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 SIERRA CLUB'S INITIAL REQUEST FOR INFORMATION DATED MARCH 28, 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

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

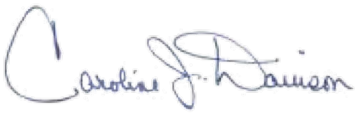
VERIFICATION

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
NOTARY PUBLIC
ID # KYNP63286
COMM EXPIRES 01/22/2027
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

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

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-1

Responding Witness: Robert M. Conroy

Q-1-1. To the extent not already provided, please provide any redacted documents included in the Companies' initial filing in non-redacted, electronic versions.

A-1-1. The Companies have filed electronic documents (testimony, exhibits, and workpapers) that support the Joint Application in this case before the Commission. The Commission issued a letter on March 4, 2025 that accepted the Joint Application as filed on February 28, 2025. Under 807 KAR 5:001 Section 8, the Companies requested, and the Commission approved, the use of electronic filing procedures in this proceeding. On April 8, 2025, Sierra Club consented to the use of those procedures. All documents are filed electronically and provided to all parties of record. On April 8, 2025, Sierra Club and the Companies executed a confidentiality agreement, and on April 9, 2025, the Sierra Club was granted access to an encrypted file-share site to access the confidential information and public files.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-2

Responding Witness: Robert M. Conroy

Q-1-2. To the extent not already provided, please provide all confidential workpapers, in electronic spreadsheet format with formulas intact, supporting the Companies' filing.

A-1-2. See the response to Question No. 1-1.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-3

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

Q-1-3. Please refer to the Direct Testimony of Witness Bellar at page 11.

a. Please provide a copy of the Unit Reservation Agreement with GE for Brown 12.

b. Please explain why the Companies have not entered into a reservation agreement for Mill Creek 6.

c. Please provide the documents that support the assertion that the 2031 projected online date for the Mill Creek 6 NGCC can be achieved if the Companies have not yet entered into a reservation agreement with GE.

d. Please explain if the lack of a signed reservation agreement for Mill Creek 6 means that the costs for Mill Creek 6 could be higher than what has been evaluated in this case.

A-1-3.

a. See the response to JI 1-18(a).

b. See the response to PSC 1-34.

c. See the response to PSC 1-34.

d. The Companies will not have price certainty on the gas turbine and generator associated with Mill Creek 6 until they sign a reservation agreement or equipment purchase agreement with the OEM provider. As noted, increasing world-wide demand for gas turbines since the final order in Case No. 2022-00402 has continued to push costs higher.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-4

Responding Witness: David L. Tummonds

Q-1-4. Please refer to the Direct Testimony of Witness Tummonds at page 13 where it references the $775 million cost to construct the Cane Run BESS. Please explain if that cost includes Investment Tax Credits.

A-1-4. The $775 million referenced represents "overnight costs" and does not include Investment Tax Credits.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-5

Responding Witness: John Bevington / Tim A. Jones

Q-1-5. Please refer to the Direct Testimony of Witness Jones at page 8, lines 5-10.

a. Please provide the supporting workpapers, with all formulas and links intact, used to develop the 2025 CPCN Load Forecast.

b. Please provide the supporting workpapers, with all formulas and links intact, for the translation of the 2025 CPCN Load Forecast into the hourly load modeled in PLEXOS.

c. Please provide the supporting workpapers, with all formulas and links intact, used to develop the 8,760 hourly shape assumed for the data center load and the BOSK Phase Two load in the 2025 CPCN Load Forecast.

d. Please explain if any of the assumed 1,750 MW of data center load includes customers that have signed a contract for service with the Companies.

A-1-5.

a. See Exhibit TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts".

b. See Exhibit TAJ-2 at "Load_Forecasting\CPCN\Hourly_Forecast".

c. For BOSK, see Exhibit TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts\CONFIDENTIAL_Major_Accounts\Analysis\Large_Auto_Manuf_MA_Shaping.xlsx."

For LGE data center 8,760 hourly shape, see Exhibit TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts\CONFIDENTIAL_Major_Accounts\Analysis\Data_Center_1_Phase_2_Included_MA_Shaping.xlsx."

For KU data center 8,760 hourly shape, see TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts\CONFIDENTIAL_Major_Accounts\Analysis\ Data_Center_3_MA_Shaping.xlsx."

d. See the response to PSC 1-28(b).

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-6

Responding Witness: Tim A. Jones

Q-1-6. Please refer to the Direct Testimony of Witness Jones at page 14, lines 13 – 16. Please provide the assumed ramp rate for the 402 MW hyperscale data center that was included in the 2025 CPCN Forecast.

A-1-6. See the responses to PSC 1-17(a) and PSC 1-26(b).

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-7

Responding Witness: Tim A. Jones

Q-1-7. Please refer to the Direct Testimony of Witness Jones at page 20, lines 11 – 19. Please provide the assumed ramp rate for the 120 MW of Phase Two load for BOSK that was included in the 2025 CPCN Forecast.

A-1-7. The 120 MW of Phase Two load for BOSK was added with no ramp rate assumed. The 120 MW is assumed to start in July 2028.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-8

Responding Witness: Tim A. Jones

Q-1-8. Please refer to the Direct Testimony of Witness Jones at page 21, lines 1-8. Please provide the 8,760 hourly shape included in the 2025 CPCN Load Forecast for the 20 MW economic development prospect in the auto industry and the 19.4 MW from an existing customer's expansion.

A-1-8. For the 20 MW economic development prospect's hourly shape, see TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts \CONFIDENTIAL_Major_Accounts\Analysis\IRP_Scenario_Files\ Auto_Manuf_MA_Shaping.xlsx."

