COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF KENTUCKY UTILITIES COMPANY AND LOUISVILLE GAS AND ELECTRIC COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY AND SITE COMPATIBILITY CERTIFICATES	**)**	**CASE NO. 2025-00045**

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

DATED MARCH 27, 2025

FILED: April 17, 2025

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Senior Vice President Engineering and Construction for PPL Services Corporation and he provides services to Louisville Gas and Electric Company and Kentucky Utilities Company, 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.

Lonnie E. Bellar

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 10th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

CAROLINE J. DAVISON
NOTARY PUBLIC
ID # KYNP63286
STATE AT LARGE, KENTUCKY
COMM EXPIRES 01/22/2027

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **John Bevington**, being duly sworn, deposes and says that he is Senior Director – Business and Economic Development for PPL Services Corporation and he provides services to Louisville Gas and Electric Company and Kentucky Utilities Company, 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.

John Bevington

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 9th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Robert M. Conroy**, being duly sworn, deposes and says that he is Vice President, State Regulation and Rates, for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, 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.

Robert M. Conroy

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 9th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Christopher M. Garrett**, being duly sworn, deposes and says that he is Vice President – Financial Strategy & Chief Risk Officer for PPL Services Corporation and he provides services to Kentucky Utilities Company and Louisville Gas and Electric Company, 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.

Christopher M. Garrett

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 14th day of April 2025.

Notary Public

Notary Public ID No. KYNP61560

My Commission Expires:

November 9, 2026

TAMMY J. ELZY
NOTARY PUBLIC
ID # KYNP61560
STATE AT LARGE, KENTUCKY
COMM EXPIRES 11/09/2026

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Philip A. Imber**, being duly sworn, deposes and says that he is Director – Environmental Compliance for PPL Services Corporation and he provides services to Louisville Gas and Electric Company and Kentucky Utilities Company, 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 10th day of April 2025.

Caroline J. Davison

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

CAROLINE J. DAVISON
COMM EXPIRES 01/22/2027
NOTARY PUBLIC
ID # KYNP63286
STATE AT LARGE, KENTUCKY

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Lana Isaacson**, being duly sworn, deposes and says that she is Manager – Energy Efficiency Programs for LG&E and KU Services Company, and that she has personal knowledge of the matters set forth in the responses for which she is identified as the witness, and the answers contained therein are true and correct to the best of her information, knowledge, and belief.

Lana Isaacson

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 9th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

CAROLINE J. DAVISON
COMM EXPIRES
01/22/2027
NOTARY
PUBLIC
ID # KYNP63286
STATE AT LARGE, KENTUCKY

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Tim A. Jones**, being duly sworn, deposes and says that he is Senior Manager – Sales Analysis and Forecasting for LG&E and KU Services Company, 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.

Tim A. Jones

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

CAROLINE J. DAVISON
COMM. EXPIRES 01/22/2027
NOTARY PUBLIC
ID # KYNP63286
STATE AT LARGE, KENTUCKY

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Charles R. Schram**, being duly sworn, deposes and says that he is Vice President –Energy Supply and Analysis for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, 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.

Charles R. Schram

Charles R. Schram

Subscribed and sworn to before me, a Notary Public in and before said County and State this 16th day of April 2025.

Caroline J. Davison

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **David L. Tummonds**, being duly sworn, deposes and says that he is Senior Director - Project Engineering for LG&E and KU Services Company, 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.

David L. Tummonds

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 16th day of April 2025.

Notary Public

Notary Public, ID No. KYNP45977

My Commission Expires:

April 1, 2028

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Stuart A. Wilson**, being duly sworn, deposes and says that he is Director – Power Supply for LG&E and KU Services Company, 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.

Stuart A. Wilson

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 14th day of April 2025.

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 1

Responding Witness: Tim A. Jones / Stuart A. Wilson / John Bevington

Q-1. Refer to the Direct Testimony of Tim Jones (Jones Direct Testimony), page 3, lines 15–19. Refer also to Case No. 2024-00326,[2] LG&E/KU's 2024 Joint Integrated Resource Plan, Volume 1, pages 5–1. Refer also to the Direct Testimony of Lonnie Bellar (Bellar Direct Testimony), page 3, lines 11–15.

a. Confirm whether LG&E/KU projected possible economic development load growth beyond 2032 in Case No. 2024-00326.

(1) If confirmed, provide a detailed discussion stating why LG&E/KU does not include economic development projections in the load forecast for this case beyond 2032. Include as part of the answer, a discussion regarding the 6,000 MW identified by Mr. Bellar of potential data center load and 2,000 MW of other potential economic development.

(2) If not confirmed, explain why not considering the cost of the request and the useful life of the generation units.

b. Explain, in detail, why LG&E/KU believes that its projections for economic load growth in this case are reasonable given its load forecast in Case No. 2024-00326.

c. Provide a detailed explanation of LG&E/KU's confidence in load forecasts modeling economic development beyond 2032; and give specific attention to the period between 2032 and 2039, the last year modeled in its 2024 IRP.

A-1.

a. Not confirmed.

[2] Case No. 2024-00326, *Electronic 2024 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company* (filed October 18, 2024).

(1) Not applicable.

(2) The Companies did not include additional economic development projects beyond 2032 to focus the portfolio planning analysis on resource decisions that must be made now to serve near-term economic development projects. If load increases more rapidly than the resources the Companies are requesting in this proceeding can accommodate or if additional economic development occurs beyond 2032, the Companies will need to consider additional means of meeting customers' needs, including possibly seeking authorization for additional resources in a subsequent CPCN.

b. Since Case No. 2024-00326 was filed, two large data centers have announced plans to locate in the Companies' service territories. The first is a 402 MW data center in Louisville on Camp Ground Road and the second is a recently publicized 600 MW data center in Oldham County (Project Lincoln: OC Data Center). These announcements have added more certainty to a significant portion of the economic development load forecast. In addition, the Companies continue to have conversations with additional potential new customers as well as existing customers who are considering expanding their operations. Based on these announcements and conversations, the level of economic development load in the 2025 CPCN Load Forecast is reasonable.

c. The flat economic development load growth assumption beyond 2032 is conservative and potentially too low. However, as noted above in the response to part (a)(2), the Companies made this assumption to focus the portfolio planning analysis on resources decisions that need to be made now.

KENTUCKY UTILITIES COMPANY
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 2

Responding Witness: Tim A. Jones

Q-2. Refer to the Jones Direct Testimony, page 31, line 16. Identify all non-solar distributed resources currently utilized by LG&E/KU customers. As part of the answer, include the number of customers for each non-solar distributed generation resource.

a. Provide the total, in MW, of all non-solar distributed generation currently utilized by LG&E/KU customers.

b. Explain the impact on the load forecast had LG&E/KU included non-solar distributed generation.

A-2.

a. The total installed capacity of all non-solar distributed generation resources of which the Companies are aware is 2.556 MW (2,556 kW), which comprises 10 wind installations, 1 hydroelectric installation, and 323 battery storage installations. The table below lists the non-solar distributed generation facilities currently in the service territory.

Source	Number of Installations	Connected kW	Month of Last Installation (as of December 2024)
Wind	10	25	Dec. 2018
Hydro	1	50	Aug. 2012
Battery	323	2,481	Dec. 2024

b. See the Jones Direct Testimony at pages 31-36. The adoption of non-solar distributed generation is implicitly included in the load forecast and is not expected to have a material impact on load.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 3

Responding Witness: Tim A. Jones

Q-3. Refer to the Jones Direct Testimony, page 46, lines 15–18.

a. Not counting the 1,750 MW included in LG&E/KU present case, explain how much of the remaining 4,000 MW of potential data center load is included in the 2025 load forecast.

b. If not included, explain at what stage in the process of locating in the LG&E/KU's service territory would the projected data center load be included on the load forecast.

A-3.

a. None of the remaining 4,000 MW of potential data center load is included in the forecast. See also the response to Question 17(a).

b. As noted in the response to Question No. 1(a), the load forecast in this proceeding reasonably accounts for currently announced and potential projects. If current and subsequent announcements account for a much larger share of the current outlook for economic development load growth (1,750 MW) and the remaining economic development load potential remains high, the Companies would likely increase their next load forecast and possibly seek authorization for an additional resource or resources in a subsequent CPCN.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 4

Responding Witness: Robert M. Conroy / Tim A. Jones

Q-4. Refer to the Jones Direct Testimony, page 38, lines 4–5. Explain how "continuous netting of usage and generation" is calculated.

A-4. "[I]nstantaneous netting of usage and generation" means every kWh that flows to the Companies' grid from a customer-generator is priced at the appropriate tariff compensation rate and credited to the customer-generator, and every kWh the customer consumes from the grid is priced at the applicable tariff rate and billed to the customer. This is the netting approach prescribed by KRS 278.465(4) and reflected in the Companies' Rider NMS-2 tariff provisions.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 5

Responding Witness: Robert M. Conroy / Lana Isaacson / Tim A. Jones

Q-5. Refer to the Jones Direct Testimony, page 41, lines 15–17.

a. Explain what incentives LG&E/KU has in place to induce Electric Vehicle (EV) owners to charge their vehicles at night but not during seasonal peak hours and whether the Companies consider the incentives sufficient to shift EV-owner charging behavior.

b. Refer also to the Jones Direct Testimony, page 42. Explain what "EV Managed Charging" means and whether this is a simplifying assumption for forecasting purposes.

A-5.

a. The Companies have residential time-of-use rates to encourage customers to change their consumption behaviors. These rates incentivize EV owners to charge their vehicles during the off-peak periods. Additionally, the Companies offer the Optimized EV Charging program to EV owners, which allows the Companies to modify the timing and rate of charging to shift load to off-peak peak periods. Customers that choose to participate are issued a one-time enrollment incentive of $25 for each EV and electric vehicle supply equipment they register and $5 for each month they remain enrolled in the program.

b. The Companies assume in the hourly load forecast process that some combination of rate design, smart charging technology, and other DSM programs such as those mentioned in the response to part (a) will be successful in shifting most EV charging away from the peak hours. "Managed charging" refers to what is described in the Jones Direct Testimony at page 41: "The Companies' load forecast assumes primarily overnight EV charging." If EVs are charged early in the evenings (e.g., when customers get home from work), EV charging could exacerbate summer and winter peak energy requirements and potentially create the need for additional peaking capacity or other load control programs.

KENTUCKY UTILITIES COMPANY
AND
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 6

Responding Witness: Tim A. Jones

Q-6. Refer to the Jones Direct Testimony, page 8, lines 3–16. Refer also to the Direct Testimony of John Bevington (Bevington Direct Testimony), Exhibit JB-2. The exhibit provides information regarding the economic impacts of data centers using the IMPLAN model. For the purposes of this request, exclude the temporary construction jobs represented by the 1,750 MWs from the projected data center projects, the projected permanent jobs and associated indirect or induced jobs that should translate into increases in residential and commercial customer energy and peak demand projections. Explain whether the effects of the projected permanent job increases are taken into account in the load forecast. If so, explain how.

A-6. These effects are not explicitly incorporated into the CPCN load forecast. In Case No. 2024-00326, the Companies considered the impact of stronger customer growth in the High load scenario. These indirect loads can be considered as upside uncertainty to the load forecast, but they are negligible when compared to the loads associated with the data centers themselves.

KENTUCKY UTILITIES COMPANY
AND
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 7

Responding Witness: Lonnie E. Bellar

Q-7. Refer to the Bellar Direct Testimony, page 3, lines 13–15 and the Direct Testimony of Stuart Wilson (Wilson Direct Testimony), Exhibit SAW-1, page 4. Explain whether LG&E/KU has sufficient space at its current generation locations for additional generation facilities if LG&E/KU was required to serve the entire 6,000 MW potential data center load and 2,000 MW potential "other" economic development projects in the Companies' economic development queue.

A-7. The Companies have sufficient space at currently-owned generation properties to construct the additional generation required to serve the noted additional load.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 8

Responding Witness: Lonnie E. Bellar / David L. Tummonds

Q-8. Refer to the Bellar Direct Testimony, page 7, lines 8–22 and page 8, lines 1–23. Explain whether either U.S. or foreign tariffs or the threat of tariffs has affected the timing and supply chain for components in any of LG&E/KU's current or planned construction projects.

A-8. To date, the Companies are not aware of any direct tariff-based impact on timing for current or planned construction projects. "Supply chain" in its broadest interpretation likely is impacted as the term naturally includes cost as a component part. Although the Companies have not seen direct proof of tariff-based impact on cost, the complex nature of and the worldwide procurement efforts associated with the noted construction projects may dictate that tariff discussion will have both direct and indirect impact on project costs. A number of the Companies' contract partners have expressed concern over potential impact, and the Companies will communicate regularly with all contractors to maintain awareness of the magnitude of these concerns as the contractors determine that magnitude.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 9

Responding Witness: Lonnie E. Bellar

Q-9. Refer to the Bellar Direct Testimony, page 5, lines 9–13 and page 11, lines 7–11. Explain whether the $25 million paid to General Electric (GE) for a "manufacturing slot" will be applied toward the final cost due for Brown 12. In the explanation, include what amount, if any, can be refunded if Brown 12 is not approved.

