COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

SOUTHERN RENEWABLE ENERGY ASSOCIATION'S INITIAL REQUESTS FOR INFORMATION TO LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY

Comes now the Southern Renewable Energy Association (also "SREA"), by and through counsel, and, in accordance with the Public Service Commission's Order dated October 30, 2024 propounds its Initial Requests for Information to Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU" and collectively "Companies").

1) In each case in which a request seeks information provided in response to a request of Commission Staff, reference to the Companies' response to the appropriate Staff request will be deemed a satisfactory response.
2) Please identify the Companies' witness who will be prepared to answer questions concerning the request during an evidentiary hearing.
3) These requests shall be deemed continuing so as to require further and supplemental responses if the Companies receive or generate additional information within the scope of these request between the time of the response and the time of any evidentiary hearing held by the Commission.

4) If any request appears confusing, please request clarification directly from Counsel for SREA as soon as reasonable.
5) To the extent that the specific document, workpaper, or information as requested does not exist, but a similar document, workpaper, or information does exist, provide the similar document, workpaper, or information.
6) To the extent that any request may be answered by way of a computer printout, please identify each variable contained in the printout which would not be self-evident to a person who is not familiar with the printout.
7) If the Companies have any objections to any request on the grounds that the requested information is proprietary in nature, or for any other reason, please notify Counsel for SREA as soon as reasonable.
8) For any document withheld on the basis of privilege, state the following: Date; author; addressee; indicated or blind copies; all person to whom distributed, shown, or explained; and the nature and legal basis for the privilege asserted.
9) In the event that any document called for has been destroyed or transferred beyond the control of the Companies, state: The identity of the person by whom it was destroyed or transferred and the person authorizing the destruction or transfer; the time, place, and method of destruction or transfer; and, the reason(s) for its destruction or transfer. If destroyed or disposed of by operation of a retention policy, state the policy.
10) As the Companies discover errors in its filing and/or responses, please provide an update as soon as reasonable that identifies such errors and provide the document to support any changes.

WHEREFORE, SREA respectfully submits its Initial Requests for Information to the Companies.

Respectfully submitted,

/s/ David E. Spenard

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NOTICE AND CERTIFICATION FOR FILING

Undersigned counsel provides notices that the electronic version of the paper has been submitted to the Commission by uploading it using the Commission's E-Filing System on this 22nd day of November 2024. Pursuant to the Commission's July 22, 2021 Order in Case No. 2020-00085 (Electronic Emergency Docket Related to the Novel Coronavirus COVID-19), the paper, in paper medium, is not required to be filed.

/s/ David E. Spenard

NOTICE CONCERNING SERVICE

The Commission has not yet excused any party from electronic filing procedures for this case.

/s/ David E. Spenard

SREA INITIAL REQUESTS FOR INFORMATION TO
LOUISVILLE GAS AND ELECTRIC COMPANY AND
KENTUCKY UTILITIES COMPANY
KY PSC CASE NO. 2024-00326

1. Did the Companies consider portfolios with renewables configurations that were paired with or collocated with energy storage? If yes, please fully explain the consideration and provide the analysis. If not, please explain why they did not consider the subject.

   a. Please further explain whether pairing renewables with energy storage would improve the capacity accreditation for renewable assets.

2. Did the Companies consider portfolios with renewables configurations that were paired with or collocated with hydrogen electrolyzers? If yes, please fully explain the consideration and analysis. If not, please explain why they did not consider the subject.

3. Reference – Volume III, Resource Adequacy Analysis, Section 4.1.1 ("Key Constraints") [PDF 88 of 259]. Please provide any analysis that the Companies performed to arrive at the assumption about maximum percentage contribution by solar and wind resources toward total forecasted energy.

4. Please indicate whether in any of the Companies' simulations, the maximum limits that the Companies set for renewables were reached. If so, please indicate in which year(s) such limits were reached.

