenors' Request No. 1-28.

- a. Please explain whether the Companies believe their current generation assets have sufficient ramping capabilities to meet swings in demand, such as the extreme demand swings that occurred on June 28, 2012, and January 6, 2014.
- b. Please explain whether the Companies have evaluated the extent to which they expect existing measures (such as TOD rates, CSR, and DSM programs) to dampen future swings. If so, please explain the results, and produce any documentation, of that evaluation. If not, please explain why not.

A-1.10.

- a. Yes. The Companies anticipate that current generation fleet can meet the expected swings in demand implied by historical weather events. The Companies' existing baseload fleet (coal, NGCC, and OVEC PPA) has a dispatchable range of approximately 2,750 MW in winter and 2,850 MW in summer. The Companies' existing fleet of combustion turbines comprises approximately 2,300 MW of winter capacity and 2,050 MW of summer capacity. Together, the existing fleet can increase from minimum baseload generation to maximum fleet generation by approximately 5,050 MW in winter and 4,900 MW in summer, which are greater than the referenced approximately 3,400 MW summer and 2,900 MW winter daily demand ranges.

- b. The table below lists expected load reductions under normal peak weather conditions for CSR and DSM programs. The Companies have not estimated the impact of TOD rates on future load swings.

**Expected Load Reductions under Normal Peak Weather Conditions (MW)**

|                           | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---------------------------|------|------|------|------|------|------|------|
| <b>Summer</b>             |      |      |      |      |      |      |      |
| CSR                       | 130  | 130  | 130  | 130  | 130  | 130  | 130  |
| Dispatchable DSM Programs |      |      |      |      |      |      |      |
| Existing                  | 60   | 56   | 52   | 49   | 46   | 44   | 42   |
| New                       | 14   | 28   | 44   | 70   | 102  | 121  | 127  |
| <b>Winter</b>             |      |      |      |      |      |      |      |
| CSR                       | 130  | 130  | 130  | 130  | 130  | 130  | 130  |
| Dispatchable DSM Programs |      |      |      |      |      |      |      |
| Existing                  | 22   | 22   | 22   | 22   | 22   | 22   | 22   |
| New                       | 13   | 26   | 40   | 61   | 89   | 103  | 104  |

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**Question No. 1.11**

**Responding Witness: Lonnie E. Bellar**

Q-1.11. Please refer to Case No. 2022-00402, Companies' response to Joint Intervenors' Request No. 3-4. In addition to prudent management of coal inventories, please explain what other steps Companies' have taken to prevent the potential for derates resulting from frozen coal.

A-1.11. The main operational challenge that is presented by frozen coal is pluggage and the subsequent interruption of the segments of the coal handling system. Plant operations personnel are familiar with and anticipate pluggage issues during cold or wet ambient conditions. Coal belts and conveyors are typically run continuously in cold weather to help prevent freezing. It is also common to use mechanical means to break up large pieces to avoid coal handling interruptions. Operators utilize bulldozers to break up the frozen surface layer on the coal pile. The coal is also fed through coal crushers to break up any large pieces before it comes into the plant. Manual processes (typically utilizing solid rods or air lances) are used to clear transfer chutes or coal feeders if they get plugged.

Chemical means are also employed to prevent frozen coal. Coal suppliers use anti-freeze chemicals to prevent freezing in rail cars. Operations personnel also treat coal belts and chutes with anti-freeze chemicals.

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**Question No. 1.12**

**Responding Witness: Lonnie E. Bellar**

Q-1.12. Please refer to Case No. 2022-00402, Companies' response to Joint Intervenors' Request No. 4-4.

- a. Please provide the operating plans developed by LG&E/KU BA to mitigate capacity and energy emergencies.
- b. Please explain TVA RC process for review and approval of LG&E/KU BA's operating plans to mitigate capacity and energy emergencies.
- c. Please state whether LG&E/KU BA's operating plans have been adjusted or updated in response to the Winter Storm Elliott event. If so, please explain in detail how those plans have been adjusted or updated, and produce the adjusted or updated plans. If not, explain why not.

A-1.12.

