

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2024 JOINT INTEGRATED	)	
RESOURCE PLAN OF LOUISVILLE GAS AND	)	CASE NO.
ELECTRIC COMPANY AND KENTUCKY	)	2024-00326
UTILITIES COMPANY	)	

COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION  
TO LOUISVILLE GAS & ELECTRIC COMPANY AND  
KENTUCKY UTILITIES COMPANY

Louisville Gas & Electric Company (LG&E) and Kentucky Utilities Company (KU) (jointly, LG&E/KU), pursuant to 807 KAR 5:001, shall file with the Commission an electronic version of the following information. The information requested is due on December 18, 2024. The Commission directs LG&E/KU to the Commission's July 22, 2021, Order in Case No. 2020-00085<sup>1</sup> regarding filings with the Commission. Electronic documents shall be in portable document format (PDF), shall be searchable, and shall be appropriately bookmarked.

Each response shall include the question to which the response is made and shall include the name of the witness responsible for responding to the questions related to the information provided. Each response shall be answered under oath or, for representatives of a public or private corporation or a partnership or association or a governmental agency, be accompanied by a signed certification of the preparer or the

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<sup>1</sup> Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID-19* (Ky. PSC July 22, 2021), Order (in which the Commission ordered that for case filings made on and after March 16, 2020, filers are NOT required to file the original physical copies of the filings required by 807 KAR 5:001, Section 8).

person supervising the preparation of the response on behalf of the entity that the response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

LG&E/KU shall make timely amendment to any prior response if LG&E/KU obtains information that indicates the response was incorrect or incomplete when made or, though correct or complete when made, is now incorrect or incomplete in any material respect.

For any request to which LG&E/KU fails or refuses to furnish all or part of the requested information, LG&E/KU shall provide a written explanation of the specific grounds for its failure to completely and precisely respond.

Careful attention shall be given to copied and scanned material to ensure that it is legible. When the requested information has been previously provided in this proceeding in the requested format, reference may be made to the specific location of that information in responding to this request. When applicable, the requested information shall be separately provided for total company operations and jurisdictional operations. When filing a paper containing personal information, LG&E/KU shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the paper so that personal information cannot be read.

1. Refer to the Integrated Resource Plan (IRP) Volume I at page 7-34. Provide footnote 65.

2. Refer to Executive Summary at 2. Explain what types of communications LG&E/KU has had with potentially large new load from data centers or other energy intensive customers.

3. Refer to the IRP, Volume 1, Recommended Resource Plan, page 5-28, footnote 34. For each of the “remaining three PPAs [which] appear unlikely to proceed under their approved terms[,]” provide an explanation detailing why LG&E/KU does not believe those PPAs will proceed. As part of the answer, explain whether the driving factors for the failure to proceed is related to price increases. If yes, state whether, and why, LG&E/KU expects prices to continue increasing with regards to the solar PPA

4. Refer to IRP Volume I at 5-9.

a. As part of the answer, explain whether the driving factors for the failure to proceed is related to price increases. If yes, state whether, and why, LG&E/KU expects prices to continue increasing with regards to the solar PPA Refer to IRP Volume I at 5-9.

b. Explain whether LG&E/KU have considered a shorter time period than 20 years to develop its normal weather forecast.

c. Explain whether LG&E/KU will continue utilizing a 20-year period for weather normalization. If yes, explain why LG&E/KU believes the 20-year period weather normalization is the best time frame with regards to weather normalization.

5. Refer to IRP Volume I at 5-10, footnote 17. Confirm that “Error! Reference source not found” was supposed to refer to Figure 5-5.

6. Refer to IRP, Executive Summary at 8.

a. Explain whether LG&E/KU’s Recommended Resource Plan is based on the assumption that the incentive tax credits (ITC) for the battery energy storage system (BESS) will be available in the year the resource goes into service.

b. Explain how the Recommended Resource Plan would change if the ITC in the Inflation Reduction Act are repealed.

7. Refer to IRP Volume I at 8-2 and 8-3.

a. Explain whether LG&E/KU plans to meet its 29 percent target reserve margin in the winter in 2025. If so, explain how.

b. Explain whether LG&E/KU plans to meet its 23 percent target reserve margin in the summer in 2025. If so, explain how.

8. Refer to IRP Volume I at 8-42 and 8-43. State whether the Louisville-Jefferson County, KU area achieved attainment status by the August 2, 2024 deadline.

