

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matters of:

ELECTRONIC APPLICATION OF LOUISVILLE)	
GAS AND ELECTRIC COMPANY AND)	CASE NO.
KENTUCKY UTILITIES COMPANY FOR THE)	2021-00393
JOINT INTEGRATED RESOURCE PLAN)	

**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 November 12, 2021 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.

- 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 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 possible.
- 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,

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NOTICE AND CERTIFICATION FOR FILING

Undersigned counsel provides notice 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 21st day of January 2022. Pursuant to the Commission's Order in Case No. 2020-00085, *Electronic Emergency Docket Related to 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

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

1. Provide complete and unredacted copies of the following materials used or relied upon by the Companies in their 2021 IRP. For each Table below, provide a live, executable (i.e., Excel) version.
 - a. IHS Markit, “Executive Summary: US Economic Outlook” (May 2021), referenced on PDF p. 2 of 18 of IRP Volume II.
 - b. “Table 5-5: Coal and Natural Gas Prices (Nominal \$/mmBtu),” Volume I.
 - c. Transmission expansion plan projects, Volume III, PDF p. 82 of 140.
 - d. Transmission system map, Volume III, PDF p. 83 of 140.
 - e. “Table 4: 2025 Delivered Natural Gas Prices (LG&E and KU; Nominal \$/mmBtu),” Volume III, PDF p. 38 of 140.
 - f. “Table 5: 2025 Delivered Coal Prices (LG&E and KU; Nominal \$/mmBtu),” Volume III, PDF p. 38 of 140.
 - g. “Table 6: Interruptible Contracts,” Volume III, PDF p. 39 of 140.
 - h. “Table 8-7: Cost of Fuel (\$/MMBtu),” Volume I, PDF p. 91 of 118.
 - i. “Table 8-9: Production Costs,” Volume I, PDF p. 92 of 118.
 - j. The results of the Companies’ recent resource RFP (<https://lge-ku.com/lge-ku-request-proposals-sell-electric-capacity-energy>). For each project proposal, identify the size (megawatts), the cost (e.g., the \$/MWh and/or \$/MW-year bid), the resource type, whether the project was a build-transfer or power purchase agreement. Provide any analysis the Companies conducted on the proposals submitted under this RFP, and the conclusions the Companies reached as a result of this RFP. Identify each project selected under this RFP and when the anticipated commercial operation date is of each project.
2. Provide live, executable (i.e., Excel) versions of the following Tables and Figures:
 - a. Figure 5-4
 - b. Figure 5-16
 - c. Figure 5-10
 - d. Figure 5-20
 - e. Figure 5-21
 - f. Figure 5-22
 - g. Table 5-13
 - h. Table 5-14
 - i. Table 5-18

- j. Table 6-5
 - k. Table 6-6
 - l. Table 7-1
 - m. Table 7-2
 - n. Table 7-3
 - o. Table 7-4
 - p. Table 8-3
 - q. Table 8-4
 - r. Table 8-5
 - s. Table 8-6
 - t. Table 8-15
 - u. Table 8-16
 - v. Table 8-17
 - w. Table 8-18
3. Provide live, executable (i.e., Excel) versions of the Companies' complete analysis that produced the results shown in "Table 4: LCOE of SCCT and 4-Hour Battery Storage (\$/MWh)" in Volume III, PDF p. 18 of 140. Identify any assumptions used in this analysis that are not already described in Volume III, PDF pp. 17-19 of 140.
4. Reference the Companies' 2021 integrated resource plan (IRP) stakeholder engagement process.
- a. Describe the Companies' outreach to stakeholders and stakeholder engagement process with respect to developing their 2021 IRP.
 - b. To the extent it is not fully discussed in (a), describe and explain how the Companies solicited input and feedback on key components related to their IRP from relevant entities or stakeholders during the Companies' process of developing their 2021 IRP.
 - c. Identify which external entities or stakeholders the Companies have been in communication with regarding the development of their IRP, how the Companies have communicated with these external entities or stakeholders, the frequency of these communications, and the topics and issues discussed with each of these entities or stakeholders.
 - d. Identify the number of public meetings, open houses, technical conferences, and/or workshops the Companies held on the development of their 2021 IRP prior to filing their 2021 IRP.
 - i. Provide all materials that were disseminated by the Companies and participating entities or stakeholders related to these meetings,

