

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

**In the Matter of:** )  
)  
**ELECTRONIC JOINT 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-** )  
**FIREED GENERATING UNIT** )  
**RETIREMENTS** )

**CASE NO. 2022-00402**

**SIERRA CLUB’S RESPONSES TO COMMISSION STAFF’S FIRST REQUEST FOR  
INFORMATION TO SIERRA CLUB**

Sierra Club submits these responses to the Joint Data Requests of Kentucky Utilities Company and Louisville Gas and Electric Company.

Dated: August 4, 2023

*Of counsel*  
(not licensed in Kentucky)

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Respectfully submitted,

/s/ Joe F. Childers

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## **CERTIFICATE OF SERVICE**

This is to certify that the foregoing copy of Sierra Club's response to the Joint Data Requests of Kentucky Utilities Company and Louisville Gas and Electric Company is being electronically transmitted to the Commission on August 4, 2023; and that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding.

/s/ Joe F. Childers  
JOE F. CHILDERS

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**CASE NO. 2022-00402**

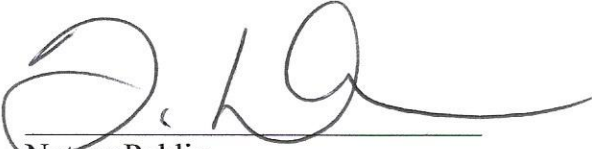
**AFFIDAVIT OF MICHAEL GOGGIN**

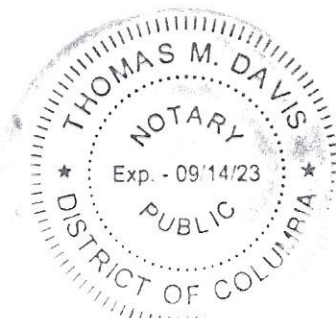
District of )  
Columbia )

Affiant Michael Goggin, being duly sworn, states that he has personal knowledge of the matters set forth in the following responses to the Joint Data Requests of Kentucky Utilities Company and Louisville Gas and Electric Company, and that the answers contained therein are true and correct to the best of his knowledge, information, and belief.

  
\_\_\_\_\_  
Michael Goggin

Subscribed and sworn before me on this 4 day of August, 2023.

  
\_\_\_\_\_  
Notary Public



**COMMONWEATH OF KENTUCKY**  
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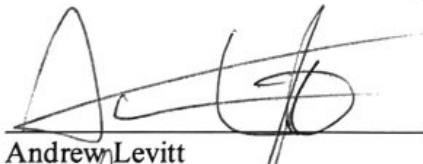
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**CASE NO. 2022-00402**

**AFFIDAVIT OF ANDREW LEVITT**

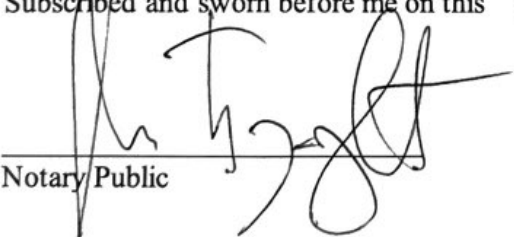
STATE OF Illinois )  
~~Commonwealth of~~ )  
~~Pennsylvania~~ )  
COUNTY OF Clark )

Affiant Andrew Levitt, being duly sworn, states that he has personal knowledge of the matters set forth in the following responses to the Joint Data Requests of Kentucky Utilities Company and Louisville Gas and Electric Company, and that the answers contained therein are true and correct to the best of his knowledge, information, and belief.

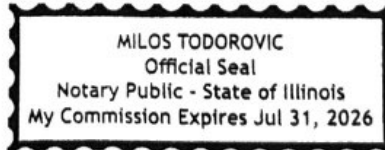


Andrew Levitt

Subscribed and sworn before me on this 4 day of August, 2023.



Notary Public



**Kentucky Utilities Company and  
Louisville Gas and Electric Company  
Case No. 2022-00402  
Sierra Club Response to  
KU and LG&E Data Requests**

**Request:**

General: All Witnesses

1. In Excel spreadsheet or other format, with all formulas, columns and rows unprotected and fully accessible, please provide all workpapers and source documents not previously provided.

**Response:**

Please see the workpapers provided under separate cover. For source documents, please see footnotes and references included in Mr. Goggin's and Mr. Levitt's direct testimony, or cited directly in the workpapers.