A-9. See the response to Question No. 34.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 10

Responding Witness: John Bevington

Q-10. Refer to the Bellar Direct Testimony, page 2, lines 12–14. Provide any studies or analyses conducted by LG&E/KU, or third parties which LG&E/KU reviewed or relied upon, that assess the long-term economic impact of the anticipated load growth and associated economic development projects on the Commonwealth of Kentucky.

A-10. The Companies reviewed the studies referenced in the testimonies of Messrs. Bevington and Jones. The Companies cited these studies as examples of the positives of this economic development occurring in Kentucky, which appear consistent with the General Assembly's stated aims regarding data centers.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 11

Responding Witness: David L. Tummonds

Q-11. Refer also to the Direct Testimony of Charles Schram (Schram Direct Testimony), page 13, lines 5–13.

a. Explain whether LG&E/KU are in queues for other generation equipment or components including labor and construction contractors who will eventually work on the projects represented by the total forecast load beyond the specific projects identified in this proceeding.

b. Explain the timeline for when LG&E/KU reserves slots in queues for generation component manufacturers, construction and labor contractors in order to complete the construction of the new generation facilities.

A-11.

a. To the extent this question intends to focus on the new generation facilities referred to in this case, the Companies' response to Question No. 34 represents the totality of queues for those facilities. However, beyond that, "in queues for other generating equipment" appears to reference all orders for material or labor not yet delivered and/or executed and "total forecasted load" appears to indicate inclusion of all equipment at each currently operating generating unit. If those interpretations are correct, the Companies are in the process of any number of "queues" for various generation work. The Companies are not in any queues for generation equipment or components related to generation beyond their existing resources, approved resources, or resources for which they are requesting approval in this case.

b. The Companies' response to Question No. 34 represents timelines for all "reserve slots" into which the Companies intend to enter to complete construction of the new generation facilities. Absent unforeseen market shifts, the Companies plan to contract all other services and materials directly – without the use of an intermediary reservation agreement – assuming EPC contracting is completed prior to required order of large transformers and switchgear.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 12

Responding Witness: Charles R. Schram

Q-12. Refer to the Schram Direct Testimony, page 14, lines 5–9. Without identifying colleagues in other utilities, explain further how the unforeseen challenges including, but not limited to, limits or changes to charging and discharging schedules identified in battery service contracts that could present problems for the plans for the efficient use of battery services.

A-12. The cited example of changes to permissible charging and discharging parameters potentially creates limitations to the planned use of the battery resource. Hypothetically, if a four hour discharge cycle was originally contemplated to discharge 80 percent of a battery's energy, a limitation to 60 percent would reduce the available energy over the four hour period by 20 percent of the planned amount. Such a reduction means that the battery is not delivering energy in accordance with the resource plan and that energy must now come from other system resources.

KENTUCKY UTILITIES COMPANY
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 13

Responding Witness: Charles R. Schram

Q-13. Refer to the Schram Direct Testimony, page 14, lines 13–16, and Table on page 16.

a. Explain whether the pumped storage hydro in the table is the same pumped storage hydro referenced on page 14.

b. Explain whether LG&E/KU would supply the energy necessary for the pumped storage hydro in the table to recharge. If so, explain whether the proposed cost is net of the cost to recharge the facility.

A-13.

a. Yes.

b. Yes, the Companies would supply the energy required to operate the facility, including recharging (pumping water to refill the reservoir), but the cost of this energy is not included in the referenced table's price.

KENTUCKY UTILITIES COMPANY
AND
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 14

Responding Witness: Charles R. Schram

Q-14. Refer to the Schram Direct Testimony, page 19, lines 12–18. Describe LG&E/KU's strategy for ensuring sufficient gas supply and transportation for the proposed natural gas combined cycle (NGCC) units.

A-14. Regarding the overall adequacy of gas supply, as noted in Mr. Schram's testimony, the U.S. Energy Information Administration stated in an April 2024 report that U.S. proved natural gas reserves recently set a new record, increasing 10% from 625.4 Tcf at year-end 2021 to 691.0 Tcf at year-end 2022.[2] The Companies anticipate using a combination of forward and spot purchases to meet gas supply needs and will modify existing gas procurement guidelines to continue to reduce price volatility and meet operational needs.

As for transportation, the Companies' current and potential pipeline suppliers indicate that firm transportation is currently available. However, the Companies will not enter into long-term commitments for gas supply or transportation prior to approval of this CPCN.

[2] Schram Direct at 20 ln. 1, fn. 19.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 15

Responding Witness: Stuart A. Wilson

Q-15. Refer to the Wilson Direct Testimony, Exhibit SAW-1, page 45. Explain whether the current estimated completion cost for the Cane Run Battery Energy Storage System (BESS) includes investment tax credits (ITC) through the Inflation Reduction Act (IRA). If so, provide the estimated cost of completion excluding ITC.

A-15. The Companies assume the Commission is referencing the costs in Table 22 on page 45. These costs do not reflect the ITC, but the ITC is reflected in the Companies' financial analysis.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 16

Responding Witness: Lana Isaacson

Q-16. Refer to the Wilson Direct Testimony, Exhibit SAW-1. Provide the 2024-2030 DSM-EE Plan.

A-16. The 2024-2030 DSM-EE Plan is Exhibit JB-1 to the Direct Testimony of John Bevington in Case No. 2022-00402.[3]

[3] *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*, Case No. 2022-00402, Direct Testimony of John Bevington, Exhibit JB-1 (Ky. PSC filed Dec. 15, 2022), *available at* https://psc.ky.gov/pscecf/2022-00402/rick.lovekamp%40lge-ku.com/12152022012325/19-Bevington_Direct_Testimony_2022-00402.pdf.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 17

Responding Witness: John Bevington / Tim A. Jones

Q-17. Refer to the Wilson Direct Testimony, page 4, lines 7–9, and page 5, line 12. Given the anticipated 1,750 MW of data center load, LG&E/KU have identified the 402 MW Camp Ground Road data center only.

a. Identify the individual data center projects comprising the remaining 1,348 MW of data center project load.

b. Explain whether all the projects represented by the 1,750 MW will be located in Jefferson County, Kentucky. If not, explain the tentative location of the projects.

c. Explain whether any of the projects have net-zero emissions or other sustainability goals.

A-17.

a. The 1,750 MW of data center load included in the 2025 CPCN Load Forecast does not consist of specific data center projects; rather, it is a reasonable estimate of how much of the more than 6,000 MW of potential data center load in the Companies' current queue will come to fruition in the near term. As mentioned in the response to Question No. 1(b), there are currently about 1,000 MW of announced data center projects in the Companies' service territories: the 402 MW Camp Ground Road data center in Jefferson County and the 600 MW Project Lincoln: OC Data Center in Oldham County.[4]

[4] *See, e.g.*, Green, Marcus, "Developers unveil plans for large tech data center in Louisville, the 1st of its kind in Kentucky," WDRB (Jan. 16, 2025), available at https://www.wdrb.com/in-depth/developers-unveil-plans-forlarge-tech-data-center-in-louisville-the-1st-of-its-kind/article_e7adef68-c92f-11ef-b262-bf1780db36c6.html (accessed Apr. 1, 2025); Gerstner, Grant, "$6 billion OC Data Center planned on Highway 53," *The Oldham Era* (Mar. 28, 2025), available at https://www.pmg-ky1.com/oldham_era/news/6-billion-oc-data-center-planned-on-highway-53/article_af7b318a-fb9e-58fb-9b6f-c86c63b14f4d.html (accessed Apr. 1, 2025); Wood, Josh, "$6 billion data center planned for

b. See the response to (a). The Companies modeled 1,400 MW of data center load locating in LG&E's service territory and 350 MW locating in KU's service territory; they did not forecast or model on a county-by-county basis. As noted in (a), of the two recently announced data centers with a combined load of about 1,000 MW, 600 MW are being planned outside Jefferson County. Also, of the 18 data center projects currently in the Companies' economic development queue, nine are considering locations outside Jefferson County. That, coupled with the General Assembly's recent statutory amendment to expand data center tax incentives beyond Jefferson County to all of Kentucky,[5] demonstrate the reasonableness of the Companies' assumptions.

c. See the response to (a). The Companies are unaware of the data center projects in their economic development queue having any such goals; whether the eventual tenant(s) of those data centers might have such goals is uncertain. Gaining access to generation and transmission capacity as soon as possible have been the primary concerns expressed to the Companies in data center-related discussions to date.

Oldham County in investment that could rival BlueOval," Louisville Courier-Journal (Mar. 29, 2025), available at https://www.courier-journal.com/story/news/local/2025/03/29/6-billion-project-lincoln-oc-data-center-planned-for-oldham-county-kentucky/82718839007/ (accessed Apr. 3, 2025).

[5] Section 34 of 2025 H.B. 775 amended KRS 154.20-220(17), which defines "qualified data center project," to remove part (c), which effectively limited the scope of the definition to data centers in Jefferson County. Available at https://apps.legislature.ky.gov/recorddocuments/bill/25RS/hb775/bill.pdf. (2025 Ky. Acts 98.)

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Question No. 18

Responding Witness: John Bevington

Q-18. Refer to the Bevington Direct Testimony, page 13, lines 6–22 and page 14, lines 1–10.

a. Explain whether any of the companies represented by the remaining 4,000 MW of potential data center load have signed transmission service requests (TSRs) with LG&E/KU and, if so, the number of MW those project TSRs represent.

b. Explain whether any of the companies represented by the remaining 4,000 MW of potential load have authorized an engineering study to determine the upgrades or modifications to the transmission system necessary to accommodate the TSR and if so, the number of potential MW represented by those project engineering studies.

c. Of the companies represented by the 1,750 MW of data center load in the current proceeding, explain what stage in the process of locating in the Companies service territory each company has completed and what steps are left to be completed. In this explanation, include which have signed TSR and explain which have authorized an engineering study to determine the upgrades or modifications to the transmission system necessary to accommodate the TSR.

A-18.

a. See the response to Question No. 17(a). There are currently 18 data center projects active in the Companies' development pipeline with a total potential load of 6,017 MW. The Companies have submitted five TSRs for those projects, which have a combined load of 1,252 MW.

For clarity, developers do not sign TSRs. After discussing the project with the potential customer, the Companies submit a TSR for the potential load to TranServ, which is the Companies' Independent Transmission Organization. The TSR review process consists of two primary phases: (1) the system impact study and (2) the facilities study. The potential customer

covers the cost of both studies performed to review the TSR, which is approximately $50,000.

b. See the response to part (a).

c. See the response to Question No. 17(a). That notwithstanding, below is an explanation of the Companies' five economic development project stages, the number of projects in each phase, and how many TSRs the Companies have submitted for the projects in each stage.

"Inquiry" indicates a request for high-level information, may involve a few meetings, and is generally in the early stages of evaluation. Currently there are five projects in this stage, representing 1,630 MW of peak demand. The Companies have not submitted a TSR for any of these projects.

"Suspect" indicates that there is a likelihood of, or evidence of, continued follow up. The project is likely engaged in continued information exchange and is on the verge of more formal processes and information exchange. There are six projects in this stage, representing nearly 1,785 MW of peak demand. The Companies have not submitted a TSR for any of these projects.

"Prospect" indicates very regular exchange of information, more detailed evaluation of a site and site characteristics that likely include detailed evaluation of infrastructure capabilities and capacities, costs of doing business, in-person site visits, and incentive negotiation. There are currently six projects in this stage, representing 2,200 MW of peak demand. The Companies have submitted three TSRs for two projects in this stage.

"Imminent" indicates a high probability for the project to announce and locate in the Companies' service territory. An imminent project likely has all the information necessary from the Companies and the state and local communities to make a decision and may only be finalizing its own business plan or internal processes before proceeding. There is currently one project in this stage, representing 402 MW. The Companies have submitted two TSRs for this project.

"Announced" means projects have made a formal public decision to locate in the Companies' service territory and have signed a contract for electric service. There are currently no projects in this phase.

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Question No. 19

Responding Witness: Lonnie E. Bellar / Charles R. Schram

Q-19. Refer to the Wilson Direct Testimony, Exhibit SAW-1, page 22. Explain whether LG&E/KU plans to renew or is in discussions regarding the Inter-Company Power Agreement (ICPA) with OVEC.

A-19. The Companies are not in discussions to renew or modify the ICPA with OVEC.

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Question No. 20

Responding Witness: Stuart A. Wilson

Q-20. Refer to the Wilson Direct Testimony, Exhibit SAW-1, page 26 and pages 50-51 related to the use of U.S. Energy Information Administration's 2023 Annual Energy Outlook's (AEO2023).

a. Identify other natural gas price forecasting indexes considered by LG&E/KU. Explain why LG&E/KU did not utilize each identified resource.

b. Explain whether, other than adjusting for inflation, LG&E/KU made any changes to the 2023 Annual Energy Outlook (AEO) Reference case when creating its gas price scenarios.

c. Explain why LG&E/KU chose to use the AEO2023 reference case rather than any of the side cases.

d. Explain whether LG&E/KU plans to update its natural gas price forecasts once the AEO is released in Spring 2025.

