

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

ORDER

Winter Storm Elliott moved through the Commonwealth of Kentucky between December 22 and 26, 2022, causing significant stress to the entire eastern interconnection region. At its peak, there was 90,500 megawatts (MW) of unplanned generating unit outages during the storm.¹ In Kentucky, while every utility experienced challenges, several utilities were particularly impacted and forced to shed firm load: Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (collectively, LG&E/KU) and the Tennessee Valley Authority (TVA).

On December 22, 2023, the Commission, by Order,² opened this case into LG&E/KU to investigate “the cause, impact, and result of the struggle, and ultimately[,] the inability, to provide retail electric service at the level demanded from December 23 to December 25, 2022, otherwise referred to as Winter Storm Elliott.”³ Additionally, the

¹ [Winter Storm Elliott Report: Inquiry into Bulk-Power System Operations During December 2022 | Federal Energy Regulatory Commission \(ferc.gov\) \(FERC/NERC Report\) at 5.](#) Notably, the FERC/NERC report cited discovery in the Commission’s Case No. 2022-00402, *Electronic Joint Application Of Kentucky Utilities Company And Louisville Gas And Electric Company For Certificates Of Public Convenience And Necessity And Site Compatibility Certificates And Approval Of A Demand Side Management Plan And Approval Of Fossil Fuel-Fired Generating Unit Retirements* in conducting the Winter Storm Elliott Report.

² Order (Ky. PSC Dec. 22, 2023).

³ Dec. 22, 2023 Order at 1.

Commission stated that it would investigate “the actions taken, or planned to be taken, by LG&E/KU since Winter Storm Elliott that meaningfully affect the utilities’ ability to provide service during periods of variable weather and Bulk-Power System (BPS) stress.”⁴ For reasons explained more fully throughout this Order, the Commission finds that on the narrow questions of LG&E/KU’s performance immediately prior to, during, and in the aftermath of Winter Storm Elliott, LG&E/KU did not willfully violate their statutory or regulatory duties and should not be subject to penalties under KRS 278.990.

PROCEDURAL BACKGROUND

On December 22, 2023, the Commission opened this investigation in order to fully review LG&E/KU’s service during Winter Storm Elliott and their subsequent responses. The Attorney General of the Commonwealth of Kentucky, by and through the Office of Rate Intervention (Attorney General); Kentucky Solar Energy Society, Mountain Association, Metropolitan Housing Coalition, and Kentuckians for the Commonwealth, (collectively, Joint Intervenors); Kentucky Coal Association (KCA); Kentucky Industrial Utility Customers (KIUC); and Sierra Club were granted intervention in this proceeding.⁵ Pursuant to a procedural schedule filed with the opening Order, LG&E/KU responded to multiple rounds of discovery.⁶ A hearing on the matter was held on May 23, 2024. LG&E/KU filed their post-hearing brief on August 9, 2024. KCA and Joint Intervenors filed response briefs; will KIUC and Sierra Club notifying the Commission of the non-filing of a brief. On September 20, 2024, LG&E/KU filed a reply brief.

⁴ Dec. 22, 2023 Order at 1.

⁵ Order (Ky. PSC Jan. 12, 2024); Orders (Ky. PSC Jan. 25, 2024).

⁶ LG&E/KU responded to discovery on Feb. 16, 2024, Mar. 15, 2024, and July 8, 2024. LG&E/KU also provided supplemental responses to Staff’s First Request for Information, Item 86.

THE WEATHER EVENT

As the October 2023 FERC⁷/NERC⁸ Report⁹ detailed, Winter Storm Elliott blanketed “most of the eastern United States on December 23 and 24, 2022, and did not subside until December 26.” Categorized as a bomb cyclone¹⁰, Winter Storm Elliott, the fifth such storm in the last eleven years,¹¹ moved from the Midwest to the East Coast bringing with it rapid drops in temperature and atmospheric pressure. As with other winter storms, utilities, including LG&E/KU, were aware of predicted weather conditions days in advance of the storm’s arrival in LG&E/KU’s balancing authority’s (BA) area. According to the NERC/FERC report, grid operators were aware of the impending cold weather by December 20, 2022, with many issuing cold weather preparation notices to their Generation and Transmission Owners and Operators.¹²

Winter Storm Elliott was characterized by lower-than-normal temperatures, with temperatures in Charleston, West Virginia dropping “42 degrees in six hours” and the TVA reporting a 46-degree temperature drop in five hours.¹³ The result of the rapidly

⁷ FERC is the Federal Energy Regulatory Commission.

⁸ NERC is the North American Electric Reliability Corporation. Pursuant to Section 215 of the Federal power Act, NERC serves as the country’s Electric Reliability Organization, as designated by the FERC.

⁹ [Winter Storm Elliott Report: Inquiry into Bulk-Power System Operations During December 2022 | Federal Energy Regulatory Commission \(ferc.gov\) \(FERC/NERC Report\)](#). Notably, the FERC/NERC report cited discovery in the Commission’s Case No. 2022-00402 in conducting the Winter Storm Elliott Report.

¹⁰ Otherwise known as a bombogenesis, a bomb cyclone occurs when a midlatitude cyclone rapidly intensifies over the course of a twenty-four period. The intensification of the storm is represented by a rapid drop in millibars, a meteorological unit of pressure. *What is bombogenesis?*, National Oceanic and Atmospheric Administration, <https://oceanservice.noaa.gov/facts/bombogenesis.html>.

¹¹ FERC/NERC Report at 5.

¹² FERC/NERC Report at 9.

¹³ FERC/NERC Report at 9.

deteriorating weather conditions meant that during Winter Storm Elliott, there were “90,500 MW of coincident unplanned generating unit outages, derates, and failures to start[.]”¹⁴ In order to “maintain system reliability,” several BAs, including LG&E/KU, were forced to shed firm load during the event in a total amount exceeding 5,400 MW, making it the “largest controlled firm load shed recorded in the history of the Eastern Interconnection.”¹⁵

Regions surrounding LG&E/KU experienced significant strains on the generating units in their footprints. Midcontinent Independent System Operator (MISO) was able to avoid shedding firm load but did have to significantly curtail non-firm exports on December 23, 2022 and declare Energy Emergency Alerts (EEA)¹⁶ status 2.¹⁷ Additionally, , by 6:00 AM on December 23, 2022 TVA lost over 5,000 MW of generation and by 6:12 AM on December 23, TVA was forced to declare EEA 3, withdrawing its contribution to the Contingency Reserve Sharing Group (CRSG). In doing so, TVA forced LG&E/KU to carry a significant increased amount of contingency reserve for the balancing authority area

¹⁴ FERC/NERC Report at 5.

¹⁵ FERC/NERC Report at 6. Notably, Winter Storm Uri, which occurred in Texas and the South Central United States in 2021, was the largest controlled firm load shed event in United States history. More than 20,000 MW of firm load was shed during the event, leaving more than 4.5 million people without power for, in some instances, as long as four days.

¹⁶ EEA is a NERC reliability standard intended to provide real time information of a balancing authority’s (BA) potential or actual energy emergencies. Briefly, EEA 1 means generally that all available generation resources are committed to meet firm load but the BA is concerned about sustaining its contingency reserve requirements. EEA 2 indicates that the BA is energy deficient but still able to maintain its contingency reserve requirements. The BA must make available all resources such as generation and demand side management provisions. Finally, EEA 3 indicates that the BA is unable to meet its minimum contingency reserve requirements and will imminently experience firm load interruption. NERC, *EOP-011-2 Emergency Preparedness and Operations*, <https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-011-2.pdf>.

¹⁷ FERC/NERC Report at 9.

(BAA), roughly 710 MW.¹⁸ By 10:31 AM that morning, TVA had more than 6,000 MW of unplanned generating unit outages, ultimately, resulting in firm load shed of more than 1,500 MW. PJM Interconnection, LLC (PJM) declared EEA 2 on December 24, and was “close” to needing to shed firm load but did not, in part, to it benefiting from a “Simultaneous Activation of Ten-Minute Reserve (SAR) agreement with the Northeast Power Coordinating Council Balancing Authorities” which gave PJM access to an additional 1,500 MW during Winter Storm Elliott.¹⁹

In LG&E/KU’s service territory, temperatures dropped rapidly on December 22, 2022. Specifically, Louisville, Kentucky experienced temperature drops from the mid-40s at 4:00 p.m. on December 22 to below zero by 4:00 a.m. the following morning and reached as low as negative 8 degrees during Winter Storm Elliott.²⁰ LG&E/KU stated that Winter Storm Elliott set new records for demand in their territory for the month of December. Specifically, LG&E/KU noted that their 14-day projected peak was forecasted to be 5,899 MW and that their available capacity (excluding contingency reserves) was expected to be 7,239 MW. However, a number of factors caused LG&E/KU to lose significant generation resources, and the stress Winter Storm Elliott placed on surrounding territories meant that LG&E/KU was unable to import enough energy to replace the lost generation.²¹ In total, 54,637 of LG&E/KU’s customers were affected by

¹⁸ FERC/NERC Report at 10. See also Case No. 2022-00402, LG&E/KU’s Response to Attorney General’s First Request for Information (Attorney General’s First Request) (filed Feb. 16, 2024), Item 13(I), Attachment at 2 of 9.

¹⁹ FERC/NERC Report at 11.

²⁰ LG&E/KU’s Response to the Attorney General’s First Request, Item 2, Attachment titled *Winter Storm Elliott Events in the LG&E and KU Balancing Authority Area (BAA)*.