**Kentucky Utilities Company and  
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Case No. 2022-00402  
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**Request:**

Witness: Michael Goggin

2. Please provide a complete copy of all testimony (including transcripts of live testimony), interviews, articles, publications, or any other public writings or statements of any kind in which Mr. Goggin supported or advocated for any entity's construction or acquisition of any fossil-fuel fired electric generating unit. If a transcript of relevant live testimony, an interview, or other public non-written statement is unavailable, please provide a link to where the video may be found.

**Response:**

Sierra Club objects to this request as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence, because other entities' construction and acquisition of fossil fuel-fired electric generating units is not at issue in these proceedings. Subject to and without waiving said objection, Mr. Goggin does not recall advocating for any entity's construction or acquisition of any fossil fuel-fired electric generating unit.

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**Request:**

Witness: Michael Goggin

3. Please see Mr. Goggin's testimony at pages 16-18. Please confirm that the demand and net import data shown and discussed is for the LGEE balancing area and is not data for only LG&E and KU. If not confirmed, please explain in detail.

**Response:**

Confirmed. The EIA Form 930 data used in this analysis is for the LGEE Balancing Authority Area.

**Kentucky Utilities Company and  
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**Request:**

Witness: Michael Goggin

4. Please confirm that Mr. Goggin has not conducted an analysis to determine whether importation of power during peak periods is a less costly alternative to the Companies' proposal to meet future demand. If not confirmed, please provide all documents and workpapers supporting or reflecting Mr. Goggin's analysis.

**Response:**

Confirmed.



**Kentucky Utilities Company and  
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**Request:**

Witness: Michael Goggin

5. Please refer to Mr. Goggin's testimony on page 26 discussing the winter peak performance of solar resources. Please state whether Mr. Goggin performed an analysis of the Companies' own solar resources during Winter Storm Elliott and, if so, summarize the results of that analysis in terms of capacity value and contribution to meeting demand during peak hours.

**Response:**

As noted in Mr. Goggin's testimony, the Companies' existing solar fleet operated at a 20-40% capacity factor during morning peak periods on both December 23 and December 24, 2022. Mr. Goggin did not perform an analysis of the Companies' own solar resources during Winter Storm Elliott because the performance of the Companies' solar resources during Winter Storm Elliott does not provide a sufficiently large dataset to calculate a capacity value, though Mr. Goggin notes that the capacity factor of resources during peak demand periods often approximates their capacity value.

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**Request:**

Witness: Michael Goggin

6. See Mr. Goggin's testimony at pages 30-31 concerning the capacity value of conventional generators. What does Mr. Goggin believe is the seasonal capacity value reduction to apply to the Companies' existing conventional generating resources?

**Response:**

Mr. Goggin believes that performance during Winter Storm Elliott suggests the winter capacity value of the Companies' existing gas generators is 26-35% below their net maximum winter capacity, while the winter capacity value of the Companies' existing coal generators is 17-19% below their net maximum winter capacity.

**Kentucky Utilities Company and  
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Case No. 2022-00402  
Sierra Club Response to  
KU and LG&E Data Requests**

**Request:**

Witness: Michael Goggin

7. Assuming the Companies retire the seven conventional generating units for which they have requested retirement authority in this proceeding, what will the Companies' capacity need be in 2028 based on the capacity values Mr. Goggin discusses for conventional units at pages 30-31 of his testimony (absent the Companies' proposed resource additions)?

**Response:**

Mr. Goggin has not conducted this analysis.

**Kentucky Utilities Company and  
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Case No. 2022-00402  
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**Request:**

Witness: Michael Goggin

8. See generally Mr. Goggin's testimony at pages 38-43 concerning the value of lost load. Can the value of lost load be greater than energy market price caps? Please explain your answer and the reasoning for it in detail.

**Response:**

Mr. Goggin responds: Yes, the value of lost load can be greater than energy market price caps, though the point Mr. Goggin is making by discussing the MISO and PJM price caps in his testimony is that those price caps effectively set a ceiling on the price at which the Companies could buy power during a shortfall, and those caps are around 1/6 as high as the Companies' assumption for how high prices could go.

**Kentucky Utilities Company and  
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**Request:**

Witness: Andrew Levitt

9. Please provide a complete copy of all testimony (including transcripts of live testimony), interviews, articles, publications, or any other public writings or statements of any kind in which Mr. Levitt supported or advocated for any entity's construction or acquisition of any fossil-fuel fired electric generating unit. If a transcript of relevant live testimony, an interview, or other public non-written statement is unavailable, please provide a link to where the video may be found.