A-20.

a. The Companies did not consider other sources of natural gas prices. The EIA's AEO forecasts reflected a sufficiently broad range to provide a reasonable set of price forecasts.

b. See Section 6.6.2.1, p. 50 of Exhibit SAW-1 to the Direct Testimony of Stuart A. Wilson, which notes that the Companies interpolated between market prices and the end point of the AEO Reference Case.

c. See Section 6.6.2.1, pp. 50-51 of Exhibit SAW-1 to the Direct Testimony of Stuart A. Wilson, which notes that the High Gas case was based on the EIA's AEO2023 Low Oil and Gas Supply case and the Low Gas case was based on EIA's AEO2023 High Oil and Gas Supply case.

d. The Companies do not expect the EIA's 2025 price range to be materially different and therefore do not plan to update the gas price forecasts used in this proceeding. The Companies' analysis demonstrates the proposed resources, in concert with the Companies' approved resource portfolio, will reliably and economically serve current and new customers across a broad range of gas price scenarios.

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Question No. 21

Responding Witness: Stuart A. Wilson

Q-21. Refer to the Wilson Direct Testimony, Exhibit SAW-1, page 33. Explain why LG&E/KU modeled the addition of one simple cycle combustion turbine (SCCT) in 2040.

A-21. The Companies' Inter-Company Power Agreement with OVEC ends in 2040, and an SCCT is added in 2040 in all scenarios to replace the OVEC capacity. As shown in Tables 36-40 in Section 8.2 of Exhibit SAW-1, PLEXOS builds an SCCT in the majority (17 of 25) of resource plans. The Companies modeled the same replacement resource for OVEC in all scenarios to ensure the 2040 resource assumption has no effect on the analysis of resource decisions that must be made today.

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Question No. 22

Responding Witness: Stuart A. Wilson

Q-22. Refer to the Wilson Direct Testimony, page 13, lines 2–7 and Appendix D to Exhibit SAW-1 generally.

a. Explain the how loss of load expectation (LOLE) and loss of load hours (LOLH) are used to measure reliability.

b. Explain whether LG&E/KU have examined the use of LOLH in its reliability analyses and, if so, how those results compared to the use of LOLE.

A-22.

a. LOLE and LOLH are measures of the number of days and hours, respectively, with unserved energy. For both measures, higher values reflect a less reliable generation portfolio. The Companies focused on LOLE in their Resource Assessment to ensure the reliability of their recommended portfolio is aligned with the industry LOLE standard of one day in ten years ("1-in-10 LOLE").[6] If estimated LOLE for a portfolio over a ten-year period is less than or equal to one day, then the portfolio meets the industry standard for reliability. The Companies are not aware of a similar standard for LOLH.

b. The table below contains LOLE and LOLH for the portfolios evaluated in the Companies' Stage Two analysis (see Exhibit SAW-1 at page 33). While the Companies' analysis did not focus on LOLH, the table shows that LOLH varies proportionally with LOLE.

[6] The "1-in-10 LOLE" standard means that statistically, over a ten-year period, only one day will have a loss of load event (or events), with a total duration of up to 24 hours.

Portfolio	LOLE (days/10 years)	LOLH (hours/10 years)
2028 Portfolio + BR12 NGCC + MC6 NGCC + 400 MW CR BESS + 200 MW GH BESS	0.62	2.36
2028 Portfolio + BR12 NGCC + MC6 NGCC + 400 MW CR BESS + 100 MW GH BESS	0.67	2.56
2028 Portfolio + BR12 NGCC + MC6 NGCC + 400 MW CR BESS	1.07	4.15
2028 Portfolio + BR12 NGCC + MC6 NGCC + 300 MW CR BESS	1.25	4.83

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Question No. 23

Responding Witness: Stuart A. Wilson

Q-23. Refer to the Wilson Direct Testimony, page 14, lines 1–4 and page 15, lines 7–10, and lines 17–18. In generating cost estimates for the other possible sites and configurations for the NGCC, SCCT, and the BESS options, for each of the generic generation technology options, explain the extent to which different site specific costs including transmission costs and or upgrade costs were included in the resource assessment phase of the modeling such that the costs between these potential resources were comparable to the detailed cost estimates for the Mill Creek 6, Brown 12 and Cane Run BESS.

A-23. Cost estimates for generic resources are comparable to the detailed cost estimates for Mill Creek 6, Brown 12, and Cane Run BESS. Cost estimates for all resources include transmission interconnection costs but do not include transmission system upgrade costs. The Companies completed a transmission siting study and determined that (1) Mill Creek is a lower-cost location for a second NGCC than Green River and (2) Cane Run is a lower-cost location for BESS than Ghent.[7] However, the results of this analysis do not indicate the portion of the total transmission system upgrade cost that can be attributed to each resource. In addition, it is not practical to estimate transmission system upgrade costs for all possible combinations of resources. Therefore, to evaluate resources on an equal footing, the Companies completed the analysis with no transmission system upgrade costs.

[7] A 400 MW, four-hour BESS at Cane Run has a lower transmission system upgrade cost than the same BESS at Ghent. Siting 200 MW of four-hour BESS at Cane Run and 200 MW of four-hour BESS at Ghent has a lower transmission system upgrade cost than a single 400 MW, four-hour BESS at Cane Run, but the total cost (including construction cost) is lower for a single 400 MW, four-hour BESS at Cane Run. *See* Direct Testimony of Stuart A. Wilson, Exh. SAW-1 at 45, Table 22.

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Question No. 24

Responding Witness: Robert M. Conroy / Charles R. Schram

Q-24. Refer to the Wilson Direct Testimony, page 16. Explain whether LG&E/KU will pursue an expansion of the curtailable service rider 2 (CSR-2) program in the future. If not, explain why not.

A-24. The Companies modeled a CSR-2 expansion in the 2025 CPCN Resource Assessment,[8] as well as in their 2024 IRP Resource Assessment.[9] PLEXOS did not select such an expansion in any of the scenarios the Companies modeled in either analysis during the relevant study periods.[10] Therefore, the Companies do not presently anticipate seeking to expand their CSR-2 offering.

[8] *See, e.g.,* Wilson Testimony at 16 ("The Companies also modeled a 100 MW expansion of their CSR-2 program. Notably, the Companies' ability to require CSR-2 customers to curtail their usage without a buy-through option is limited to 100 hours annually when all available units are dispatched or being dispatched."); Wilson Exh. SAW-1, 2025 CPCN Resource Assessment at 18, 20.

[9] Case No. 2024-00326, IRP Vol. III, 2024 IRP Resource Assessment at 17, 19.

[10] Wilson Exh. SAW-1, 2025 CPCN Resource Assessment at 30-34. The Companies' 2024 IRP Resource Assessment modeling similarly did not select CSR-2 as a resource to be deployed in any scenario during the 15-year IRP analysis period. Case No. 2024-00326, IRP Vol. III, 2024 IRP Resource Assessment at 17, 19, 28-50.

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Question No. 25

Responding Witness: Stuart A. Wilson

Q-25. Refer to the Wilson Direct Testimony, pages 22–29 generally.

a. Explain whether the entire useful life of each of the potential resource additions was modeled completely or truncated to match the forecast study period.

b. For both LG&E/KU, explain the remaining useful lives for each of the following: (1) existing generation assets; (2) the useful lives of recently approved assets; and (3) the useful lives of the potential resources modeled in the present case. Include as part of the answer whether, and how, the useful lives of each generation resource is potentially limited by current or proposed environmental regulations.

A-25.

a. The useful life of each potential resource was modeled completely. To properly account for differences in book lives between potential resources, the Companies compute the PVRR for each combination of new resources with the assumption the new resources will operate in perpetuity. Detailed revenue requirements are computed through 2050, and costs beyond 2050 are computed using a terminal value. Revenue requirements for potential NGCC, BESS, and SCCT resources are computed assuming book lives of 40, 15, and 30 years, respectively, and the PVRR reflects the cost of replacing these resources at these intervals.

b. To focus the analysis on the decisions that must be made today, the Companies made no assumptions regarding the remaining useful lives of existing or recently approved resources, except Mill Creek 2, Brown 3, and OVEC, which are assumed to be replaced in 2027, 2035, and 2040, respectively. See the response to part (a) regarding the useful lives of potential resources. In their 2024 IRP, the Companies developed least-cost resource plans for complying with more stringent environmental regulations such as the 2024 ELG rule or updated 111(b) and 111(d) rules. While the

useful lives of existing resources could be affected by proposed environmental regulations, the IRP showed that NGCC and BESS are least-cost resources for serving economic development load growth in these environmental scenarios.

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Question No. 26

Responding Witness: Stuart A. Wilson / Tim A. Jones

Q-26. Refer to the Wilson Direct Testimony, page 28, lines 16–22 and page 29, lines 1–10, including Table 3.

a. Explain whether the results listed in Table 3 imply that all other load growth in the load forecast is assumed to be satisfied by the resource additions and that the timing of the load center growth is the factor that determines whether additional resources may be needed.

b. Provide an updated Table 3 showing a breakout by year of each data center project, new or existing industrial expansion project, and other projected load forecasted growth.

c. If the data centers do plan to locate prior to 2030, explain whether LG&E/KU will be able to site and bring online new additional generation as implied on page 29, lines 7–10.

A-26.

a. Yes. All other load growth is assumed to be served by the proposed resource additions, and the timing of data center load additions will determine the need for additional resources.

b. As noted in the response to Question No. 17(a), the economic development load included in the 2025 CPCN Load Forecast does not comprise specific data center projects. The attached file contains the 2025 CPCN Load Forecast (column B in the referenced Table 3), the resource-constrained load forecast (column A in the referenced Table 3), and a breakout of the requested information for the resource-constrained load forecast. See attachment being provided in a separate file.

c. Additional battery storage is the only new resource that can potentially be brought online prior to 2030.

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Question No. 27

Responding Witness: Lonnie E. Bellar / David L. Tummonds / Stuart A. Wilson

Q-27. Refer to the Wilson Direct Testimony, page 27. Explain whether there were other factors that drove LG&E/KU's decision to not request a Certificate of Public Convenience and Necessity (CPCN) for a 200 MW Ghent BESS facility apart from the ability to meet the LOLE targets.

A-27. The Companies' analysis shows the ability to achieve an LOLE of approximately one day in ten years by adding Brown 12, Mill Creek 6, and Cane Run BESS without also adding a 200 MW Ghent BESS.[11] Also, locating a BESS at Cane Run is somewhat favorable to locating a BESS at Ghent due to the additional site preparation that would be required at Ghent.[12] Therefore, based on the assumptions reflected in the Companies' 2025 CPCN Resource Assessment, it was not necessary to seek approval for a Ghent BESS in this proceeding, though that does not preclude Ghent BESS from being a least-cost resource in the future.

[11] *See, e.g.,* Direct Testimony of Stuart A. Wilson at 27.
[12] *See, e.g.,* Direct Testimony of David L. Tummonds at 11.

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Question No. 28

Responding Witness: John Bevington / Robert M. Conroy / Tim A. Jones / Stuart A. Wilson / Counsel

Q-28. Refer to the Bevington Direct Testimony page 5, lines 16–17 and the Wilson Direct Testimony, page 4, lines 7–9 and page 5, line12.

a. For each of the projects represented by the 1,750 MW of data center load, explain the nature of each data center project including the types of business and or research functions.

b. Provide any currently drafted or finalized special service contracts or tariffs for each data center project.

c. Since LG&E/KU are proposing to construct expensive long, lived generation assets, explain whether LG&E/KU have considered the impact of technology advancements that could significantly lower the energy necessary to run the data centers in ten years or so resulting in significant excess capacity, the potential for stranded investment, and the resulting ratepayer consequences. If so, explain what efforts, including contractual obligations for data centers, LG&E/KU has taken, or will take, to mitigate these risks. If not, explain why not.

A-28.

a. See the response to Question No. 17(a). To the best of the Companies' knowledge, there are no announced tenants or users for the projects that have been announced at this point.

b. The Companies do not have any draft or final special service contracts or tariffs for each data center project. In the base rate applications the Companies intend to file on May 30, 2025, the Companies will propose new tariff provisions for large, high load factor customers. The draft versions of those tariff provisions are subject to the work product doctrine. The Companies further respectfully suggest that addressing tariff issues would

be more appropriate in the Companies' upcoming base rate cases than this CPCN proceeding.[13]

c. The proposed resource investments are significant, but the Companies respectfully disagree with the characterization of them as "expensive." As demonstrated in the 2025 CPCN Resource Assessment, the proposed resources are consistent with providing safe and reliable service at the lowest reasonable cost. Moreover, as is evident from the cost increases for natural gas combined cycle facilities between the Companies' 2022 CPCN case and this proceeding, delay in acquiring these resources will very likely result in additional cost increases.

Also, the proposed resources are consistent with least-cost portfolios in a wide variety of fuel price, load, and environmental regulatory scenarios. This includes load scenarios with less than 1,750 MW of data center load.