5. Did the Companies consider running any scenarios with a carbon price, or with a stipulated carbon emission reduction target? If yes, please fully explain the consideration and analysis. If not, please explain why they did not consider running the scenario(s).

6. Have the Companies received any requests from customers for the Companies to procure clean energy to meet current or projected demand? If yes, please provide a summary of those request in terms of the number of customers and the total clean energy generation requested in GWh, etc.

7. Did the Companies impose annual and/or cumulative build limits or other constraints that limits how much the PLEXOS model could add new solar, wind, or energy storage capacity?

8. Please describe the supply mix that the Companies have historically relied upon to meet their winter and summer peaks.

9. Please describe the contribution percentage of available long-duration storage (including BESS) to the winter and summer peaks.

10. Please provide the capacity accreditation values assigned to each resource type in each year from 2024 to 2039.

11. Reference – Volume III, Technology Update, Section 3.2.3 [PDF 29 of 259]. It is stated that solar resources contribute 0% and 83.7% to the winter and summer capacity requirements. Please explain how these amounts were calculated and provide the supporting workpapers containing the analysis.

    a. What capacity accreditation values do the Companies assume for their existing and planned dispatchable generating resources for the summer and winter season?

12. Reference – Volume III, Resource Assessment, Section 3.2, Table 6 [PDF 86 of 259]. For Table 6, are capacity values and reserve margins reported in ICAP or UCAP?

13. Did the Companies perform any sensitivity modeling to the capacity availability of existing and planned dispatchable generating units? If yes, please fully explain the consideration and analysis. If not, please explain why they did not consider the subject.

14. In the Companies' calculation of required summer and winter reserve margins, did they assume forced and planned outage rates for existing and new thermal facilities? If yes, please provide the assumed forced and planned outage rates by season. If not, please state why not.

15. What were the outage rates of the Companies' existing thermal facilities during the 2019 through 2023 winter seasons? Please provide additional detail about the outage rates of the Companies existing thermal facilities during Winter Storm Elliot and Winter Storm Uri?

    a. How was the performance of the Companies' units during these recent winter extreme events translated in the Companies' winter reserve margin calculations and how was such information considered in the PLEXOS modeling of existing and new thermal resource additions? Please explain in detail.

16. Please provide detail on the fuel supply arrangements for each existing and new gas resource included in the capacity expansion analysis, including firm and non-firm gas contracts, access to pipelines, and dual fuel capability.

17. With reference to Table 3 of the Executive Summary ("The Companies' 2024 IRP Recommended Resource Plan") [PDF 8 of 10], Please provide the MW capacity of each additional resource identified in the table.

18. Please provide the overnight capital costs, total construction costs, and fixed operation and maintenance costs (including wheeling charges for imported resources and fuel supply costs) estimates in all years for each resource that was made available in the Companies' capacity expansion modeling for this IRP.

19. Did the Companies analyze economic retirements of existing coal and gas plants in their capacity expansion modeling that supports this IRP or other studies?

    a. If the Companies performed a separate study of coal plant economic retirements, please provide a summary of the study and the related workpapers.

    b. If the Companies performed this analysis within their capacity expansion modeling, please provide all future cost assumptions for each coal plant, including fixed O&M costs, ongoing capital costs, variable O&M costs, and fuel costs.

    c. Did the Companies account for the declining coal supply chain due to coal plant retirements across the eastern United States (including by other southeast utilities) and its impacts on the dependability and price risks for procuring sufficient coal for their coal-fired resources?

    d. The Kentucky Legislature passed Senate Bill 349 in the 2024 legislative session forming a new state agency, the Energy Planning and Inventory Commission (EPIC). SB 349 also added requirements to PSC review and supplemented restrictions on retirements passed under Senate Bill 4 in 2023. How has SB 349, passed in 2024, and SB 4, passed in 2023, affected the Companies analysis of economic retirements of existing coal and gas plants in this IRP or other studies?