**Response:**

Sierra Club objects to this request as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence, because other entities' construction and acquisition of fossil fuel-fired electric generating units is not at issue in these proceedings. Subject to and without waiving this objection, Mr. Levitt has not supported or advocated for any entity's construction or acquisition of any fossil fuel-fired electric generating unit.

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**Request:**

Witness: Andrew Levitt

10. Please explain why Mr. Levitt computed the Companies' capacity need as PJM members using a 14.7% reserve margin and ICAP capacity values rather than PJM's Performance Based Regulation and UCAP?
- a. What is the Companies' capacity need based on the process PJM currently uses?
  - b. What is the Companies' capacity need based on the capacity values Mr. Goggin discusses for conventional units at pages 30-31 of his testimony?
  - c. As the Companies consider RTO membership, is it reasonable to assess their capacity need based on these capacity values? Please explain why or why not.
  - d. What is PJM's final reserve margin following the 2023/2024 Base Residual Auction? Why does Mr. Levitt's capacity need analysis not incorporate this reserve margin?
  - e. PJM has proposed running an hourly loss of load model in the 2023 Reserve Requirement Study. Does the target reserve margin used in Mr. Levitt's analysis reflect this? If not, how would using an hourly loss of load model impact Mr. Levitt's capacity need analysis and PJM's target reserve margin going forward?
  - f. PJM has proposed expanding their weather history in reliability modelling to 50 years versus the current 28 years. How would implementing this change impact PJM's target reserve margin and Mr. Levitt's capacity need analysis?

**Response:**

Mr. Levitt calculated the Companies' capacity surplus (or need) in both ICAP terms (in Table 3, row 14) and UCAP terms (in Table 4, line 10).

- a. See Table 4, row 10.
- b. Mr. Levitt has not performed that analysis.
- c. Mr. Levitt responds: PJM uses UCAP metrics as the primary units to calculate reliability requirements and accredit resources towards those requirements. PJM and resource owners also measure and track ICAP metrics as the most directly measurable resource capability ratings, that are used for certain steps in capacity market accreditation and for other purposes such as for seasonal reliability assessments. It is therefore reasonable to assess the Companies' capacity needs using both UCAP and ICAP metrics, as long as the assessment is reported accurately and considered in the proper context. Table 4, row 9 ("Conversion of ICAP Shortfall/Excess to UCAP") is the difference in resource needs assessment between ICAP and UCAP methods. It shows that the difference by approach ranges from 54 to 141 MW when measuring the Companies' overall resource needs.
- d. Sierra Club objects to this request insofar as this information about PJM's final reserve margin following the 2023/2024 Base Residual Auction is publicly available and equally accessible to LG&E/KU. Subject to and without waiving that objection, the final cleared

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ICAP-based reserve margin following the 2023/2024 Base Residual Auction was 20.3%.<sup>1</sup> Mr. Levitt's capacity need analysis assumes that future auctions will clear at PJM's target reserve margin, which is 14.7% for 2024/2025 and later.<sup>2</sup> In years with larger purchases from the PJM capacity market, such as Mr. Levitt's analysis anticipates in the 2030s, a scenario like PJM's current surplus of capacity relative to target creates a more economically advantageous opportunity to the Companies compared to the analysis Mr. Levitt has presented. Under a long capacity scenario, the Companies would be able to procure any future capacity needs at low prices (as low as \$34.13/MW-day as of the 2023/2024 auction), or only 39% to 52% of the capacity price Mr. Levitt has assumed in his analysis in the 2030s.

- e. No. Shifting to a new hourly model would likely change PJM's UCAP reserve margin and therefore the capacity needs analysis. It is not possible to predict how using an hourly loss of load model would impact capacity needs without running a similar model.
- f. Mr. Levitt did not perform the modeling necessary to answer this question.

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<sup>1</sup> PJM, "[2023/2024 RPM Base Residual Auction Results](#)", June 21, 2022.

<sup>2</sup> PJM, "[2022 Reserve Requirement Study](#)", October 4, 2022

**Kentucky Utilities Company and  
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Witness: Andrew Levitt

11. Page 2, line 49 states that Mr. Levitt's assessment of the Companies' RTO Study is "preliminary." Please state whether and when it will be final and how a final assessment will be provided in this matter in accordance with the existing procedural schedule.

**Response:**

Mr. Levitt's assessment of the RTO Study is final. The word "preliminary" is used here to indicate that the RTO Study does not explain the underlying reasons for its primary conclusions, and, for that reason, Mr. Levitt is also unable to offer an explanation of the RTO Study's outlier conclusions.