But it is far from certain that efficiency increases in artificial intelligence or other data center-related technology will result in lower total power demand for data centers.[14] For example, Lawrence Berkeley National Laboratory ("Berkeley Lab") projected in a 2016 report that data center energy consumption would remain essentially flat through 2020 without additional energy efficiency measures or practices and would *decrease* from 2014 levels with the implementation of any such measures:[15]

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[13] *See, e.g., 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-Fired Generation Unit Retirements*, Case No. 2022-00402, Order at 10-12 (Ky. PSC Nov. 6, 2023) ("To obtain a CPCN, a utility must demonstrate a need for such facilities and an absence of wasteful duplication. … 'Need' requires: [A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed or operated. … 'Wasteful duplication' is defined as 'an excess of capacity over need' and 'an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties.' … The fundamental principle of reasonable least-cost alternative is embedded in such an analysis. Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication. All relevant factors must be balanced.") (internal citations omitted).

[14] *See, e.g.,* Steven Rosenbush and Isabelle Bousquette, "Nvidia CEO Says AI Computing Needs to Surge 100-Fold," *The Wall Street Journal* (Mar. 18, 2025), available at https://www.wsj.com/tech/ai/nvidia-ceo-says-ai-computing-needs-to-surge-100-fold-at-ai-super-bowl-event-14c38221?st=Md1kzH&reflink=desktopwebshare_permalink (accessed Apr. 1, 2025); Brian Martucci, "DeepSeek called a net positive for data centers despite overcapacity worries," *Utility Dive* (Feb. 20, 2025), available at https://www.utilitydive.com/news/deepseek-called-a-net-positive-for-data-centers-despite-overcapacity-worrie/740635/ (accessed Apr. 1, 2025); Goldman Sachs, "AI to drive 165% increase in data center power demand by 2030" (Feb. 4, 2025), available at https://www.goldmansachs.com/insights/articles/ai-to-drive-165-increase-in-data-center-power-demand-by-2030 (accessed Apr. 1, 2025).

[15] Shehabi et al., "United States Data Center Energy Usage Report" at ES-2, Ernest Orlando Lawrence Berkeley National Laboratory (June 2016), available at https://eta-publications.lbl.gov/sites/default/files/lbnl-1005775_v2.pdf (accessed Apr. 12, 2025).

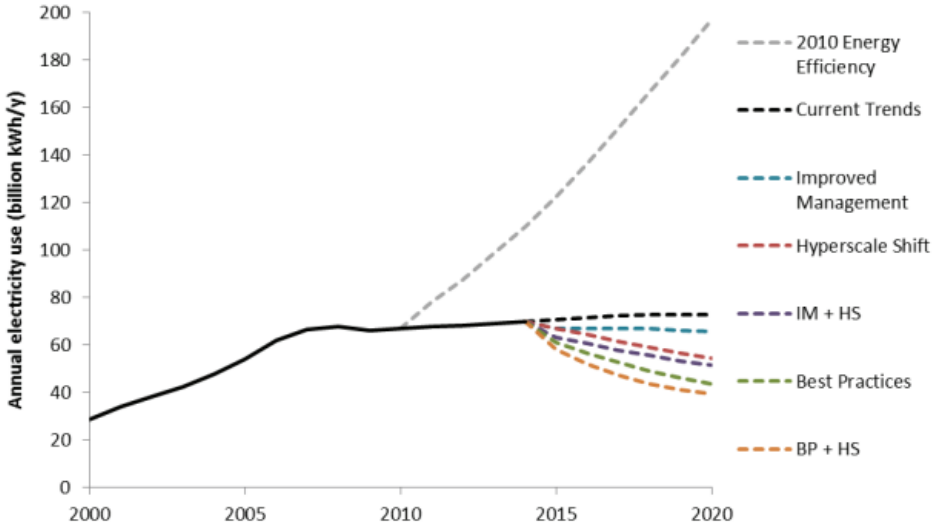

Figure ES-1 Projected Data Center Total Electricity Use

Estimates include energy used for servers, storage, network equipment, and infrastructure in all U.S. data centers. The solid line represents historical estimates from 2000-2014 and the dashed lines represent five projection scenarios through 2020; Current Trends, Improved Management (IM), Best Practices (BP), Hyperscale Shift (HS), and the static 2010 Energy Efficiency counterfactual.

In December 2024, Berkeley Lab released a new version of the same report, which included a comparable figure with historical data from 2014 through 2023 and projected data through 2028:[16]

[16] Shehabi et al., "2024 United States Data Center Energy Usage Report" at 5, Ernest Orlando Lawrence Berkeley National Laboratory (Dec. 2024), available at https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report.pdf (accessed Apr. 12, 2025).

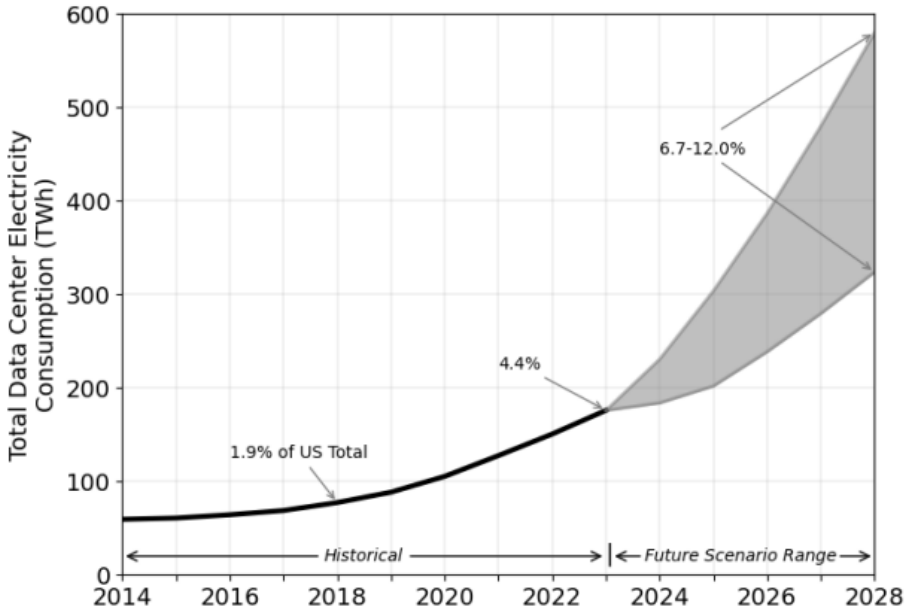

Figure ES-1. Total U.S. data center electricity use from 2014 through 2028.

Contrary to Berkeley Lab's 2016 projections, data center usage did not stay flat or decrease; rather, it grew by over 70% by 2020 and roughly tripled by 2023. As the 2024 report notes, "The scenarios in the 2016 report did not capture the rise of AI, which has brought a fundamental change in the industry and the demand for computing services. Therefore, the current study estimates historical electricity use for 2018–2020 that is higher than any of the 2016 report scenario results."[17]

See also the response to KCA 1-5.

Also, data center load is not the only source of current and projected load growth for the Companies. There is currently more than 2,000 MW of non-data center projects in the Companies' economic development pipeline, all but 40 MW of which is not in the 2025 CPCN Load Forecast. Again, the Companies are not forecasting that all 2,000 MW will come to fruition, but some of it will.

Moreover, although this request posits "technology advancements that could significantly lower the energy necessary to run the data centers in ten years or so," the Companies respectfully suggest there could also be any number of factors that would increase energy consumption in the Companies' service territories over the same ten years. These could include significant increases in electric vehicles and electric heating, growth in

[17] *Id.* at 55.

manufacturing due to reshoring or otherwise, and growth in data center demand itself due to increased demand for AI processing as efficiency increases, costs to use the technology decrease, and use cases multiply. In addition, neighboring systems are facing imminent or near-term capacity shortages, making it highly unlikely that any surplus capacity would be stranded. Furthermore, the Companies' analyses in this case and the 2024 IRP show the proposed resources, particularly Brown 12 and Mill Creek 6, are part of least-cost portfolios across a variety of load, fuel price, and environmental regulatory scenarios. In sum, it is more likely than not that the Companies and their customers will benefit from the Companies' proposed resources in this proceeding.

Finally, regarding service terms for data center customers, the Companies anticipate a combination of minimum contract duration, minimum contract demand, and credit support, assurance, or security requirements will help mitigate the risks addressed in this request.

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Question No. 29

Responding Witness: John Bevington

Q-29. Refer to the Bevington Direct Testimony, Exhibit JB-2.

a. Explain whether an IMPLAN study has been conducted for each of the companies comprising the projected 1,750 MW data center load.

b. If not, provide an IMPLAN study for each of the companies associated with the projected 1,750 MW data center load in this proceeding.

A-29.

a. See the response to Question No. 17(a). The Companies have not conducted any IMPLAN studies for data center projects considering the Companies service territories.

b. The Companies are unable to provide an IMPLAN study because they do not subscribe nor have a license to the IMPLAN software. Mr. Bevington discussed the non-energy benefits of data centers simply to point out the positives of this economic development occurring in Kentucky, which, being consistent with the General Assembly's stated aims regarding data centers, suggest that Kentucky will continue its efforts to attract data centers, with resulting additional load for the Companies to serve. Although there are good reasons to expect data centers will bring non-energy benefits, the Companies have an obligation to serve all customers in their service territories.

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Question No. 30

Responding Witness: Lonnie E. Bellar / Robert M. Conroy

Q-30. Refer to the Direct Testimony of Robert Conroy (Conroy Direct Testimony), page 13, lines 16–19. Explain any factors that could influence the ownership percentages of all proposed facilities between KU and LG&E.

A-30. Changes to the assumed locations of incremental data center load between LG&E's and KU's service territories would impact the ownership percentages. Of the 1,750 MW of anticipated incremental data center load, the Companies have assumed that 1,400 MW will be located in LG&E's territory and 350 MW will be in KU's territory.

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Question No. 31

Responding Witness: Christopher M. Garrett

Q-31. Refer to the Conroy Direct Testimony, page 15, lines 1–4. Provide the estimated difference between allowance for funds used during construction (AFUDC) using the methodology approved by the Federal Energy Regulatory Commission (FERC) and LG&E/KU's weighted average cost of capital. Provide any supporting calculations in Excel spreadsheet format, with all formulas, columns, and rows unprotected and fully accessible.

A-31. See attachment being provided in a separate file.

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Question No. 32

Responding Witness: Lonnie E. Bellar / David L. Tummonds / Stuart A. Wilson

Q-32. Refer to the Direct Testimony of David Tummonds (Tummonds Direct Testimony), page 10, lines 20–22. Provide the anticipated total annual operating costs for the Brown 12 and Mill Creek 6 NGCC units in their respective operational years.

A-32. See the attachment being provided in a separate file. Certain information is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection. The production cost data is based on the modeling run provided in response to JI 1-22.

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Question No. 33

Responding Witness: Lonnie E. Bellar / David L. Tummonds / Stuart A. Wilson

Q-33. Refer to the Tummonds Direct Testimony, page 14, lines 14–15. Provide the total anticipated annual operating costs for the Ghent 2 SCR.

A-33. See the attachment being provided in a separate file. The production cost data is based on the modeling run provided in response to JI 1-22.

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Question No. 34

Responding Witness: Lonnie E. Bellar / David L. Tummonds

Q-34. Refer to the Bellar Direct Testimony, page 11. Explain what a "manufacturing slot" is with regards to a Unit Reservation Agreement (URA).

a. Provide a detailed explanation of all relevant terms of the URA with GE for Brown 12.

b. State what equipment, broadly, is included in the URA.

c. State what price protections are included in the URA, and under what circumstances LG&E/KU may be subject to increased costs following the execution of the URA with GE for Brown 12.

A-34.

a. ***URA's Need and Content***: As the Companies noted in Case No. 2022-00402, rising costs associated with their proposal to construct both Mill Creek 5 and Brown 12 served as initial indication of expected cost increases for NGCC procurement and construction. Following the issuance of the final order in Case No. 2022-00402 noting that "the construction of Brown 12 should be deferred with the construction beginning on a date that provides for an in-service date in 2030," the Companies established an informal protocol by which they remain informed of OEM and EPC cost volatility via periodic discussions with each OEM. In early April 2024 (less than two months after signing the Mill Creek 5 OEM/EPC contract), the Companies became aware of the developing need to reserve production slots for gas turbines from any of the OEM providers due to world-wide demand via a Unit Reservation Agreement (URA). [redacted]

Discussions with all three OEMs highlighted: 1) all three OEMs had instituted this practice, [redacted]

[redacted]. Specifically, the Brown 12 timeline envisions a mid-2026 full notice to proceed (FNTP) to GE Vernova, which allows for prudent EPC bidding and contracting before FNTP. [redacted]

GE Vernova Favorability and Brown 12-Specific Information: [redacted] The URA price applies to the ultimate purchase price of the PIE contract.

Potential Need for Mill Creek 6 URA: [redacted]

[redacted]. Certain information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

b. See the response to part (a).

c. See the response to part (a).