²¹ LG&E/KU’s Response to Attorney General’s First Request, Item 2, Attachment.

the firm load shed.²² The total period of time during which rolling blackouts were implemented was 4 hours and 12 minutes; with the average impacted customer experiencing an outage of 59 minutes.²³

The Texas Gas Transmission Pipeline (Texas Gas), which supplies LG&E/KU's Cane Run and Trimble County gas generating units was contracted to deliver natural gas at a minimum of 550 pounds for square inch (psi) to the Cane Run facility and 530 psi to the Trimble County facility.

A brief timeline of events shows that at approximately 11:00 a.m. on December 23, 2022, the psi on the natural gas delivered by Texas Gas dropped below the contractual minimums²⁴ at LG&E/KU's at Cane Run and Trimble County. By 1:08 p.m. December 23, 2022, the impacted generating units began experiencing generation derates as a result of the loss of pressure from Texas Gas. By 1:36 p.m., the LG&E/KU BA declared EEA 3 and pulled its reserves out of the CRSG.²⁵ LG&E/KU's position stabilized briefly, and the LG&E/KU BA moved from an EEA 3 status to an EEA 2 status until 5:18 p.m. on December 23, 2022, when the LG&E/KU BA again declared EEA 3 status. The Texas Gas pressure problems persisted until December 25, 2022, but crucially for this case, during the load shed event, the unavailable energy attributable to the Texas Gas pressure loss ranged between 688 MW to 846 MW. This sum does not represent the total loss in generation capacity during the load shed event as an additional 64 MW to 454 MW of

²² Case No. 2022-00402, LG&E/KU's Response to Attorney General's First Request, Item 13.

²³ Case No. 2022-00402, LG&E/KU's Response to Attorney General's First Request, Item 13(o).

²⁴ LG&E/KU's Response to Attorney General's First Request, Item 2, Attachment.

²⁵ LG&E/KU's Response to Attorney General's First Request, Item 2, Attachment.

other generation was unavailable due to the cold weather coincident with the load shed event.²⁶

Notably, during the emergency period on December 23, 2022, LG&E/KU was able to sporadically purchase energy from MISO, PJM, and TVA. However, TVA, as mentioned previously, declared EEA 3 status early on December 23, 2022, and then, again, almost immediately before LG&E/KU had to begin their load shed process at 6:00 p.m. on December 23, 2022. Additionally, both PJM and MISO declared EEA statuses by 5:30 p.m. that day causing both regional transmission organizations (RTO) to curtail their exports to LG&E/KU. For example, PJM curtailed a 400 MW export at 4:30 p.m. that same day.²⁷

Starting in the afternoon on December 23, 2022, the Trimble County 2 coal fired generating unit experienced a 269 MW derate as a result of a frozen boiler feed pump.²⁸ At 4:13 p.m., the Mill Creek 4 Generating Station (Mill Creek 4) coal feeder failed as a result of frozen coal and resulted in an additional 120 MW derate. Combined, LG&E/KU experienced a derate of 389 MW. These generation derates persisted through the load shed event. Shortly thereafter, at 5:58 p.m., LG&E/KU BA was forced to begin shedding firm load. At their peak, LG&E/KU shed 317 MW of firm load.

Following the weather event, the Kentucky General Assembly held a Joint Meeting of House and Senate Committees on Natural Resources and Energy on February 2, 2023, during which a number of companies testified regarding Winter Storm Elliott,

²⁶ LG&E/KU's Response to Attorney General's First Request, Item 2, Attachment.

²⁷ LG&E/KU's Response to Joint Intervenor's Second Requests for Information (filed Mar. 15, 2024) (Joint Intervenor's Second Request), Item 15.

²⁸ LG&E/KU's Response to Attorney General's First Request, Item 2, Attachment.

including LG&E/KU, TVA, and Texas Gas.²⁹ Later, in the Fall of 2023, the FERC issued a Staff Report in conjunction with NERC. Finally, the Commission opened this investigation by Order on December 22, 2023.

THE ARGUMENTS OF THE PARTIES

LG&E/KU's Position

LG&E/KU argued that they took all reasonable steps to adequately serve their customers before, during, and after Winter Storm Elliott in the face of an unprecedented gas pressure collapse.³⁰ LG&E/KU stated that, upon entering the operating day on December 23, 2022, when Winter Storm Elliott entered LG&E/KU's service territories, LG&E/KU had what historically would have been ample resource to meet peak load demand, even assuming an above-average amount of outages or derates.³¹ LG&E/KU stated that the unprecedented gas pressure collapse of Texas Gas, eventually required them to conduct their first-ever customer curtailments due to an energy shortfall in more than one hundred years.³² They sought to minimize impacts on customers when conducting these curtailments, which impacted around 5 percent of their total customer base, lasted just over four hours in total, and resulted in average curtailments of less than an hour for affected customers.³³ LG&E/KU contended they took reasonable, prudent, and deliberate steps to learn from the lessons that Winter Storm Elliott presented

²⁹ Joint House and Senate Natural Resources and Energy Committee, <https://ket.org/legislature/archives/2023/regular/joint-house---senate-natural-resources---energy-committee-200794> (Feb. 2, 2023).

³⁰ LG&E/KU's Post-Hearing Brief (filed Aug. 9, 2024) at 1.

³¹ LG&E/KU's Post-Hearing Brief at 2.

³² LG&E/KU's Post-Hearing Brief at 2.

³³ LG&E/KU's Post-Hearing Brief at 3.

regarding how they could improve system and operational performance in future severe weather events and guard against a reoccurrence of curtailments under similar and reasonably foreseeable circumstances.³⁴

LG&E/KU next argued that Kentucky law requires utilities to operate reasonably- not perfectly- when providing adequate utility service to customers, and they operated reasonably throughout the storm.³⁵ LG&E/KU argued that a utility must assure reasonable continuity of service, but the utility is not held of a standard of perpetually uninterrupted service.³⁶ In fact, the Commission's rules for electric utilities explicitly anticipate service interruptions will occur.³⁷ LG&E/KU pointed out utility system planning anticipates a loss of system load due to a generation capacity shortfall one day out of every ten-year period through a Loss of Load Expectation (LOLE) metric, and the Commission has historically accepted this standard.³⁸

LG&E/KU argued that they acted prudently, reasonably, and proactively and prepared their equipment and personnel to brace for the storm to provide adequate service to their customers.³⁹ LG&E/KU stated that they evaluate their own systems and communicate with Texas Gas each year prior to the winter heating season to ensure that Texas Gas's infrastructure is prepared to transport gas to LG&E/KU throughout the

³⁴ LG&E/KU's Post-Hearing Brief at 3.

³⁵ LG&E/KU's Post-Hearing Brief at 4.

³⁶ LG&E/KU's Post-Hearing Brief at 4, *citing* 807 KAR 5:041, Section 5.

³⁷ LG&E/KU's Post-Hearing Brief at 4, *citing* 807 KAR 5:041, Section 5.

³⁸ LG&E/KU's Post-Hearing Brief at 4.

³⁹ LG&E/KU's Post-Hearing Brief at 6.

winter.⁴⁰ Additionally, once LG&E/KU became aware of the storm, they prepared to bring natural gas generators online prior to the extreme cold, purchased natural gas, issued a Cold Weather Alert on December 20, 2022 for December 22, stationed transmission line and substation crews across their service territories, and brought online all significant bulk electric system transmission facilities that had been in planned outages prior to December 22, 2022.⁴¹ LG&E/KU stated that, on the generation side, each plant prepared its generating facilities for extreme cold weather in accordance with individualized cold weather operating plans and consistent with the NERC and the FERC recommendations, including having units on and running prior to the onset of extreme cold weather.⁴² LG&E/KU stated that they had ample capacity resources available coming into Winter Storm Elliott; going into December 23, 2022, LG&E/KU had 7,239 MW of available capacity, not including contingency reserves.⁴³

LG&E/KU argued that they took all reasonable and prudent steps to minimize both the number of customers curtailed and the duration of curtailments during Winter Storm Elliott.⁴⁴ LG&E/KU stated that “[a] ton of things had to go wrong in order to get into the situation that so many utilities found themselves in- a number of things in rapid succession- and a lot of them were outside LG&E/KU’s control.”⁴⁵ According to LG&E/KU, the freezing and mechanical issues LG&E/KU experienced during the storm

⁴⁰ LG&E/KU’s Post Hearing Brief at 7.

⁴¹ LG&E/KU’s Post-Hearing Brief at 7.

⁴² LG&E/KU’s Post-Hearing Brief at 8.

⁴³ LG&E/KU’s Post-Hearing Brief at 8.

⁴⁴ LG&E/KU’s Post-Hearing Brief at 8.

⁴⁵ LG&E/KU’s Post-Hearing Brief at 12.

were in line with the types of events LG&E/KU plans for and anticipate, but the unprecedented gas pressure collapse of the Texas Gas pipeline, which was outside LG&E/KU's control, ultimately required LG&E/KU to begin customer curtailments for the first time in LG&E/KU's history.⁴⁶

LG&E/KU explained that they issued public appeals to conserve energy shortly after the load shedding began. LG&E/KU's reasoning was because (a) it was LG&E/KU's reasonable belief that curtailment would not be needed until very shortly before shedding began and (b) once they realized that load shedding was necessary, there was no time to issue a public appeal before curtailments began.⁴⁷ LG&E/KU also argued that there was no evidence to suggest that such public appeals would have resulted in any reduction in load during the storm, and some customers could actually have increased the heating load.⁴⁸ LG&E/KU stated that throughout the events of Winter Storm Elliott, they complied with their energy curtailment and service restoration procedures as stated in their respective tariffs.⁴⁹ LG&E/KU explained they must balance specific individual customer needs with infrastructure needs that affect a larger population to ensure that their system integrity is preserved and to prevent a collapse of the interconnected electric network.⁵⁰

LG&E/KU next turned to improvements that they made following Winter Storm Elliott, arguing they implemented reasonable improvements to equipment and procedures to strengthen future performance and prevent a reoccurrence of curtailments under

⁴⁶ LG&E/KU's Post-Hearing Brief at 13.