9. Refer to the IRP, Volume II page 10. Provide the location in the filing of Appendix B.

10. Refer to the IRP, Volume II page 12. Provide the location in the filing of Appendix A.

11. Refer to the IRP, Volume III, Technology Update page 12 and Tables 6-7 page 13.

a. Explain whether out-of-state wind resources would be a more viable resource than in-state wind resources.

b. Explain whether the study results would be meaningfully different using out-of-state wind.

c. If out-of-state wind had been used, explain whether it would be appropriate to include transmission costs in the levelized cost of energy (LCOE) calculations.

12. Refer to the IRP, Volume III, Technology Update page 15. Explain the difference between traditional combustion turbines (CTs) and aero-derivative CTs.

13. Refer to the IRP, Volume III, Technology Update pages 19-20 and page 20, footnote 47. Explain whether the out-of-state wind resources evaluated in the Resource Assessment included transmission costs and whether the National Renewable Energy Laboratory (NREL) made a distinction between in-state and out-of-state wind. If not, explain how LG&E/KU made a distinction, if any.

14. Refer to the IRP, Volume III, Technology Update page 20.

a. Explain how limiting solar penetration to 20 percent of total energy requirements and the sum of solar and wind generation to 25 percent of total energy requirements maximizes renewables penetration.

b. Explain how the 20 percent and 25 percent limitations referenced above were obtained.

15. Refer to the IRP, Volume III, Technology Update page 23. Explain whether LG&E/KU are aware of the Lewis Ridge Pumped Storage project in Bell County, which is projected to be a closed loop 287 MW facility (<https://lewisridgeproject.com/index.html>). If so, explain whether this type of project would be a viable potential resource.

16. Refer to the IRP, Volume III, Resource Adequacy Analysis pages 26-27 and Table 18 page 37.

a. Explain whether available transmission capacity (ATC) is modeled in PLEXOS or PROSYM.

b. Explain how the distribution in Table 18 is modeled in Strategic Energy & Risk Valuation Model(SERVM). Include in the response how ATC is modeled

for weekends, shoulder months (not summer or winter months), and how the ATC distribution is applied to any given summer and winter month weekday.

c. If ATC is zero 55 percent of the time during the summer and winter months, explain the value of owning winds resources in Indiana as an energy source during these periods.

17. Refer to the IRP, Volume III, Resource Adequacy Analysis page 28-29 and Table 20 page 29.

a. Explain whether any of the four studies cited in the table are LG&E/KU service territory specific. If not, explain the sample used in each of the studies.

b. Aside from weighting the customer class mix, explain whether LG&E/KU made any adjustments to the data to account for the specific customer class characteristics in its service territory. For example, this could include hospitals and other commercial or industrial facilities with their own backup generation or being fed through two different circuits for reliability purposes.

c. If any adjustment were made to the data to account for specific customer class characteristics, how does LG&E/KU identify that information for the adjustments.

d. If no adjustments were made, has LG&E/KU considered any program to identify those specific class characteristics?

e. Explain how the cost of unserved energy is used as an input in calculating the minimum (economic) reserve margin.

18. Refer to the IRP, Volume III, Resource Adequacy Analysis page 29. Explain the NERC standard for spinning reserves and the derivation of the 243 MW in LG&E/KU's spinning reserves.

19. Refer to the IRP, Volume III, Resource Adequacy Analysis page 29.

a. Explain exactly how SERVM uses scarcity pricing.

b. When LG&E/KU refers to the price of market power, explain which market prices are being referenced and used in SERVM.

c. Explain whether LG&E/KU is monitoring all available energy market pricing in real time such that it can purchase (price is less than marginal generation cost) or sell energy (price is greater than marginal generation cost) at any time when advantageous.

d. Explain the extent to which the summer and winter reserve margins are affected by including scarcity pricing in the calculations.

20. Refer to the IRP, Volume III, Resource Assessment page 4. Assume a data center commits to locate in LG&E/KU's service territory.

a. Explain the number of jobs and any additional economic benefits that would typically be associated with the load. Explain how LG&E/KU has determined that information.

b. Explain how LG&E/KU's customers will benefit from the data center if additional generation is specifically required to serve the data center's load.

c. Explain whether and how LG&E/KU made any specific modeling assumptions or adjustments to account for a situation where a data center's specific load

requirements necessitated new generation facilities to ensure that existing customers do not subsidize any new generation required by data center specific load requirements.

21. Refer to IRP Volume I, Table 5-2. Explain whether LG&E/KU predicted a specific number of data centers that would be built in its service area when accounting for the MW in the mid and high scenarios.

22. Refer to LG&E/KU's current Tariff Sheet No. 71, Economic Development Rider (EDR).

a. Refer also to the IRP Volume 1, 5-13. State whether LG&E/KU believes the current EDR tariff is sufficient given LG&E/KU's position regarding the "necessity to compete for major projects in primary metals manufacturing, indoor agriculture, battery production, and [] data centers." Provide a detailed explanation of LG&E/KU's position.

b. If LG&E/KU believes the EDR is not sufficient state whether, and when, LG&E/KU would seek to modify the tariff.