- including any handouts, presentations, agendas, and meeting notes.
- ii. If the Companies did not conduct any public meetings, open houses, technical conferences, and/or workshops as part of their process to develop their 2021 IRP, explain why they did not do so.
 - e. Identify the number of, location of, and topics discussed at each meeting, call, or workshop the Companies held with external entities or stakeholders regarding the development of their 2021 IRP that were not public.
 - i. Provide all materials that were disseminated by the Companies and participating entities or stakeholders related to these meetings, including any handouts, presentations, agendas, and meeting notes.
5. Identify each generating unit that was designated as a must-run unit in the Companies' IRP modeling "Base Energy Requirements, Base Fuel" case and for each year such a designation or requirement was imposed on the unit. For this question, "must-run" means the IRP modeling assumed the unit would continue to run (e.g., regardless of cost), and/or the modeling did not allow the unit to be economically retired in one or more years of the IRP period. For each such unit, explain why this designation or requirement was imposed.
6. Reference the Companies' load forecast in their 2021 IRP.
- a. Explain the "specific intelligence on the prospective energy requirements of the utilities' largest customers" (IRP, p. 5-8) that the Companies have in their possession and how that intelligence was factored into the Companies' industrial sales growth forecast.
 - b. Provide an executable version of the Company-wide (the combined entities) hourly load profile for the historical year 2020 (or the most recent available calendar year if 2020 is not available) and for each future year in the IRP period (i.e., 2022 through 2036).
7. Reference the supply-side resources considered by the Companies in their 2021 IRP.
- a. Explain whether and to what extent the Companies included the cost reductions associated with batteries paired with solar due to these battery systems being eligible to take the federal investment tax credit (subject to limitations on the battery charging from solar)?
 - b. Describe how the Companies evaluated and modeled utility-scale solar paired with battery energy storage facilities as a distinct resource (i.e., distinguishable from solar-only or battery-only resources).
 - i. In addition, explain what the primary reasons are that the Companies did not select to procure this resource in the base load, base fuel price case (1) in the near term (over the next 1-3 years);

(2) in the medium term (through 2024-2030); and (3) in the long-term (2031 and thereafter).

- c. Reference Volume 1, p. 5-43, stating in pertinent part that “In the base load, base fuel price case, peaking resources are primarily used to meet peak load needs and operate at low capacity factors.” For each generating unit included in the 2021 IRP, provide an executable version (i.e., Excel file) of the capacity factor used by the Companies for each year of the IRP. Provide the same for each of the other scenarios included in the 2021 IRP.
 - d. What do the Companies forecast or expect the annual and seasonal (e.g., summer, winter) capacity factors will be for the new natural gas combustion turbines in plans to procure under their 2021 IRP for each year of the IRP planning horizon?
 - e. Identify the assumed or expected life (i.e., number of years) of a new natural gas combustion turbine that the Companies use when analyzing new resource options. Explain whether this assumption is different than the assumed life used by the Companies for ratemaking purposes, and if so, how it is different.
 - f. Reference Volume III, PDF p. 20 of 140. Explain why wind resources in both Kentucky and Indiana were considered in the 2021 IRP, but wind resources located in other states (e.g., other MISO states) were not considered as a potential resource and was not modeled in this IRP?
8. Reference the Companies’ reserve margin analysis.
- a. Reference PDF p. 36 of 140 of Volume III, stating in pertinent part that “A key aspect in developing a target reserve margin is properly considering the likelihood of unit outages during extreme weather events.” To what extent did the Companies’ modeling consider the possibility of correlated unforced outages across their generating units during extreme weather events? Provide any analysis the Companies conducted to analyze this issue and describe how the results and conclusions were factored into the Companies’ 2021 IRP.
9. Reference the Companies’ transmission system.
- a. Reference Volume III, PDF p. 39 of 140. Provide an executable version of the underlying analysis or analyses used as the basis for “Table 7. Daily ATC” and to support the statement “Based on the daily ATC data, the Companies’ ATC for importing power from neighboring regions is zero 42% of the time.”
 - b. Reference Volume III PDF p. 39 of 140. Identify the Available Transmission Capacity for the Companies for each hour during calendar years 2019, 2020, and 2021.
10. Reference the Companies’ generating unit retirement analysis.