⁴⁷ LG&E/KU's Post-Hearing Brief at 14.

⁴⁸ LG&E/KU's Post-Hearing Brief at 14.

⁴⁹ LG&E/KU's Post-Hearing Brief at 15.

⁵⁰ LG&E/KU's Post-Hearing Brief at 15.

similar conditions.⁵¹ First LG&E/KU stated that they worked directly with Texas Gas to understand the root cause of the problem and to ensure that Texas Gas implemented sufficient infrastructure and weatherization upgrades.⁵² Second, LG&E/KU installed upgraded software for the six simple cycle combustion turbines in Trimble County to allow them to operate at pressure levels similar to those experienced during the storm.⁵³ Third, LG&E/KU considered compression options to account for the condition experienced during the storm for their new natural gas combined cycle unit Mill Creek 5 Generating Station (Mill Creek 5).⁵⁴ Last, LG&E/KU are undertaking an overall fuel security study that contemplates the possibility of adding compression or dual fuel capability at certain generating units to further support system reliability.⁵⁵ LG&E/KU stated that, in addition to the measures aimed to address potential gas pressure issues, LG&E/KU also listed several changes it had made, such as they had: refined their load shedding procedures; incorporated the weather and load data from Winter Storm Elliott into the short-term load forecast process to serve as an input for future forecasts in similar conditions; met with curtailable service rider (CSR) customers to discuss and review their obligations; revised generation operating procedures; participated in the NERC development processes regarding cold weather preparedness requirements and recommendations for

⁵¹ LG&E/KU's Post-Hearing Brief at 16.

⁵² LG&E/KU's Post-Hearing Brief at 16.

⁵³ LG&E/KU's Post-Hearing Brief at 16.

⁵⁴ LG&E/KU's Post-Hearing Brief at 16.

⁵⁵ LG&E/KU's Post-Hearing Brief at 17.

generation; formalized procedures for customer communications during emergency events; and created a fleet-wide cold weather plan for their generating units.⁵⁶

LG&E/KU argued that both utilities and their personnel demonstrated their reasonable decision making before, during, and after Winter Storm Elliott. As a result, there was no violation of any part of KRS Chapter 278, 807 KAR Chapter 5, or any Commission Order, and therefore, there was no basis to impose penalties under KRS 278.990.⁵⁷ LG&E/KU noted they do not assert the civil liability limitations listed in their tariffs prevent the Commission from issuing penalties against them under KRS 278.990, when warranted by statute.⁵⁸ LG&E/KU pointed out that neither the Commission in its opening order nor any party to this matter suggested that they had violated a Commission regulation or order, but rather, the only question was whether they provided adequate efficient and reasonable service during the storm.⁵⁹ LG&E/KU finally argued the Commission should close this investigation proceeding because the record demonstrates that they provided adequate service to customers before, during, and after the storm.⁶⁰

Joint Intervenors' Briefing Position

The Joint Intervenors argued that, despite LG&E/KU's failure to provide service to such a large number of their customers, LG&E/KU continued to downplay the importance of carefully evaluating and addressing the weaknesses in their systems revealed by

⁵⁶ LG&E/KU's Post-Hearing Brief at 17–18.

⁵⁷ LG&E/KU's Post-Hearing Brief at 18.

⁵⁸ LG&E/KU's Post-Hearing Brief at 19.

⁵⁹ LG&E/KU's Post-Hearing Brief at 19.

⁶⁰ LG&E/KU's Post-Hearing Brief at 21.

Winter Storm Elliott.⁶¹ Joint Intervenors pointed out that there were multiple failures in LG&E/KU's system and operation leading up to the loss of load on December 23, 2022.⁶² Specifically, Joint Intervenors argued that LG&E/KU ignored the fact that they had more coal capacity offline because of forced outages and derates than gas capacity, and the coal generation derates were closer in time to the load shed.⁶³

Next, Joint Intervenors argued that, because LG&E/KU is not a member of either PJM or MISO during Winter Storm Elliott, their customers lost out on tangible reliability benefits.⁶⁴ Joint Intervenors explained that utilities with a larger and more diverse pool of resources to draw from—including utilities within PJM and MISO—did not experience any rolling blackouts during the storm.⁶⁵

Joint Intervenors next contended that LG&E/KU failed to make timely public appeals to reduce load, despite ample opportunity to do so, and LG&E/KU's untimely actions contributed to LG&E/KU's customers finding themselves without power during the life-threatening severe winter weather.⁶⁶ Joint Intervenors claimed LG&E/KU did not think of a public appeal as a tool to diminish or delay possible load shedding until the load shed was inevitable and never considered a public appeal as a tool to minimize the need for high-priced energy exports during the storm event.⁶⁷ Joint Intervenors contested

⁶¹ Joint Intervenors' Post-Hearing Brief (filed Aug. 30, 2024) at 2.

⁶² Joint Intervenors' Post-Hearing Brief at 2.

⁶³ Joint Intervenors' Post-Hearing Brief at 3–5.

⁶⁴ Joint Intervenors' Post-Hearing Brief at 7.

⁶⁵ Joint Intervenors' Post-Hearing Brief at 6.

⁶⁶ Joint Intervenors' Post-Hearing Brief at 8.

⁶⁷ Joint Intervenors' Post-Hearing Brief at 10.

LG&E/KU's claim that too broad an appeal could make some customers increase load.⁶⁸ Additionally, Joint Intervenors noted LG&E/KU's CSR failed to timely reduce load.⁶⁹

Ultimately, Joint Intervenors offered five suggestions on how LG&E/KU could improve the reliability and resilience of its systems: (1) fully and fairly account for reliability benefits in resource planning; (2) fully and fairly evaluate quantifiable reliability benefits of an RTO membership; (3) promptly address the inability to acquire emergency energy from MISO; (4) improve the use of public appeals for conservation; and (5) improve the CSR to ensure better performance.⁷⁰

Regarding the full and fair accounting for reliability benefits in resource planning, Joint Intervenors mentioned battery storage, transmission, demand response, enhanced energy efficiency programs, and other resources.⁷¹ Joint Intervenors urged LG&E/KU to correct shortcomings in its modeling, such as not accounting for the incremental outage rates that can occur during extreme weather, in order to ensure that a more complete and accurate reliability picture is presented in the 2024 integrated resource plan (IRP).⁷²

Joint Intervenors stated that LG&E/KU does not appear to be taking seriously the lessons from Winter Storm Elliott, specifically, greater interconnections to a larger system will increase reliability.⁷³ Joint Intervenors expressed concerns that LG&E/KU will approach their upcoming annual RTO Membership analysis filing with the presumption

⁶⁸ Joint Intervenors' Post-Hearing Brief at 10–11.

⁶⁹ Joint Intervenors' Post-Hearing Brief at 11.

⁷⁰ Joint Intervenors' Post-Hearing Brief at 12.

⁷¹ Joint Intervenors' Post-Hearing Brief at 13.

⁷² Joint Intervenors' Post-Hearing Brief at 14.

⁷³ Joint Intervenors' Post-Hearing Brief at 15.

that joining an RTO is not in their interest. Likewise, the Joint Intervenors argued that the Commission should not allow LG&E/KU to stand on this presumption as a justification for not conducting a focused, quantitative analysis of the potential reliability benefits to LG&E/KU's customers of RTO membership.⁷⁴

Joint Intervenors argued LG&E/KU should promptly address the MISO BA/BA agreement issue, which was that LG&E/KU did not have any agreement with MISO on the purchase energy during emergency situations, that prevented the import of emergency energy and it was not clear what prevented energy purchases from MISO during the load shed event.⁷⁵ Joint Intervenors pointed out that LG&E/KU did not offer a witness able to address the BA/BA agreement in this investigation docket.⁷⁶ Joint Intervenors argued that almost 19 months after Winter Storm Elliott, LG&E/KU still cannot assure the Commission that it has resolved the issue preventing the import of emergency power from MISO, which is “dilatatory, inadequate, and unreasonable.”⁷⁷ Joint Intervenors stated the Commission should order LG&E/KU to ensure all necessary agreements for LG&E/KU and the balancing area to import power from MISO during emergency conditions are in place within 90 days, and then file, in this docket, a report documenting that they have done so.⁷⁸

⁷⁴ Joint Intervenors' Post-Hearing Brief at 16.

⁷⁵ Joint Intervenors' Post-Hearing Brief at 17.

⁷⁶ Joint Intervenors' Post-Hearing Brief at 18.

⁷⁷ Joint Intervenors' Post-Hearing Brief at 20.

⁷⁸ Joint Intervenors' Post-Hearing Brief at 20.

