

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY
TO
THE COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION
DATED MARCH 1, 2024

FILED: March 15, 2024

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Senior Vice President Engineering and Construction for PPL Corporation and he provides services to Louisville Gas and Electric Company and Kentucky Utilities Company, 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

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 13th day of March 2024.

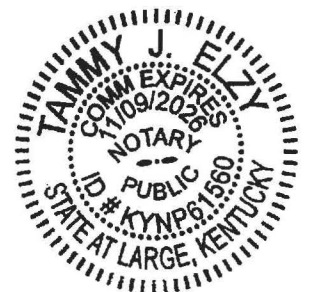


Notary Public

Notary Public ID No. KYNP61560

My Commission Expires:

November 9, 2026




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

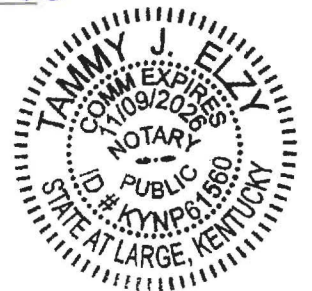
Subscribed and sworn to before me, a Notary Public in and before said County and State, this 13th day of March 2024.


Notary Public

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November 9, 2026



VERIFICATION

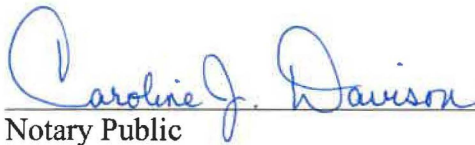
COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Charles R. Schram**, being duly sworn, deposes and says that he is Director – Power Supply for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, 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.



Charles R. Schram

Subscribed and sworn to before me, a Notary Public in and before said County and State this 13th day of March 2024.


Notary Public

Notary Public ID No. KYNP 63286

My Commission Expires:


January 22, 2027



VERIFICATION


COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Stuart A. Wilson**, being duly sworn, deposes and says that he is Director, Energy Planning, Analysis & Forecasting 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.



Stuart A. Wilson

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 13th day of March 2024.



Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



**LOUISVILLE GAS AND ELECTRIC COMPANY
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**Response to Commission Staff's Second Request for Information
Dated March 1, 2024**

Case No. 2023-00422

Question No. 1

Responding Witness: Lonnie E. Bellar

- Q-1. Refer to LG&E/KU's response to Commission Staff's First Request for Information (Staff's First Request), Item 1. Explain why LG&E/KU uses a 5 percent buffer when performing the transmission operator (TOP) operation planning studies and does not use a 5 percent buffer in other short-term load forecasting.
- A-1. Operations planning studies performed by the LG&E/KU Transmission Operator ("TOP") and short-term load forecasting performed by Load Serving Entities ("LSEs") within the LG&E/KU BA Area are separate functions that serve different purposes and require different approaches when incorporating margins or buffers to address potential uncertainties.

Operations planning studies that are performed in the day-ahead time frame analyze a model of the transmission system that is based on a single snapshot in time (typically system peak). Given the fact that operating conditions are constantly changing, there will always be some degree of uncertainty when performing these types of studies. One of the ways that the TOP addresses this potential uncertainty is by studying a load level that is 5% higher than the load level expected for the time period being studied. Higher than expected load levels are studied to help identify and prepare mitigation for potential overloads on transmission system elements and other operating issues when the system is under extreme stress. While this conservative approach often identifies potential issues that do not materialize, it assists the TOP in proactively developing operating plans to prepare for potential issues that may occur and minimizes the likelihood of operating in unstudied conditions.

