COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the matter of:	:	
ELECTRONIC INVESTIGATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY SERVICE RELATED TO WINTER STORM ELLIOTT	: : : : :	CASE NO. 2023-00422

KENTUCKY COAL ASSOCIATION'S BRIEF

The Kentucky Coal Association ("KCA"), as intervener in this action, submits the following as its brief in this matter:

In response to Winter Storm Elliott ("WSE") and attenuating curtailments by Kentucky Utilities Company and Louisville Gas and Electric Company (the "Companies") the Commission opened the current investigation matter. While KCA agrees with much of the Companies' analysis in their brief filed on August 9, 2024, KCA believes natural gas delivery problems extend past pressurization. WSE was the proverbial canary in the coal mine exposing the consequences of natural gas delivery problems and inherent risks associated with natural gas generation. WSE was significant and the storm resulted in 5,400 MW of firm load shedding across the entire Eastern Interconnection – the largest controlled load shedding event in the interconnection's history.[1] As it pertains to the Companies, a Texas Gas Transmission (TGT) pipeline failed on December 23, 2022 causing TGT's delivery pressure to two of the Companies' generating stations to fall precipitously.[2] This gas pressure collapse eventually required the Companies to conduct their first-ever customer curtailment due to an energy shortfall in more

[1] NERC/FERC Oct. 2023 Report at 6.
[2] Joint Meeting of House and Senate Committees on Natural Resources and Energy, 2023 Leg. (Ky. Feb 2, 2023)(statement of Jeffrey Sanderson, TGT), available at https://www.youtube.com/watch?v=cgSugxzwohY at 18:10-19:20, 31:00-31:36.

than one hundred (100) years of providing otherwise reliable utility service to Kentucky customers.[3]

In anticipation of WSE, the Companies took additional steps to prepare. For example, they forecasted higher loads during the morning of December 23, 2022 and they purchased natural gas and scheduled it for transportation on the interstate transmission pipeline for use by natural gas simple cycle combustion turbines.[4] However, beginning shortly after 11:00 a.m., on December 23, 2022, the gas pressure on the TGT pipeline supplying gas to the Companies' Cane Run and Trimble County generating stations began to drop below contract limits.[5] TGT informed the Companies that the gas pressure situation might be resolved at any time.[6] Regardless, the drop in pressure began affecting the Companies' generating units between 1:00 p.m. and 2:00 p.m., and despite attempts by TGT to resolve the problem the low gas pressure issue persisted until the afternoon of December 25, 2022.[7] Additionally on December 23, 2022, Tennessee Valley Authority ("TVA") experienced a capacity shortfall with the Companies having to provide an additional 450 MW of contingency reserves – exacerbating the Companies' capacity issues.[8] As a result of the significant derates at the Cane Run and Trimble County gas generating stations and TVA, the Companies requested its Reliability Coordinator, TVA, to declare a level three Energy Emergency Alert (EEA-3) at 1:36 p.m. on December 23, 2022.[9]

Thereafter, around 4:00 p.m. on December 22, 2022, the Companies experienced derates at two (2) coal-fired generating units unrelated to fuel supply: a boiler feed pump tripped, resulting in a 269 MW derate, and then a frozen coal tripper caused a feeder failure, resulting in a

[3] 5/23/2024 Hearing, VR 7:45:17 p.m. – 7:45:31 p.m. (Wilson).
[4] Companies' Response to AG 1-2 at 1 (filed February 16, 2024); Companies' Response to KCA 1-14 (filed February 16, 2024).
[5] Companies' Response to SC 2-14 (filed Mar. 15, 2024).
[6] 5/23/2024 Hearing, VR 9:32:00 a.m. – 9:32:47 a.m. (Bellar).
[7] Attachment to Companies' Response to AG 1-2 at 2 (filed Feb. 16, 2024).
[8] Companies' Response to AG 1-2 at 2 (filed Feb. 16, 2024).