Next, Joint Intervenors recommended that LG&E/KU provide assurance that it is committed to effective use of public appeals for conservation.⁷⁹ Joint Intervenors stated the Customer Experience Energy Conservation Procedures appear to be an encouraging step forward but further scrutiny is warranted.⁸⁰ Joint Intervenors stated that LG&E/KU should be required to explain how the procedures would be implemented and provide assurance of organizational support for such implementation.⁸¹

Lastly, Joint Intervenors stated that improvements need to be made to Curtailable Service Rider-1 (CSR-1) and Curtailable Service Rider-2 (CSR-2). Joint Intervenors stated LG&E/KU should be required, as part of the IRP process, to report on either a change to the penalty to match LG&E/KU's value of lost load or requirements of the riders allowing physical curtailment by LG&E/KU.⁸² Joint Intervenors alleged that with conditions such as those in place, curtailable service riders could be an important part of a comprehensive strategy to deal with events such as Winter Storm Elliott.⁸³ Joint Intervenors also argued as part of the IRP that LG&E/KU should evaluate whether to re-opening these riders, with amendments or creating new curtailable service riders, which could protect more vulnerable customers from load shed by curtailing customers who have that ability and won't be left in the cold.⁸⁴

⁷⁹ Joint Intervenors' Post-Hearing Brief at 20.

⁸⁰ Joint Intervenors' Post-Hearing Brief at 20.

⁸¹ Joint Intervenors' Post-Hearing Brief at 21.

⁸² Joint Intervenors' Post-Hearing Brief at 22.

⁸³ Joint Intervenors' Post-Hearing Brief at 23.

⁸⁴ Joint Intervenors' Post-Hearing Brief at 23.

Kentucky Coal Association's Briefing Position

KCA argued the coal-fired units saved customers from a more significant blackout.⁸⁵ KCA stated that, during the rolling blackouts, LG&E/KU's combined coal-fired units, totaling 5,100 MW of capacity, operated at a collective capacity factor of 90 percent and provided over 70 percent of the energy required to keep LG&E/KU's grid from complete failure. KCA argued the loss of gas pressure, not coal-fired units, were the problem during the storm, which LG&E/KU acknowledged.⁸⁶ KCA stated weather related incidents involving coal-fired units were short duration issues.⁸⁷ KCA argued that equivocating that both coal and gas units were the cause of the curtailments lacks perspective.⁸⁸ KCA stated that one takeaway from Winter Storm Elliott is that NGCCs do have a potential Achilles heel in obtaining fuel in extreme cold, and therefore, providing electricity as needed as compared to coal raising on-going questions about the dual-fuel capacity at Mill Creek 5.⁸⁹

Next, KCA argued that the failure of LG&E/KU's system to meet electricity demands during Winter Storm Elliott emphasizes the importance of system reliability which depends on diversity of generation source.⁹⁰ KCA reasoned that coal-fired power is dispatchable and the most reliable and resilient form of capacity available.⁹¹ KCA

⁸⁵. KCA's Post-Hearing Brief (filed Aug. 30, 2024) at 4.

⁸⁶ KCA's Post-Hearing Brief at 4.

⁸⁷ KCA's Post-Hearing Brief at 5.

⁸⁸ KCA's Post-Hearing Brief at 5.

⁸⁹ KCA's Post-Hearing Brief at 5.

⁹⁰ KCA's Post-Hearing Brief at 6.

⁹¹ KCA's Post-Hearing Brief at 7.

explained that, based upon LG&E/KU's own statements to their investors, they will likely need additional generation resources in the near future.⁹² KCA argued that prioritizing decommissioning the existing coal-fired power plants in LG&E/KU's portfolio in light of increasing load growth and reliability concerns raised from Winter Storm Elliott certainly raises significant future questions of the likely need for additional generation resources mentioned by PPL Corporation (PPL) or wasteful duplication.⁹³

KCA stated that since the events of Winter Storm Elliott, there have been material changes that impact LG&E/KU's generation and operation decisions which support maintaining and retrofitting existing coal-fired units in the LG&E/KU's portfolio of generating assets.⁹⁴ KCA pointed out that, despite stagnant load growth estimates put forth by LG&E/KU during the certificate of public convenience and necessity (CPCN)⁹⁵ hearing in August of 2023, merely one year later LG&E/KU are now articulating likely significant load growth of active data center requests from the years 2027-2033.⁹⁶

KCA also stated that the good neighbor rule has been stayed by the U.S. Supreme Court.⁹⁷ KCA argued that with a stay in place, the good neighbor rule does not appear to be a *fait accompli* as suggested by LG&E/KU during the CPCN proceeding, and there appears to be a likelihood that the states challenging the CNR will prevail before the U.S.

⁹² KCA's Post-Hearing Brief at 7.

⁹³ KCA's Post-Hearing Brief at 8.

⁹⁴ KCA's Post-Hearing Brief at 8.

⁹⁵ Case No. 2022-00402, *Electronic Joint Application Of Kentucky Utilities Company And Louisville Gas And Electric Company For Certificates Of Public Convenience And Necessity And Site Compatibility Certificates And Approval Of A Demand Side Management Plan And Approval Of Fossil Fuel-Fired Generating Unit Retirements*.

⁹⁶ KCA's Post-Hearing Brief at 8.

⁹⁷ KCA's Post-Hearing Brief at 9.

Supreme Court.⁹⁸ According to KCA, elimination of the good neighbor rule, negates a significant argument in favor of decommissioning Mill Creek 1 and Mill Creek 2 Generating Stations (Mill Creek 1 and Mill Creek 2, respectively).⁹⁹ KCA also highlighted that a PJM RTO, adjacent to the LG&E/KU's service territory, capacity auction cleared at \$270 MW per MW-day, implying a capacity value of \$50 million annually for Mill Creek 1 and Mill Creek 2.¹⁰⁰

KCA concluded by stating that evidence reflects that gas supply remains a concern in extremely cold weather, but does not seem to prioritize dual fuel consistent with the Commission's direct from Case No. 2022-00402.¹⁰¹ KCA proposed that the Commission consider recent public information put forth by LG&E/KU suggesting that load growth is in fact not stagnant and they will likely need additional generation resources in short order all the while suggesting that they plan to economically transition from coal-fired generation.¹⁰²

LG&E/KU's Reply Brief

LG&E/KU argued that the briefs filed by KCA and Joint Intervenors stray from the Commission's stated purposes by primarily focusing on issues that either have already been litigated or will be litigated in future Commission proceedings; namely, how LG&E/KU's supply- and demand-side portfolios should be structured, RTO membership,

⁹⁸ KCA's Post-Hearing Brief at 9.

⁹⁹ KCA's Post-Hearing Brief at 9.

¹⁰⁰ KCA's Post-Hearing Brief at 10.

¹⁰¹ KCA's Post-Hearing Brief at 10.

¹⁰² KCA's Post-Hearing Brief at 11.

and how the CSR rate mechanism might be restructured.¹⁰³ LG&E/KU disagreed with Joint Intervenors that coal units were the root cause of the load shedding event, and stated that there was no evidence in the record to suggest that their public appeals policy or the existence of a BA/BA agreement would have had any impact, much less a meaningful impact, on their ability to provide service during periods of variable weather, and LG&E/KU are already addressing these issues.¹⁰⁴ LG&E/KU also stated that KCA's brief misconstrues the challenges their gas units faced during Winter Storm Elliott and relies on out-of-record evidence to advocate against future coal unit retirements.¹⁰⁵ Finally, LG&E/KU reiterated their position that the Commission should close this proceeding with no penalties to LG&E/KU or any of their personnel.¹⁰⁶

LEGAL STANDARD

Pursuant to KRS 278.040(2), the Commission has the "exclusive jurisdiction over the regulation of rates and service of utilities." Additionally, LG&E/KU are both utilities under KRS 278.010(3)(b) and the exclusive retail electric suppliers within their certified territory. As utilities under KRS Chapter 278, LG&E/KU are obligated to provide "adequate, efficient and reasonable service."¹⁰⁷ Furthermore, KRS 278.030(1) states that: "[e]very utility may demand, collect and receive fair, just and reasonable rates for the services rendered or to be rendered by it to any person."

¹⁰³ LG&E/KU's Reply Brief (filed Sept. 20, 2024) at 4.

¹⁰⁴ LG&E/KU's Reply Brief at 5.

¹⁰⁵ LG&E/KU's Reply Brief at 9.

¹⁰⁶ LG&E/KU's Reply Brief at 24.

¹⁰⁷ KRS 278.030(2).

KRS 278.018 gives the Commission the authority to determine whether a retail electric supplier is failing or has failed to render adequate service, and upon a finding either is the case, enter an order “that such failure be corrected within a reasonable time, such time to be fixed in such order.”¹⁰⁸ Furthermore, KRS 278.990(1) provides that a utility and the utility’s officers, agents, and employees may be subject to the assessment of a civil penalty up to \$2,500 per occurrence per party, upon a finding by the Commission of a willful violation of a statute or regulation the Commission enforces, or a Commission Order.

“Adequate service” is defined in KRS 278.010(14) as:

having sufficient capacity to meet the maximum estimated requirements of the customer to be served during the year following the commencement of permanent service and to meet the maximum estimated requirements of other actual customers to be supplied from the same lines or facilities during such year and to assure such customers of reasonable continuity of service[.]

The Commission’s own regulations, in 807 KAR 5:041, Section 5, states that a utility must “make all reasonable efforts to prevent interruptions of service, and when such interruptions occur shall endeavor to reestablish service with the shortest possible delay.” Further, it requires that “those customers which may be seriously affected shall be notified in advance, except in cases of emergency.”

Finally, KRS 278.990(1) provides that a utility and the utility’s officers, agents, and employees may be subject to the assessment of a civil penalty up to \$2,500 per occurrence per party, upon a finding by the Commission of a willful violation of a statute or regulation the Commission enforces, or a Commission Order.

¹⁰⁸ KRS 278.018(3).

