

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

**In the Matter of:**

<b>ELECTRONIC JOINT APPLICATION OF</b>	)	
<b>KENTUCKY UTILITIES COMPANY AND</b>	)	
<b>LOUISVILLE GAS AND ELECTRIC</b>	)	
<b>COMPANY FOR CERTIFICATES OF</b>	)	
<b>PUBLIC CONVENIENCE AND NECESSITY</b>	)	<b>CASE NO. 2022-00402</b>
<b>AND APPROVAL OF A DEMAND SIDE</b>	)	
<b>MANAGEMENT PLAN AND APPROVAL OF</b>	)	
<b>FOSSIL FUEL-FIRED GENERATING UNIT</b>	)	
<b>RETIREMENTS</b>	)	

**RESPONSE OF**  
**KENTUCKY UTILITIES COMPANY**  
**AND**  
**LOUISVILLE GAS AND ELECTRIC COMPANY**  
**TO**  
**THE SIERRA CLUB'S**  
**SECOND SUPPLEMENTAL REQUESTS FOR INFORMATION**  
**DATED MAY 31, 2023**

**FILED: JUNE 9, 2023**



**VERIFICATION**

**COMMONWEALTH OF KENTUCKY )**  
**)**  
**COUNTY OF JEFFERSON )**

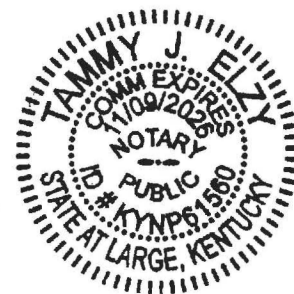
The undersigned, **Philip A. Imber**, being duly sworn, deposes and says that he is Director – Environmental and Federal Regulatory Compliance for LG&E and KU Services Company, 220 West Main Street, Louisville, KY 40202, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

*Philip A. Imber*  
\_\_\_\_\_  
**Philip A. Imber**

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 7<sup>th</sup> day of JUNE 2023.

*Tammy J. Ely*  
\_\_\_\_\_  
Notary Public

Notary Public ID No. KYNP61560



My Commission Expires:

November 9, 2026







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

**Response to Sierra Club’s Second Supplemental Requests for Information  
Dated May 31, 2023**

**Case No. 2022-00402**

**Question No. 3.1**

**Responding Witness: Lonnie E. Bellar / Philip A. Imber / Stuart A. Wilson**

- Q.3.1. Please refer to the Companies’ response to LFUCG/LJCM’s initial request for information, number 15, which states: “The proposed retirement of Mill Creek Unit 1 is an example where significant new regulatory requirements (Effluent Limitation Guidelines) and extraordinary investment needs (cooling tower to meet 316b requirements) incur capital and operating costs that outweigh the costs incurred by transitioning to alternative energy supplies. Examples of regulatory requirement could be National Ambient Air Quality Standards, Cross State Air Pollution Rules, Effluent Guidelines, Regional Haze, Hazardous Air Pollution, or greenhouse gas standards of performance that are not achievable or the capital and operating costs of compliance technologies are higher than alternative generation sources.” On May 11, 2023, the Environmental Protection Agency released its proposed rule, “New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule.”<sup>1</sup>
- a. Please confirm that the Companies did not consider carbon dioxide limitations and guidelines either in seeking the Certificate of Public Convenience and Necessity (CPCN) or in seeking the retirements at issue in this litigation. If not confirmed, please explain how the Companies considered carbon dioxide limitations and guidelines in seeking the CPCN and/or retirements.
  - b. Please provide any assessments or analyses of the impact of the proposed rule on Mill Creek Units 1 and 2, Ghent Unit 2, and/or Brown Unit 3, including on capital and operating costs.

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<sup>1</sup> 88 Fed. Reg. 33,240 (May 23, 2023), <https://www.govinfo.gov/content/pkg/FR-2023-05-23/pdf/2023-10141.pdf>; see also EPA, Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants, <https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>.