23. Refer to the IRP, Volume III, Resource Assessment page 5. In the case of converting a coal generation unit to co-firing or burning 100 percent natural gas, explain the modifications or changes that are required, if any, for the boiler and associated tubing configuration.

24. Refer to the IRP, Volume III, Resource Assessment page 16. Reciprocating Internal Combustion Engine (RICE) generation resources have been suggested as being particularly well suited for load following uses. Explain whether LG&E/KU have considered this generation technology as appropriate for inclusion in the IRP.

25. Refer to the IRP, Volume III, Resource Assessment, Table 2 page 16.



- a. Explain why Hourly Operating Cost (\$/MWh) are not available for simple cycle combustion turbines (SCCTs) or small modular reactors (SMRs).
- b. Explain why the start-up cost for SCCTs is \$27,398. Include in the response a breakdown of the different cost components of the \$27,398 and whether the start-up costs of LG&E/KU's existing SCCTs are equally as high.
- c. Explain why there is no start-up cost for the natural gas combined cycle (NGCC).
- d. Explain why there is no Variable O&M cost or Hourly Operating Cost for SCCTs. Include in the response both the variable O&M cost and the hourly operating cost for LG&E/KU's existing SCCTs.
- e. Explain how LG&E/KU and the models treat an input with a "N/A" designation in order to prevent the models from skewing consideration of one generation technology over another.

26. Refer to the IRP, Volume III, Resource Assessment, page 20, footnote 50. Specifically consider MISO's August 2024 curtailment of the firm export schedules for Owensboro Municipal utilities (OMU) and Kentucky Municipal Energy Agency (KYMEA) Provide a detailed explanation of the circumstances under which LG&E/KU owned wind resources situated in outside transmission areas would be curtailed or otherwise unavailable for use by LG&E/KU.

- a. Explain the circumstances by which MISO and PJM could curtail firm transmission service and the legal or contractual basis for curtailment capability.

b. Explain what would happen to any wind energy being generated from LG&E/KU's wind generators if MISO were to curtail LG&E/KU's firm transmission rights to its wind generators.

27. Refer to the IRP, Volume III, Resource Assessment, Stage One, Step Two analyses Tables 25-29, pages 43-49.

a. Explain whether the costs for additional solar was based on NREL's declining cost forecast or a slowly inclining forecast.

b. If based upon NREL's declining solar costs, explain how the analyses changes when solar costs increase in the manner assumed in Table 20, page 39.

28. Refer to the final Order in Case No. 2022-00402, page 103.<sup>2</sup> Refer also to the IRP, Volume I, Recommended Resource Plan, page 5-25. Provide a detailed explanation of the difference in loss-of-load expectation (LOLE) of the approved portfolio LOLE in Case No. 2022-00402 which was 0.7 days every ten years and the projected LOLE of 1 in ten years in the current IRP filing.

29. Refer to the IRP, Volume I, Recommended Resource Plan, page 5-25. Provide the estimated range of costs of installing a utility scale Carbon Capture and Sequestration (CCS) system.

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<sup>2</sup> Case No. 2022-00402, *Electronic 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* (Ky. PSC Nov. 6, 2023), Order at 103.

30. Refer to the IRP, Volume 1, Recommended Resource Plan, page 5-26. Provide an explanation detailing why the least-cost portfolios do not include additional curtailable service rider (CSR).

31. Refer to the IRP, Volume 1, Recommended Resource Plan, page 5-29. With regards to the NGCC, battery storage, and construction of an SCR on Ghent 2, state when LG&E/KU believes it must begin planning, permitting, and construction for each resource.

32. Refer to the IRP, Volume 1, pages 6-8. Provide a detailed explanation of why “exceedances of the 70 ppb ozone standard in the Louisville-Jefferson County area have continued to occur.” As part of the answer provide a list of each occurrence of exceedance of the 70ppb ozone standard since 2020.

33. Refer to the IRP, Volume 1, page 6-10. State whether any units qualify for the permanent cessation of coal combustion category (Cessation subcategory). If so, identify those units, and for each unit, state whether LG&E/KU intends to designate any qualifying units under the Cessation subcategory.

34. Refer to the IRP, Volume III, page 6. Provide a detailed timeline of the process required for planning, permitting, and constructing a small modular nuclear reactor by 2039.



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DATED NOV 22 2024

cc: Parties of Record

Case No. 2024-00326

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