The 19.4 MW customer expansion does not have a specified 8,760 hourly load profile. Therefore, the increased load was added to the customer's billed energy and demand forecasts as described in Exhibit TAJ-1 at Section 4.2, and the additional load essentially follows the system load profile.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-9

Responding Witness: Tim A. Jones

Q-1-9. Please refer to the Direct Testimony of Witness Jones at page 29, lines 16 – 21, to page 30, lines 1-4.

a. Please provide the supporting workbooks, with all formulas and links intact, used to develop the customer-initiated energy efficiency improvements, AMI-related conservation load reduction and e-Portal savings, distributed generation, and the energy efficiency effects of the Companies' 2024-2030 DSM-EE Program plan that were included in the 2025 CPCN Load Forecast.

b. Please provide the supporting workbooks, with all formulas and links intact, that were used to reflect the savings in the load forecasts modeled in PLEXOS.

A-1-9.

a. See the response to JI 1-95.

b. See the response to part (a). The hourly load forecasts modeled in PLEXOS already account for DSM-EE and AMI-related reductions as well as reductions associated with distributed generation.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-10

Responding Witness: John Bevington / Counsel

Q-1-10. Please refer to the Direct Testimony of Witness Bevington at page 5, lines 15 – 18.

a. Please explain in which stages of development each of the economic development load projects are in for the 8,000 MW of load potential.

b. Provide the number of new customers included in the 8,000 MW of load potential.

c. For each new customer included in the 8,000 MW of load potential, please provide the peak demand, ramp schedule, annual energy requirements, load factor, hourly shape, anticipated date the customer expects to receive service, the commercial activity of the customer (i.e. data center, cryptocurrency, or EV manufacturing), and whether the customer has entered into any agreements or contracts with the Companies.

d. For each new customer that has executed an agreement indicating an intention to obtain service from the Companies, please provide the date of the agreement.

   i. If agreements have not been executed, please explain if any of the new customers are considering locating their facility outside of the Companies' service territory or in another state.

   ii. Please provide a copy of said agreement.

e. Please provide any communications that the Companies have provided to data center customers indicating what rate they should expect to pay.

f. Please explain if any of the new customers have commenced site construction activities.

g. For the potential new customers that the Companies have engaged in conversations with, please confirm if any of those customers have made

modifications to the announced load or ramp schedule. If yes, please provide the initial numbers provided to the Companies and modifications made by the customer.

A-1-10.

a. See the response to AG-KIUC 1-33(a).

b. 66 are new customers as of the date of this response.

c. See the response to AG-KIUC 1-33(a). The Companies do not track some of the requested information, and in many cases the projects do not provide some of the requested information during their decision-making process.

d. See the response to JI 1-5(b).

   i. The Companies do not track the other locations prospects are considering.

   ii. See the response to JI 1-5(b).

e. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[1] Without waiving this objection, see the response to PSC 1-28(b).

f. The Companies do not track the information requested.

g. It is typical for specific load requests for projects to change over the lifecycle of the project. Some projects may modify loads slightly, while others may increase or decrease load projections more significantly. While the Companies update project profiles with the most up to date information, they do not track specific points in time when a load profile changes and by how much.

[1] *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).

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-11

Responding Witness: Charles R. Schram / David L. Tummonds / Stuart A. Wilson

Q-1-11. Please refer to the Direct Testimony of Witness Wilson at pages 13 and 14.

a. Please provide the supporting workbooks, with all formulas and links intact, used to develop the cost and performance estimates modeled in the 2025 CPCN Resource Assessment for renewable resources, Brown 12, Mill Creek 6, an NGCC at Green River Generating Station, Cane Run BESS, a BESS at Ghent, and the generic resources.

b. Please provide the bid responses the Companies received in response to the May 2024 RFP.

c. Please provide any studies that were prepared to support the costs of the NGCCs at Brown 12, Mill Creek 6, and the Green River Generating Station.

d. Please provide any studies that were prepared to support the costs of the BESS at Cane Run and Ghent.

e. Please confirm if the new dispatchable DSM program measures and the expansion of the Companies' CSR program are the same as what was modeled in the 2024 IRP.

   i. If not confirmed, please explain any differences in assumptions between the 2024 IRP and the 2025 CPCN Resource Assessment.

f. Please explain if the renewable projects from the RFP were modeled in PLEXOS with site-specific capacity factors. If not, please explain what capacity factor was modeled in PLEXOS.

A-1-11.

a. For all resources modeled, see Exhibit SAW-2 at "Screening\ CONFIDENTIAL_20250201_ResourceScreeningModel_2025CPCN_0336.xlsx."

The renewable resources modeled in the 2025 CPCN Resource Assessment were the responses to the May 2024 RFP. See the response to part (b). For all files related to performance estimates for renewable resources, see Exhibit SAW-2 at "PLEXOS\Support\Solar Generation" and "PLEXOS\Support\Wind Generation."

See the four Excel files provided in Exhibit SAW-2 at "Screening\Support" for supporting workbooks related to cost estimates for Brown 12, Mill Creek 6, NGCC at Green River Generation Station ("GR5"), and Cane Run BESS. The cost estimate for Ghent BESS was developed based on the cost estimate for Cane Run BESS and adjusted for topography and distance from the substation.

See the response to AG-KIUC 1-16 for supporting documentation for the generic SCCT.

b. The May 2024 RFP responses were provided as Exhibit CRS-2 in the testimony of Charles R. Schram.

c. See attachments being provided in separate files. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

d. See attachment being provided in a separate file. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

e. Confirmed.

   i. Not applicable.

f. The renewable projects from the RFP were modeled in PLEXOS with site-specific capacity factors.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-12

Responding Witness: David L. Tummonds

Q-1-12. Please refer to the Direct Testimony of Witness Wilson at page 15, lines 13 – 16. Please explain what additional site work would be needed at Ghent to accommodate battery storage.

A-1-12. The BESS feasibility report provided in response to Question 11.d, states

> [T]opographical data in the area indicates very few relatively flat sites in the areas planned for the BESS facility. Most terrain varies from 2-6% with most of the site sloped between 9 and 26%. These variations indicate that major earthwork activities will be required before the BESS systems can be installed.