- a. Reference Table 10 in Volume III, which identifies stay-open costs for coal units that are 40 or more years old and peaking units 15 or more years old. Identify the “Stay-Open Cost (\$/kW-year),” “Average Energy Cost (\$/MWh),” and “Stay-Open Costs + Average Energy Costs (\$/MWh)” for each unit owned and / or operated by the Companies that is not already included in Table 10. If the Companies have not performed or are unable to perform such an analysis, explain why.
 - b. Explain the extent to which the Companies considered retiring any coal units that are 40 or less years old, or peaking units 15 or less years old as part of their IRP and provide any analysis the Companies conducted as part of this consideration. If the Companies did not consider or analyze this topic, explain why not.
11. Reference the Companies’ discussion of electric vehicles (Volume I, beginning at PDF p. 36 of 118).
- a. Provide a full explanation how the Companies integrated its forecast of EV adoption into their load forecast for its base, high, and low cases.
 - b. For each year of the IRP planning period, identify the hourly load profile assumed by the Companies that is from EV charging.
 - c. Provide a live, executable version of the Companies’ workpapers that demonstrate how their forecast of increasing EV adoption impacts and is integrated into the Companies’ load forecast during the IRP planning period.
 - d. For each year in the IRP planning period, identify the contribution of EV charging to the Companies’ winter peak load. “Contribution” means the total MW of load associated with this end use during the Companies’ forecasted winter peak.
12. Reference the Companies’ discussion of space heating electrification (Volume I, beginning at PDF p. 39 of 118).
- a. Provide a full explanation how the Companies integrated their forecast of space heating electrification into their load forecast for its base, high, and low cases.
 - b. For each year of the IRP planning period, identify the hourly load profile assumed by the Companies that is from space heating.
 - c. Provide a live, executable version of the Companies’ workpapers that demonstrate how their forecast of space heating electrification impacts and is integrated into the Companies’ load forecast during the IRP planning period.
 - d. For each year in the IRP planning period, identify the contribution of space heating to the Companies’ winter peak load. “Contribution” means the total MW of load associated with this end use during the Companies’ forecasted winter peak.

13. Reference the Companies' share of the Ohio Valley Electric Corporation (OVEC) units.

- a. Confirm or deny with complete explanation that the Companies' continued reliance on OVEC units to serve retail customers in Kentucky is congruent with a least-cost generation portfolio.
- b. For each of the past 10 years, identify (1) the total megawatt-hours (MWh) generated by the OVEC units that represent the Companies' share, (2) the retail sales (MWh) to the Companies' customers from OVEC unit generation, (3) the off-system sales (MWh) generated by OVEC units.
- c. For each of the past 10 years, identify (1) the total nominal costs associated the Companies' share of the OVEC units, and (2) the revenue associated with the sales from the Companies' share of the OVEC units.
- d. Reference Table 10 in Volume III. For each OVEC unit, identify the "Stay-Open Cost (\$/kW-year)," "Average Energy Cost (\$/MWh)," and "Stay-Open Costs + Average Energy Costs (\$/MWh)."
- e. For each of the past 10 years, identify the annual capacity factor for each OVEC unit.
- f. Identify the assumed retirement date of each OVEC unit.
- g. Explain the impact of the U.S. Environmental Protection Agency's (EPA) proposal to deny the extension request for the Clifty Creek Power Station to continue using existing coal combustion residuals surface impoundments on the Companies' IRP and Companies' resource need in the coming decade, should the EPA's proposal be finalized and approved without modification. (Reference: "Proposed Denial of Alternative Closure Deadline for Clifty Creek Power Station", available at: https://www.epa.gov/system/files/documents/2022-01/clifty_creek_proposed_decision-508_prepub.pdf)
- h. Provide the most recent analysis the Companies have performed on the economics or the costs and benefits of continuing to utilize OVEC generating units to serve its Kentucky retail customers.
- i. Provide the most recent analysis the Companies have performed on the viability of retiring the OVEC units at a date earlier than is currently assumed by the Companies in their 2021 IRP.
- j. Describe any efforts the Companies are currently pursuing, or have made in the past three years, to engage in good faith efforts to manage existing OVEC contracts such as meaningful attempts to renegotiate contract provisions to ensure continued value for ratepayers or retire these units early.