**Kentucky Utilities Company and  
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Sierra Club Response to  
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Witness: Andrew Levitt

12. Please refer to page 28, Section II.E. Assume PJM's recently proposed seasonal capacity approach is final, fully approved, implemented, and in effect as proposed as of the date of your response. Please identify all tables and figures in Mr. Levitt's testimony that would need to be revised under that assumed scenario and please provide those revised tables and figures.

**Response:**

Such revision would change the PJM reserve margin (among other things), and therefore Mr. Levitt's analytical results would change (in particular, Figures 2, 5, and 6, and Tables 1-4). Since the proposal for revisions has not been finalized, the new reserve margins (and other inputs) do not yet exist, so it is not possible to revise the tables and figures at this time.

**Kentucky Utilities Company and  
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Case No. 2022-00402  
Sierra Club Response to  
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**Request:**

Witness: Andrew Levitt

13. Please explain whether the final reforms produced by the ongoing Critical Issue Fast Path (CIFP) process alter Mr. Levitt's recommendation to join PJM.

**Response:**

The Critical Issue Fast Path process is ongoing, and there is not yet a final reform proposal. Based on PJM's draft proposal presented on July 27, 2023, Mr. Levitt's recommendation to join PJM is not altered.

**Request:**

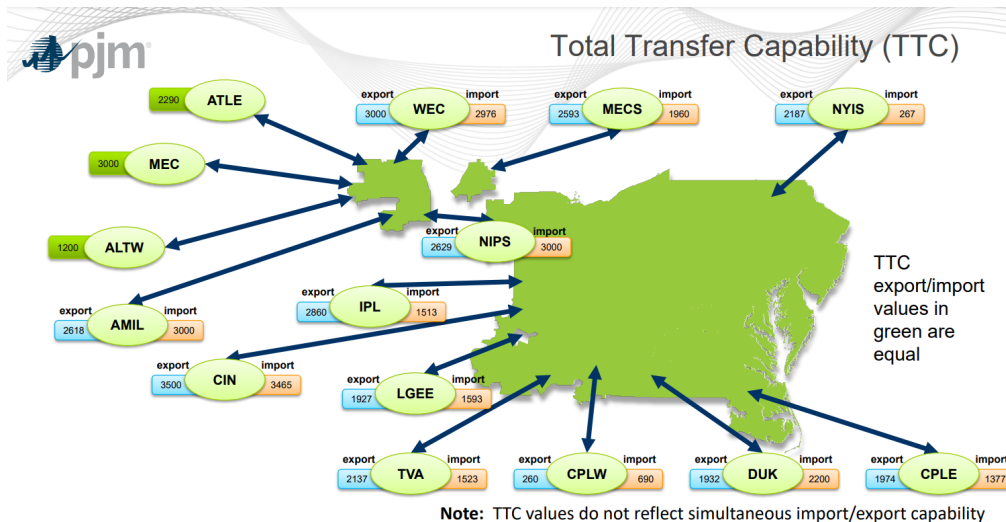
Witness: Andrew Levitt

14. Page 18, line 227 states the model LG&E-KU uses to select a target installed reserve margin model includes relatively little import capability. Given that PJM curtailed firm and non-firm exports to LGE/KU during Winter Storm Elliott on the 23<sup>rd</sup> and 24<sup>th</sup> of December 2022, is this not a reasonable assumption? Please explain your response in detail.

- a. Please explain whether the curtailment of PJM exports to LGE-KU during Winter Storm Elliott affects Mr. Levitt’s recommendation to reduce LGE- KU’s winter reserve margin and join PJM.

**Response:**

No, this is not a reasonable assumption. PJM is obligated to prioritize serving RTO-internal load during system emergencies. If LG&E-KU were to join PJM, it would be RTO-internal load, and so would be treated with higher priority than historically (i.e., during Winter Storm Elliott). Under PJM-internal treatment, LG&E-KU would enjoy prioritized access to reliability dispatch from resources across the full PJM footprint utilizing the full transmission capability between PJM and LG&E-KU, which would tend to improve reliability. PJM states that there is 1,927 MW of Total Transfer Capability between PJM and LG&E-KU as illustrated below.<sup>3</sup>



<sup>3</sup> PJM, “[Data Analysis](#),” August 27, 2021.

**Kentucky Utilities Company and  
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- a. No, this does not affect Mr. Levitt's recommendation.