120 MW derate.[10] While the Companies suffered derates on their system during WSE, Midcontinent Independent System Operator ("MISO"), Pennsylvania-New Jersey-Maryland ("PJM") and TVA also experienced energy shortfalls limiting the ability of the Companies to purchase energy from these RTOs – in fact PJM curtailed a 400 MW export to the Companies at 4:30 pm on December 23, 2022 because PJM was close to its own load curtailments.[11] Most meaningfully, TGT's low gas pressure resulted in derates of 688 MW to 846 MW for the Companies (involving Cane Run and Trimble County), after PJM withdrew its export of 400 MW, the Companies began shedding load.[12]

The Companies assert that WSE, "was almost the perfect storm. 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 the Companies' control."[13] Additionally, the Companies indicate, "[h]ad the anomalous issue with TGT's gas pressure not occurred, the Companies would not have had to shed load" over the curtailment period of 4 hours and 18 minutes on December 23, 2022.[14] The Companies initially believed that the TGT gas pressure issue would be resolved at any point during the day on December 23 however the TGT gas pressure did not actually resolve until the afternoon of December 25, 2022.[15] KCA agrees with the Companies that had TGT's gas pressure failure not occurred the Companies would not have had to shed load in this instance. However, KCA differs in opinion regarding options available to the Companies to avoid future load shedding events and curtailments like in

[9] NERC/FERC Oct. 2023 Report at 10 n.23.
[10] 5/23/2024 Hearing, VR 9:33:20 a.m. – 9:33:54 a.m. (Bellar).
[11] NERC/FERC Oct. 2023 Report at 65; Companies' Response to JI 2-15 (filed Mar. 15, 2024)
[12] Attachment to Companies' Response to AG 1-2 (filed Feb. 16, 2024); Companies' Response to PSC 2-24 (filed Mar. 15, 2024).
[13] 5/23/2024 Hearing, VR 2:17:11 p.m. – 2:17:28 p.m.
[14] Companies' Brief, p. 13, filed August 9, 2024.
[15] 5/23/2024 Hearing, VR 11:31:15 a.m. – 11:32:22 a.m. (Bellar); Companies' Response to AG 1-2 at 2 (filed Feb. 16, 2024).

WSE. The addition of pressurization at the gas-fired stations alone is not sufficient to ensure the events of WSE do not occur in the future.

I. <u>OPERATION OF THE COMPANIES' COAL-FIRED UNITS DURING WINTER STORM ELLIOTT</u>

Despite confusing media allegations of the curtailments during WSE being the result of coal-fired units failing to perform[16], the opposite is true. In actuality, the coal-fired units saved customers from a much more significant blackout. During these rolling blackouts the Companies' combined coal-fired units totaling 5,100 MW of capacity operated at a collective capacity factor of 90% and provided over 70% of the energy required to keep the Companies' grid from complete failure. Consistent with the 90% capacity factor of the coal-fired units during WSE, during the hearing of Case No. 2022-00402 on August 22, 2023, Lonnie Bellar reiterated, "[w]e were trying to manage the minimum pressure and not lose the generation that we did have, *at the same time getting as many megawatts out of our machines as we possibly could*." [17]

Alleging that the Companies' coal-fired units in any significant part contributed to the curtailments during WSE strains credulity. The Companies have echoed these sentiments indicating that, "[h]ad the anomalous issue with TGT's gas pressure not occurred, the Companies would not have had to shed load" and "[b]ecause the gas pressure issue on TGT's system…played such a central role in the Companies' need to shed load on December 23…".[18] The loss of gas pressure associated with the weather created the problem here. The Companies suffered derates of 688 MW to 846 MW because of the loss of gas pressure from TGT.[19] The

---

[16] https://kentuckylantern.com/2023/09/08/coal-fired-power-failures-during-winter-storm-come-to-light-months-later/
[17] See, fn. 16.
[18] Companies' Brief, p. 13 and p. 16, filed August 9, 2024.
[19] Attachment to Companies' Response to AG 1-2 (filed Feb. 16, 2024).