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Question No. 35

Responding Witness: Lonnie E. Bellar / Charles R. Schram

Q-35. Refer to the Bellar Direct Testimony, page 11.

a. State whether LG&E or KU have entered into a URA with any of GE, Siemens, or Mitsubishi, for Mill Creek 6. If not, state whether LG&E or KU are in the process of negotiating such an agreement.

b. If either LG&E or KU is currently negotiating a URA, provide an explanation of the current status of the negotiation, including an anticipated execution date.

c. If a date of execution for the URA is anticipated, provide an explanation detailing if, and how, the URA agreement will impact the expected in-service date for Mill Creek 6.

d. State whether LG&E/KU have secured firm pipeline capacity sufficient to supply Brown 12 and Mill Creek 6. If so, provide the contract. If not, state when LG&E/KU anticipate securing the necessary pipeline capacity.

e. Identify which natural gas pipelines will serve Brown 12 and Mill Creek 6, including the name of the supplier.

A-35.

a. See the response to Question No. 34(a).

b. See the response to Question No. 34(a).

c. See the response to Question No. 34(a).

d. See the response to Question No. 14.

e. Natural gas transportation for Brown 12 will be provided by either the Texas Eastern or the Tennessee Gas interstate pipeline. Mill Creek 6 will be served by the Texas Gas Transmission interstate pipeline.

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Question No. 36

Responding Witness: Lonnie E. Bellar / David L. Tummonds

Q-36. Refer to the Joint Application, Exhibits 5–7, Site Assessment Reports (SARs) related to Traffic and Rail Impact Assessment. Provide any communication with the applicable county road departments relating to traffic plans and mitigation measures for each individual facility. If no communication has been initiated, explain when that contact will occur.

A-36. The Companies have not contacted the applicable county road departments as the SARs have determined that construction traffic is not expected to adversely affect the roadway capacity. If required, the EPC contractor(s) will engage the applicable county road departments to review their construction plans and potential mitigation measures.

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Question No. 37

Responding Witness: David L. Tummonds

Q-37. Refer to the Joint Application, Exhibits 5–7, SARs related to Visual Impact Assessment. Explain whether vegetative clearing will be conducted for the construction or operation of any of the proposed facilities. Provide in the response the number of acres that will be cleared and any permits that will be required.

A-37. No vegetative clearing is required as initial site preparation will consist of typical clearing and grubbing of ground cover (grasses).

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Question No. 38

Responding Witness: David L. Tummonds

Q-38. Refer to the Joint Application, Exhibits 5–7, SARs related to Visual Impact Assessment. State whether any vegetative buffers will be required at any of the proposed facilities to ensure appropriate compatibility with scenic surroundings. If yes, provide what species of vegetative buffer will be used.

A-38. Vegetative buffers are not required at the proposed facilities due to the location of equipment (setback) in relation to the property boundary and existing view-shed impact due to existing facilities.

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Question No. 39

Responding Witness: Philip A. Imber / David L. Tummonds

Q-39. Refer to the Joint Application, Exhibits 5–7, SARs. Describe any steps LG&E/KU has taken or intends to take to ensure that its construction of the proposed facilities will comply with the National Environmental Policy Act (NEPA).

A-39. These projects do not have a nexus that triggers NEPA applicability. These projects do not impact federal land or use federal funding.

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Question No. 40

Responding Witness: Philip A. Imber / David L. Tummonds

Q-40. Refer to the Joint Application, Exhibits 5–7, SARs. Explain whether LG&E/KU has had any contact with the Environmental Protection Agency (EPA) regarding the proposed facilities. If so, provide any documentation on any communication that has occurred.

A-40. The Companies have not communicated with the EPA regarding the proposed facilities.

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Question No. 41

Responding Witness: Philip A. Imber / David L. Tummonds

Q-41. Refer to the Joint Application, Exhibits 5–7, SARs. Provide any communication with the Federal Aviation Administration (FAA) or the Kentucky Airport Zoning Commission regarding each proposed facility.

A-41. The Companies have not communicated with the FAA or Kentucky Airport Zoning Commission regarding the proposed facilities.

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Question No. 42

Responding Witness: Philip A. Imber / David L. Tummonds

Q-42. Refer to the Joint Application, Exhibits 5–7, SARs. Provide a list of permits that will be required from any other local, state, or federal agencies for each facility. Include in the response the status of those permits.

A-42. Refer to Imber Direct Testimony Exhibit PAI-2 for a list of permits for the NGCC projects. Refer to Imber Direct Testimony page 18 line 14 for permits regarding the BESS. To date, only the Brown 12 Title V Permit application has been submitted to regulators.

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Question No. 43

Responding Witness: Philip A. Imber / David L. Tummonds

Q-43. Refer to the Joint Application, Exhibits 5–7, SARs. Provide copies of any documents submitted to other federal or state agencies relating to each facility other than those in the application.

A-43. To date the only documents submitted is the Brown 12 Title V Permit application and the air dispersion modeling protocol, which are included as attachments to this response.

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Question No. 44

Responding Witness: Philip A. Imber / David L. Tummonds

Q-44. Refer to the Joint Application, Exhibits 5–6, SARs related to Traffic and Rail Impact Assessment. Provide a Traffic Study for the proposed Mill Creek and Brown NGCC facilities.

A-44. Please see pages 3-26 to 3-23 of the Brown 12 SAR and pages 3-30 to 3-37 of the Mill Creek 6 SAR. Those sections of the SARs provide robust information regarding existing road traffic and expected impacts to that road traffic resulting from construction activities and eventual commercial operation of the NGCCs.

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Question No. 45

Responding Witness: Philip A. Imber

Q-45. Refer to the Joint Application, Exhibit 7, Appendix B. Provide any wetland delineation reports completed for the proposed Mill Creek and Brown NGCC facilities.

A-45. The Companies have performed various wetland delineations of the Mill Creek and Brown generating sites with multiple contractors for multiple projects on site. The Companies have hired a consultant to consolidate the wetland delineation information from each site for a holistic site specific reports related to the NGCC projects. The Companies anticipate receiving the reports by April 28 and will supplement this response as soon as reasonably possible thereafter.

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Question No. 46

Responding Witness: Philip A. Imber / David L. Tummonds

Q-46. Refer to the Joint Application, Exhibits 5–7, SARs. Provide a Stormwater Pollution Prevention Plan (SWPPP) for the proposed BESS facility and the Mill Creek and Brown NGCC facilities.

A-46. SWPP for the proposed BESS and NGCC facilities do not exist today. Project-specific SWPPP will be developed by EPC contractors prior to mobilization and incorporated into each generating station's existing SWPPP.

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Question No. 47

Responding Witness: Philip A. Imber / David L. Tummonds

Q-47. Refer to the Joint Application, Exhibits 5–7, SARs. Provide any geotechnical reports for the proposed BESS facility and the Mill Creek and Brown NGCC facilities.

A-47. Project specific geotechnical investigations have not been performed for the proposed BESS or Mill Creek NGCC facilities. Attached is the geotechnical investigation for the Brown NGCC.

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Question No. 48

Responding Witness: David L. Tummonds

Q-48. Refer to the Joint Application, Exhibits 5–7, SARs related to Project Description. Describe the hazard detection systems, such as smoke and heat detectors, as well as gas meters or chromatographs, that will be used within each facility.

A-48. The EPC contractor, with input from the Companies, will determine the required hazard detection systems to comply with applicable codes, standards, and the Authority Having Jurisdiction ("AHJ") requirements.

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Question No. 49

Responding Witness: David L. Tummonds

Q-49. Refer to the Joint Application, Exhibits 5–7, SARs related to Project Description. Describe hazard or danger alert systems that will be in place at each facility and who will monitor and maintain those systems. Include in the description whether those systems provide remote alert and annunciation to offsite personnel and a fire department.

A-49. See response to Question No. 48. Each facility will have a Distributed Control System ("DCS") that monitors the operation and status of the facilities and is monitored by onsite staff 24 hours a day, 7 days a week. In the event of an abnormal operating condition, the operator is notified and corrective measures are initiated. Corrective measures could be automatically implemented by the DCS or require manual initiation by the operator. Remote monitoring and annunciation to offsite third parties are typically limited to fire detection systems and will be implement if required by code or the AHJ.

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Question No. 50

Responding Witness: David L. Tummonds

Q-50. Refer to the Joint Application, Exhibits 5–7, SARs related to Facility Safety and Mitigation. Provide any communication with local emergency services on security and emergency protocols during construction and operation of each facility. If contact has not been made, explain when that contact will occur.

A-50. To date, the Companies have not communicated with local emergency services on security and emergency protocols during construction and operations of the facilities. The Companies will work with the EPC contractor to ensure local emergency services are fully informed on the projects prior to initiating construction and operation of the facilities.

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Question No. 51

Responding Witness: David L. Tummonds

Q-51. Refer to the Joint Application, Exhibits 5–7, SARs related to Project Description. Explain who will be responsible for ensuring all facility components and protection systems are adequate and effective before the start of operations.

A-51. The EPC contractor is responsible to ensure that protection systems are designed and installed per the applicable code requirements. The EPC contractor, with the assistance and oversight from the Companies, will test protection systems to ensure they function per their design.

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Question No. 52

Responding Witness: David L. Tummonds

Q-52. Refer to the Joint Application, Exhibits 5–7, SARs related to the Location of Facility Buildings, Transmission Lines, and Other Structures. Clarify whether any existing structures on any of the proposed facility sites will be demolished or removed in order to accommodate the projects.

A-52. Brown Unit 12 – No existing structures will be demolished or removed, as part of this project, to accommodate the project. The Companies are currently demolishing Brown Unit 1 and 2 under a separate project, and the proposed facility is partially located in the old Unit 1 and 2 footprint. The Companies will relocate existing overhead transmission lines to accommodate the generation tie-line from the NGCC unit. The Companies may elect to relocate existing overhead lines to accommodate construction and to optimize the site layout.

Cane Run BESS – No existing structures will be demolished or removed to accommodate the project. The Companies may elect to relocate existing overhead lines to accommodate construction and to optimize the site layout.

Mill Creek Unit 6 – No existing structures will be demolished or removed to accommodate the project. The Companies will relocate at least one overhead line to accommodate construction and to optimize the site layout.

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Question No. 53

Responding Witness: David L. Tummonds

Q-53. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Provide a one-page directional map for each proposed facility showing highlighted anticipated delivery routes for the project. Include the following on the map: access roads, access points, existing roads, bridges, electric generation components, and all structures within two miles of the project.

A-53. Brown NGCC – See Section 3.4.1 and Figure 3-10 in Exhibit 5.

Mill Creek NGCC – See Section 3.4.1 and Figure 3-11 in Exhibit 6.

Cane Run BESS – See Section 9 and Appendix F in Exhibit 7 as well as the attachment being provided in a separate file.

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Question No. 54

Responding Witness: David L. Tummonds

Q-54. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Explain whether any oversize or overweight deliveries will require special permits.

A-54. Yes, the projects will require oversized and/or overweight permits. Equipment anticipated to require a permitted load include but not limited to the gas turbine, steam turbine, generator set-up transformer, generator, heat recovery steam generator, and the battery modules. The Companies will work with the EPC contractor to establish transportation logistics and permitting, up to and including traffic stoppages, based on equipment shipping arrangements.

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Question No. 55

Responding Witness: David L. Tummonds

Q-55. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Explain the plan for repairing project-related damage to any roadways, railway crossings, or bridges.

A-55. Damage directly attributed to project activities will be repaired per applicable permit requirements. Repairs will meet local and/or state standards.

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Question No. 56

Responding Witness: David L. Tummonds

Q-56. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Explain whether any traffic stoppages will be necessary to accommodate large truck deliveries during constructing. If yes, provide the expected location(s), frequency, and length of those stoppages for each proposed facility.

A-56. See response to Question 54. The expected location(s), frequency, and length of stoppages is unknown at this time and will be based on the EPC contractors' transportation logistics. The Companies will work with the EPC contractors to minimize traffic disruptions during the projects.

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Question No. 57

Responding Witness: David L. Tummonds

Q-57. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Provide the width and weight limit ratings for all roads and bridges proposed to be utilized during the delivery and construction phase of each proposed facility.

A-57. Brown NGCC – U.S. Route 127 (US 127), US 68, KY-33, and State Hwy 342 will be the main roadways utilized to access the project site. All have a gross weight capacity of 80,000 lbs.

Cane Run BESS – Cane Run Road (KY 1934), Greenbelt Highway (KY 1934), and the Gene Snyder Freeway (KY 841/I-265). All have a gross weight capacity of 80,000 lbs.

Mill Creek NGCC – Dixie Highway (KY 31W), Gene Snyder Freeway (KY 841/I-265), and Interstate 65 (I-65) will be the main roadways utilized to access the project site. All have a gross weight capacity of 80,000 lbs.

General – The listed roads will be utilized to access the project sites, and the Companies will work with the EPC to ensure compliance with Kentucky Transportation Cabinet requirements, as well as posted width and weight limits for roads, bridges, culverts, etc.

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Question No. 58

Responding Witness: David L. Tummonds

Q-58. Refer to the Joint Application, Exhibits 5–7, SARs related to Traffic and Rail Impact Assessment. Provide the maximum expected truck weights and load weights for each type of delivery for each proposed facility.

A-58. The expected weights for vehicles and equipment are unknown at this time. The Companies will require the EPC contractor to comply with Kentucky Transportation Cabinet requirements as well as posted weight limits for roads, bridges, culverts, etc. once weights information becomes known.