The LG&E/KU BA does not use a "5% buffer" for short-term load forecasting because forecast uncertainties are accounted for with reserves, as prescribed by NERC. As a BA and Transmission Service Provider, LG&E/KU is already required to carry reserves (Operating and Contingency Reserve) in addition to forecasted load. For example, NERC Standard BAL-002-3 requires BAs to operate with Contingency Reserves equal to or greater than the BA's Most Severe Single Contingency ("MSSC"). The LG&E/KU BA complies with this

requirement through the contingency reserve sharing agreement with TVA. On top of contingency reserves required by NERC, the LG&E/KU BA also carries a significant amount of regulation, spinning, and supplemental reserves. The reserve margins maintained by LG&E/KU provide an operational margin well above the “5% buffer” used by the TOP when performing operations planning studies. Capacity maintained for Operating and Contingency Reserves should be adequate to account for potential forecast uncertainties.

While the LSE does not add a margin, it does plan to commit additional generating capacity during high load periods. As a point of reference and as detailed in the Attachment to AG 1-13 (l) in Case No. 2022-00402, going into December 23, 2022, LG&E/KU had 7,239 MW of available capacity (not including contingency reserves). The actual peak that day was 6,559 MW.

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Question No. 2

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

- Q-2. Refer to LG&E/KU's response to Staff's First Request, Item 2. Explain how LG&E/KU, as a load serving entity (LSE), aggregates the weather inputs into its short-term load forecast.
- A-2. The Enverus model uses its own proprietary weather forecast inputs that are processed as part of the model's execution. The ANSTLF model is designed to use WSI weather inputs; again, the processing of these inputs is part of the model's execution.

The Companies understand that the accuracy of any short-term load forecast is subject to the accuracy of the weather forecast, particularly the temperature inputs. Therefore, the Companies will continue their practice of having all available capacity prepared to operate to meet customers' energy demands when extreme temperatures are forecast.

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Question No. 3

Responding Witness: Lonnie E. Bellar

- Q-3. Refer to LG&E/KU's response to Staff's First Request, Item 3. Explain how LG&E/KU, as the Balancing Authority (BA), aggregates the weather inputs into its short-term load forecast.
- A-3. The LG&E/KU Balancing Authority does not aggregate weather inputs into a short-term load forecast. The BA aggregates the load forecasts received from each individual LSE in the BA Area into a combined forecast for the entire BA Area.

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Question No. 4

Responding Witness: Lonnie E. Bellar

Q-4. Refer to LG&E/KU's response to Staff's First Request, Items 2 and 3. Explain why LG&E/KU relies on different weather forecasts and information in its capacity as a BA than as an LSE.

A-4. The LG&E/KU BA is required to perform balancing operations for the entire BA Area and to function independently from the Companies' market functions, including its LSE function. Further, the LG&E/KU BA uses weather forecasts for different purposes than the LSEs within the BA Area would use them. Specifically, the LG&E/KU BA weather forecast is tailored to what is needed for real-time operations planning and situational awareness by the BA and TOP functions. In other words, the weather data and other information received by the LG&E/KU BA and TOP function is used to have a view into operating conditions across the BA/TOP Area and to anticipate potential issues that may require additional coordination or planning in order to support reliable operations. Weather forecasts can be used to plan for potential issues with equipment performance or outages, ratings changes, an other aspects system performance, but is not using the weather forecast and related information for the purpose of forecasting load.

On the other hand, each LSE (including the LG&E/KU LSE), uses weather forecast sources which they specify for the purpose of forecasting load and for resource planning. These sources use models that include data such as temperature, wind speed, relative humidity, and light intensity. For the LG&E/KU LSE, also see the response to Question No. 2.

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Question No. 5

Responding Witness: Lonnie E. Bellar / Stuart A. Wilson

- Q-5. Refer to LG&E/KU's response to Staff's First Request, Item 7.
- a. Explain from a resource planning perspective, why the capacity of the Dix Dam hydro station is assumed to be fully available to serve load during peak events. Include as part of the answer whether LG&E/KU assumes the Dix Dam hydro station will be fully available during extreme cold weather events.
- A-5.
- a. The Companies have the ability to dispatch the Dix Dam units at their discretion, subject to the water level in Lake Herrington being above the minimum of the target range. A water level below the target range would be an atypical circumstance. Therefore, the Companies assume that during extreme weather events the Dix Dam units will be available to be dispatched.