20. Reference – Volume I, page 5-26, footnote 32, "When considering a sensitivity case where solar prices do not decline as predicted by NREL's 2024 ATB, the lease-cost resource plan for the Mid load scenario includes an SCR on Ghent 2." [PDF 33 of 135]. Please explain each adjustment that was made to the solar costs used in the sensitivity described in footnote 32.

21. The U.S. EPA issued a final rule that became effective on July 8, 2024,[1] finalizing multiple actions by the U.S. Environmental Protection Agency (EPA) under section

[1] 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, 89 Fed. Reg. 39,798 (May 9, 2024).

111 of the Clean Air Act (CAA) addressing greenhouse gas (GHG) emissions from fossil fuel-fired electric generating units.

a. How was this new EPA rule incorporated into the various IRP scenarios?

b. In particular, please explain which greenhouse gas rules were modeled in the Ozone NAAQS + ELG + GHG environmental regulation scenario. If the EPA's final CAA section 111 rule was not incorporated in any of the scenarios, please explain why not.

c. Additionally, if any of the EPA's previously proposed emission regulations under CAA section 111(b) and 111(d) were included (i.e., proposed regulations that did not become effective on July 8, 2024), please explain how the Companies accounted for them in the IRP modeling configuration.

22. On Nov. 18, 2024, the U.S. EPA issued a final rule to reduce methane emissions from the oil and gas sector, effective January 17, 2025.[2] How does this new rule factor into the IRP?

23. Please provide the results of the Companies' most recent 10-year transmission planning study. Did the Companies consider the cost savings related to the investment and operation of generation in their transmission planning process, similar to MISO in its Long-Range Transmission Planning or Duke in its Multi-Value Strategic Transmission Study? If so, please provide a summary of the analysis of cost savings provided by transmission and any related workpapers.

24. Please provide a list of all the Companies' transmission upgrade project filings with the Kentucky Public Service Commission since January 1, 2019 and, for the same period, a list of all transmission upgrade projects for which the Companies sought a Public Service Commission Staff Opinion. For each transmission upgrade project listed in response, provide the Public Service Commission Case Number and/or Staff Opinion Number, the date of entry of any final Order of the Commission or issuance of a Staff Opinion, and an identification of the current status of the project (such as completed, in progress, abandoned, etc.).

25. Please provide the MW volume of Companies' market purchases via their transmission interconnections to neighboring regions during Winter Storm Elliot and Winter Storm Uri.

[2] Waste Emissions Charge for Petroleum and Natural Gas Systems: Procedures for Facilitating Compliance, Including Netting and Exemptions, 89 Fed. Reg. 91,094 (Nov. 18, 2024).

26. Please identify and explain, in detail, how the Companies' historical market purchase patterns during these recent winter extreme events considered and incorporated in the Companies' derivation of the seasonal reserve margins?

27. Reference – Volume I, Figure 7-17 [PDF 82 of 135]. Figure 7-17 includes a data series called "Major Accounts." Please explain what this load category represents.

28. What analyses did the Companies perform that supports the plateau in load growth after 2032 as shown in Volume I, Figure 5-6 of Volume I [PDF 22 of 135]?

29. Besides the scenarios considering high and low electric vehicle adoption, did the Companies consider any high electrification cases? If yes, please identify and fully explain. If not, why not?

30. Reference – Volume I, Figure 5-9 [PDF 26 of 135]. In Figure 5-9, annual quantities of energy efficiency contribution appear to decrease from the Low to the Mid to the High scenario. Please explain what drives this decrease.

    a. How do the assumptions that go into the energy efficiency contributions vary across the three (3) load growth scenarios?

31. How did the Companies calculate the capacity levels in the Mid (1,050 MW) and High (1,750 MW) Data Center scenarios?

32. How many data centers are served under each scenario, and in which service territory are they located?

33. Please explain how the annual increases in data center demand (in MW) under the two (2) cases were determined. If they were linearly interpolated, please explain how the Companies determined the start and end years used.