The referenced major earthwork could include but not limited to terracing the proposed site via excavation of soil and blasting/ripping of rock to create level terrain for installation of a BESS facility at Ghent. The Ghent BESS cost estimate was based on terracing the proposed project sites to accommodate installation of a BESS facility.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-13

Responding Witness: Stuart A. Wilson

Q-1-13. Please refer to the Direct Testimony of Witness Wilson at page 21 – 22.

a. For all PLEXOS modeling runs performed for the CPCN filing, please provide the following:

i. The PLEXOS database (.xml).

ii. The zipped output solution files for each run and associated portfolio containing the log files and other relevant output.

iii. The capacity expansion planning period.

b. Please provide all SERVM files necessary to execute studies from the 2025 CPCN Resource Assessment within the SERVM software, including the SERVM.bak file, the SERVM release, and the executable file.

c. Please provide the SERVM output files for each of the studies conducted as part of the 2025 CPCN Resource Assessment.

d. Please provide the PROSYM input and output modeling files for each resource portfolio modeled.

e. Please provide the period over which the production cost modeling was performed in PROSYM.

f. Please provide the Financial Model supporting workbooks, with all formulas and links intact, used to develop the costs for each of the resource portfolios modeled.

g. Please provide the present value of revenue requirements ("PVRR") results for each of the modeling runs performed for this IRP.

A-1-13.

a.

i. See Exhibit SAW-2 at "PLEXOS\2025CPCN (10.000 R06).xml."

ii. See Exhibit SAW-2 at "PLEXOS\Results\CONFIDENTIAL_Solutions\Solution_Files.zip."

iii. Capacity expansion was modeled from 2030 through 2050.

b. Astrapé Consulting, the entity that licenses the SERVM software, has denied the Companies' permission to disclose the native file format (.bak) of the Companies' SERVM database and other proprietary files to any person or party who lacks an active SERVM license. Therefore, the Companies will provide these files to any party to this proceeding who has an active SERVM license and enters into a confidentiality agreement with the Companies.

c. See Exhibit SAW-2 at "SERVM\ Outputs_SERVMResults.zip."

d. See Exhibit SAW-2 at "PROSYM\ModelInputs" and "PROSYM\01_Stage1Step2."

e. Production costs were modeled from 2030 to 2050.

f. See Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage 1Step2_0336.xlsx."

g. PVRR results for each of the modeling runs are available on the PivotResults tab of the Financial Model. Specifically for the IRP, see the Financial Model files in KPSC Case No. 2024-00326 -- LGE-KU 2024 IRP Resource Planning Workpapers—CONFIDENTIAL.zip at "FinancialModel." For the Financial Model pertaining to the CPCN analysis, see the response to part (f).

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-14

Responding Witness: Stuart A. Wilson

Q-1-14. Please refer to the Direct Testimony of Witness Wilson at page 22. Please provide the supporting workbooks, with all formulas and links intact, used to develop each of the load scenarios modeled in PLEXOS.

A-1-14. See Exhibit TAJ-2 at "Load_Forecasting\CPCN\Hourly_Forecast\Scenarios".

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-15

Responding Witness: Stuart A. Wilson

Q-1-15. Please refer to Exhibit SAW-1 at page 6. Please provide the supporting workbook, with all formulas and links intact, used to develop the Brown 3 life extension costs.

A-1-15. See Exhibit SAW-2 at "FinancialModel\Support\20241111_StayOpenDetail__FleetLifeExtensionCapital.xlsx."

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-16

Responding Witness: Stuart A. Wilson

Q-1-16. Please refer to Exhibit SAW-1, Table 1 at page 5.

a. Please explain if the option for Ghent 2 to convert to gas was modeled in PLEXOS.

i. If this option was not modeled, please explain why not.

b. Please provide the supporting workbooks, with all formulas and links intact, used to develop the capital, fixed operations and maintenance, and stay-open costs if Ghent 2 converts to gas.

A-1-16. The Companies note that Table 1 is located on page 7 of Exhibit SAW-1.

a. The Companies modeled the option for Ghent 2 to convert to gas in PLEXOS, but this option is not least-cost. The Companies developed the gas conversion option for their 2024 IRP analysis primarily as an alternative to ELG investment or for compliance with the GHG rule at the Ghent station. The Companies' previous engineering studies for gas conversion of Trimble County Unit 1, which is a large tangentially-fired coal electric generating unit similar to Ghent 2, indicates NOx emissions from a such a converted unit would likely to be in the range of 0.10-0.15 lb/MMBtu. According to the Good Neighbor Plan, the Reasonably Achievable Control Technology emission rate for new SCR is 0.04 lb/MMBtu and 0.08 lb./MMBtu for existing SCR. Therefore, the conversion of Ghent 2 to natural gas does not eliminate the need for a SCR. Furthermore, the Ghent Station does not have existing gas service, and as noted in footnote 66 in Section 6.3.2 of Exhibit SAW-1, "Station costs for pipeline capital are allocated across units as a simplifying assumption, so costs may be understated if some units at a station are retrofitted and others are not." If the full pipeline cost had to be borne by Ghent 2 for gas conversion, the capital cost of that option would increase by over $80 million.

i. See the response to part (a).

b. Incremental changes to stay-open costs associated with gas conversion of Ghent 2 are in rows 243, 261, and 279 of the FixTime tab of the Financial Model Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage 1Step2_0336.xlsx."

Supporting information regarding stay-open costs are available at Exhibit SAW-2 at "FinancialModel\StayOpenCosts\20240726_StayOpenDetail_GH_0336.xlsx," and supporting information regarding conversion capital is available at Exhibit SAW-2 at "FinancialModel\Support\100% Conversion\CONFIDENTIAL_Ghent Units 1-4 100% Coal to Gas - DRAFT 2025 BP Cost Estimate.xlsx."

KENTUCKY UTILITIES COMPANY
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Response to Sierra Club's Initial Request for Information
Dated March 28, 2025

Case No. 2025-00045

Question No. 1-17

Responding Witness: Charles R. Schram / Stuart A. Wilson

Q-1-17. Please refer to Exhibit SAW-1, Table 4 at page 19. Please explain the difference in the firm gas cost between the Brown 12 NGCC and the Mill Creek 6 NGCC.