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Question No. 6

Responding Witness: Lonnie E. Bellar / Robert M. Conroy

- Q-6. Refer to LG&E/KU's response to Staff's First Request, Item 49(b). State whether LG&E/KU took any actions to address the three Curtailable Service Rider-2 (CSR-2) customers who were out of compliance on their contracted physical curtailment on December 23, 2022. Include in the answer whether LG&E/KU took any actions to address the two CSR-2 customers who were out of compliance on their contracted physical curtailment on December 24, 2023.
- A-6. After the December 23 and 24, 2023 physical curtailments, the Companies billed each customer that did not curtail to its contractual obligation the tariffed Non-Compliance Charge. Note that although the non-compliant CSR customers did not curtail precisely as required, in most cases they did achieve the required curtailments within an hour of when the curtailment should have begun.

After Winter Storm Elliott, the Companies held meetings with all CSR customers to review their and the Companies' respective CSR obligations.

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Question No. 7

Responding Witness: Lonnie E. Bellar / Robert M. Conroy

- Q-7. Refer to LG&E/KU's response to Staff's First Request, Item 56. Provide a list of the 136 customers with distributed generation and identify the 21 who have energy storage or backup generation capacity. How does LG&E/KU determine or track customers having their own internal generation capacity?
- A-7. See attachment being provided in a separate file for distributed generation and energy storage customers.

Customers taking net metering service (Riders NMS-1 and NMS-2) or with interconnected qualifying facilities (Riders SQF and LQF) must inform the Companies concerning the customers' generating facilities, including any changes to them.¹ Also, customers have a general obligation to inform the Companies concerning "[a]ll existing and future installations of equipment for the purpose of electric generation that is intended to run in parallel with utility service, regardless of the length of parallel operation"² Note that customers are not obligated to inform the Companies concerning any generation or energy storage *not* intended to run in parallel with utility service at any time, such as a backup-only generator that operates only when the customer loses power from the utility.

¹ Kentucky Utilities Company, P.S.C. No. 20, Original Sheet Nos. 55.2-55.3, 56.2-56.3, and 108-108.6; Louisville Gas and Electric Company, P.S.C. Electric No. 13, Original Sheet Nos. 55.2-55.3, 56.2-56.3, and 108-108.6.

² Kentucky Utilities Company, P.S.C. No. 20, Original Sheet No. 96; Louisville Gas and Electric Company, P.S.C. Electric No. 13, Original Sheet No. 96.

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Question No. 8

Responding Witness: Lonnie E. Bellar

- Q-8. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. State whether LG&E/KU have assessed the operational coordination between the distribution control center (DCC) and the transmission control center (TCC) and what steps, if any, LG&E/KU have taken to address the issue following Winter Storm Elliott. If not, state why.
- A-8. LG&E/KU assessed the operational coordination between the TCC and DCC and made enhancements to its processes based on lessons learned. TCC and DCC revised the load shed procedure so that the primary load shed method is now addressed at the more granular distribution level. TCC and DCC also installed a strobe light on the phone line between the two parties to indicate an emergency. This strobe is tested weekly.

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**Response to Commission Staff's Second Request for Information
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Question No. 9

Responding Witness: Lonnie E. Bellar

- Q-9. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. State whether LG&E/KU made any public notices prior to initiating load shed. Include as part of the answer an explanation regarding why LG&E/KU believed its communications with key accounts was an area requiring improvement.
- A-9. The Companies made public notices prior to the load shed for energy conservation. See the responses to PSC 1-11 and PSC 1-62.

The Companies believe their communications with Key Accounts presented an opportunity for improvement to efforts to actively inform those customers of the status of the Companies' system and capabilities. Some Key Accounts could have used that information to pursue their own operating protocols, such as limiting their energy consumption voluntarily, increasing their onsite staff if appropriate, or initiating and testing of their own backup protocols.