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Question No. 59

Responding Witness: David L. Tummonds

Q-59. Refer to the Joint Application, Exhibits 5–7, SARs relating to Project Description. Provide a detailed description of construction activities for each proposed facility, including a construction timeline and schedule by activity, accounting for construction of all Project components.

A-59. Brown NGCC – See the attachment to Sierra Club 1-11(c).

Mill Creek NGCC – See the attachment to Sierra Club 1-11(c).

Cane Run BESS – See the attachment to AG-KIUC 1-29(a) for the Level 1 project development schedule. Major constructions activities will include but not limited to site grading, site fencing, installation of foundations, underground duct banks, setting of equipment, steel erection, installation power and control cables, overhead electrical work, and startup/commissioning activities.

The EPC contractor will be responsible to develop detailed construction schedules, by activity, for all project components.

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Question No. 60

Responding Witness: David L. Tummonds

Q-60. Refer to the Joint Application, Exhibits 5–7, SARs relating to Project Description. Provide a narrative description of the location of each laydown area to be used during construction at each individual facility.

A-60. The laydown areas will be located on existing plant property and co-located with the construction site where applicable. Final number, location, and configuration of laydown areas will be determined by the EPC contractors and Companies.

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Question No. 61

Responding Witness: Philip A. Imber

Q-61. Refer to the Joint Application, Exhibits 5–7, SARs relating to Environmental Impacts. Provide a copy of LG&E's current Spill Prevention Control, and Countermeasure plan (SPCC) at the Cane Run, Brown, Mill Creek, and Ghent Electric Generating Stations.

A-61. See the response to Question No. 46. The requested SPCC plans are provided as separate files.

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Question No. 62

Responding Witness: Philip A. Imber / David L. Tummonds

Q-62. Refer to the Application, Exhibit 7, SAR 2.1.1. Provide the following information related to the BESS facility.

a. Any safety data sheets;

b. A statement of any environmental impacts of the facility;

c. Any surveys related to environmental impacts;

d. Expected life of the batteries; and

e. How the battery storage system installation will comply with National Fire Protection Association Standard 855.

A-62.

a. The Company will not be able to identify applicable safety data sheets until completion of technology selection.

b. See the Air Resource Assessment, Water Quality and Water Resource Assessment, and Waste Management sections in the referenced report.

c. The extent of surveys related to environmental impacts were included in the referenced Site Assessment Report and Cumulative Environmental Assessment.

d. The design life of the batteries is 20 years.

e. The EPC will complete a site-level Hazard Mitigation Analysis ("HMA") to evaluate these units and any associated site-specific hazards in accordance with NFPA 855. The HMA and manufacturer specific UL 9540A test data will determine the site spacing to prevent failure propagation and other potential site-specific failures.

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Question No. 63

Responding Witness: Philip A. Imber / David L. Tummonds

Q-63. Refer to the Joint Application Exhibit 7, SAR 10.5. The SAR states, "The design of the BESS Facility will mitigate the potential impacts of extreme weather events, natural disasters, and environmental hazards.". Explain how the BESS facility will be secured and what plans will be in place to prevent or mitigate dangerous situations that could occur from extreme weather events, natural disasters, and environmental hazards.

A-63. The design of the station will mitigate the potential impacts of extreme weather events, natural disasters, and environmental hazards by ensuring that the EPC contractor adheres to the following specific site conditions:

- Site structural (wind/snow/ice/seismic) per ASCE 7 as referenced by the Kentucky Building code.
- Site ambient temperatures based on ASHRAE data with minimum/maximum extremes corresponding to 20-year dry bulb.
- Site stormwater designed for a 100-year rain event.

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Question No. 64

Responding Witness: David L. Tummonds

Q-64. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Describe how the BESS facility will be designed to prevent thermal runaway. Include a list of heating, ventilation and air conditioning (HVAC) systems that will be used.

A-64. The prevention of thermal runaway is managed and mitigated by the Battery Management System ("BMS"). The BMS identifies risks to the battery system by monitoring cell temperature, voltage, and current. The BMS reduces risk of thermal runaway by disconnecting the batteries in case of overcharge, discharge, temperature, current, and other risks as identified in UL1973. The BMS mitigation strategy is part of the UL1973 listing associated with the battery module(s). Additionally, the manufacturer will provide a cooling system that maintains batteries at optimum operating temperature. The cooling and/or heating system is integrated into the battery system.

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Question No. 65

Responding Witness: David L. Tummonds

Q-65. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. State whether the BESS facility will include a fail-safe protection system, such as a forced shutdown, should all other countermeasures fail to prevent a thermal runaway.

A-65. The battery system will be designed such that the Battery Management System ("BMS") will initiate protective action, including a forced shutdown when required, if batteries are operating outside of safe operating conditions. Back-up power will ensure continuous power to the BMS for safe shutdown in the event of power loss.

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Question No. 66

Responding Witness: David L. Tummonds

Q-66. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features.

a. Describe the fire suppression systems that will be installed at the BESS facility. Provide in the response which standards those systems will have to meet and who will monitor and maintain those systems.

b. Explain considerations and mitigation plans for liquid run-off that may contain toxic chemicals.

A-66.

a. Fire suppression requirements are a function of final technology selection. Once known, the Companies will coordinate with the local authority having jurisdiction as aligned with the emergency action plan ("EAP"). Required systems will be designed and installed in accordance with site specific requirements.

b. The Companies will work with the EPC contractor to install SWPPP facilities and update the existing SWPPP to address run-off from the facility.

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Question No. 67

Responding Witness: Philip A. Imber / David L. Tummonds

Q-67. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Explain how the BESS facility will comply with IEEE 1578 standards in relation to electrolyte spills.

A-67. See page 5-6 of Exhibit 7. IEEE 1578 is specific to electrolyte spill containment and management for vented lead-acid ("VLA"), valve regulated lead-acid ("VRLA"), vented nickel-cadmium ("Ni-Cd") and partially recombinant Ni-Cd stationary batteries. This facility will not include these chemistries, so this standard does not apply.

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Question No. 68

Responding Witness: Philip A. Imber / David L. Tummonds

Q-68. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Considering the gas producing nature of batteries, state what ventilation systems will be in place at the BESS facility to prevent the leaking of hazardous gases.

A-68. Lithium-ion battery technology does not require ventilation during regular operation per NFPA 855. Where necessary, manufacturer-specific guidance will dictate ventilation required to manage or mitigate explosion control and comply with the product UL9540 listing.

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Question No. 69

Responding Witness: Philip A. Imber / David L. Tummonds

Q-69. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Explain how the battery area at the BESS facility will be adequately ventilated to remove potentially explosive gases that are generated from charging cycles.

A-69. See the response to Question No. 68.

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Question No. 70

Responding Witness: David L. Tummonds

Q-70. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Explain how the BESS facility will monitor extreme weather and natural disasters and what protocols will apply.

A-70. During construction, the Companies will work with the EPC contractor to establish extreme weather and natural disaster protocols to ensure the safety of the workers. Upon receiving care, custody, and control, the Companies will monitor extreme weather and potential natural disasters and implement appropriate protocols consistent with the station Emergency Action Plan ("EAP"), which will be updated to include this installation.

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Question No. 71

Responding Witness: David L. Tummonds

Q-71. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Explain what steps LG&E/KU will take in designing the BESS facility to withstand environmental hazards that may arise within the area.

A-71. See the response to Question No. 63.

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Question No. 72

Responding Witness: Philip A. Imber / David L. Tummonds

Q-72. Refer to the Joint Application, Exhibit 7, SAR, 2.1.3 Facility Safety and Hazard Mitigation Features. Given that the batteries contain hazardous materials, explain how they will be disposed of during decommissioning and how the project follow U.S. EPA rules.

A-72. The Companies do not yet have a plan for decommissioning the project upon reaching the end of its useful life. It is expected that the site will be repowered, repurposed, or returned to near preconstruction condition upon reaching the end of its useful life. Any demolition and disposal activities will comply with then-applicable laws. Batteries will be properly packaged and transported to minimize risk of spill or fire. All material will be characterized and managed in accordance with applicable Resource Conservation and Recovery Act (RCRA) Subtitle C Hazardous Waste and Subtitle D Solid Waste regulations.

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Question No. 73

Responding Witness: David L. Tummonds

Q-73. Refer to the Joint Application, Exhibit 7, SAR 4.2.3. Provide any instances of flooding at the Cane Run Generating Station and how similar events could impact the proposed BESS facility.

A-73. The project is located behind the United States Army Corp of Engineers floodwall and not located in a floodplain.

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Question No. 74

Responding Witness: Philip A. Imber / David L. Tummonds

Q-74. Refer to the Joint Application, Exhibit 6, SAR 4.1 Air Resource Assessment. Provide how many tons of hazardous air pollutants (HAP) are expected to be emitted each year at the proposed Mill Creek NGCC facility.

A-74. See the attachments being provided in separate files for Mill Creek 6 and Brown 12 HAP Emissions.

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Question No. 75

Responding Witness: Philip A. Imber / David L. Tummonds

Q-75. Refer to the Joint Application, Exhibit 6, SAR 4.1 Air Resource Assessment. Explain how Nitrogen Oxide (NOx) emissions will be controlled once the Mill Creek NGCC facility is operational.

A-75. NOx emissions will be controlled with Dry Low NOx Burners and SCR.

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Question No. 76

Responding Witness: Philip A. Imber / David L. Tummonds

Q-76. Refer to the Joint Application, Exhibit 6, SAR 4.1 Air Resource Assessment. Explain how the Mill Creek NGCC facility will be designed to reduce fugitive methane emissions.

A-76. The EPC contractor will be responsible to design the facility to ensure compliance with the pending Title V Air Permit. To ensure compliance with the Title V Air Permit, the EPC contractor may use low-leak components, minimize the need for venting, automate controls on the natural gas system, employ real-time monitoring, and develop a preventative maintenance program.

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Question No. 77

Responding Witness: Philip A. Imber / David L. Tummonds

Q-77. Refer to the Joint Application, Exhibits 5–7, SARs relating to Waste Management/Mitigations. Describe the containment/reporting procedure should an accidental release of hazardous substances or waste occur at any of the proposed facilities.

A-77. The Companies use several types of plans to minimize risk of a release and identify the procedures if a risk were to occur. All releases use the same basic spill release notification and clean-up protocol that is outlined in the facility's EHS Facility Emergency Response Plan (EHS FERP); Spill Prevention Control and Countermeasure (SPCC) Plan; Groundwater Protection Plan (GPP); Ammonia Emergency Response Plan (if applicable); and/or Hazardous Waste Contingency Plan (if applicable).

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Question No. 78

Responding Witness: Philip A. Imber / David L. Tummonds

Q-78. Refer to the Joint Application, Exhibits 5–7, SARs. Provide a soil and erosion control plan for each proposed facility should any exist.

A-78. These plans do not exist today. Soil and erosion control plans will be prepared during the engineering and construction phase of each project.

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Question No. 79

Responding Witness: Philip A. Imber / David L. Tummonds

Q-79. Refer to the Joint Application, Exhibit 6, SAR related to Traffic and Rail Impact Assessment. Explain whether the Applicant has had any conversations with representatives of Paducah and Louisville Railway regarding the Mill Creek NGCC facility. If so, describe the nature of those conversations, any concerns, and resolutions from those interactions.

A-79. The Companies have not discussed the proposed Mill Creek 6 NGCC facility with representatives from Paducah and Louisville Railway.

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Question No. 80

Responding Witness: Philip A. Imber / David L. Tummonds

Q-80. Refer to the Joint Application, Exhibit 6, SAR related to Traffic and Rail Impact Assessment. Explain whether the Applicant has held any conversations with the applicable parties regarding the delivery of the Mill Creek NGCC facility components via barge. If so, describe the nature of those conversations, any concerns, and resolutions from those interactions.

A-80. The Companies have not held conversations with applicable parties regarding delivery of the proposed Mill Creek 6 NGCC facility components via barge. The EPC contractor will be responsible for transportation logistics, which include the option for barge delivery.

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Question No. 81

Responding Witness: David L. Tummonds

Q-81. Refer to the Joint Application, Exhibit 6, SAR related to Traffic and Rail Impact Assessment. Explain the decision between delivering certain project components via either barge or railway for the Mill Creek NGCC facility.

A-81. See the response to Question No. 80.

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Question No. 82

Responding Witness: David L. Tummonds

Q-82. Refer to the Joint Application, Exhibit 6, SAR related to Traffic and Rail Impact Assessment. Detail which facility components KU and LG&E plans to have delivered via railroad and via barge during the construction of the Mill Creek NGCC facility. Include in the response the anticipated number of trips for each component and the expected load weight of each component.

A-82. See the response to Question No. 80. The Companies do not have a list of components that will be delivered by railroad or barge.

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Question No. 83

Responding Witness: David L. Tummonds

Q-83. Refer to the Joint Application, Exhibit 6, SAR relating to Project Description. Explain whether the Mill Creek NGCC facility include a Selective Catalytic Reduction (SCR).

A-83. Mill Creek 6 will include an SCR.

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Question No. 84

Responding Witness: David L. Tummonds

Q-84. Provide a map showing the anticipated route of the natural gas supply line which will be extended to the proposed Brown NGCC site. Include in the map a notation with the width of the pipe and depth at which it will be buried.