A-1-17. The firm gas cost for the Brown 12 NGCC is based on the indicative rate of $0.25/MMBtu-day for Tennessee Gas Pipeline from Zone 1 to Zone 2 that was estimated in the previous CPCN filing. This transport option is still currently available. The firm gas cost for the Mill Creek 6 NGCC is based on the max tariff rate of $0.1374/MMBtu-day for Texas Gas Transmission from Zone 4 to Zone 4 (Lebanon Hub supply area to Mill Creek 6), but as noted in footnote 19 of Exhibit SAW-1, it also includes a conservative cost adder that reflects the need for new interstate pipeline infrastructure that brings the cost up to $0.45/MMBtu-day for the first 20 years of a firm gas contract.

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Case No. 2025-00045

Question No. 1-18

Responding Witness: Stuart A. Wilson

Q-1-18. Please refer to Exhibit SAW-1 at pages 34 – 35.

a. Please explain how the economic development load was modeled in SERVM.

b. Please provide the supporting workbooks used to develop the 8,760 hourly shape for the economic development load for all weather years modeled in SERVM.

A-1-18.

a. The same economic development load profile is included in each weather year forecast. Section 5.2.2 of Exhibit TAJ-1 summarizes the development of the weather year forecasts.

b. See Exhibit TAJ-2 at "Load_Forecasting\Electric_Load_Forecast\Electric\Forecasts \CONFIDENTIAL_Major_Accounts\Analysis\IRP_Scenario_Files Data_Center_1_Phase_2_Included_MA_Shaping.xlsx."

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Response to Sierra Club's Initial Request for Information
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Case No. 2025-00045

Question No. 1-19

Responding Witness: Lonnie E. Bellar

Q-1-19. Please refer to Exhibit SAW-1 at page 45. Please provide the amount of transmission system upgrade costs that were included for the NGCC at Brown, Mill Creek, and the Green River Generating Station.

A-1-19. The Companies evaluated transmission system upgrade costs for locating NGCC and battery storage resources at different sites, but the results of the analysis do not indicate the portion of the total transmission system upgrade cost that can be attributed to each resource. Instead, the Companies used the relative transmission costs across scenarios to identify Mill Creek as a lower cost location for NGCC than Green River.

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Case No. 2025-00045

Question No. 1-20

Responding Witness: Charles R. Schram

Q-1-20. Produce all bilateral capacity contracts entered into by or for the Company in the past five years.

A-1-20. There are no such contracts.

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Question No. 1-21

Responding Witness: Charles R. Schram

Q-1-21. Provide all bilateral capacity solicitations issued by or for the Company in the past five years, all responses, all evaluations of responses, and documentation of ultimate selections.

A-1-21. Jan 2021 RFP and responses were provided to SC in response to 2021-00393 IRP data request SC 1-5.

See attachments being provided in separate files. The information requested is confidential and proprietary are being provided under seal pursuant to a petition for confidential information.

The 2021 RFP was an input to the Companies' 2021 IRP. Although the Companies did not select any projects from the RFP for all customers, five Green Tariff Option 3 customers executed Renewable Power Agreements for BrightNight's 125 MW Ragland solar project. This project was terminated by the developer in 2024 as noted in the testimony of Charles R. Schram at page 9.

The June 2022 RFP and responses were provided to in response to Case No. 2022-00402 data requests SC 1-17 and PSC 1-69. The 2022 RFP was evaluated as part of the 2022-00402 CPCN filing. Four solar PPAs were executed. See the testimony of Charles R. Schram at page 9-10 for the current status of the PPAs.

The May 2024 RFP was for renewable energy only (not capacity) and was provided along with the RFP responses as Exhibit CRS-2 to the testimony of Charles R. Schram.

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Case No. 2025-00045

Question No. 1-22

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

Q-1-22. Has the Company evaluated whether any of its coal-fired electric generating units will require additional investments to comply with final, proposed, or possible future environmental regulations including, but not limited to: existing consent decrees, new source review provisions, coal combustion residuals, effluent limitation guidelines, national ambient air quality standards, cooling water intake standards, the cross-state air pollution rule, the mercury and air toxics standards, regional haze, and carbon dioxide emission limits?

a. If not, please explain why not.

b. If so, please provide a summary, organized by electric generating unit, briefly describing the additional investments, including the purpose, and capital and annual O&M costs of such investments.

c. Please also include all supporting analyses, calculations, data, documents, modeling input and output files, and workpapers associated with each investment.

d. If so, please specify those costs that would be incurred even if the unit were to retire before its planned date, i.e. unavoidable costs.

e. If so, please specify those costs that could be avoided if the unit were to retire prior to their currently planned date, including the latest year in which each cost could be avoided.

A-1-22. The 2024 IRP filing evaluated additional investments that would be required to comply with Effluent Limitation Guidelines ("ELG"), National Ambient Air Quality Standards ("NAAQS"), the Cross-State Air Pollution Rule ("CSAPR"), and carbon dioxide emission limits via the proposed 111(d) rule.

a. The Companies have not identified any additional investments required to comply with existing consent decrees, New Source Review provisions, coal combustion residuals, cooling water intake standards, the Mercury and Air

Toxics Standards, or Regional Haze. For additional information, see Section 8.(5).(f) in Vol. I of the 2024 IRP.

b. The additional investments necessary for compliance with the 2024 ELG are at a station level. Table 15 in Section 4.4.1.3 of the Resource Assessment in Vol. III of the 2024 IRP shows the capital cost and ongoing O&M associated with complying with zero liquid discharge for the 2024 ELG.

The additional investment necessary for compliance with NAAQS/CSAPR is an SCR for Ghent 2, which would allow for year-round operation of Ghent 2 under the Good Neighbor Plan or a regulation with the same effect. As stated in Section 6.3.2 of Exhibit SAW-1, the capital cost of an SCR for Ghent 2 is estimated at $152.3 million for a 2028 commissioning, with ongoing incremental capital and fixed O&M costs of approximately $1.3 million in 2028 dollars.