DISCUSSION AND FINDINGS

The Commission's purpose in opening this proceeding was to ascertain whether LG&E/KU met its statutory and regulatory obligations in the performance of its duties during Winter Storm Elliott in which they were forced to shed firm load for the first time in their history. To be found in violation of KRS 278.990, LG&E/KU must be found, in relevant part, to have "willfully violate[d] any of the provisions of [KRS Chapter 278] or any regulation promulgated pursuant to [KRS Chapter 278] or by 'fail[ing] to perform any duty imposed upon it under those sections for which no penalty has been provided by law[.]'" In previous investigations the Commission has defined "willful" behavior as:

an act that is committed intentionally, not accidentally or involuntarily. It has also been stated that a willful violation does not necessarily and solely entail an intention to do wrong and inflict injury but may include conduct which reflects an indifference to its natural consequences. For civil and administrative proceedings, a willful violation has been explained as one which is intentional, knowing, voluntary, deliberate or obstinate, although it may be neither malevolent nor with the purpose to violate the law.¹⁰⁹

Moreover, in determining whether a utility is providing adequate service, the Commission along with the NERC, and the utility industry writ large has concluded that calculating an expected LOLE along with the loss of load hour (LOLH), and expected unserved energy (EUE), are "appropriate measure[s] of the reliability and resiliency for various portfolios."¹¹⁰ These metrics, taken together, "reflect the likelihood that a system

¹⁰⁹ Case No. 2022-00347, *In the Matter of: Electronic Alleged Failure of Farmdale Water District, and its Individual Commissioners Scottie Woolridge, Jon Dailey, and Eddie Harrod to Comply with KRS 278.030, 807 KAR 5:006, Section 4(4), 807 KAR 5:006, Section 26 and 807 KAR 5:066* (Ky. PSC Sept. 4, 2024) Order.

¹¹⁰ Case No. 2022-00402, November 6, 2023 Order at 101.

will experience a loss of load event, as well as the duration and magnitude of the loss of load events that a system might experience in the relevant periods.”¹¹¹

When planning a generation portfolio, utilities and RTOs generally plan for a 1 in 10 years LOLE. In Case No. 2022-00402, the Commission discussed the LOLE/LOLH/EUE associated with LG&E/KU’s proposed portfolio at length. In that case, the Commission approved a portfolio that had a LOLE of .70 days every 10 years, an LOLH of 1.43 hours every 10 years and an EUE of 290 MW every 10 years.¹¹² Adequate service, as defined by KRS 278.010, therefore does not contemplate a scenario in which a utility has a LOLE/LOLH/EUE of 0. Consequently, a single loss of load event will rarely be sufficient to sustain a finding that the utility acted willfully as contemplated by KRS 278.990, absent some additional evidence.

While the Commission’s investigation showed that several existing vulnerabilities were exposed during Winter Storm Elliott, LG&E/KU’s actions did not rise to the level of willful, and therefore, no finding that LG&E/KU violated a statutory or regulatory provision as contemplated in KRS 278.990 may be made at this time.¹¹³

As part of the investigation the Commission identified and investigated a number of areas. These areas included, but were not limited to, the cause of the Texas Gas

¹¹¹ Case No. 2022-00402, November 6, 2023, Order at 102.

¹¹² Case No. 2022-00402, November 6, 2023, Order at 103.

¹¹³ While the Commission is thankful for the participation of all intervenors in this proceeding, the Commission is compelled to note that the briefs filed by the Joint Intervenors and the Kentucky Coal Association do not directly address the fundamental purpose of this proceeding, whether LG&E/KU violated their statutory and regulatory obligations. Instead, the intervening parties focused on issues such as generation sources, membership in an RTO, or how certain tariff riders could be restructured. While the Commission welcomes their input the Commission directs the parties to Case No. 2024-00326, *Electronic 2024 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company*, (filed Oct. 18, 2024). Members of Joint Intervenors and the Kentucky Coal Association are both intervening parties to that case.

pipeline pressure drops; cold weather related generation outages not associated with the pipeline pressure drop, the unavailability of generation resources entirely unrelated to Winter Storm Elliott, whether any transmission concerns existed during the storm, what role outside energy purchases played in LG&E/KU's load shed event, whether LG&E/KU appropriately communicated with its customers to warn them of the impending load shed event, and whether LG&E/KU utilized its CSR tariffs appropriately. These issues are discussed in further detail below.

1. The Texas Gas Pipeline Pressure Loss

The Texas Gas pipeline pressure drop during Winter Storm Elliott presented unique challenges to this investigation because Texas Gas is not regulated by the Commission, and the failing equipment that precipitated the pressure loss was not under LG&E/KU's control. However, LG&E/KU remains responsible to their ratepayers to "furnish adequate, efficient, and reasonable"¹¹⁴ service which requires the responsible sourcing of fuel.

Following Winter Storm Elliott, the House and Senate Natural Resources and Energy Committees jointly held a hearing on February 2, 2023, in which Texas Gas and LG&E/KU participated. During the hearing, representatives for Texas Gas discussed the actions with regard to the pipeline that Texas Gas took following the event to prevent a future occurrence. Texas Gas highlighted that, immediately following the event, it added additional maintenance checks on critical equipment, temporary covers and heating equipment for "critical equipment" that was exposed to the elements, as well as turning on compression to allow the pipeline to be prepared for a "full load when needed."

¹¹⁴ KRS 278.030(2).

Additionally, Texas Gas stated that it intended to install permanent structures over certain control equipment.¹¹⁵

LG&E/KU stated that Texas Gas provided LG&E/KU with an update on its response to Winter Storm Elliott during an onsite visit on November 29, 2023.¹¹⁶ On November 30, 2023, LG&E/KU participated in an onsite meeting with Texas Gas at the Slaughters Compression Station (Slaughters facility). During that meeting, LG&E/KU documented the inclement weather improvements made by Texas Gas.¹¹⁷ The improvements included building heaters, constructing weather shelters and boxes as well as acquiring more spare parts.¹¹⁸ As LG&E/KU verified during the November 30, 2023, meeting, those improvements were completed.¹¹⁹ Finally, LG&E/KU also installed certain software improvements to its Trimble County facility which would allow the units to operate at compression levels below the contracted psi.¹²⁰

Given LG&E/KU's response in this matter, the Commission finds that LG&E/KU did not violate either its statutory or regulatory obligations.¹²¹ However, the Commission

¹¹⁵ Joint House & Senate Natural Resources & Energy Committee, HVT at 19:18 (Feb. 2, 2023). <https://ket.org/legislature/archives/2023/regular/joint-house---senate-natural-resources---energy-committee-200794>.

¹¹⁶ LG&E/KU's Response to Staff's First Request for Information (filed Feb 16, 2024) (Staff's First Request), Item 19(a).

¹¹⁷ Indeed, during Winter Storm Heather, which hit the LG&E/KU BA from January 14-21, 2024, LG&E/KU did not experience gas pressure issues on either the Texas Gas or Texas Eastern pipelines and had no outages or derates caused by the cold temperatures. See LG&E/KU's Response to Staff's First Request, Item 22.

¹¹⁸ LG&E/KU's Response to Staff's First Request, Item 19(b), Attachment 2.

¹¹⁹ LG&E/KU's Response to Staff's First Request, Item 19(b), Attachment 2.

¹²⁰ LG&E/KU's Response to Staff's First Request, Item 21(a).

¹²¹ With Regard to Mill Creek 5, the NGCC approved in LG&E/KU's 2022 CPCN application, the companies have secured firm gas transportation services and are evaluating the need for securing alternative fuel sources such as fuel oil. Notably, the companies also intend to install compression

cautions LG&E/KU that they must remain unceasingly vigilant. System reliability is a pillar of adequate and reliable service, and natural gas pipelines present unique concerns because as the Slaughters facility event shows, a single malfunctioning valve or other critical equipment can lead to significant derates when demand is at its highest. LG&E/KU should remain in regular contact with their fuel suppliers to verify the status of critical equipment and emergency procedures before weather events such as Winter Storm Elliott to ensure steady access of fuel during severe weather.

2. Additional Contributing Outages and Derates

While the Texas Gas pipeline was one key factor in precipitating the need to shed firm load, LG&E/KU had a number of other generation outages and derates which certainly contributed to the magnitude of the failure to secure sufficient energy.

Prior to Winter Storm Elliott, several units were in outage, such as Trimble County 1, which experienced a failure of its submerged drag chain conveyor hydraulic gearbox.¹²² LG&E/KU were in the process of repairing the unit during Winter Storm Elliott, but only 75 MW of the 370 MW net total was available during the event.¹²³ Additionally, E.W. Brown Unit 10 Generating Station (Brown 10) had been in outage since December 3, 2022, due to the identification of issues with turbine seals. The outage was a loss of 138 MW.¹²⁴

equipment which would allow operation at the lower pipeline pressures observed during Winter Storm Elliott.

¹²² LG&E/KU Response to Attorney General's First Request, Item 2, Attachment.

¹²³ LG&E/KU Response to Attorney General's First Request, Item 2, Attachment.

¹²⁴ LG&E/KU Response to Attorney General's First Request, Item 2, Attachment.