- c. Please explain whether the proposed rule is anticipated to impact Mill Creek Units 1 and 2, Ghent Unit 2, and/or Brown Unit 3 and, if so, how it is anticipated to impact each affected unit.
- d. Please provide any assessments or analyses of the impact of the proposed rule on the two new NGCCs proposed in this CPCN proceeding, including on capital and operating costs.
- e. Please explain whether the proposed rule is anticipated to impact the two new NGCCs proposed in this proceeding and, if so, how it is anticipated to impact each affected unit.
- f. Please provide any assessments or analyses of the impact of the proposed rule on Haefling Units 1 and 2 and/or Paddy's Run Unit 12, including on capital and operating costs.
- g. Please explain whether the proposed rule is anticipated to impact Haefling Units 1 and 2 and/or Paddy's Run Unit 12 and, if so, how it is anticipated to impact each affected unit.

A.3.1

- a. Not confirmed. In Stage Two, Step Two in section 4.5.2 of Exhibit SAW-1, the Companies evaluated a \$15/ton and \$25/ton CO<sub>2</sub> emissions price and re-affirmed the findings from Stage Two, Step One that the Companies' economically optimal portfolio remains least cost. Regarding the EPA's May 11, 2023 proposed rule, see the response to KCA 3.3.
- b-e. See the response to KCA 3.3.
- f-g. No such assessments or analyses have been performed. Haefling 1 and 2 and Paddy's Run 12 are not anticipated to be impacted by the proposed rule due to their low utilization. See the response to JI 3-15.



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**Question No. 3.2**

**Responding Witness: Lonnie E. Bellar / Philip A. Imber**

- Q.3.2 Please refer to the Companies' response to LFUCG/LJCM's initial request for information, number 15, which states: "The proposed retirement of Mill Creek Unit 1 is an example where significant new regulatory requirements (Effluent Limitation Guidelines) and extraordinary investment needs (cooling tower to meet 316b requirements) incur capital and operating costs that outweigh the costs incurred by transitioning to alternative energy supplies. Examples of regulatory requirement could be National Ambient Air Quality Standards, Cross State Air Pollution Rules, Effluent Guidelines, Regional Haze, Hazardous Air Pollution, or greenhouse gas standards of performance that are not achievable or the capital and operating costs of compliance technologies are higher than alternative generation sources." On January 27, 2023, EPA published its proposed rule, "Reconsideration of the National Ambient Air Quality Standards for Particulate Matter."<sup>2</sup>
- a. Please provide any assessments or analyses of the impact of the proposed rule on Mill Creek Units 1 and 2, Ghent Unit 2, and/or Brown Unit 3, including on capital and operating costs.
  - b. Please explain whether the proposed rule is anticipated to directly and/or indirectly impact Mill Creek Units 1 and 2, Ghent Unit 2, and/or Brown Unit 3 and, if so, how it is anticipated to impact each affected unit.
  - c. Please provide any assessments or analyses of the impact of the proposed rule on the two new NGCCs proposed in this CPCN proceeding, including on capital and operating costs.
  - d. Please explain whether the proposed rule is anticipated to directly and/or indirectly impact the two new NGCCs proposed in this proceeding and, if so, how it is anticipated to impact each affected unit.

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<sup>2</sup> 88 Fed. Reg. 5,558.

- e. Please provide any assessments or analyses of the impact of the proposed rule on Haefling Units 1 and 2 and/or Paddy's Run Unit 12, including on capital and operating costs.
- f. Please explain whether the proposed rule is anticipated to directly and/or indirectly impact Haefling Units 1 and 2 and/or Paddy's Run Unit 12 and, if so, how it is anticipated to impact each affected unit.