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Question No. 10

Responding Witness: Lonnie E. Bellar

- Q-10. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. Provide a list of safety events for LG&E/KU staff that occurred during Winter Storm Elliott.
- A-10. See the summary information below regarding two employee recordable events reported during Winter Storm Elliott.

On December 23, 2022 in the Louisville area, an employee was working storm restoration with a crew when he experienced pain in his left ear from working out in the extremely cold weather. The employee sought medical treatment and was diagnosed with frostbite to the left ear.

On December 23, 2022, a substation technician B was walking with a wrench in his hand when he slipped on ice, raised his arm to keep his balance and struck his left eye with the wrench. At the time, eye protection had been removed as he was walking back to the vehicle to warm up since, due to the extreme cold and windy conditions, his eye protection was frosting and icing up almost immediately causing zero visibility for the employee. On February 3, 2023, the employee sought treatment and was diagnosed with corneal abrasion on his eye. Employee was prescribed antibiotic and pain eyedrops and referred to an ophthalmologist for examination of the eye structure.

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Question No. 11

Responding Witness: Lonnie E. Bellar

- Q-11. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. Provide any assessments conducted into whether high-load should be an alarming condition or an automated tripping condition for telemetered devices. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. Define the term ERT as used in this document.
- A-11. For Electric Distribution, Operations and Engineering performed individual assessments of events during Winter Storm Elliott where high load led to telemetered devices automatically tripping. These reviews ultimately led to an updated process coordination between Operations and Engineering when severe temperatures are expected to impact the system. See attachment being provided in a separate file for a copy of this process.

ERT is defined as Estimated Restoration Time.

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Question No. 12

Responding Witness: Lonnie E. Bellar

- Q-12. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86. Provide all final after-action review forms for each department, including, but not limited to, operations; customer experiences; communications; and safety.
- A-12. See attachment being provided in a separate file for copies of the after-action review forms as related to the after-action review led by the Emergency Preparedness and Response Team.

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Question No. 13

Responding Witness: Lonnie E. Bellar

- Q-13. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000047. Explain why "formal ERT processes [were] not utilized in lower level events; focus needed on ERT activities before formal structure initiated."
- A-13. During Winter Storm Elliott, the Companies suppressed the default Estimated Restoration Times ("ERT") being applied to outages in areas being impacted from the weather event – as is normal practice when a major weather event impacts parts of the service territory. The team recognized during the after action review that one area for improvement was in how this process is managed. The outcome and change in process is now that once ERTs are suppressed, an individual in the Distribution Control Center is tasked with maintaining and tracking the ERTs.

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Question No. 14

Responding Witness: Lonnie E. Bellar

- Q-14. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000047. Define the role of the "DCC ERT czar", as used by LG&E/KU in its supplemental response, is expected to have in future cold weather events.
- A-14. This role is responsible for maintaining and tracking Estimated Restoration Times ("ERT") to ensure they are entered and updated correctly during severe weather events. This role supports these duties during all severe weather events, not just cold weather events.

**LOUISVILLE GAS AND ELECTRIC COMPANY
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Question No. 15

Responding Witness: Lonnie E. Bellar

- Q-15. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000047. State whether ERT communication commitments have been updated to clarify use of circuit level ERTs.
- A-15. Yes, following Winter Storm Elliott, the Emergency Preparedness and Response Team ("ERPT") reviewed and updated the Estimated Restoration Time ("ERT") Commitments that are part of the Emergency Preparedness and Response Plan ("EPRP"). These updates included changes to the commitments for circuit level ERTs.

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Question No. 16

Responding Witness: Lonnie E. Bellar

- Q-16. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000047. Explain the consequence of allowing ERTs to expire during Winter Storm Elliott.
- A-16. Estimated Restoration Times ("ERT") are an estimate the Companies provide to customers as to when their electric service will be restored. The consequence of letting an ERT lapse, or expire, results in those customers having a poor customer experience, as their outage continues beyond the stated restoration time.