14. Reference Volume I of the Companies' 2021 IRP.

- a. Reference Table 5-7. Identify/define which hours of the day are "night hours."

- b. Reference Table 5-16. Explain how the “Contribution to Summer Peak,” “Contribution to Winter Peak,” and “Net Capacity Factors,” were each calculated. Identify the data sources and assumptions used in each of these calculations, and provide the executable version (e.g., Excel file) of these calculations.
15. Reference the Companies’ generating units.
 - a. Identify the extent to which each unit owned and/or operated by the Companies experienced an unforced unit outage, and durations for each outage, during (1) January 2, 2014 through January 10, 20214 and (2) the Companies’ winter peak event in 2015.
16. Reference Volume I of the Companies’ 2021 IRP, footnote 33 on page 5-29, PDF p. 38 of 118. Since the October 19, 2021 IRP filing, have the Companies updated any of their distributed generation forecasts scenarios relied upon in preparing the 2021 IRP and depicted in Figure 5-13 to reflect the new rates and monthly netting established by the Kentucky Public Service Commission’s September 24, 2021 final Order in the Companies’ recent rate case? If yes, please provide each updated forecast. If no, please explain why not.
17. Reference Volume I of the Companies’ 2021 IRP, footnote 44 on page 5-42, PDF p. 48 of 118. Provide an update of the IRP to reflect the lower capacity resulting from the 125 MW solar PPA discussed in the footnote.
18. Reference LG&E/KU’s 2021 RTO Membership Analysis¹ (hereinafter “RTO Study”), Cost and Benefit Analysis (“CBA”).
 - a. Reference CBA, Figure 1, page 6, Figure 3, page 8 and surrounding text, sections 7-10, and Appendices B and C. Provide all assumptions, data, methodologies, and rationales relevant to calculating the Companies’ cost and benefit projections of RTO membership at a sufficient level of detail for a third-party to reproduce the results in the document.
 - b. Reference CBA, Figure 1, page 6, Figure 3, page 8 and surrounding text, sections 7-10, and Appendices B and C. Did the Companies assume that wholesale trade volumes would be the same whether LG&E and KU are a full RTO member? (Reference Appendix C for energy market trades, but please provide information about any other unreported market activity as well.) If no, please identify the assumptions and state the rationale for adopting each assumption.
 - c. Reference CBA, Figure 1, page 6, Figure 3, page 8 and surrounding text, sections 7-10, and Appendices B and C. Provide the supporting detail for the assumed transmission costs associated with RTO membership versus maintaining status quo and include this response whether and how the Companies have accounted for avoided costs.

¹ Available at https://psc.ky.gov/pscecf/2020-00349/rick.lovekamp%40lge-ku.com/10192021013538/2-2021_RTO_Membership_Analysis.pdf, last visited January 21, 2021.