A-84. The existing natural gas line owned by the Companies currently supplies natural gas to the Brown site. The EPC contractor, with input from the Companies, will tie into the existing onsite gas line to supply the proposed Brown NGCC facility. The EPC contractor will be responsible to design the pipeline (diameter and depth) to meet applicable codes and project requirements, thus the requested map is not available.

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Question No. 85

Responding Witness: Philip A. Imber

Q-85. Refer to the Joint Application, Exhibit 5, SAR 4.1 Air Resource Assessment. Explain how many tons of HAP are expected to be emitted each year at the proposed Brown NGCC facility.

A-85. See the response to Question No. 74.

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Question No. 86

Responding Witness: Philip A. Imber

Q-86. Refer to the Joint Application, Exhibit 5, SAR 4.1 Air Resource Assessment. Explain how NOx emissions will be controlled once the Brown NGCC facility is operational.

A-86. NOx emissions will be controlled with Dry Low NOx Burners and a SCR.

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Question No. 87

Responding Witness: Philip A. Imber / David L. Tummonds

Q-87. Refer to the Joint Application, Exhibit 5, SAR 4.1 Air Resource Assessment. Explain how the Brown NGCC facility will be designed to reduce fugitive methane emissions.

A-87. See response to Question No. 76.

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Question No. 88

Responding Witness: David L. Tummonds

Q-88. Refer to the Joint Application, Exhibit 5, SAR related to Traffic and Rail Impact Assessment. Explain whether the Applicant has had any conversations with representatives of Norfolk Southern Railway regarding the Brown NGCC facility. If so, describe the nature of those conversations, any concerns, and resolutions from those interactions.

A-88. The Companies have not discussed the proposed Brown NGCC with representatives from Norfolk Southern Railway.

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Question No. 89

Responding Witness: David L. Tummonds

Q-89. Refer to the Joint Application, Exhibit 5, SAR related to Traffic and Rail Impact Assessment. State whether a plan to coordinate delivery times around the Norfolk Southern Railway schedule has been or will be devised. Provide that plan, if available.

A-89. The EPC contractor will be responsible for transportation logistics, which include coordinating deliveries around railway schedules.

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Question No. 90

Responding Witness: David L. Tummonds

Q-90. Refer to the Joint Application, Exhibit 5, SAR related to Traffic and Rail Impact Assessment. Detail which facility components KU and LG&E plans to have delivered via railroad for the Brown NGCC facility. Include in the response the anticipated number of trips for each component and the expected load weight of each component as well as whether this expense was included in the cost of the project.

A-90. See the response to Question No. 89. The Companies do not have a list of components that will be delivered by railroad.

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Question No. 91

Responding Witness: David L. Tummonds

Q-91. Refer to the Joint Application, Exhibit 5, SAR relating to Project Description. Provide whether the Brown NGCC facility will include a SCR facility.

A-91. The Brown NGCC facility will include a SCR.

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Question No. 92

Responding Witness: Philip A. Imber

Q-92. Refer to the Joint Application, Exhibit 7. Provide an Environmental Impact Assessment for the proposed BESS facility.

A-92. The proposed BESS facility does not have a nexus that triggers NEPA applicability because it does not impact federal land or use federal funding. Because the BESS facility does not qualify for NEPA, an Environmental Impact Assessment is not required and the Companies therefore did not conduct one. See the response to Question No. 93.

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Question No. 93

Responding Witness: Philip A. Imber

Q-93. Refer to the Joint Application, Exhibit 7. Provide a Cumulative Environmental Assessment for the proposed BESS facility.

A-93. Exhibit 7 contains each of the cumulative environmental assessment requirements per KAR 224.10-280(3).

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Question No. 94

Responding Witness: Philip A. Imber / Stuart A. Wilson

Q-94. Refer to Imber Direct Testimony, page 14, lines 1–14.

a. Provide a detailed description of how LGE/KU accounts for the EPA Rule that limits new source electric generating units to a maximum 40 percent capacity factor.

b. Determine and explain whether this limitation impacts the LG&E/KU Long-Term Load Forecast.

c. Determine and explain whether this limitation was included in the production cost portfolio modeling and if so, explain how LG&E/KU modeled this impact.

A-94.

a. For the reasons described in Mr. Imber's testimony, the Companies' analysis assumes the referenced EPA rule does not go into effect, and the Companies did not directly consider the rule in their resource assessment. Nonetheless, the Companies' 2024 IRP Resource Assessment demonstrates that the proposed NGCCs are least-cost even with a 40 percent capacity factor limit.

b. See the response to part (a). This limitation is not expected to go into effect and does not affect the Companies' long-term load forecast.

c. See the response to part (a).

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Question No. 95

Responding Witness: Philip A. Imber / Stuart A. Wilson

Q-95. Refer to the Imber Direct Testimony, page 14, lines 1–14. Provide a detailed description of how LG&E/KU plans to comply with the May 9, 2024, EPA Green House Gas (GHG) rules under CAA Sections 111(b) and (d) currently in place.

A-95. The Companies developed a least-cost resource plan for complying with the GHG rules in their 2024 IRP (see sections 4.4.1.4 and 4.4.2.4 of the 2024 IRP Resource Assessment in IRP Volume III). In addition to the new resources proposed in this proceeding (i.e., Cane Run BESS, Ghent 2 SCR, Brown 12, and Mill Creek 6), compliance with the GHG rule would require five additional NGCCs, thousands of MWs of renewables, and all coal resources would either be retired or converted to burn natural gas by 2039. See also the response to Question No. 94.

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Question No. 96

Responding Witness: Robert M. Conroy / Counsel

Q-96. Refer to the Conroy Direct Testimony page 3, lines 1–23: Explain whether LG&E/KU intends for the costs associated with providing the 6,000 MW of additional supply side electric generation generally and the 1,750 MW specifically forecasted to serve the new data centers be funded by each data center developer or by the LG&E/KU ratepayers. If they are to be funded by the ratepayers, provide a detailed explanation of rational for this approach.

A-96. The Companies note they are not currently forecasting 6,000 MW of load growth. The Companies also respectfully dispute the relevance of a request fundamentally concerning base rates in a CPCN proceeding.[18]

Relevance concerns aside, the Companies have an obligation to serve all customers in their service territories. The obligation to serve an existing or new customer is not contingent upon how or whether serving that customer has provided or will provide benefits to other customers relative to not serving that customer.[19] Only when a utility offers economic development demand-charge

[18] *See, e.g., 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-Fired Generation Unit Retirements*, Case No. 2022-00402, Order at 10-12 (Ky. PSC Nov. 6, 2023) ("To obtain a CPCN, a utility must demonstrate a need for such facilities and an absence of wasteful duplication. … 'Need' requires: [A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed or operated. … 'Wasteful duplication' is defined as 'an excess of capacity over need' and 'an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties.' … The fundamental principle of reasonable least-cost alternative is embedded in such an analysis. Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication. All relevant factors must be balanced.") (internal citations omitted).

[19] *See, e.g.,* KRS 278.010(14) ("'Adequate service' means having sufficient capacity to meet the maximum estimated requirements of the customer to be served during the year following the commencement of permanent service and to meet the maximum estimated requirements of other actual customers to be supplied from the same lines or facilities during such year and to assure such customers of reasonable continuity of service"); KRS 278.018(3); KRS 278.030(2); *Electronic Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Construction of Transmission*

discounts to tariffed rates to a prospective customer does a utility have to demonstrate that serving that customer will not increase costs to other customers and will provide some marginal benefit by providing additional revenues to cover already existing fixed costs.[20] In this proceeding, the Companies are proposing neither rates for data centers nor demand-charge discounts of any kind.

Also, with the exception of purely voluntary, elective renewable generation resources individual customers ask the Companies to acquire that are above and beyond what is required to provide safe and reliable service at the lowest reasonable cost (e.g., the Solar Share Program, Business Solar, and Green Tariff Option #3), the Companies do not have generation resources dedicated to a particular customer or group of customers. Rather, except those elective generation resources—for which the requesting customers pay—*all* customers benefit from *all* of the Companies' generation resources. Thus, all customers appropriately pay cost-based rates for all such resources based on allocations of those costs determined in fully allocated embedded cost of service studies.[21]

Facilities in Hardin County, Kentucky, Case No. 2022-00066, Order at 18 (Ky. PSC July 28, 2022) ("KU has a statutory obligation to serve Ford, and meet Ford's needs for retail electric service, even though Ford will require more power than any other customer on KU's system when Ford becomes fully operational. KU's obligation to serve is not altered or diminished in any way simply because Ford is uniquely situated and meeting Ford's needs for power will require KU to construct transmission facilities."); *An Assessment of Kentucky's Electric Generation, Transmission, and Distribution Needs*, Admin. Case No. 2005-0090, Order Appx. A at 60 (Ky. PSC Sept. 15, 2005) ("[T]he Commission concludes that Kentucky should preserve its current statutory and regulatory framework, which focuses primarily on the utilities' obligation to serve the electrical needs of customers within a defined service territory."); *Joint Application of Powergen PLC, LG&E Energy Corp., Louisville Gas and Electric Company, and Kentucky Utilities Company for Approval of a Merger*, Case No. 2000-00095, Order at 22-24 (Ky. PSC May 15, 2000) ("NAS asserted that serving existing and new Kentucky loads must be LG&E Energy's top priority. … The Commission concurs that serving existing and new Kentucky load must be a high priority for LG&E Energy. … In response to these concerns, PowerGen has committed to allowing LG&E and KU to acquire the necessary resources, whether through new generating capacity or firm contracts, in an effort to give priority to new and existing native load. … The Commission will monitor the fulfillment of this commitment by the Applicants, including, if appropriate, the consideration of new base-load or intermediate-load generation."); *The Consideration and Determination of the Appropriateness of Implementing a Ratemaking Standard Pertaining to the Purchase of Long-Term Wholesale Power by Electric Utilities as Required in Section 172 of the Energy Policy Act of 1992*, Admin. Case No. 350, Order at 7 (Ky. PSC Oct. 25, 1993) ("However, the Commission notes that a utility has a statutory obligation to serve the public."); *Walter Callihan and Goldie Callihan v. Grayson RECC*, Case No. 10233, Order at 2-3 (Ky. PSC May 1, 1989) ("As a public utility, it has an obligation to serve all applicants for service located within its service territory.").

[20] *See, e.g., An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, Admin. Case No. 327 at 8 (Ky. PSC Sept. 24, 1990).

[21] *See, e.g., General Adjustment of Electric Rates of East Kentucky Power Cooperative, Inc.*, Case No. 2006-00472, Order at 36-37 (Ky. PSC Dec. 5, 2007) ("EKPC filed a fully allocated, embedded cost-of-service study in order to determine the contribution that each customer class was making toward its overall rate of return and as an indicator of whether its rates reflect the cost to serve each customer class. … The Commission finds that EKPC's cost-of-service study is reasonable and consistent with the methodology accepted in previous rate cases ….").

But to be clear, the Companies are not proposing any cost recovery or allocation approach regarding any "additional supply side electric generation" in this proceeding.

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Question No. 97

Responding Witness: Lonnie E. Bellar

Q-97. For the past five years (2020–2024), provide a performance profile for each of the Ghent Generating Units outlining the following:

a. Equivalent availability factor;

b. Equivalent forced outage rate;

c. NERC GADS reports;

d. List of the top ten major availability detractors;

e. Capacity Factor;

f. Heat Rate;

g. Variable production costs $/mWh;

h. Rate maximum load capability; and

i. Rate dependable minimum load capability.

A-97.

a. See attachment being provided in a separate file.

b. See attachment being provided in a separate file.

c. See attachment being provided in a separate file.

d. See attachment being provided in a separate file.

e. See attachment being provided in a separate file.

f. See attachment being provided in a separate file.

g. See attachment being provided in a separate file.

h. See the table below.

Ghent Generating Units Net Maximum Capacity (MW)		
Unit	**Winter**	**Summer**
Ghent 1	479.0	475.0
Ghent 2	486.0	485.0
Ghent 3	476.0	481.0
Ghent 4	478.0	478.0

i. See the table below.

Unit	**Net Minimum Load (MW)**
Ghent 1	218
Ghent 2	225
Ghent 3	210
Ghent 4	215

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Question No. 98

Responding Witness: Lonnie E. Bellar

Q-98. For the past five years, provide a summary of any forced outages for each Ghent station generating unit and provide the associated root cause analysis for each event.

A-98. See attachments being provided in separates file for the forced outage event list.

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Question No. 99

Responding Witness: Lonnie E. Bellar / Robert M. Conroy

Q-99. Provide an analysis of the impact a Ghent Unit 2 forced outage has had on fuel cost and purchased power costs.

A-99. Under KU's Fuel Adjustment Clause ("FAC"), Ghent Unit 2 forced outages have no effect on fuel costs or purchased power costs recovered from customers. For example, Ghent Unit 2's most recent forced outage event in excess of six hours was between 4/26/2023 12:18 EST and 4/28/2023 07:13 EST due to a superheat spray header leak. The cost of the fuel used to replace the lost generation from Ghent Unit 2 was $29,886 higher than the estimated cost of fuel Ghent Unit 2 would have used had it remained online. Additionally, the Companies' After the Fact Billing process assigned $413 of incidental imbalance purchases (that would have occurred regardless of this forced outage) to KU during this period. Because KU's FAC limits the recovery of fuel costs related to units on a forced outage to the cost that would have been incurred by the unit forced out, KU's April 2023 expense month Form A FAC filing filed with the Commission on May 22, 2023, showed $30,299 of actual fuel and purchased power costs were excluded from FAC cost recovery.