Early on December 23, 2022, a pilot light that preheats fuel gas blew out and rendered the regulators to the Brown CT units inoperable. LG&E/KU installed heat trace and insulated the equipment, and the system was released back into service by 4:58 PM on December 23, 2022.¹²⁵ E.W. Brown Generating Station Unit 3 (Brown 3) was derated by 62 MW due to “problems with the combustion process instrumentation.”¹²⁶ The derate was confirmed not to be weather related but persisted until December 25, 2022.¹²⁷

Finally, Trimble County Unit 2 experienced a 269 MW derate due to a frozen boiler feed pump, and Mill Creek 4 experienced a coal feeder failure caused by frozen coal which resulted in an additional 120 MW derate during the load shed event.¹²⁸ Both of these derates took place during the load shed event on December 23, 2022.¹²⁹

With regard to the known generating units experiencing outages or derates prior to Winter Storm Elliott, LG&E/KU’s projected net peak was 5,899 MW for December 23, 2022, with 7,239 MW of available capacity, excluding its contingency reserves.¹³⁰ While the actual peak was 6,559 MW, significantly higher than projected, it was still well below the available capacity figure. These outages and derates, therefore, bore little correlation between Winter Storm Elliott and the firm load shed event. However, given the timing of the cold weather-related outages at Trimble County 2 and Mill Creek 4, both units almost

¹²⁵ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

¹²⁶ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

¹²⁷ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

¹²⁸ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

¹²⁹ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

¹³⁰ LG&E/KU Response to Attorney General’s First Request, Item 2, Attachment.

certainly contributed to LG&E/KU's overall failure to provide sufficient energy on December 23, 2022.

Following Winter Storm Elliott, LG&E/KU implemented several changes to its winter operating procedures. At the E.W. Brown Generating Station, changes included building additional enclosures to house critical equipment and changing procedures to have their submerged flight conveyers started earlier to avoid cold hydraulic fluid.¹³¹ Similarly, Trimble County saw a number of changes; including the installation of electric heaters at critical components, the installation of automated controls for Trimble County 1, and monthly heat trace checks.¹³² Additionally, LG&E/KU indicated that, while they were not yet in compliance, they were on pace to complete all the requirements of the NERC reliability standard EOP-012-1 by its required effective date.¹³³ The purpose of the NERC reliability standard is to ensure that each generator owner has developed and implemented a plan to mitigate the impact of operating in extreme cold weather.¹³⁴

While the generation derates and outages during Winter Storm Elliott are concerning, the evidence in this case shows that LG&E/KU acted reasonably with regards to its generation fleet. LG&E/KU had access to capacity well in excess of the projected and actual peak demand figures on December 23, 2022. Further, following Winter Storm Elliott, LG&E/KU implemented a number of meaningful changes to their operating

¹³¹ LG&E/KU Response to Staff's First Request, Item 25.

¹³² LG&E/KU Response to Staff's First Request, Item 25.

¹³³ During the pendency of this case the FERC accepted NERC's proposal to retire EOP-012-1 immediately prior to the effective date of EOP-012-2. Both reliability standards address mitigating the impacts of operating generating units in extreme cold weather. The effective date of EOP-012-2 was October 1, 2024. 89 Fed. Reg. 55,242 (July 3, 2024).

¹³⁴ NERC Reliability Standard EOP-012-2.
<https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-012-2.pdf>

procedures with the express purpose of preventing further extreme cold weather-related outages. LG&E/KU's fleet performed well during Winter Storm Heather in 2024. Consequently, LG&E/KU did not fail to meet either their statutory or regulatory obligations to provide adequate service during Winter Storm Elliott. However, LG&E/KU is advised to continue reviewing their processes and procedures to ensure that loss-of-load-events remain exceedingly rare. Additionally, LG&E/KU is directed to provide notice to the Commission stating whether they have fully complied with EOP-012-2 within 30 days of the issuance of this Order.

3. Off-System Energy Purchases

During Winter Storm Elliott, LG&E/KU utilized off-system energy purchases to meet their load. LG&E/KU purchased power from MISO, PJM, and TVA on December 23, 2022, and December 24, 2022.

The NERC/FERC Report addressed LG&E/KU's energy purchases on December 23, 2024:

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. On December 24, 2022, at 6:00 a.m., PJM began curtailing the Ohio Valley Electric Corporation (OVEC) tagged imports into LG&E/KU; the curtailments ended at 1:00 p.m. The curtailments of PJM were per their emergency procedures due to generation shortages at PJM.¹³⁵

The NERC/FERC report also reported that after PJM BA curtailed 400 MW, LG&E/KU requested emergency energy from the TVA CRSG, which TVA was able to supply.

¹³⁵ NERC/FERC Report at 65.

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.¹³⁶ LG&E/KU reported that several times during the event, the TVA could not support its contingency reserve requirements, withdrawing its contribution to the CRSG and necessitating LG&E/KU to cover a significantly increased amount of contingency reserve for the BA.¹³⁷ LG&E/KU stated that the CRSG functioned consistent with the agreement's provisions during Winter Storm Elliott, and hence there was no need for amendments.¹³⁸ LG&E/KU stated that it is not intended to be a replacement source of power over longer periods of time when a participant experiences a capacity shortfall.¹³⁹

On December 23, 2022, LG&E/KU received 88 MW from OVEC from hour ending 8:00 AM to hour ending 11:59 PM.¹⁴⁰ This was a reduction of the 90 MW that LG&E/KU could expect to receive from OVEC (178 MW).¹⁴¹ OVEC was projected to supply LG&E/KU with 156 MW, but its actual supply ranged from 91 MW to 6 MW over the course of the event.¹⁴² OVEC had six units with issues, five that resulted in derates, the reason for the reduction in deliveries.¹⁴³

¹³⁶ NERC/FERC Report at 11.

¹³⁷ Case No. 2022-00402, LG&E/KU's Response to the Attorney General's First Request, Item 13(l), Attachment 1 at 2.

¹³⁸ LG&E/KU's Response to Staff's First Request, Item 41.

¹³⁹ LG&E/KU's Response to Staff's First Request, Item 41.

¹⁴⁰ LG&E/KU's Response to the Attorney General's First Request, Item 14.

¹⁴¹ LG&E/KU's Response to the Attorney General's First Request, Item 14.

¹⁴² Case No. 2022-00402, Response to the Attorney General's First Request, Item 13(l), Attachment 1 at 2.

¹⁴³ LG&E/KU's Response to the Attorney General's First Request, Item 14.

On December 24, 2022, at 6:00 a.m., PJM began curtailing the OVEC tagged imports into LGE/KU; the curtailments ended by 1:00 p.m.¹⁴⁴ OVEC is within the PJM BA area and PJM erroneously curtailed OVEC exports to LG&E/KU when they curtailed all exports under their emergency procedures.¹⁴⁵ LG&E/KU contacted PJM and corrected its action to restore the schedule.¹⁴⁶ No changes have been made to LG&E/KU's agreement with OVEC as a result of Winter Storm Elliott.¹⁴⁷

During Winter Storm Elliott, LG&E/KU stated that, when non-firm power from PJM was curtailed due to RTO conditions, LG&E/KU's energy trading personnel unsuccessfully attempted to buy power from other counterparties through phone contacts and through bids entered in the SEEM (Southeast Energy Exchange Market) system on December 23, 2022.¹⁴⁸ LG&E/KU explained that SEEM is not intended to serve resource adequacy needs or as a reliability backstop.¹⁴⁹

LG&E/KU cited the ability to purchase power in an emergency situation as possible area of improvement. As a BA, LG&E/KU cited, in their after-action review, that one of the comments suggested for improvement was to work on BA/BA agreements with MISO on being able to purchase emergency power.¹⁵⁰ However, following the hearing,

¹⁴⁴ LG&E/KU's Response to Staff's First Request, Item 36.

¹⁴⁵ LG&E/KU's Response to Staff's First Request, Item 36.

¹⁴⁶ LG&E/KU's Response to Staff's First Request, Item 36.

¹⁴⁷ LG&E/KU's Response to KCA's First Request for Information (filed Feb. 16, 2024) (KCA's First Request), Item 12.

¹⁴⁸ LG&E/KU's Response to Staff's First Request, Item 54.

¹⁴⁹ LG&E/KU's Response to Commission Staff's Post-Hearing Request for Information (filed July 8, 2024) (Staff's Post-Hearing Request), Item 8.

¹⁵⁰ LG&E/KU's Response to Staff's First Request, Item 85 at 4.

LG&E/KU stated that their initial negotiations with MISO appear to be unfruitful because the MISO proposed BA/BA agreement would not permit “the purchase of emergency energy without demonstrated available transfer capability.”¹⁵¹ LG&E/KU stated that they is re-engaging with MISO regarding the possibility of a Joint Reliability Coordination Agreement (JRCA), but that has been delayed by several FERC rulemaking proceedings.¹⁵² As of June 2023, LG&E/KU does have a fully executed JRCA with PJM, which FERC accepted in August 2023.¹⁵³

The Commission recognizes that during an emergency, like Winter Storm Elliott, the ability to purchase power can be a critical back-up source to an energy deficiency and that LG&E/KU made reasonable efforts to do so during the storm. Likewise, the Commission is satisfied with the efforts that LG&E/KU has made following Winter Storm Elliott to improve and seek agreements with other entities regarding purchase power. The Commission encourages LG&E/KU to continue to seek agreements with other BAs regarding purchasing power in an emergency situation.

4. LG&E/KU's Communication with Ratepayers

LG&E/KU did not make a public appeal to begin conservation efforts until after the load shed rollouts had begun on December 23, 2022.¹⁵⁴ At the hearing, Witness Lonnie Bellar stated that the thought that the issue with Texas Gas would resolve was based on unit conditions and LG&E/KU's belief that they would not need to curtail load.¹⁵⁵ Witness

¹⁵¹ LG&E/KU's Response to Staff's Post-Hearing Request, Item 5(b).

¹⁵² LG&E/KU's Response to Staff's Post-Hearing Request, Item 5(b).

¹⁵³ LG&E/KU's Response to Staff's Post-Hearing Request, Item 5(b).

¹⁵⁴ LG&E/KU's Response to Staff's First Request, Item 85, Attachment at 2.