- d. Reference CBA, Figure 1, page 6, Figure 3, page 8 and surrounding text, sections 7-10, and Appendices B and C. What assumptions concerning planning and cost allocations have the Companies made in light of impending regional transmission planning and cost allocation reforms. Specifically, FERC is anticipated to reform regional transmission planning and cost allocation for all FERC Order 1000 Planning Regions, which includes non-RTO regions. LG&E and KU are part of Southeastern Regional Transmission Planning (SERTP). Has LG&E and KU taken that into account in its status quo case?
- e. Reference CBA, Figure 1, page 6, Figure 3, page 8 and surrounding text, sections 7-10, and Appendices B and C. What are (1) the current costs of transmission and generation buildout when planning on a more local scale as compared to (2) the costs of sharing transmission buildout and participating in a market? Please provide an estimate of which, (1) or (2), may be larger if you cannot answer this more precisely.
- f. Reference RTO Study, Appendix B. Did the Companies include current and projected transmission buildout costs or expenses under the status quo in the analysis?
- g. Reference RTO Study, Section 8.3. If the Companies lose current transmission revenue streams, what transmission revenue would the Companies receive from the RTO tariff?
- h. For any transmission revenue for the Companies from an RTO tariff discussed in the RTO Study, Section 8.3, is the revenue included as a benefit in the analysis? If yes, identify how. If no, state why not.
- i. Reference RTO Study, Appendix B. Have the Companies discussed the study's estimates of projected costs allocated to the Companies with MISO and/or PJM as a means to confirm the estimates reasonableness and accuracy? If yes, provide the information, analysis, and/or feedback provided to the Companies? If no, explain why the Companies have not engaged in discussions with MISO and/or PJM concerning estimates of projected costs allocated to the Companies.
- j. Reference RTO Study, Appendix B. Please identify and explain the assumption for capacity replacement costs or avoided capacity costs for units as they retire.
- k. Reference RTO Study, Appendix B. Do the Companies include avoided capacity costs resulting from RTO membership as a benefit? If yes, explain how and identify the benefit. If no, explain why not.
- l. Reference RTO Study Appendix B. Identify the implementation costs when the Companies first integrated into MISO and state whether the costs were more or less than the amount assumed in the study (adjusted for inflation).
- m. Identify the amount of demand response the Companies have on their systems or otherwise in their territory. Further, state whether and how the

Companies have accounted for the benefits of these resources. If the Companies have not accounted for the benefits of these resources, explain why not.

- n. Reference RTO Study, Appendices B and C. For the Companies' analyses, state the costs that are considered as sunk costs and state the costs that are considered variable costs.
19. Reference RTO Study. Provide any scenarios and/or the results of any scenarios that the Companies produced and/or ran but did not include in the published/reported RTO study. For any such scenarios, explain why the information was not published or reported in the RTO Study.
20. Reference RTO Study. Provide a detailed table of benefit and costs considered by the Companies in the RTO Study, the best estimates of these quantities, and identify the quantities included and not included in the analysis with the corresponding reason(s) for inclusion or non-inclusion.
21. Reference RTO Study, Appendices B and C. Did the Companies request assistance or guidance from MISO and/or PJM in developing the Companies' model or estimates of production cost savings and/or capacity revenue resulting from joining the RTO? If yes, provide a detailed narrative of the Companies' request and fully discuss the assistance or guidance provided. Include in the response pertinent correspondence and any documents, analyses, or reports exchanged. If no request for assistance was made by the Companies, explain why not.
22. Reference RTO Study, Appendix B. Did the Companies request assistance or guidance from MISO and/or PJM in developing and/or reviewing integrations costs? If yes, provide a detailed narrative of the Companies' request and fully discuss the assistance or guidance provided. Include in the response pertinent correspondence and any documents, analyses, or reports exchanged. If no request for assistance was made by the Companies, explain why not.
23. Reference RTO Study, Appendix B. How have the Companies addressed any uncertain integration, administration, uplift, and other costs, including uncertainty in the estimate for the cost and/or uncertainty in whether the cost is required? Include in the response a discussion of whether the Companies requested assistance or guidance from MISO and/or PJM in developing or obtaining estimates and the results of the request(s). If no request for assistance was made by the Companies to MISO and/or PJM for uncertain integration costs, explain why not.
24. Reference RTO Study, Section 7.5 In lieu of speculating whether the Companies would lose Joint Party settlement revenue, did the Companies ask or attempt to negotiate with MISO and/or PJM concerning potentially favorable membership terms? Provide all correspondence with MISO and/or PJM relevant to the Companies' efforts in evaluating RTO membership. If the Companies did not ask or attempt to negotiate with MISO and/or PJM, fully explain why not.