KENTUCKY UTILITIES COMPANY
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Response to Commission Staff's First Request for Information
Dated March 27, 2025

Case No. 2025-00045

Question No. 100

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

Q-100. Provide the status of the Ghent Unit 2 environmental compliance under the following:

a. The United States Environmental Protection Agency (USEPA) Mercury and Air Toxics Standard (MATS);

b. The USEPA Cross State Air Pollution Rule (CSAPR);

c. The USEPA Greenhouse Gas Regulations (GHG);

d. The USEPA National Ambient Air Quality Standard (NAAQS) for ozone;

e. USEPA National Ambient Air Quality Standard (NAAQS) for PM2.5;

f. The USEPA Start-up, Shutdown Malfunction (SSM) Exemptions;

g. USEPA Coal Combustion Residual (CCR) regulations;

h. The USEPA Effluent Limitation Guidelines (ELG); and

i. The USEPA Clean Water Act impacting Cooling Water Intakes under Section 316b of the Clean Water Act;

A-100.

a. Ghent Unit 2 is in compliance with the emissions rates, CEMS requirements, and testing protocols. With respect to 2024 MATS rule, the Companies have already implemented tighter controls for Ghent Unit 2 and do not currently anticipate the need to make significant capital expenses to stay in compliance.

b. The CSAPR program in effect today limits ozone season NOx emissions to comply with the 75 ppb 2007 Ozone NAAQS. Ghent Unit 2 is in compliance because the Companies' NOx emissions remain under the

allotment of allowances given by the current program. The Good Neighbor Plan (GNP) was a finalized CSAPR for the 70 ppb 2015 Ozone NAAQS. Ghent 2 does not have the Reasonably Achievable Control Technology (RACT) to achieve the control limits of the GNP. There is no debate about SCR technology as a reasonable basis of controls for NOx reductions in support of CSAPR and Ozone NAAQS. Although the GNP is no longer in effect for Kentucky due to court actions, the EPA is obligated to drive attainment of the 2015 Ozone NAAQS. Adding SCR is prudent to ensure long term operability and flexibility of Ghent 2 with respect to CSAPR.

c. The GHG regulations that were published on May 9, 2024, have compliance deadlines that do not become applicable until 2030 at the earliest. Therefore, to date, Ghent Unit 2 is in compliance with those regulations and if the rule is not stayed, repealed, remanded, or revised, KU will need to publish a compliance plan for a State Implementation Plan due May 2026.

d. Under the NAAQS for ozone, Ghent Unit 2 does not have individual compliance requirements. The CSAPR program is the mechanism to incorporate unit specific requirements that support NAAQS attainment. See part (b).

e. Under the NAAQS for PM2.5, Ghent 2 does not have individual compliance requirements. However, Ghent 2 has pulse jet fabric filter (PJFF) controls for particulate matter. PJFF is arguably best or maximum achievable control technology. As such, Ghent 2 is fully controlled and is unlikely to require additional capital expense related to PM NAAQS.

f. Within Ghent Generating Station's Title V permit (Permit No. V-23-016), Ghent Unit 2's permit conditions contain no mention of exempting any time periods from compliance standards. Thus, Ghent Unit 2 is compliance with the EPA's policies on not exempting startup, shutdown, and malfunction time periods from compliance determinations.

g. CCR (bottom ash, fly ash, and gypsum) generated from ongoing Ghent Unit 2 operations is handled and stored in compliance with the CCR Rule.

h. Ghent Unit 2 is commissioning and testing biological controls to comply with the 2020 ELG. The permitted compliance date for Ghent 2 is December 1, 2025. KU is evaluating control strategies for the 2024 ELG. Please refer to JI DR 1-37 that notes investment is required at Ghent to comply with the zero-liquid discharge obligation of the 2024 ELG rule.

i. The current KPDES permit incorporated the appropriate study work to depict Ghent's compliance with Clean Water Act Section 316b.

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Response to Commission Staff's First Request for Information
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Case No. 2025-00045

Question No. 101

Responding Witness: Philip A. Imber / Stuart A. Wilson

Q-101. Refer to Imber Direct Testimony.

a. Provide legal SO2, NOx, and Hg emission limits for the Ghent Unit 2.

b. Provide actual and planned SO2, NOx, and Hg emissions for the Audit Period (2020 thru 2024).

c. Provide a comparison of the actual SO2, NOx, and Hg quantities emitted from each unit with the monthly SO2 limits for the Brown Unit 2. Provide separately the average emission rate for SO2 (#/MMBtu), Hg, and NOx (#/MMBtu) for the Brown Unit 2 for the same period.

d. Provide the most recent Ghent Unit 2 environmental compliance reports.

A-101.

a. Per Ghent Generating Station's Title V permit (Permit No. V-23-016), Ghent Unit 2's emissions limits are:

SO2: 1.2 lb/MMbtu heat input, based on the arithmetic average of three contiguous one-hour periods.

NOx: 0.70 lb/MMBtu heat input, based on the arithmetic average of three contiguous one-hour periods.

Hg: 0.013 lb/GWh, based on a 30-boiler operating day rolling average basis.

b. See the table below.

Ghent Unit 2 Emissions:

	Actual			Planned[22]	
Year	SO2[23] (tons)	NOx[23] (tons)	Hg[24] (lbs)	SO2 (tons)	NOx (tons)
2020	4,877	3,342	14.91	7,657	4,961
2021	6,235	4,069	19.31	6,624	4,376
2022	5,506	4,015	21.78	6,214	4,263
2023	3,893	4,746	18.04	6,339	4,093
2024	5,043	4,155	25.41	5,887	4,080

c. Brown Unit 2 was retired on March 1, 2019. Therefore, the requested information is not available for 2020 through 2024.

d. See attachment being provided in a separate file – the 2024 Annual Title V compliance report.

[22] Planned SO2 and NOx emissions are based on each year's corresponding business plan forecast. The Companies do not forecast Hg emissions.
[23] Data from the Companies' continuous emission monitoring data acquisition and handling software.
[24] Annual emissions inventory data reported to Kentucky Division for Air Quality.

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Response to Commission Staff's First Request for Information
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Case No. 2025-00045

Question No. 102

Responding Witness: Lonnie E. Bellar

Q-102. Refer to Case 2022-00402,[26] the Direct Testimony of David Sinclair (Sinclair Direct Testimony), page 9, line 7 thru 11. LG&E/KU recommended that the Ghent Unit 2 be retired in 2028, which was denied by the Commission in an Order issued November 6, 2023. Since that denial, explain whether the operating capabilities of the Ghent Unit 2 have changed. Include in the response Equivalent Availability Factor, Capacity Factor, Equivalent Forced Outage Rate and any major derates.

A-102. The operating capabilities of Ghent Unit 2 have not materially changed. The significant factors that have changed are increased load and increased cost of replacement capacity, both supporting the continued operation of Ghent Unit 2. See attachment being provided in a separate file for the requested data.

[26] Case No. 2022-00402, *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-Fired Generating Unit Retirements*, Direct Testimony of David Sinclair (filed Dec. 15, 2022).

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Response to Commission Staff's First Request for Information
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Case No. 2025-00045

Question No. 103

Responding Witness: Lonnie E. Bellar / Stuart A. Wilson

Q-103. Refer to Case 2022-00402, Sinclair Direct Testimony, page 9, lines 7–11. LG&E/KU recommended that the Brown Unit 3 be retired in 2028, which was denied by the Commission by Order on November 6, 2023.

a. Since that denial, explain whether the operating capabilities of the Brown Unit 3 changed. Include in the response Equivalent Availability Factor, Capacity Factor, Equivalent Forced Outage Rate, and any major derates.

b. Describe the LG&E/KU operational plans for Brown Unit 3 including the planned retirement date.

A-103.

a. The operating capabilities of Brown Unit 3 have not materially changed. The significant factors that have changed are increased load and increased cost of replacement capacity, both supporting the continued operation of Brown Unit 3. See attachment being provided in a separate file for the requested data.

b. The Companies intend to continue operating Brown Unit 3 as long as it is economical to do so. The cost and delivery of coal to the Brown station is more expensive at Brown than the Companies' other coal stations, and the resource assessment in Exhibit SAW-1 showed Brown Unit 3 retiring in 2035 in most scenarios with or without landfill constraints at Brown.

Brown Unit 3 will be undergoing a turbine overhaul in 2027. The Companies currently anticipate retiring Brown Unit 3 in 2035 before its subsequent turbine overhaul because it will be 63 years old and is expected to require significant capital investments to extend its useful life beyond 2035.

But the Companies have not requested and are not requesting authority to retire Brown Unit 3 in this proceeding. Whether Brown Unit 3 retires in 2035 does not affect the need for the facilities for which the Companies are

requesting certificates of public convenience and necessity in this proceeding.

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Case No. 2025-00045

Question No. 104

Responding Witness: Robert M. Conroy

Q-104. Refer to the Conroy Direct Testimony, page 8, lines 2–4, which states that "proceeding with the LGE/KU's proposed resources will optimally position the LGE/KU to be able to meet existing and new customers' projected needs safely, reliably and at the lowest reasonable cost."

a. Explain the projected rate impact on existing customers if the Commission approves the LG&E/KU's proposed resources as filed.

b. Explain how LG&E/KU would recover any costs incurred for new customer loads that may not develop or that leave the system sooner than expected.

c. Explain whether existing customers would be responsible for the recovery of the stranded costs.

A-104.

a. The Companies respectfully dispute the relevance of a request concerning rates in a CPCN proceeding.[26] That aside, the Companies have not performed a cost of service study or revenue requirement, rate, or bill impact analyses for the proposed facilities other than the Ghent 2 SCR because the Companies are not seeking cost recovery for the proposed supply-side investments at this time. Such cost recovery would be

[26] *See, e.g., 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-Fired Generation Unit Retirements*, Case No. 2022-00402, Order at 10-12 (Ky. PSC Nov. 6, 2023) ("To obtain a CPCN, a utility must demonstrate a need for such facilities and an absence of wasteful duplication. … 'Need' requires: [A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed or operated. … 'Wasteful duplication' is defined as 'an excess of capacity over need' and 'an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties.' … The fundamental principle of reasonable least-cost alternative is embedded in such an analysis. Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication. All relevant factors must be balanced.") (internal citations omitted).

requested through a future application for a change in base rates that would include other changes in the cost of providing safe and reliable energy to customers. The appropriate analysis in this proceeding is to determine the least reasonable cost portfolio for meeting future customers' needs based on present value revenue requirements.

Regarding the Ghent 2 SCR, see the attached customer notice KU has provided to Kentucky Press Service, Inc. for publication beginning the week of April 22nd concerning KU's application in Case No. 2025-00105.

b. See the response to Question No. 28(c).

c. See the response to Question No. 28(c).

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Response to Commission Staff's First Request for Information
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Case No. 2025-00045

Question No. 105

Responding Witness: Stuart A. Wilson

Q-105. Refer to the Wilson Direct Testimony, page 10, lines 6–7, which states that impactful events have occurred since the 2024 IRP analysis. Provide a list of the referenced events and their respective impacts.

A-105. Key events are the developments discussed in Messrs. Bevington's and Jones's testimonies that caused the Companies to increase their outlook for economic development load growth and the change in the presidential administration, which caused the Companies to focus on the Ozone NAAQS environmental scenario in their resource assessment.

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Response to Commission Staff's First Request for Information
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Case No. 2025-00045

Question No. 106

Responding Witness: Lonnie E. Bellar / David L. Tummonds

Q-106. Refer to the Joint Application, Exhibit 7, the BESS SAR page 36, section 3.5, Emergency Events.

a. Describe how the Cane Run Operators will respond to a thermal-runaway fire at the BESS facility.

b. If a BESS fire cannot be controlled by the facility Operators and the local fire department is contacted, verify that the local fire fighters are trained per NFPA 855 standards to safely contain a BESS fire.

A-106.

a. The prevention of thermal runaway is managed and mitigated by the Battery Management System ("BMS"). The BMS identifies risks to the battery system by monitoring cell temperature, voltage, and current. The BMS reduces risk of thermal runaway by disconnecting the batteries in case of overcharge, discharge, temperature, current, and other risks as identified in UL1973. The BMS mitigation strategy is part of the UL1973 listing associated with the battery module(s). Additionally, the manufacturer will provide a cooling system that maintains batteries at optimum operating temperature. The cooling and/or heating system is integrated into the battery system.

b. The Companies will work with the EPC contractor to identify the proper training, instructor, timing, and audience to ensure local emergency services are fully informed prior to initiating construction and operation activities. In addition, the Companies will establish an annual meeting with emergency responders to discuss the status and pending progress of this project as well as the expected reiteration that the emergency responder action plan for the new site will likely closely follow that of battery storage at the E.W. Brown Generating Station.