A.3.2

- a. The "Reconsideration of the National Ambient Air Quality Standards for Particulate Matter" is a proposed rule. No such assessments or analyses have been performed.
- b. Because the proposed rule did not identify a specific numeric standard, as such it is not possible to assess the status of ambient air quality attainment to this proposed standard. The impact, if any, to Mill Creek Units 1 and 2 and Brown Unit 3 cannot be assessed until attainment designations are calculated per the standards. The Companies will learn local attainment status or significant contribution status to cross state air pollution within two years of the final rule. Note that each of these units operates with pulse jet fabric filters and reagent injection systems that are state-of-the-art particulate matter reduction technologies.
- c. The proposed "Reconsideration of the National Ambient Air Quality Standards for Particulate Matter" does not have a capital or operating cost impact to the two NGCCs proposed in this proceeding. No such assessments or analyses have been performed.
- d. See the response to part (c).
- e. The proposed "Reconsideration of the National Ambient Air Quality Standards for Particulate Matter" does not have a capital or operating cost impact to the referenced Units. No such assessments or analyses have been performed.
- f. See the response to part (e).

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**Question No. 3.3**

**Responding Witness: Lonnie E. Bellar / Philip A. Imber**

Q.3.3 Please refer to the Companies' response to LFUCG/LJCM's initial request for information, number 15, which states in part: "Examples of regulatory requirement could be National Ambient Air Quality Standards, Cross State Air Pollution Rules, Effluent Guidelines, Regional Haze, Hazardous Air Pollution, or greenhouse gas standards of performance that are not achievable or the capital and operating costs of compliance technologies are higher than alternative generation sources."

- a. Please provide any assessments or analyses of the impact of the following federal regulatory schemes on Haefling Units 1 and 2, and/or Paddy's Run Unit 12:
  - i. National Ambient Air Quality Standards
  - ii. Good Neighbor Rule
  - iii. Effluent Limitations Guidelines
  - iv. Regional Haze
  - v. Mercury and Air Toxics Standards
- b. Please explain whether the Good Neighbor Rule is anticipated to impact Haefling Units 1 and 2 and/or Paddy's Run Unit 12 and, if so, how the regulation is anticipated to impact each affected unit.

A.3.3

- a.
  - i. Generally, there is no relationship between National Ambient Air Quality Standards and the operation of these peaking units.

- ii. Generally, the Good Neighbor Plan does not impact these units. The Good Neighbor Plan does not apply to the Haefling Units because they are less than the 25 MW applicability threshold. The Paddy's Run unit emits less than 150 tons of NO<sub>x</sub> per year and therefore it is exempt from additional controls. Paddy's Run Unit 12 continues to receive ozone season allocations based on heat input until it retires.
  - iii. The recent 2020 and 2023 Effluent Limitations Guidelines are not applicable to these assets. These units do not have FGD wastewater or bottom ash transport water.
  - iv. These units are not modeled to have an impact to Class I areas and as such are not tied to Regional Haze related concerns.
  - v. These units are not subject to the Mercury and Air Toxic Standard, which applies to EGUs larger than 25 megawatts (MW) that burn coal or oil.
- b. See the response to part (a)(ii).

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**Question No. 3.4**

**Responding Witness: Lonnie E. Bellar**

Q.3.4 Please refer to the Companies' response to Sierra Club's supplemental request for information, number 15(d), which states: "As detailed in the RC agreement, '[T]he Reliability Coordinator is authorized to, and shall, direct and coordinate timely and appropriate actions by LG&E/KU, including curtailing transmission service or energy schedules, redispatching generation, and shedding load, in each case, in order to avoid adverse effects on interregional bulk power reliability.'"

- a. Please provide a copy of "the RC agreement."
- b. In Sierra Club's supplemental request for information, number 15(d), Sierra Club requested that LG&E/KU "describe what, if any, role LG&E/KU's reliability coordinator played in LG&E/KU's response to Winter Storm Elliott." Did the reliability coordinator direct and coordinate specific actions by LG&E/KU during Winter Storm Elliott, including curtailing transmission service or energy schedules, redispatching generation, and shedding load to avoid adverse effects on interregional bulk power reliability? If so, please describe the actions directed and coordinated by the reliability coordinator during Winter Storm Elliott.