34. Reference – Volume I, Page 5-7 [PDF 14 of 135]. The Companies state that "high load-factor customers also have distinct load shapes that must be layered in separately." Please explain the layering process. And, please provide the load shapes used for newly projected data centers and explain how those were developed for the two scenarios.

35. What is the near-term action plan that the Companies will put in place based on the results of the IRP and their recommended Resource Plan?

36. Will the Companies initiate any competitive resource solicitations based on the IRP? If yes, please indicate when and explain the solicitation process and describe how they would evaluate the responses to their RFP.

37. Do the Companies plan to self-build any of the identified additions in their recommended plan? If yes, would Companies' self-build option participate in their

own potential competitive solicitation along with market bids? If yes, please fully explain. If not, why not?

38. Please provide the simple Excel model described in Section 2 of the Resource Adequacy Analysis section of Volume III of the 2024 IRP ("the Companies used a simple Excel model to develop least-cost renewable portfolios for each of these load profiles"), as well as any data inputs that were used in it.

39. Identify each of the Companies' "reliability coordinator" as that phrase is used in KRS 278.264(2)(a)2. State whether either utility anticipates a change in its reliability coordinator during the review period. If yes, please fully describe and explain.

40. Reference - Volume III, "Generation & Planning Analysis, October 2024," unnumbered page 4. KRS 278.264(2)(c) states: "The decision to retire the fossil fuel-fired electric generating unit is not the result of any financial incentives or benefits offered by any federal agency." State whether the Investment Tax Credit identified and described on Table 1 for small modular reactors ("SMR") falls within the definition of a financial incentive or benefit offered by a federal agency. Explain the position.

41. Reference – Volume III, Technology Update, Section 3.2.3. [PDF 28 of 259]. Please provide all analysis to support the statement that "these levels of renewables would require…potentially significant transmission system upgrades." Please further explain the Companies' claim that "it is not practical to estimate transmission system upgrade costs for numerous generation sites that do not currently exist." State the Companies' understanding and knowledge regarding long-term transmission planning completed by entities including MISO and SPP and the Carolinas Transmission Planning Collaborative that study transmission system upgrades for generation sites that do not currently exist?

42. Reference - Federal Energy Regulatory Commission (FERC) Order No. 1920, which requires transmission providers, including utilities outside of RTO regions, to take a long-term, regional approach when planning for future transmission needs. In particular, reference Order No. 1920's requirement for transmission providers to conduct long-term transmission planning using a plausible and diverse set of at least three scenarios, including changes in the resource mix.

    a. Please state the Companies' understanding of and knowledge of FERC Order No. 1920, including how it factors into this IRP.

    b. Have the Companies considered that estimating transmission system costs for numerous generation sites that do not currently exist (i.e., changes in the resource mix) should be part of the process of planning transmission in order to a consider plausible and diverse set of scenarios in compliance with FERC Order No. 1920? If yes, please fully explain. If not, why not.

c. How are the Companies planning to comply with FERC Order No. 1920's requirements to consider changes to the resource mix when developing at least three plausible and diverse scenarios if not estimating transmission system upgrade costs for generation sites that do not currently exist?

43. Please provide a list of economic planning requests that the Companies' have submitted to the Southeastern Regional Transmission Planning annual planning process for studying the transmission upgrades required to support purchases (energy and capacity) from resources sited outside of the Companies' service territory.

44. Please explain why the Companies analyzed solar and wind resources as energy-only additions.

    a. Did the Companies include any transmission network upgrade costs and/or firm transmission costs for wind and/or solar additions? If yes, please provide the assumed costs, any analyses the Companies conducted to support the reasonableness of such assumptions, and explain how these assumptions were employed in developing the Companies' IRP. If not, explain why not.

    b. Please provide any analysis the Companies performed that analyzes the Effective Load Carrying Capability (ELLC) for wind, solar, and/or energy storage resources.