- a. See attachment being provided in a separate file. The attachment LG&E/KU Capacity and Energy Emergency Operating Plan (revision 7) was in effect during Winter Storm Elliott. protection.
- b. LG&E/KU performs an annual review/update of the LG&E/KU Capacity and Energy Emergency Operating Plan and submits it to the TVA RC for review. If any potential risks are identified by the RC, they are addressed by LG&E/KU in the plan and re-submitted to the RC for review.
- c. See attachment being provided in a separate file. The attachment LG&E/KU Capacity and Energy Emergency Operating Plan (Revision 9 is the most current version of the plan) is reviewed and updated on an annual basis. Since Winter Storm Elliott, the manual load shed plan within the LG&E/KU Capacity and Energy Emergency Operating Plan has been

updated to include the option of shedding load at the distribution level. Adding this option provides for more granular load shed capability (in finer MW increments) by including available remote control equipped power circuit breakers at the distribution voltage level (12kV/14kV) and expands the previously limited number of radial transmission circuits which could accommodate load shed. Additionally, a few other minor updates were made in the document to align with version 2 of the NERC EOP-011 Reliability Standard that became effective April 1, 2023.

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**Question No. 1.13**

**Responding Witness: Lonnie E. Bellar**

Q-1.13. Please refer to Case No. 2022-00402, Companies' response to Joint Intervenors' Request No. 4-22. Other than a drop in pressure on the Texas Gas Transmission system, have the Companies identified any other contributing factor(s) that impacted the ability of Cane Run 7 and Trimble County CTs to perform during the Winter Storm Elliott event?

A-1.13. No. In fact, as demonstrated during Winter Storm Heather (January 2024), Texas Gas Transmission experienced no gas pressure issues and Cane Run 7 and the Trimble County CTs performed as expected.

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**Question No. 1.14**

**Responding Witness: Lonnie E. Bellar**

Q-1.14. Please state whether the Companies experienced any outages or derates at any of their coal- or gas-fired generating units in January or February 2023, December 2023, or January 2024.

- a. If so, please identify each such outage or derate by generating unit, date, length, cause, and the size in MW if a derate.

A-1.14.

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



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**Question No. 1.15**

**Responding Witness: Lonnie E. Bellar**

Q-1.15. Please refer to Figure 4 on page 14 of the FERC-NERC Report. State whether the Companies experienced any outages or derates at any of their coal- or gas-fired units during any of the 2011, 2014, 2018, or 2021 severe winter weather events identified therein.

- a. If so, please identify each such outage or derate by generating unit, date, length, cause, and the size in MW if a derate.

A-1.15.

- a. For outages and derates in 2021, see the response to PSC 1-99 in Case 2022-00402. For the outages and derates in the other requested years, see attachment being provided in a separate file.

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LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Joint Intervenors Metropolitan Housing Coalition, Kentuckians for the  
Commonwealth, Kentucky Solar Energy Society, and Mountain Association's Initial  
Request for Information  
Dated January 26, 2024**

**Case No. 2023-00422**

**Question No. 1.16**

**Responding Witness: Lonnie E. Bellar**

Q-1.16. Please state whether the Companies experienced any incidents of low gas pressure or other gas supply inadequacies in January or February 2023, December 2023, or January 2024.

- a. If so, identify each such incident by pipeline, date, length, cause, and extent.

A-1.16.

- a. The Companies did not experience low gas pressure or gas supply inadequacies in any of the months cited.

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**Case No. 2023-00422**

**Question No. 1.17**

**Responding Witness: Charles R. Schram**

Q-1.17. Please refer to Figure 4 on page 14 of the FERC-NERC Report. Please state whether the Companies experienced any incidents of low gas pressure or other gas supply inadequacies during any of the 2011, 2014, 2018, or 2021 severe winter weather events identified therein.

- a. If so, please identify each such incident by pipeline, date, length, cause, and extent.

A-1.17.

- a. No. However, during February 15 to February 19, 2021, the Companies experienced reductions in deliveries of 24% of the forward purchased gas and 9% of gas purchased on the spot market. This was related to supply cuts from gas marketers and was not a pipeline performance issue on the Texas Gas Transmission or Texas Eastern Transmission pipelines. The Companies' generators were not impacted. The Companies maintained reliability through management of gas transportation services that include pipeline storage and pipeline imbalance provisions and also purchased replacement gas from other suppliers. The Companies enforced the gas supplier contracts' performance provisions related to firm gas purchases and recovered liquidated damages from the applicable counterparties to cover the higher cost of replacement gas.