A.3.4

- a. See attachment being provided in a separate file.
- b. No, the reliability coordinator did not direct and coordinate specific actions by LG&E/KU during Winter Storm Elliott.

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**Question No. 3.5**

**Responding Witness: Philip A. Imber**

Q.3.5 Please provide all current Title V permits for Haefling Units 1 and 2 and Paddy's Run Unit 12.

A.3.5 See attachments being provided in separate files.

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**Question No. 3.6**

**Responding Witness: Lonnie E. Bellar**

- Q.3.6 Please refer to the statement in the Companies' response to Sierra Club Question 2-1.c, "Winter Trimble County agreements allow the operation of six CTs at maximum load for 16 hours and minimum load for eight hours." Please confirm that statement is correct, and that the hour durations are not reversed for maximum and minimum load.
- A.3.6 The statement is correct. The Companies maintain sufficient firm gas transportation volumes to operate all six Trimble County CTs around the clock in winter months, with up to 16 hours of operation at maximum load and the remaining 8 hours at minimum load.



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**Question No. 3.7**

**Responding Witness: Charles R. Schram**

- Q.3.7 Please refer to the Companies' response to Sierra Club Question 2-1.e. Please provide the duration of the longest-duration gas supply contract the Companies currently have in place for their generators.
- A.3.7 The Companies' purchase of physical gas for future delivery is limited to part of the supply for the Cane Run 7 NGCC unit. A portion of that supply has been purchased through February 2025. The longest duration contract from a supplier is currently ten months, from May 2024 through February 2025.

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**Question No. 3.8**

**Responding Witness: David S. Sinclair**

Q.3.8 Please refer to the Companies' response to Sierra Club Question 2-25.c, stating, "In the standalone cases, imports were limited to 300 MW."

- a. Beyond the information provided in the Companies' response to Sierra Club Question 2-25.b, please explain the justification for the 300 MW cap on imports.
- b. Was the 300 MW cap on imports assumed to apply during peak demand hours?

A.3.8

- a. The 300 MW import cap reflects the 99<sup>th</sup> percentile of the Companies' historical hourly imports between 2017 and mid-2022.
- b. Yes. It was assumed to apply in all hours.

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**Response to Sierra Club's Second Supplemental Requests for Information  
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**Question No. 3.9**

**Responding Witness: Stuart A. Wilson**

- Q.3.9 Please refer to the Companies' response to Sierra Club Question 2-35.a, attachment 2, labeled "Seasonal Contribution." Please document the source of the hourly renewable output profiles provided in tab "comb\_syspeak\_hours," including any assumptions that were used to produce the profiles.
- A.3.9 Regarding the profiles that support the seasonal capacity contribution values used in this proceeding, the Companies developed the hourly renewable generation profiles for single axis tracking solar ("Slr1axT") and wind generation resources based on the assumed hourly weather profiles used to derive the Companies' hourly load forecast. This ensures that the generation profiles are properly correlated with load (i.e., both load and the renewable generation profiles are forecasted based on a common set of temperature, solar irradiance, and wind speed data). The weather assumptions are based on historical weather data from the National Renewable Energy Laboratory ("NREL") between 1998 and 2019 in Hopkins County, KY. This site was selected as a representative site for solar and wind and corresponds to the location of a specific proposal from the Companies' 2021 request for proposals for new generation resources ("2021 RFP").

For the solar profile, the Companies provided the assumed weather data to a specific respondent to the 2021 RFP, who developed a solar generation output profile for their proposed single axis tracking solar facility.

The Companies used wind speeds from the assumed weather data for the same location in Hopkins County and an assumed capacity factor of 25% for Kentucky-sited wind to estimate the wind generation profile.