weather-related incidents involving the coal-fired units happened when a frozen coal tripper caused a feed failure, resulting in a 120 MW derate at MC 4.[20] Likewise, a boiler feed pump tripped at Trimble County 2, resulting in a 269 MW derate.[21] These were short duration issues. Specifically, MC 4 and Trimble County 2 came back into service within several hours after the Companies fixed the mechanical failures on December 23, 2022 (i.e., 6:44 p.m. for MC 4 and 10:16 p.m. for Trimble County 2).[22]

Equivocating that both coal and gas units were the cause of the curtailments during WSE lacks perspective. Clearly, the inability to obtain fuel supply from TGT completely eliminated the ability to operate all TGT supplied gas-fired units – in this case for over several days. Whereas a short duration mechanical error fixed quickly by the Companies in hours hardly merits comparison to the complete lack of fuel supply from TGT for days. Any suggestion that coal-fired units failed to operate reliably within usual margins of error during WSE fails to articulate the record accurately. One takeaway from WSE 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 (with coal stocks available on site) which raises on-going questions of dual-fuel capability at MC 5.

With respect to dual-fuel capability at MC 5, the Commission previously ordered, “LG&E/KU shall take all reasonable measures to mitigate the cost of Mill Creek 5, while prioritizing the addition of dual fuel capability at the facility for no more than the most recent received quote for the costs of the entire facility. Dual fuel capability, at no incremental cost (in excess of the most recent bid) will cost-effectively further minimize any risk of limited fuel

[20] 5/23/2024 Hearing, VR 9:33:20 a.m. – 9:33:54 a.m. (Bellar).
[21] *Id.*
[22] 8/22/2023 Hearing, Case 2022-00402, VR 14:42-14:45 (Bellar).

availability."[23] In this investigation case, the Companies indicate that they, "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."[24] The Companies indicate they will provide a copy of the study to the Commission within ten (10) days of completion.[25] The plain language of the Commission's previous CPCN Order (Case No. 2022-00402) directs the Companies to prioritize adding dual fuel to MC 5. Without knowing whether this fuel security study[26] actually advances the Companies toward complying with the Commission's directive to add dual fuel to MC 5, it appears that dual fuel may not yet be "prioritized" and additional concerns also remain over permitting with inclusion of dual fuel as well. Said another way, the Companies initially sought permits for MC 5 without dual fuel capabilities – new permits would likely need to be obtained with these new dual fuel parameters raising unknown results. All of the aforementioned issues raise concerns over the on-going reliability of gas fired capacity as highlighted by WSE.

II. CONCERNS RAISED BY WINTER STORM ELLIOTT

The failure of the Companies' system to meet electricity demands during WSE emphasizes the importance of system reliability which depends on diversity of generation source.

In the second quarter Pennsylvania Power and Light ("PPL") investor, Investor Update, dated August 2, 2024, PPL indicated with respect to Kentucky: (i) active data center requests have increased to more than 2 GWs over 2027-2033, with about 350 MW in advanced stages; (ii) in addition to transmission upgrades, additional generation resources are likely needed to support potential data center and industrial demand; (iii) the cost of one 650MW NGCC is approximately

[23] Case No. 2022-00402, Final Order, p. 105, dated November 6, 2023.
[24] 5/23/2024 Hearing, VR 9:38:46 a.m. – 9:38:56 a.m. (Bellar).
[25] Companies' Response to PSC PHDR-1 (filed July 8, 2024).

$1 billion based on MC 5 currently under construction; (iv) rate base from coal generation declines to less than 12% by the end of 2027; and (v) PPL is economically transitioning coal-fired generation and has committed to not burn coal by 2050 unless it can be mitigated with carbon dioxide removal technologies.[27]

During the CPCN case hearing in August of 2023, the Companies opined there would be virtually stagnant load growth in Kentucky through 2050. However, less than one (1) year later, the Companies now articulate in statements to their investors that, "350 MW" of additional load growth is in "advanced" stages in Kentucky due to data centers. Likewise, the Companies are now planning on new load growth in Kentucky based on data centers and industrial demand.[28] Meanwhile, the Companies through PPL are prioritizing decommissioning their coal fired units[29] despite a lack of alternative generation resources as reliable as coal-fired units.