¹⁵⁵ Hearing Video Transcript (HVT) of the May 23, 2024, Hearing at 11:31:09–11:32:21 a.m.

Bellar described that within 41 minutes, the system changed 800 MW, and as LG&E/KU headed towards load shed it wouldn't have been possible to get out any quicker than they did.¹⁵⁶ Around 8:55 PM, LG&E/KU issued a press release posted on their website warning of the service interruptions and the need for customers to reduce energy consumption.¹⁵⁷ On December 24, 2022, LG&E/KU updated their warning card message on its website and home page card stating that customers' energy conservation efforts remain important.¹⁵⁸ LG&E/KU also handled media requests that resulted in 249 stories in December 2022 and was estimated to have reached 109 million people.¹⁵⁹ LG&E/KU did not provide any evidence of individual communication with customers to keep them informed.

Following Winter Storm Elliott, LG&E/KU identified communication with Key Accounts as an area in which LG&E/KU could improve.¹⁶⁰ If they had proactively informed those customers of the status of LG&E/KU's system and capabilities, LG&E/KU stated 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.¹⁶¹ LG&E/KU also formalized their Customer Experience Energy Conservation Procedures, effective

¹⁵⁶ HVT of the May 23, 2024, Hearing at 11:31:09-11:32:21 a.m.

¹⁵⁷ LG&E/KU's Response to Staff's First Request, Item 63.

¹⁵⁸ LG&E/KU's Response to Staff's First Request, Item 63.

¹⁵⁹ LG&E/KU's Response to Staff's First Request, Item 62.

¹⁶⁰ LG&E/KU's Response to Staff's First Request, Item 85, Attachment at 2.

¹⁶¹ LG&E/KU's Response to Staff's Second Request, Item 9.

March 3, 2024.¹⁶² LG&E/KU now have a plan in place on how to communicate with residential and small/midsize business customers, key account holders, and CSR customers during winter weather that includes text, email, or phone calls.¹⁶³ Included in this plan is increased communication with key account holders during all levels of extreme winter weather. LG&E/KU created five alert levels: forecast, watch, warning, emergency, and all clear.¹⁶⁴ Each alert level has a trigger in weather and system conditions that generates a direct message to residential and small/mid business customers via text, email, or phone informing them of these conditions and informs customers on how to use energy during these times.¹⁶⁵ For Key Account and demand side management (DSM) actions, LG&E/KU will make contact with each during each level of alert.¹⁶⁶ During an emergency, key account managers will begin calls to customers per distribution circuit or transmission load plan.¹⁶⁷

In the event that LG&E/KU's load exceeds internal generation, transmission, or distribution capacity or other system disturbances exist, and internal efforts have failed to alleviate the problem, including emergency energy purchases, one of the steps LG&E/KU may take, pursuant to LG&E/KU's tariff, is an appeal to customers through the news media and/or personal contact to voluntarily curtail load as possible.¹⁶⁸ The tariff specifies

¹⁶² LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶³ LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶⁴ LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶⁵ LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶⁶ LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶⁷ LG&E/KU's Response to Staff's Post-Hearing Request, Item 4, Attachment.

¹⁶⁸ P.S.C. No. 20, Original Sheet No. 107.3.

that the appeal will emphasize the defined priority level.¹⁶⁹ Furthermore, an additional step that may be taken in the event of curtailment is for customers to be advised through the use of the news media and personal contact that load interruption is imminent.¹⁷⁰

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that LG&E/KU followed relevant tariff procedures on public appeals. The Commission recognizes that LG&E/KU's capacity position changed rapidly, leaving little opportunity to provide meaningful warning to customers. Nonetheless, LG&E/KU was lacking in the amount of communication that occurred to customers during Winter Storm Elliott. The Commission does not find the argument that some customers would increase their energy use had LG&E/KU issued an appeal too soon compelling, as LG&E/KU provided no evidence of this being the case. The Commission wants to remind LG&E/KU that customer communication is not only about conserving energy to reduce load, but also about keeping customers informed and prepared in case of necessary energy curtailments or firm load shedding. The Commission finds it troubling that LG&E/KU did not tell customers, especially customers that LG&E/KU identified as priority customers, about the strains that were occurring on LG&E/KU's system. However, the Commission recognizes the after-action reviews and procedural changes that LG&E/KU have adopted with regards to customer service are substantive and the Commission expects LG&E/KU to act in accordance with those changes.

¹⁶⁹ P.S.C. No. 20, Original Sheet No. 107.3.

¹⁷⁰ P.S.C. No. 20, Original Sheet No. 107.3.

5. Transmission System

Transmission lines did not experience any transmission line pole failures during Winter Storm Elliott.¹⁷¹ LG&E/KU stated that they restored all planned bulk electric system (BES) transmission outages prior to Winter Storm Elliott and re-scheduled all planned BES transmission outages scheduled to start during Winter Storm Elliott.¹⁷² There were two 69 kV line outages, Millersburg to Sardis 69 kV line, and Wofford to Elihu 69 kV Line, that could not be returned to use leading up to Winter Storm Elliott due to on-going major conduction replacement projects.¹⁷³ LG&E/KU stated that operations planning studies were completed with these lines out of service under expected extreme weather conditions and did not identify any potential reliability issues.¹⁷⁴

From a transmission equipment perspective, LG&E/KU stated that there were no customer outages as a result of Winter Storm Elliott, other than those resulting from the need to load shed.¹⁷⁵ There were two transmission line outages during the load shed period that had no impact to customers. The first outage was the Delvinta to Lake Reba Tap to West Irvine 161 kV, which was caused by Lake Reba tap breaker had a low air pressure alarm, and the breaker air system was frozen.¹⁷⁶ This line outage lasted about

¹⁷¹ LG&E/KU's Response to Staff's First Request, Item 83.

¹⁷² LG&E/KU's Response to Staff's First Request, Item 9.

¹⁷³ LG&E/KU's Response to Staff's First Request, Item 9.

¹⁷⁴ LG&E/KU's Response to Staff's First Request, Item 9.

¹⁷⁵ LG&E/KU's Response to Staff's First Request, Item 12.

¹⁷⁶ LG&E/KU's Response to Staff's First Request, Item 12.

10.5 hours.¹⁷⁷ The next outage, Brown Plant to West Cliff was caused by a gas pressure alarm, and the breaker air system was frozen for a period of approximately 2.5 hours.¹⁷⁸

During Winter Storm Elliott, load curtailment was done at the transmission circuit level. Witness Bellar described how load shed worked during Winter Storm Elliott as follows:

This load shed event was implemented at the transmission level, opening transmission devices, and given the cold weather, what the [distribution control center] (DCC) did during those transmission breakers, while they were open, they take all the distribution devices and then open them up. The reason we do that is so when transmission tries to restore that load, we call it cold load pick up, you don't have every distribution circuit fed by that breaker that transmission opened taking full load and then you risk another interruption for the customers because if the customers home has been in very cold weather staying there for 30 minutes or 40 minutes without any heating source the whole neighborhood, the whole circuit could come on at the same time.¹⁷⁹

LG&E/KU identified that, during Winter Storm Elliott, transmission control center (TCC) did not have an understanding prior to shedding load that DCC was going to open distribution feeder breakers after transmission breakers were opened.¹⁸⁰

The decision as to which transmission circuits were open during the load shed event was based on a tool developed to allow for manual load shed. In 2022, the tool was reviewed in coordination with Gas Operations, Distribution Operations, and

¹⁷⁷ LG&E/KU's Response to Staff's First Request, Item 12.

¹⁷⁸ LG&E/KU's Response to Staff's First Request, Item 12.

¹⁷⁹ HVT of the May 23, 2024, Hearing Testimony of Lonnie Bellar at 2:01:50-2:02:56 p.m.

¹⁸⁰ LG&E/KU's Response to Staff's First Request, Item 85 Attachment.

Transmission Operations groups within LG&E/KU.¹⁸¹ LG&E/KU further described this tool as follows:

This tool incorporates a predetermined list which identifies and prioritizes circuits for the purpose of load shed during a Capacity Energy Emergency. At a high level, the prioritized list was established as follows:

1. Transmission identified a list of radial circuits (including distribution transformers with high side breakers) with telemetered indication and control (excluding UFLS circuits)
2. Distribution reviewed the list and applied a criticality score to each radial transmission circuit based on the scoring criteria (see the table in the Transmission Load Shedding Standard document for more info on how criticality scores were determined) o Since multiple distribution circuits are fed from each radial transmission circuit, the criticality score for each transmission circuit was determined based on the sum total of criticality scores for each distribution circuit fed by that transmission circuit.
3. Based on the criticality scores provided by Distribution, Transmission then grouped the radial transmission circuits into blocks of approximately 50 MW.

The objective of the list was to pre-define groups for potential load shedding, allowing operators to alternate or rotate outages more efficiently, thus distributing the impact of an emergency situation among customers (rotating outages).¹⁸²

After Winter Storm Elliott, LG&E/KU updated their procedures to go from curtailments at the transmission circuit level, to allow for a more granular load shedding approach at the distribution level, and the manual load shed plan within the LG&E/KU Capacity and Energy Emergency Operating Plan has been updated to include this

¹⁸¹ LG&E/KU's Response to Staff's First Request, Item 66.