25. Reference the RTO Study. For the Companies' withdrawal from MISO, please answer the following:
- a. Identify the date upon which the Companies decided to withdraw from MISO.
 - b. From the date of the Companies' decision to withdraw from MISO, state the amount of time it took to complete the withdrawal and identify the end date or completion date of the withdrawal.
 - c. What were the direct expenses associated with the withdrawal from the date of the decision to withdraw to the completion date of the withdrawal (the costs that would not have been incurred by the Companies "but for" the withdrawal)?
 - d. State how the volume of wholesale trades changed upon the Companies' withdrawal from MISO.
26. Reference the RTO Study. Explain whether and how the Companies currently participate in MISO and/or PJM markets. Include in the explanation an identification of the benefits for the Companies and how these benefits are shared with the Companies' shareholders and customers, such as through allocation percentages of off-system sales, etc.
27. Reference the RTO Study. For the Companies' participation in MISO and/or PJM markets, provide the following:
- a. Identify the analytical tools or resources used in support of the participation and identify their costs.
 - b. Identify the staff time used in support of the participation and identify the cost.
 - c. Identify the training necessary to participate in these markets and identify the corresponding cost of training.
 - d. Identify the estimated incremental or net increase in effort and costs for each of the above sub-parts, a., b., and c., associated with the Companies' full participation in each RTO, stated separately for each RTO.
28. Reference the RTO Study. Under the assumption that the Companies will be short on capacity in 2028 by reference to the anticipated retirements, state the amount of time it would take for the Companies to study and prepare for joining an RTO versus other means of addressing a potential capacity shortfall in six (6) years. Include in the discussion the last date upon which the Companies could begin studying and preparing for joining an RTO in order to use the option for addressing a capacity shortfall in 2028.
29. Reference the RTO Study. Have the Companies studied or otherwise analyzed other electric utilities in Kentucky that are members of an RTO concerning the costs and benefits of the utility's RTO membership? If yes, provide the results of

the studies or analyses. Include in the response any correspondence between the Companies and any of these utilities.

30. Reference the RTO Study. For each electric utility in Kentucky, by utility, that is a member of an RTO, state the reason(s) or factor(s), that the Companies identify as distinguishing that utility's costs and benefits from participation in an RTO as differing from the Companies' costs and benefits from participation in the same RTO.
31. Reference the RTO Study. Are the Companies aware of any efforts by other electric utilities in Kentucky with membership in an RTO to withdraw from the RTO? If yes, provide a description of the efforts known to the Companies.
32. Reference the RTO Study. Have the Companies obtained an RTO membership study performed by or on behalf of any other electric utility in Kentucky that is a member of an RTO. If yes, identify the utility and provide the study.
33. Reference the Companies' System Average Interruption Duration Index ("SAIDI"), RTO Study Figure 9 and surrounding text pp. 18-19:
 - a. Is the Companies' calculation of their SAIDI consistent with how other utilities mentioned in the report calculate SAIDI? If no, explain why not and identify the differences in calculation.
 - b. What percentage of the failures included were due to distribution system issues versus generation inadequacy or transmission system failures? (State each percentage separately.)
 - c. Describe how the results would differ if the Companies did not exclude Major Event Days (such as a severe wind or ice storm)? If the Companies did exclude the Major Event Days, please provide adjusted graphs that reflect the inclusion of Major Event Days.
 - d. Explain why the Companies exclude Major Event Days.
34. Reference the Companies' Equivalent Forced Outage Rate ("EFOR") and Equivalent Unplanned Outage Rate ("EUOR"), RTO study Figures 6 and 7 and surrounding text, page 16:
 - a. How do the Companies calculate EFOR?
 - b. How do the Companies calculate EUOR?
 - c. Is the Companies' calculation of EFOR and EUOR consistent with how Reliability First Corporation ("RFC") (as mentioned in the report) calculated EFOR and EUOR? If not, explain why not and identify the differences in calculation.
 - d. Explain why only CC and Steam units are included?
 - e. Describe how the results would differ if the Companies included all units. Include with the response to this sub-part a quantification of the difference in results.