The additional investments necessary for compliance with the proposed 111(d) rules would be retrofitting existing units to co-fire natural gas at 40% or fully convert to natural gas. The capital costs of these retrofitting alternatives are summarized in Table 32 of Section 5.3.2 of the Resource Assessment in Vol. III of the 2024 IRP. The effects of these retrofits on annual O&M are summarized in Section 5.3.2.

c. Supporting documentation for 2024 ELG costs was provided in response to SC 1-9(b) in the 2024 IRP. PLEXOS modeling inputs and results related to 2024 ELG are available at KPSC Case No. 2024-00036 – LGE-KU 2024 IRP Resource Planning Workpapers—PUBLIC.zip at "PLEXOS\". Financial modeling related to the 2024 ELG is available at KPSC Case No. 2024-00036 – LGE-KU 2024 IRP Resource Planning Workpapers—CONFIDENTIAL.zip at "FinancialModel\CONFIDENTIAL_20241001_FinancialModel_03_ELG_0328.xlsx" and "FinancialModel\CONFIDENTIAL_20241001_FinancialModel_03_ELG_SolarSens_0328.xlsx".

Supporting documentation for the Ghent 2 SCR is available at Exhibit SAW-2 at "FinancialModel\Support\CONFIDENTIAL_GH U2 SCR - DRAFT 2025 BP Cost Estimate.xlsx." PLEXOS modeling inputs and results are available at Exhibit SAW-2 at "PLEXOS." Financial modeling related to the Ghent 2 SCR is available at Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage 1Step2_0336.xlsx."

Supporting documentation for gas co-firing and gas conversion are available at Exhibit SAW-2 at "FinancialModel\Support\40% Co-Firing\" and "FinancialModel\Support\100% Conversion." PLEXOS modeling

inputs and results related to gas co-firing and gas conversion are available at KPSC Case No. 2024-00036 – LGE-KU 2024 IRP Resource Planning Workpapers—PUBLIC.zip at "PLEXOS." Financial modeling related to the gas co-firing and gas conversion is available at KPSC Case No. 2024-00036 – LGE-KU 2024 IRP Resource Planning Workpapers—CONFIDENTIAL.zip at "FinancialModel\CONFIDENTIAL_20241001_FinancialModel_04_111_0328.xlsx".

d. Not applicable.

e. Additional investments related to 2024 ELG could be avoided if all units at a given station are retired by the end of 2034 or fully converted to natural gas by the end of 2029. The Companies' modeling assumed Ghent 2 SCR could be avoided if Ghent 2 were to retire prior to the backstop in 2030, or if the Companies did not operate Ghent 2 during ozone season (May through September) beginning in 2030. Additional investments related to natural gas co-firing or full conversion to comply with proposed 111(d) rules could be avoided if a given unit is retired by the end of 2031.

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Case No. 2025-00045

Question No. 1-23

Responding Witness: Lonnie E. Bellar

Q-1-23. For each of the Company's coal-fired units, please provide the following historical annual data since 2020 through 2025 (year-to-date):

i. Installed Capacity

ii. Unforced Capacity

iii. Generation

iv. Equivalent Availability Factor (EAF)

v. Heat Rate

vi. Forced outage rate

vii. Cold start-up costs

viii. Warm start-up costs

ix. Time for startup

x. Number of starts

xi. Economic minimum operating level

xii. Planned outage rate

xiii. Effective forced outage rate (EFORd)

xiv. Fixed O&M costs

xv. Non-Fuel Variable O&M costs

xvi. Fuel Costs (by fuel type)

xvii. Capital costs

xviii. Energy revenues (if any)

xix. Capacity revenues (if any)

xx. Ancillary services revenues (if any)

xxi. Depreciation

xxii. Undepreciated net book value

A-1-23.

i. Installed Capacity

Unit	Winter Installed Capacity (Net MW)
Brown 3	416
Ghent 1	479
Ghent 2	486
Ghent 3	476
Ghent 4	478
Mill Creek 3	394
Mill Creek 4	486
Trimble County 1	370
Trimble County 2	570

ii. Unforced Capacity refers to capacity of an asset that clears a capacity auction. This is not a metric used by the Companies and is not tracked.

iii. Generation - See attachment being provided in a separate file.

iv. Equivalent Availability Factor (EAF) - See attachment being provided in a separate file.

v. Heat Rate - See attachment being provided in a separate file.

vi. Forced outage rate - See attachment being provided in a separate file.

vii. The companies do not track specific costs related to cold starts.

viii. The companies do not track specific costs related to warm starts

ix. The Companies do not track start up times as a metric.

x. Number of starts **-** See attachment being provided in a separate file.

xi. Economic minimum operating level **-** See attachment being provided in a separate file.

xii. Planned outage rate **-** See attachment being provided in a separate file.

xiii. Effective forced outage rate (EFORd) **-** See attachment being provided in a separate file.

xiv. Fixed O&M costs – See attachment being provided in a separate file.

xv. Non-Fuel Variable O&M costs – See attachment being provided in a separate file.

xvi. Fuel Costs (by fuel type) – See attachment being provided in a separate file.

xvii. Capital costs – See attachment being provided in a separate file.

xviii. Energy revenues (if any) – The companies do not record revenues by generating unit.

xix. Capacity revenues (if any) – The companies do not record revenues by generating unit.

xx. Ancillary services revenues (if any) – The companies do not record revenues by generating unit.

xxi. Depreciation – See attachment being provided in a separate file.

xxii. Undepreciated net book value – See attachment being provided in a separate file.