WSE highlighted the need for reliable power in the Companies' generating resources. PPL is meanwhile committed to, "economically transitioning coal-fired generation".[30] Despite suggestions from the Companies on how they will prevent curtailments in the future involving gas (e.g. working directly with TGT, software upgrades, compression options and a fuel security study),[31] pressurization is only an aspect of potential gas delivery problems. Coal-fired power is dispatchable and the most reliable and resilient form of capacity available to the Companies. Based upon the Companies' own statements to their investors they will likely need additional generation resources in the near future (e.g. 2027-2033).[32] From an incentive standpoint, PPL of

---

[26] A fuel security study would seem to determine whether dual fuel is actually needed as opposed to actually adding this option to MC 5 which seems inconsistent with the Commission's previous directive to prioritize adding dual fuel.
[27] See attached second quarter PPL investor, Investor Update, dated August 2, 2024.
[28] *Id*.
[29] See, *Id*. at p. 12.
[30] *Id*.
[31] See, p.16-17 of the Companies' Brief filed August 9, 2024.
[32] See attached second quarter PPL investor, Investor Update, dated August 2, 2024, p. 6.

course receives a rate of return from building additional generating resources from the Companies' ratepayers. However, existing coal fired units, including MC 2, remain operational and available to reliably meet load growth suggested as likely by the Companies – without creating the additional cost to ratepayers of approximately a billion dollars or more for any new NGCC beyond MC 5 along with attenuating costs such as firm transportation for a less reliable power source. Simply put, prioritizing decommissioning the existing coal-fired power plants in the Companies' portfolio in light of increasing load growth and reliability concerns raised from WSE certainly raises significant future questions of the likely need for additional generation resources mentioned by PPL or wasteful duplication.[33] Additionally, the exorbitant cost associated with these additional generation resources such as NGCCs create substantial costs to ratepayers while the cost in retrofitting many of the existing coal-fired units to comply with environmental regulations remains *de minimis* in comparison.

III. OTHER RECENT MATERIAL CHANGES RELATED TO RELIABILITY CONCERNS AND WINTER STORM ELLIOTT

Since the events of WSE there have been material changes that impact the Companies' generation and operation decisions which support maintaining and retrofitting existing coal-fired units in the Companies' portfolio of generating assets. First, as addressed above, despite stagnant load growth estimates put forth by the Companies during the CPCN hearing in August of 2023 (e.g. 2027-2050 would have virtually no-load growth), merely one (1) year later the Companies by PPL are now articulating likely significant load growth of active data center requests from 2027-2033, with about 350 MW in advanced stages. [34] PPL predicts the need for additional generating resources.[35] The Commission also previously recognized fuel stability

[33] Referencing KRS Section 278.020.
[34] See attached second quarter PPL investor, Investor Update, dated August 2, 2024.
[35] *Id*.

concerns involving NGCCs by directing that at MC 5, "LG&E/KU shall …prioritize[e] the addition of dual fuel capability at the facility…[d]ual fuel capability…will…further minimize any risk of limited fuel availability".[36] Barring inclusion of dual-fuel options for MC 5, reliability concerns persist and the Companies should prioritize retrofitting existing coal-fired generating assets rather than, "economically transitioning coal-fired generation."

Second, the good neighbor rule (GNR) has been stayed by the U.S. Supreme Court. In a nutshell, the GNR requires, among many other things, that each state implementation plan (SIP) include provisions to sufficiently ensure that it is not contributing to an air quality concern in another state. Specifically, in the CPCN matter the Companies argued that the GNR was supportive of their request to retire MC1, MC2, and Ghent 2, as the GNR would require the Companies to retrofit Selective Catalytic Reduction (SCR) on these coal plants. During the CPCN matter, the Sixth Circuit Court of Appeals had issued a stay of the GNR. Therein, the Companies sought to diminish the impact of the stay by the Sixth Circuit Court of Appeals as merely a pyrrhic victory on procedural grounds. Currently, with a stay in place of the GNR by the U.S. Supreme Court, the GNR certainly does not appear to be a fait accompli as suggested by the Companies during the CPCN proceeding and there appears a likelihood that the states challenging the GNR will prevail before the US Supreme Court.[37] Certainly, eliminating the GNR also eliminates a significant argument in favor of decommissioning MC 1 and MC 2. Additionally, the likelihood of the states succeeding in their challenges to the GNR only increases in light of the U.S. Supreme Court decision in *Loper Bright Enterprises v. Raimondo, et. al.*, 603 US ___ (2024)(overturning the *Chevron* doctrine eliminating the previous significant level of deference to federal agencies decisions such as the EPA). Despite previous certitudes