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Question No. 17

Responding Witness: Lonnie E. Bellar / Counsel

Q-17. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_00000102. Identify in the record all information requested by FERC/NERC related to Winter Storm Elliott. Provide any information or documentation which is not currently in the record.

A-17.

The following documentation responsive to this request has already been provided in this case in response to PSC 1-86: (1) LGE-KU0001_00000102 - 00000166 (transmittals and attachments), (2) LGE-KU0001_0000270 (attachment), (3) LGE-KU0002_0000534 (transmittal), (3) LGE-KU0002_0000535 (confidential attachment); (4) LGE-KU0002_0000536 (transmittal), (5) LGE-KU0002_0000538 (attachment), (6) LGE-KU002_0000546 (attachment), and (7) LGE-KU002_0000855 (confidential attachment).

See attached for a complete set of documentation the Companies submitted in response to requests by FERC/NERC which, out of an abundance of caution and to ensure completeness, includes the documentation previously provided in response to PSC 1-86 as described above. The attached does not include several hundred .wav audio files the Companies submitted to FERC/NERC that are recordings of phone calls involving the Companies' operational personnel, however logs of these wav. files are included. To the extent the Commission seeks the .wav files, the Companies will need adequate time to review all of them for confidentiality issues.

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Question No. 18

Responding Witness: Lonnie E. Bellar

Q-18. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. Explain the difference between equipment tripping out under load versus line faults and what steps LG&E/KU has taken since Winter Storm Elliott to improve performance in these areas in cold weather.

A-18. A transmission protection system trips in two circumstances:

- For load, when the load's electrical impedance characteristic reaches a pre-determined magnitude and phase angle; or
- For line faults, when the line's electrical impedance characteristic reaches a pre-determined magnitude and phase angle.

Line faults are an unintentional connection between two or three phases or phase/phases to ground. Equipment tripping out under load is a result of customer load exceeding a protection setting on a device, causing that device to operate and de-energize part of the distribution system. When a piece of equipment trips out during a line fault, however, an issue occurred on that line and the equipment isolated the issue to prevent any additional equipment damage from high fault current.

The Company sets its transmission relays in accordance with NERC PRC-023-6 which defines the electrical characteristics to use to prevent relays from being the limiting factor in a facility rating so that the relays do not trip for load.

Following Winter Storm Elliott, Operations and Engineering teams reviewed and discussed this issue. As an outcome, the teams have an updated coordination process for issues prior to and during cold weather events in areas where high loading is expected or being experienced in real-time. See attachment provided in response to Question No. 11 for a copy of this process. This coordination proved beneficial during the most recent January 2024 cold weather event where the teams were able to identify and mitigate high load type issues before equipment tripped out.

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Question No. 19

Responding Witness: Lonnie E. Bellar

- Q-19. Refer to LG&E/KU's supplemental response to Staff's First Request, Item 86, Attachment LGE-KU001_0000042. Explain the policies and procedures used to determine when personnel in key IC roles are permitted to participate "as-called-upon basis v. actively staffing their IC role." State whether these policies and procedures have been updated following Winter Storm Elliott, and if so, provide any updated policies and procedures.
- A-19. All key IC roles participate in storm preparation and response activities as part of the Companies Emergency Preparedness and Response Team ("ERPT"). The level of involvement from each of these key roles varies based on the type of weather event impacting the Companies. In situations where specific IC functions are not actively supporting restoration efforts, these roles are on standby and may not have active personnel on-site or staffed for the event. These policies and procedures have not changed following Winter Storm Elliott.

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Question No. 20

Responding Witness: Lonnie E. Bellar

Q-20. Refer to LG&E/KU’s response to Joint Intervenors’ Initial Request for Information (Joint Intervenors’ Initial Request), Item 14. State whether LG&E/KU experienced any outages or derates during Winter Storm Heather in January 2024.