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Case No. 2025-00045

Question No. 1-24

Responding Witness: Lonnie E. Bellar

Q-1-24. For each of the Company's coal-fired units, and for each of the years 2025 through 2044 (or latest projection year), please provide the Company's most recent projection of:

i. Installed Capacity

ii. Unforced Capacity

iii. Generation

iv. Equivalent Availability Factor (EAF)

v. Heat Rate

vi. Forced outage rate

vii. Cold start-up costs

viii. Warm start-up costs

ix. Time for startup

x. Number of starts

xi. Economic minimum operating level

xii. Planned outage rate

xiii. Effective forced outage rate (EFORd)

xiv. Fixed O&M costs

xv. Non-Fuel Variable O&M costs

xvi. Fuel Costs (by fuel type)

xvii. Capital costs

xviii. Energy revenues (if any)

xix. Capacity revenues (if any)

xx. Ancillary services revenues (if any)

xxi. Depreciation

xxii. Undepreciated net book value

A-1-24.

i. See Table 16 in Section 6.3 of Exhibit SAW-1.

ii. The concept of unforced capacity is not applicable to the Companies' planning process.

iii. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. Generation is labeled as 'Energy' and is in GWh.

iv. The Companies did not calculate equivalent availability factors for resource plans in the CPCN. See Table 8-6 of Vol. I of the 2024 IRP for a forecast of equivalent availability factors for the Recommended Resource Plan.

v. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. Average annual heat rate is labeled as 'HeatRate' and is in Btu/kWh.

vi. See Table 14 in Section 5.4.1 in the Resource Adequacy Analysis in Vol. III of the 2024 IRP.

vii. The Companies do not distinguish between cold and warm starts in production cost modeling. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. Start cost is labeled as 'StrtCost' and is in thousands of dollars.

viii. See the response to part (vii).

ix. See the table below. The values reflect the time in hours for a unit to get from syncing to full load.

Unit	Sync to Full Load Time (hours)
Brown 3	6
Ghent 1	12
Ghent 2	12
Ghent 3	12
Ghent 4	12
Mill Creek 2	8
Mill Creek 3	12
Mill Creek 4	12
Trimble County 1	12
Trimble County 2	12

x. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. Starts are labeled as 'Strts'.

xi. See the table below.

Net Minimum Capacities (MW)

Unit	Summer	Winter
Brown 3	140	140
Ghent 1	218	266
Ghent 2	225	225
Ghent 3	210	230
Ghent 4	215	215
Mill Creek 2	115	115
Mill Creek 3	190	170
Mill Creek 4	255	175
Trimble County 1 (75%)	311	311
Trimble County 2 (75%)	315	315

xii. The Companies did not calculate planned outage rates as part of the CPCN analysis.

xiii. The Companies do not forecast $EFOR_d$ for coal units. See the response to part (vi) for EFOR.

xiv. See Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage1Step2_0336.xlsx." Fixed O&M is available in the FixTime tab.

xv. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. Non-Fuel Variable O&M is labeled as 'VOM' and is in thousands of dollars.

xvi. See the file "CONFIDENTIAL_out_unityr.csv" provided in response to JI 1-22. For coal-fired units, fuel costs associated with coal are labeled as 'FuelCost', and fuel costs associated with startup fuels are labeled as 'StrtCost'. Brown and Ghent stations utilize fuel oil for startup, while Mill Creek and Trimble County stations utilize natural gas for startup. Costs are in thousands of dollars.

xvii. See Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage1Step2_0336.xlsx." Capital is available in the FixTime tab.

xviii. The Companies are not part of an RTO and do not forecast energy revenues, capacity revenues, or ancillary services revenues by unit.

xix. See the response to part (xviii).

xx. See the response to part (xviii).

xxi. See Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage1Step2_0336.xlsx." Annual depreciation assumed in the Resource Assessment is available in column E of the NBV tab.

xxii. See Exhibit SAW-2 at "FinancialModel\CONFIDENTIAL_20250226_FinancialModel_01_Stage1Step2_0336.xlsx." Undepreciated net book value assumed in the Resource Assessment is available in rows 347-356 of the FixTime tab. See also the response to JI 1-109(a).

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Case No. 2025-00045

Question No. 1-25

Responding Witness: Charles R. Schram

Q-1-25. Regarding the Company's unit commitment and dispatch decision process for its coal- and gas-fired generating units:

a. Describe the Company's process for determining whether to self-commit its thermal units and operate them up to at least their minimum operation levels on the next day.

b. Describe the Company's process for determining whether to self-schedule its generating units at generating levels above their minimum operation levels.

c. Does the Company perform economic analyses to inform its unit commitment and dispatch decisions for its coal and gas units (i.e., decisions regarding whether to designate these units as must run or take them offline for economic reasons)?

i. If not, explain why not.

ii. If so, provide all such analyses conducted since January 1, 2024 in native, machine readable format.

iii. If so, identify each category of cost and revenue accounted for in such analyses.

iv. If so, identify whether such analyses are conducted differently for periods immediately preceding or following unit outages, and explain any differences.

A-1-25.

a. The Companies' operating practices are focused on safely providing reliable energy to customers at least reasonable cost. Each business day, the Companies review the near-term (one to seven day) load forecast (including weather inputs that induce load variability) and commit

sufficient capacity through the next business day (i.e., on Friday, unit commitment plans are made for Saturday through Monday) to cover load and reserve requirements. Decisions on which specific generators to commit are based on a number of considerations including, but not limited to: economic impact, environmental compliance, generator risks, fuel supply flexibility, and ramping capability. When assessing the economic impact of unit commitment scenarios, the Companies use load forecasts, fuel costs, and generator heat rates to model daily production costs while also considering start-up costs.

b. The Companies are not part of an RTO market and therefore do not have a need to "self-schedule." Units committed to serve load are economically dispatched at the appropriate output level using AGC.

c. The economic analyses supporting unit commitment and dispatch are part of the daily operations of Generation Dispatch. There is ongoing evaluation using the criteria described in part (a), not an infrequent discrete or ad hoc analysis.

   i. See the response to part (a).

   ii. See attachment being provided as a separate file. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

   iii. See the response to part (a).

   iv. Any differences in the process for units returning from outages would be situational. For example, if a unit returning from outage were deemed to be initially at higher risk of operational interruption due to the work performed, the Companies would ensure that other capacity would also be available to serve load.