[36] Case No. 2022-00402, Final Order, p. 105, dated November 6, 2023.
[37] Supreme Court blocks EPA's 'Good Neighbor' air pollution rule - SCOTUSblog

from the Companies, it certainly seems the states challenging the GNR at the U.S. Supreme Court are poised to succeed in the litigation.

Third, the PJM RTO, adjacent to the Companies' service territory, capacity auction cleared at just under $270 MW per MW-day, implying a capacity value of $50 million annually for MC 1 and MC 2.[38] More importantly, the result of the auction shows how the value of generation capacity has increased over the past year almost ten (10)-fold, a total system increase cost of $14.7 billion for the PJM system for the 2025-2026 delivery year versus the 2024-2025 delivery year.[39] Similar to the RFP[40] issued by Kentucky Power in September 2023 for 875 MW of summer capacity and 1,300 MW of winter capacity, the PJM auction confirms the on-going growth in demand for reliable and resilient power as the price has increased dramatically over the past year. Once again, this situation highlights the need to avoid unnecessarily retiring available dispatchable capacity from fossil-fuel fired plants such as the Companies.

CONCLUSION AND PROPOSAL

The evidence of this case reflects that gas supply remains a concern in extremely cold weather. The Companies have suggested numerous ideas on how to improve this concern. However, they seem not to prioritize dual fuel consistent with the Commission's directive from the final order in the CPCN case dated November 6, 2023. Also, dual fuel remains an unknown in light of permitting concerns.

From a reliability concern consistent with SB 4, the Commission should consider the recent public pronouncements put forth by the Companies suggesting that load growth is in fact not stagnant and they will likely need additional generation resources in short order all the while

---

[38] PJM - Capacity Market (RPM)
[39] *Id.*
[40] https://www.aep.com/news/releases/read/9134/Kentucky-Power-Issues-Request-for-Proposals-for-Generation-Resources

suggesting that they plan to economically transition from coal-fired generation. The coal plants in Companies' existing portfolio remain the most reliable and resilient form of power available to the Companies and they may be retrofitted with SCRs (if needed) for a *de minimis* amount compared to the exorbitant cost (approximately $1 billion) of a new NGCC which notably also allows for a rate of return for PPL. Additionally, legal challenges have proved successful (e.g. stay of the GNR at the U.S. Supreme Court and overturning of the *Chevron* doctrine) which calls into question the logic in decommissioning coal-fired generating resources including MC 1 and MC 2.

Respectfully submitted,

/s/Matt Malone

Matthew R. Malone (KBA #90508)
Aaron D. Reedy (KBA #90523)
Hurt, Deckard & May PLLC
201 E. Main Street; Suite 1402
Lexington, Kentucky 40507
(859) 254-0000 (office)
(859) 254-4763 (facsimile)
mmalone@hdmfirm.com
areedy@hdmfirm.com

Counsel for the Petitioner,
KENTUCKY COAL ASSOCIATION

CERTIFICATE OF SERVICE

I hereby certify that KCA's August 30, 2024 electronic filing is a true and accurate copy of KCA's pleading and Read 1st Document to be filed in paper medium; that the electronic filing has been transmitted to the Commission on August 30, 2024; that an original and one copy of the filing will not be delivered to the Commission based on pandemic orders; that there are currently no parties excused from participation by electronic service; and that, on August 30, 2024, electronic mail notification of the electronic filing is provided to all parties of record:

/s/Matt Malone
ATTORNEY FOR KCA