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**Case No. 2023-00422**

**Question No. 1.18**

**Responding Witness: Lonnie E. Bellar**

- Q-1.18. Please produce the most recent cold weather plan that the Companies have for each of their coal- and gas-fired generating units.
- a. For each such plan, please state whether it has been updated or adjusted since Winter Storm Elliott and, if so, how.
  - b. For each coal- and gas-fired generating unit, please state whether the applicable cold weather plan was fully implemented in advance of this winter. If not, please explain why not.
- A-1.18. See attachment being provided in a separate file.
- a. The Companies prepared the attached cold weather plan after Winter Storm Elliott by taking specific plant plans and consolidating them into a fleet-wide plan. The Companies prepared the current plan using NERC Reliability Guideline – Generating Unit Winter Weather Readiness – Current Industry Practices, Version 3 and in compliance with NERC Standard EOP-011 Emergency Preparedness and Operations.
  - b. Yes, the Companies fully implemented the applicable cold weather plan in advance of this winter.

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**Case No. 2023-00422**

**Question No. 1.19**

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

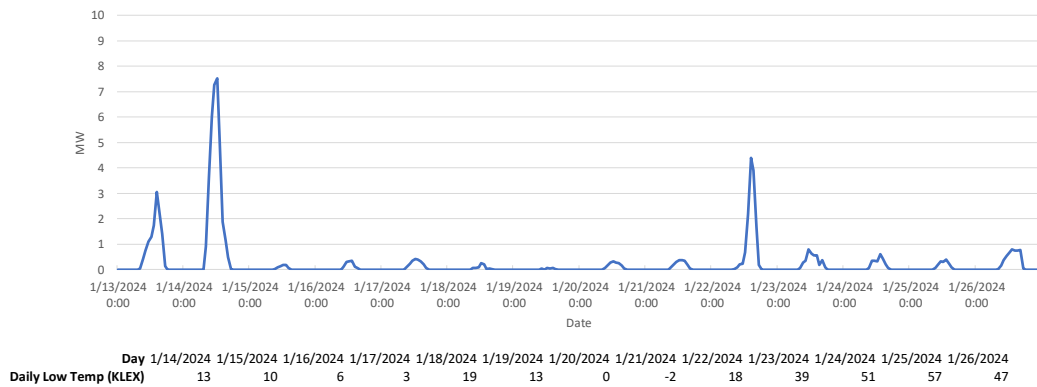
Q-1.19. Please state whether the Companies have evaluated each of the following as options for improving reliability, reducing peak demand, and/or reducing the chance of rolling blackouts or other load shedding events during severe winter weather conditions such as those experienced during Winter Storm Elliott. For each option that the Companies have evaluated, please explain the results and produce any documentation of such evaluation. For each option that the Companies have not evaluated, please explain why not.

- a. Demand response programs.
- b. Energy efficiency programs, beyond those approved in the CPCN docket, 2022-00402.
- c. Battery storage projects, beyond those approved in the CPCN docket, 2022-00402.
- d. Distributed solar plus batteries.
- e. Home weatherization and high-efficiency home heating programs.
- f. Increased interconnections to neighboring RTOs and/or Balancing Authorities.
- g. New or upgraded transmission infrastructure within the Companies' service territory.

A-1.19. The Companies have an annual business planning process and triennial IRP filing where future load and resources are analyzed. The Companies' historical weather includes temperatures colder than experienced during Winter Storm Elliott, and 2022's weather is included in that history. The 2024 IRP to be filed in October 2024 will likely include many of the particular items identified in a-g.

- a. See above.
- b. See above.
- c. See above.
- d. The Companies have not evaluated distributed solar plus batteries for these purposes but observed during the week of January 15, 2024, that solar generation as a charging source for batteries can be curtailed for long periods by snow and clouds. The figure below shows Brown Solar's output the week of January 15, 2024, where load conditions were similar to loads experienced during Winter Storm Elliott. Snowfall the night of January 14 curtailed the output of Brown Solar for seven days.

**Brown Solar Output<sup>4</sup>**



<sup>4</sup> Brown Solar has a nameplate capacity of 10 MW.