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Question No. 1-26

Responding Witness: Charles R. Schram / Stuart A. Wilson

Q-1-26. Please refer to the Testimony of Lonnie Bellar at page 5, lines 5 – 9, which states, "Although all the Companies' units performed well within expectations during the January 22 peak demand, as Mr. Schram notes, losing even one large unit to a forced outage would have caused the Companies to be at risk of being unable to meet their contingency reserve obligation under their reserve sharing agreement with the Tennessee Valley Authority." With respect to this statement please answer the following:

a. Please provide a copy of the reserve sharing agreement with the Tennessee Valley Authority.

b. What specific provision of that agreement would the Companies have been in violation had they lost one large unit?

c. Is the obligation to provide this contingency reserve represented in the Companies' SERVM model? If so, how? Please be specific about how/where in your answer.

d. Does the addition of the load contained in the Companies' load forecast in this docket change the Companies' obligations under the reserve-sharing agreement with TVA? If so, how?

e. At page 2 of his testimony, Mr. Bellar states that winter peak needs will increase by 1,800 MW by 2032. Even with the addition of two CCGTs and 400 MW of battery storage, please explain why the Companies would not remain, during a peak event, in the same position of a large unit outage resulting in the Companies being unable to meet their contingency reserve obligation.

A-1-26.

a. See the response to AG-KIUC 1-25(a).

b. The Companies did not use the term "violation." If the Companies lost sufficient generation capacity to be unable to meet their contingency reserve obligation under their reserve sharing agreement with TVA, it would also mean that the Companies would be in an Energy Emergency Alert ("EEA") condition according to the applicable NERC standard(s).

c. Yes. The contingency reserve obligation is specified using the "Load Following Min Up Reserves Target" input in Ancillary Services Definition under Ancillary Services in SERVM.

d. Contingency reserve obligations are calculated on a load ratio share basis applied to the largest generating unit in the TVA or Companies' system. Therefore, the Companies' reserve obligations would only change to the extent that 1) the Companies' peak load changes relative to TVA's peak load or 2) the size of the largest generating unit changes. The Companies are not proposing any units larger than the current largest TVA unit.

e. After the proposed resource additions the Companies would indeed be in a similar position in the event of the loss of a large unit due to growth in customer load. The conclusion of the referenced discussion in Mr. Schram's testimony was **"**adding any significant amount of load, particularly firm, high load-factor load, *will* require additional resources to ensure the Companies can continue to serve customers reliably." That statement will still be true after the proposed additions given the referenced growth in winter peak.

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Question No. 1-27

Responding Witness: Lonnie E. Bellar

Q-1-27. Please refer to the Testimony of Lonnie Bellar at page 3, lines 4 – 7, which states, "The General Assembly, in enacting legislation to encourage data center development, stated that 'the inducement of the location of data center projects within the Commonwealth is of paramount importance to the economic well-being of the Commonwealth.'" With respect to this statement please answer the following:

a. In the Companies' judgement, what specific economic development benefits of data centers did the General Assembly intend to bring to Kentucky?

b. How, if at all, do the Companies intend to use the interconnection process to prioritize customers that provide more of any of these benefits over others?

A-1-27.

a. The Companies do not speak for the General Assembly. KRS 154.20-222 speaks for itself:

(1) The purposes of KRS 154.20-220 to 154.20-229 are to:
   (a) Provide incentives for an approved company with a qualified data center project;
   (b) Encourage the location of data centers within the Commonwealth; and
   (c) Advance the public purposes of the:
      1. Creation of new jobs that would not exist within the Commonwealth;
      2. Creation of new sources of tax revenues for the support of public services provided by the Commonwealth;
      3. Improvement in the quality of life for Kentucky citizens through the creation of sustainable jobs with higher salaries; and
      4. Provision of an economic stimulus to the Commonwealth.

…

(3) The General Assembly finds and declares that the authority granted in KRS 154.20-220 to 154.20-229 and the purposes accomplished are proper governmental and public purposes for which public moneys may be expended, and that the inducement of the location of data center projects within the Commonwealth is of paramount importance to the economic well-being of the Commonwealth.

The Companies note the General Assembly chose to expand the availability of tax incentives for data centers from Jefferson County to the entire state.[2]

b. The Companies intend to use the interconnection process to prioritize data center customers that appear more likely to advance their projects and are serious prospects over those that appear to be speculative.

[2] 2025 Ky. Acts Ch. 98. The bill to be recorded in 2025 Ky. Acts Ch. 98, namely 2025 House Bill 774, is available at https://apps.legislature.ky.gov/record/25rs/hb775.html.

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Question No. 1-28

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

Q-1-28. Please refer to the Testimony of Robert Conroy at page 3, lines 9 – 11, which states, "The statutes creating and governing certified service territories for retail electric suppliers, which support the vertical integration of power supply that has long served Kentucky well, require those suppliers to provide 'adequate service'; KRS 278.030(2) states unequivocally, "Every utility shall furnish adequate, efficient and reasonable service …." With respect to this statement, and in the Companies' judgement, could any of the following impact the Companies' ability to provide adequate service to existing customers? What additional steps, if any, do the Companies need to take to ensure that the following factors do not influence the provision of adequate service to existing customers even as new, large loads are added:

a. Stranded asset costs should data centers come to the Companies' system at a lower level than projected;

b. Cross subsidization risk in the event that data centers meet load projections but do not pay all of the generator capital costs contemplated in this filing;

c. Inability to maintain operational security of the bulk electric power system due to the dynamic nature of large loads; and

d. Increased fuel and ancillary services costs caused by data centers;

e. If the Companies believe that none of the foregoing factors impact the provision of adequate service to existing customers, please explain why.

f. If the Companies believe that any of the foregoing factors impact the provision of adequate service to existing customers, please explain what steps the Companies will take to mitigate these risks.

A-1-28.

a. See the response to PSC 1-28.

b. See the response to PSC 1-28.

c. The Companies disagree with the premise of the question. The Companies do not anticipate that projected data center loads, though large, will be "dynamic"; rather, they anticipate high and steady loads, as reflected in the Companies' 95% load factor projection. Moreover, the Companies are well versed in and equipped to address rapid and significant demand changes, having served large arc furnace loads for decades.

d. Regarding fuel costs and related issues, see the Direct Testimony of Charles R. Schram at 19-25.