A-20. See the response to PSC 1-22. The table below shows all outages which began during Winter Storm Heather (January 14-21, 2024). None of these derates and outages were considered cold weather related.

Unit	Event Type	Start Date	End Date	Duration (hours)	Cause	Impact (MW unavailable)	Rating	Available
Brown 11	Startup Failure	1/21/2024	1/21/2024	1.40	Generator protection system	129	129	0
Brown 5	Forced Outage	1/20/2024	1/20/2024	3.65	Startup transformer issues	131	131	0
Brown 7	Forced Outage	1/14/2024	1/14/2024	0.42	Gas turbine controls - card failure	172	172	0
Brown 7	Forced Outage	1/17/2024	1/17/2024	0.42	Generator protection system	172	172	0
Brown 7	Forced Outage	1/19/2024	1/19/2024	0.98	Generator protection system	172	172	0
Brown 7	Forced Outage	1/21/2024	1/23/2024	52.07	Generator protection system	172	172	0
Ghent 1	Derate	1/18/2024	1/18/2024	2.38	Mill out of service	240	520	280
Ghent 3	Derate	1/15/2024	1/15/2024	1.08	Mill out of service	75	525	450
Ghent 3	Derate	1/15/2024	1/15/2024	0.87	Mill out of service	75	525	450
Ghent 3	Derate	1/15/2024	1/15/2024	4.18	Mill out of service	75	525	450
Ghent 3	Derate	1/16/2024	1/16/2024	1.28	Mill out of service	75	525	450
Ghent 3	Derate	1/17/2024	1/17/2024	3.92	Mill out of service	40	525	485
Ghent 3	Derate	1/18/2024	1/18/2024	2.20	Mill out of service	100	525	425
Ghent 3	Derate	1/19/2024	1/19/2024	1.33	Wet coal issues on mills	500	525	25
Ghent 4	Derate	1/17/2024	1/17/2024	3.92	Transmission/Switchyard issues	40	525	485
Mill Creek 1	Derate	1/14/2024	1/14/2024	5.35	Mill out of service	80	330	250
Mill Creek 1	Derate	1/16/2024	1/16/2024	6.80	Plugged coal feeder	90	330	240
Mill Creek 1	Derate	1/17/2024	1/17/2024	5.58	Coal feeder out of service	90	330	240
Mill Creek 1	Derate	1/17/2024	1/18/2024	5.60	Coal feeder calibration	90	330	240
Mill Creek 1	Derate	1/21/2024	1/21/2024	2.52	Plugged coal feeder	70	330	260
Mill Creek 1	Derate	1/21/2024	1/21/2024	12.42	Plugged coal feeder	155	330	175
Mill Creek 1	Derate	1/21/2024	1/21/2024	1.97	Plugged coal feeder	90	330	240
Mill Creek 2	Derate	1/18/2024	1/19/2024	5.27	Mill out of service	90	330	240
Mill Creek 2	Derate	1/20/2024	1/20/2024	13.32	Boiler deslagging	90	330	240
Mill Creek 4	Derate	1/21/2024	1/21/2024	2.15	Plugged coal feeder	175	525	350
Paddy’s Run 13	Startup Failure	1/19/2024	1/19/2024	0.87	Flame scanner failure	176	176	0
Trimble County 2	Derate	1/14/2024	1/14/2024	9.02	Investigating possible boiler tube leak	313	809	496
Trimble County 5	Startup Failure	1/14/2024	1/15/2024	10.18	Ignitor failure	180	180	0
Trimble County 8	Maintenance Outage	1/17/2024	1/18/2024	3.05	Compressor bleed valve repairs	180	180	0
Trimble County 8	Forced Outage	1/20/2024	1/20/2024	0.83	Starting system cooling pump repair	180	180	0

**LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY**

**Response to Commission Staff's Second Request for Information
Dated March 1, 2024**

Case No. 2023-00422

Question No. 21

Responding Witness: Lonnie E. Bellar

- Q-21. Refer to LG&E/KU's response to Joint Intervenors' Initial Request, Item 18a. State whether the companies had a fleet-wide cold weather plan prior to Winter Storm Elliott. Provide the plant specific cold weather plans for each plant that was in place prior to, and during, Winter Storm Elliott.
- A-21. Prior to Winter Storm Elliott each generating plant created and maintained its own cold weather plan. The cold weather plans effective during Winter Storm Elliott were provided in response to KCA 1-2. There was no fleet-wide cold weather plan prior to Winter Storm Elliott.

**LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY**

**Response to Commission Staff's Second Request for Information
Dated March 1, 2024**

Case No. 2023-00422

Question No. 22

Responding Witness: Lonnie E. Bellar

- Q-22. Refer to LG&E/KU's response to Joint Intervenors' Initial Request, Item 21. State whether the extreme event study for 2024 has been completed. If yes, provide the results of the study. If not, please identify when it is expected to be completed.
- A-22. The Extreme Event study referenced in response to JI 1-21 is performed as part of the annual Transmission Expansion Plan ("TEP"). A copy of the 2024 TEP report which is dated October 31, 2023, was provided in the Companies' response. The extreme event study in the 2024 TEP evaluates both the near term (1-5 years) and long term (6-10 years) planning horizon. The 2025 TEP is expected to be completed by October 31, 2024.

**LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY**

**Response to Commission Staff's Second Request for Information
Dated March 1, 2024**

Case No. 2023-00422

Question No. 23

Responding Witness: Lonnie E. Bellar

- Q-23. Refer to LG&E/KU's response to Staff's First Request, Item 66. Provide the "predetermined list which identifies and prioritizes circuits for the purpose of load shed during a Capacity Energy Emergency" which the referenced tool utilizes to determine the order circuits are chosen for load shed. How was this list created and how is it maintained?
- A-23. The LG&E/KU Transmission Load Shedding Standard, rev. 0, June 1, 2022, outlines the methodology for establishing curtailment priorities for LG&E/KU during Capacity or Energy Emergencies. This methodology is based on a criticality scoring system detailed within the standard. The results of this scoring system were used to develop the Manual Load Shed display in the EMS, aiding system operators during emergency situations. The Manual Load Shed display is intended to provide system operators with a prioritized list of circuits for potential shedding based on their criticality (please note, that system operators retain the authority to deviate from this list as necessary for reliability in response to thermal or voltage concerns). Screen shots of the Manual Load Shed display, including the criticality scoring (CRIT column), are 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.

**LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY**

**Response to Commission Staff's Second Request for Information
Dated March 1, 2024**

Case No. 2023-00422

Question No. 24

Responding Witness: Lonnie E. Bellar

- Q-24. Refer to LG&E/KU's response to Staff's First Request, Item 6. State whether LG&E/KU could have avoided load shed if it had operated below the NERC reserve margin guidelines. Include in the response, why LG&E/KU decided against operating below the NERC reserve margin guidelines.
- A-24. It is not clear how this question is related to the Staff's First Request, Item 6. It appears this question may be referring to the Staff's First Request, Item 76.

It is also not clear what is meant by "operating below the NERC reserve margin guidelines". However, the Companies assume the question is referring to Contingency Reserves (as defined by NERC), which is set aside specifically to enable the BA to respond to emergency system events that could otherwise lead to adverse reliability impacts such as instability, cascading outages, or uncontrolled separation. The LG&E/KU BA was in an EEA3 at the time load shed was initiated, which by definition means that the BA was unable to meet minimum Contingency Reserve requirements (see NERC Standard EOP-011-2, Attachment 1).

To be clear, LG&E/KU did not have adequate Contingency Reserves at the time load shed was initiated; LG&E/KU did not shed load until the Company's load exceeded generation capacity.