**Brown Solar (1/15/2024)**



- e. See above.
- f. The Companies' transmission planning function evaluates the need for increased transfer capability in accordance with the transmission planning processes established in the Companies' Joint Pro Forma Open Access Transmission Tariff (OATT) accepted by FERC. The transmission planning process is designed to provide firm Network Integrated Transmission Service (NITS) on a non-discriminatory basis to affiliated and unaffiliated firm load from Designated Network Resources, provide firm transmission service on a non-discriminatory basis to long term firm Point-to-Point customers, and to comply with applicable NERC Reliability Standards and FERC requirements. The Companies evaluate system requirements to provide these firm services and recommend new facilities or upgrades, including new or upgraded interconnections with neighboring transmission systems, on an annual basis via the Transmission Expansion Planning (TEP) Process outlined in the OATT. The TEP process includes analysis of an extreme weather/high load case, and if necessary, new, or upgraded facilities to mitigate constraints. The annual TEP results are available after execution of a Non-Disclosure Agreement. This process is overseen and approved by the Company's Independent Transmission Organization. Please note that there were no rolling blackouts or other load shedding events during Winter Storm Elliott due to a lack of transmission capacity.
- g. See response to subpart (f).

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**Case No. 2023-00422**

**Question No. 1.20**

**Responding Witness: Lonnie E. Bellar**

- Q-1.20. Please refer to pages 27 and 30 of the Rebuttal Testimony of David Sinclair in Case No. 2022-00402.
- a. Please state whether you have evaluated options for increasing the transmission capacity available to import into the Companies system. If so, please explain the results, and produce any documentation, of that evaluation. If not, please explain why not.
  - b. Please state whether you have evaluated the potential impact of the MISO Tranche 2 Long Range Transmission Planning<sup>5</sup> projects ([see https://cdn.misoenergy.org/MISO%20LongRange%20Transmission%20Planning%20LRTP%20Tranche%202%20FAQs631005.pdf](https://cdn.misoenergy.org/MISO%20LongRange%20Transmission%20Planning%20LRTP%20Tranche%202%20FAQs631005.pdf)) on the future availability of capacity or energy that could be imported into the Companies’ system. If so, please explain the results, and produce any documentation, of that evaluation. If not, please explain why not.

A-1.20.

- a. See the response to Question No. 19.
- b. The MISO Tranche 2 Long Range Transmission Planning projects are still under development and have not yet been approved by the MISO Board. Once approved, the Company will evaluate the impact through the annual TEP process or as an ad hoc study to understand what, if any, impacts may result. The Company discusses real-time operations and long-term planning projects with MISO on a regular basis.

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<sup>5</sup> *Long Range Transmission Planning (LRTP) Tranche 2 – Frequently Asked Questions*, MISO (updated Jan. 23, 2024), <https://cdn.misoenergy.org/MISO%20LongRange%20Transmission%20Planning%20LRTP%20Tranche%202%20FAQs631005.pdf>



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**Case No. 2023-00422**

**Question No. 1.21**

**Responding Witness: Lonnie E. Bellar**

- Q-1.21. Please state whether the Companies factor the potential for increasing frequency and/or severity of extreme weather events due to climate change or other causes into their resource or transmission planning. If so, please explain how and provide any supporting documentation. If not, please explain why not.
- A-1.21. The Companies consider potential operating conditions comparable to extreme weather conditions in their transmission planning analyses through the use of 90/10 load forecasts and the completion of extreme event studies for TPL-001-5.1 Table 1.

The extreme events study completed on an annual basis in compliance TPL-001-5.1 Table 1 requires studying the following scenarios:

- Loss of a BES tower line with three or more circuits
- Loss of all BES transmission on a common right-a-way greater than one mile in length
- Loss of a BES switching station or substation
- Loss of all generating units at a generating station
- Loss of a large Load or major Load center
- Loss of two generating stations resulting from the loss of a large gas pipeline
- Loss of two generating stations resulting from the loss of the use of a large body of water as a cooling source
- Loss of two generating stations resulting from severe weather

For supporting documentation on the extreme event study, reference Attachment 22 of the 2024 Transmission Expansion Plan report provided as part of the response to SC-1.37.

For a more detailed description of the 90/10 load forecasts, see the response to PSC 1-6. For supporting documentation on the 90/10 load forecasts, reference

Attachment 18 to the 2024 Transmission Expansion Plan report provided as part of the response to SC-1.37.

With respect to resource planning, the Companies' resource adequacy studies incorporate historical weather for all years since 1973, which include temperatures as low as -20°F and as high as 106°F. Therefore, the assumed frequency and severity of extreme weather events is consistent with history and is regularly updated to include the most recent weather events. See Appendix D to Exhibit SAW-1 provided as Attachment 2 in response to JI 2-60 in Case No. 2022-00402.