¹⁸² LG&E/KU's Response to Staff's First Request, Item 66.

option.¹⁸³ LG&E/KU explained that 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.¹⁸⁴ Furthermore, LG&E/KU also updated operation procedures to allow for more coordination between the DCC and the TCC.¹⁸⁵ TCC and DCC also installed a strobe light on the phone line between the two parties to indicate an emergency.¹⁸⁶

LG&E/KU stated that they are continuously evaluating whether new interconnections are necessary or appropriate to maintain the reliability of LG&E/KU's transmission system as part of the transmission planning process.¹⁸⁷

Having considered the record and being otherwise sufficiently advised, the Commission finds that there were no major transmission concerns during Winter Storm Elliott. Furthermore, the Commission acknowledges and supports the upgrades that LG&E/KU has made to its transmission system to ensure adequate service. The Commission notes that LG&E/KU's 2024 IRP addresses additional transmission considerations.¹⁸⁸

¹⁸³ LG&E/KU's Response to Joint Intervenors' First Request for Information (filed Feb. 16, 2024) (Joint Intervenors' First Request), Item 12(c).

¹⁸⁴ LG&E/KU's Response to Joint Intervenors' First Request, Item 12.

¹⁸⁵ LG&E/KU's Response to Commission Staff's Second Request for Information (filed Mar. 15, 2024) (Staff's Second Request), Item 8.

¹⁸⁶ LG&E/KU's Response to Staff's Second Request, Item 8.

¹⁸⁷ LG&E/KU's Response to Joint Intervenors' First Request, Item 2.1(a).

¹⁸⁸ Case No. 2024-000326, *Electronic 2024 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company* (filed Oct. 18, 2024).

The Commission also agrees that LG&E/KU's procedure for load shed during Winter Storm Elliott needed improvement. The Commission recognizes the improvements that LG&E/KU has made to its load shedding procedure and the efforts to improvement communication between TCC and DCC as meaningful. The Commission recommends that LG&E/KU continue to work on improvements to its load shed procedure to lessen the impact of load shed on customers.

6. The Curtailable Service Rider During Winter Storm Elliott

LG&E/KU has two CSR tariffs, both of which are currently closed to new participation. LG&E/KU Generation Dispatch is the division responsible for making the decision to call for physical curtailment under both riders.¹⁸⁹ This decision can be made by the positions of Supervisor Generation Dispatch, Manager Generation Dispatch and Trading, or Director Power Supply.¹⁹⁰

There are two customers on the CSR-1 Tariff who voluntarily curtailed their load on December 23, 2022, (including during the load shedding event), for a total kVA reduction of 1,546 kVA, and a total of 1,646 kVA on December 24, 2022.¹⁹¹ LG&E/KU calculated each of these values by summing the customers' demand one hour prior to the start of the December 23, 2022, physical curtailment and then subtracting the sum of the customers' highest demand during each curtailment period.¹⁹² Both customers of CSR-1 were in compliance during Winter Storm Elliott.

¹⁸⁹ LG&E/KU's Response to Staff's First Request, Item 48(c) and 49(c).

¹⁹⁰ LG&E/KU's Response to Staff's First Request, Item 48(c) and 49(c).

¹⁹¹ LG&E/KU's Response to Staff's First Request, Item 48(a).

¹⁹² LG&E/KU's Response to Staff's First Request, Item 48(a).

In terms of CSR-2, LG&E/KU stated that no written internal procedures exist for determining when a physical curtailment under CSR-2 is needed.¹⁹³ CSR-2 physical curtailment is considered to be a dispatchable supply-side option to meet load and reserve requirements that is available after all other available generating resources are committed.¹⁹⁴ Calling a physical curtailment must also be consistent with all requirements contained in the CSR-2 tariff.¹⁹⁵ LG&E/KU stated that notification of physical curtailment under CSR-2 is made by phone.¹⁹⁶

There are eight customers on the CSR-2 Tariff who physically curtailed their load on December 23, 2022, (including during the load shedding event), for a total kVA reduction of 151,683.7 kVA, and a total of 153,066 kVA on December 24, 2022.¹⁹⁷ On December 23, 2022, three CSR-2 customers were out of compliance on their contracted physical curtailment. Had the three CSR-2 customers complied on December 23, 2022, LG&E/KU would have seen an additional reduction of 1.2 MVA in total.¹⁹⁸ On December 24, 2022, two CSR-2 customers were out of compliance on their contracted physical curtailment in the amount of 283 kVA in total.¹⁹⁹ The three customers did curtail a total of 38 MVA during the physical curtailment on December 23, 2022.²⁰⁰

¹⁹³ LG&E/KU's Response to Staff's First Request, Item 49(e).

¹⁹⁴ LG&E/KU's Response to Staff's First Request, Item 49(e).

¹⁹⁵ LG&E/KU's Response to Staff's First Request, Item 49(e).

¹⁹⁶ LG&E/KU's Response to Staff's First Request, Item 49(e).

¹⁹⁷ LG&E/KU's Response to Staff's First Request, Item 49(a).

¹⁹⁸ LG&E/KU's Response to Staff's Post-Hearing Request, Item 3(a).

¹⁹⁹ LG&E/KU's Response to Staff's First Request, Item 49(b); LG&E/KU's Response to Staff's Post-Hearing Request, Item 3(b).

²⁰⁰ LG&E/KU's Response to Staff's Post Hearing Request , Item 3.

LG&E/KU stated that had the three CSR-2 customers complied on December 23, 2022, and December 24, 2024, LG&E/KU would have seen an additional reduction of 1.2 MVA and 283 kVA, respectively.²⁰¹ LG&E/KU stated that the out of compliance customers did eventually complete their required load reductions.²⁰²

After the December 23 and 24, 2022 physical curtailments, LG&E/KU billed each customer that did not curtail to its contractual obligation the tariffed non-compliance charge.²⁰³ After Winter Storm Elliott, LG&E/KU stated it met with all CSR customers to review their and LG&E/KUs respective CSR obligations.²⁰⁴

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that LG&E/KU's CSR tariffs largely acted as intended, allowing for a reduction of 130 MW during Winter Storm Elliott. LG&E/KU appropriately penalized the out-of-compliance customers and reminded the customers of their obligations pursuant to the tariff for service. Ultimately, the out of compliance customers were only short approximately 1.2 mVA on December 23, 2022.²⁰⁵ The Commission recommends that LG&E/KU continue to evaluate the expansion of their CSR programs and whether the current penalty for non-compliance is an effective deterrent. The Commission will further

²⁰¹ LG&E/KU's Response to Staff's Post-Hearing Request , Item 3.

²⁰² LG&E/KU's Response to Staff's Post-Hearing Request, Item 3.

²⁰³ LG&E/KU's Response to Staff's Second Request, Item 6.

²⁰⁴ LG&E/KU's Response to Staff's Second Request, Item 6.

²⁰⁵ LG&E/KU's Response to Staff's Post-Hearing Request, Item 3(a).

explore evaluation of the CSR tariff and other tariffs in LG&E/KU's 2024 IRP²⁰⁶ and future rate case filings.

CONCLUSION

Winter Storm Elliott presented unique challenges to electric generation owners around the Commonwealth. The storm's size meant that many balancing authorities were put under simultaneous strain. As this Order has detailed, the MISO, PJM, TVA, and LG&E/KU systems were under extreme stress during the storm with each having to declare emergency energy statuses. LG&E/KU and the TVA ultimately shed firm load to maintain their systems' integrity. While LG&E/KU is ultimately responsible for the performance of their generation fleet, the chaotic and fluid events of December 23, 2022, through December 25, 2022, preclude a specific finding that LG&E/KU violated relevant provisions of KRS Chapter 278.

Instead, the investigation showed a number of factors contributed to forcing LG&E/KU to ultimately shed firm load. Had the Texas Gas pipeline's Slaughter's facility not experienced a frozen valve, which they could not remedy for several days, it is likely that LG&E/KU would have had the necessary capacity to avoid shedding firm load, and, potentially, have been able to meet some of their CRSG obligations toward TVA. Moreover, had neither Trimble County 2 or Mill Creek 4 experienced cold weather-related outages, enough coal generation would have remained available to likely have avoided the need to shed firm load. Finally, had the off-system purchases made by LG&E/KU not been curtailed, it was also likely that they could have avoided the need to shed firm load.

²⁰⁶ Case No. 2024-00326, *Electronic 2024 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company*.

Additionally, and crucially, the actions LG&E/KU have taken since Winter Storm Elliott are evidence that they are taking the risks associated with extreme cold weather operation seriously. As stated, they have installed new housing and heaters on critical equipment. LG&E/KU have implemented new procedures and policies to allow it to be more proactive when extreme weather occurs, and they have worked with Texas Gas on ensuring that the pipeline feeding their generators has the appropriate cold weather insulation and equipment to make a recurrence of the pressure loss significantly less likely.

Other questions raised by the parties in these proceedings, such as the viability of LG&E/KU's coal fleet and the benefits of joining an RTO, are simply beyond the scope of this investigation.

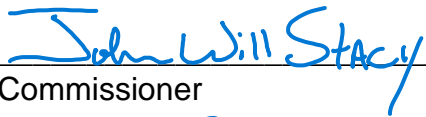
IT IS THEREFORE ORDERED that:

1. The Commission finds that LG&E/KU did not willfully violate a regulation, statute or Commission Order.
2. LG&E/KU is directed to provide a statement within 30 days of receipt of this Order certifying that LG&E/KU are compliant with NERC reliability standard EOP-012-2 and this statement shall be filed in post-case correspondence referencing this case number.
3. This case is closed and removed from the Commission's docket.

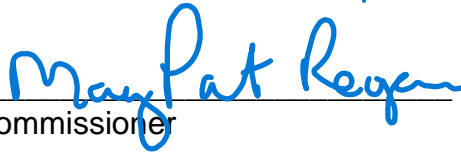
PUBLIC SERVICE COMMISSION



Chairman



Commissioner



Commissioner

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