Regarding ancillary services, such services are essentially unbundled generation attributes. The Companies almost exclusively self-supply such services because (1) they self-supply nearly all of the energy their customers consume and (2) they are not members of a regional transmission organization, which have separate pricing arrangements for such unbundled services.

e. See the responses above.

f. See the responses above.

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Question No. 1-29

Responding Witness: Robert M. Conroy / Christopher M. Garrett / Counsel

Q-1-29. Please refer to the Testimony of Robert Conroy at page 15, lines 16 – 20, which states, "This regulatory asset treatment of post-in-service costs would improve administrative efficiency for the Commission and reduce rate case costs for customers. Due to the magnitude of these investments, having either timely cost recovery or the proposed post-in-service regulatory accounting treatment would be necessary to avoid significant adverse impacts to the Companies' financial health." With respect to this statement please answer the following:

a. Provide any presentations, memos, emails, or other Company documents that describe the "significant adverse impacts to the Companies' financial health" absent this regulatory treatment.

b. Provide any calculations with all formulas and links intact of the potential impact on ratepayers of any or all rate classes under the Companies' proposal in this docket.

c. If the Companies have not conducted a rate impact analysis of its proposal in this docket, explain why not.

d. Provide any calculations with all formulas and links intact, showing the rate(s) that would be paid by data center loads taking service with the Companies.

A-1-29.

a. – c. See the response to JI 1-30.

d. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[3]

[3] *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*

Without waiving that objection, the Companies state that if data centers took service under currently tariffed rates, the rates data centers would pay would be those under Rate RTS.[4] The Companies' Kentucky retail electric service tariffs are available on the Commission's website and the Companies' website.[5]

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).

[4] Kentucky Utilities Company, P.S.C. No. 20, Fifth Revision of Original Sheet No. 25; Louisville Gas and Electric Company, P.S.C. Electric No. 13, Fifth Revision of Original Sheet No. 25.

[5] https://psc.ky.gov/tariffs/Electric/Kentucky%20Utilities%20Company/Tariff.pdf; https://psc.ky.gov/tariffs/Electric/Louisville%20Gas%20and%20Electric%20Company/Tariff.pdf; https://lge-ku.com/sites/default/files/media/files/downloads/KU-Electric-Rates-01212025.pdf; https://lge-ku.com/sites/default/files/media/files/downloads/LGE-Electric-Rates-03142025.pdf.

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Question No. 1-30

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

Q-1-30. Please refer to the Testimony of Lonnie Bellar at page 2, lines 17 – 20, which states, "As Mr. Jones notes, even accounting for significant amounts of energy efficiency and other energy needs reducing measures, annual energy requirements will climb sharply from 32,808 GWh in 2025 to 48,129 GWh in 2032—an increase of almost 47%." With respect to this statement please answer the following:

a. What increase in rate base for each Company is anticipated as a result of the Companies' proposal in this docket?

b. What is the total amount in each of the Companies' current rate base?

A-1-30.

a. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[6] Without waiving that objection, $0.7 billion for KU and $3.0 billion for LG&E.

b. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[7] Without waiving that objection, KU's Kentucky jurisdictional 2024 year-

[6] *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).

[7] *Id.*

end rate base was $7.0 billion, and LG&E's 2024 year-end rate base was $5.5 billion.

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Question No. 1-31

Responding Witness: John Bevington

Q-1-31. Please refer to the Testimony of Witness Bevington at page 5, lines 13-18. For that current list of prospective customers, please provide the status on each of the projects, in terms of how far along they are in discussions and/or interconnection process. Additionally, indicate if any commitments have been signed.

A-1-31. See the response to AG-KIUC 1-33(a) and PSC 1-18.

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Question No. 1-32

Responding Witness: John Bevington / Robert M. Conroy / Counsel

Q-1-32. For any economic development projects that receive an economic development rate or special contract, does the Company require any commitments in terms of minimum investment and/or job creation? If not, please provide the reasoning.

A-1-32. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[8] Without waiving that objection, no. As the Commission stated in its definitive final order on economic development rates ("EDRs"):

> The Commission finds that, while job creation and increases in capital investment are the desired outcome of EDRs, requiring specific levels of job creation and capital investment for EDR eligibility might, in some instances, impede rather than promote economic activity. For instance, such a requirement might prevent a customer from participating in an EDR program even if tangible economic benefits unrelated to job creation or capital investment would have been realized. Furthermore, specific job creation and capital investment levels would be arbitrary and would not

[8] *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).

> recognize the needs and characteristics of individual service areas and of new and expanding customers.[9]

The same reasoning applies to non-EDR special contracts.

[9] *An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, Administrative Case No. 327, Order at 10-11 (Ky. PSC Sept. 24, 1990).

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Question No. 1-33

Responding Witness: John Bevington

Q-1-33. Please refer to the Testimony of Witness Bevington at page 10, line 19, to page 11, line 2. Please define "high-paying jobs."

A-1-33. The cited testimony states, "Finally, I would note again that the General Assembly just last year enacted statutes to encourage locating data centers in Kentucky because data centers will advance the public purposes of creating high-paying jobs, creating new sources of tax revenues, and providing an economic stimulus to the Commonwealth." Mr. Bevington's testimony cites KRS 154.20-222(1)(b) and (c), which state:

> (1) The purposes of KRS 154.20-220 to 154.20-229 are to:
>
> …
>
> (b) Encourage the location of data centers within the Commonwealth; and
>
> (c) Advance the public purposes of the:
>
> 1. Creation of new jobs that would not exist within the Commonwealth;
>
> 2. Creation of new sources of tax revenues for the support of public services provided by the Commonwealth;
>
> 3. *Improvement in the quality of life for Kentucky citizens through the creation of sustainable jobs with higher salaries*; and
>
> 4. Provision of an economic stimulus to the Commonwealth.[10]

Thus, Mr. Bevington was simply paraphrasing the Kentucky General Assembly's own words. The statute does not define "jobs with higher salaries."

[10] KRS 154.20-222(1)(b) and (c) (emphasis added).

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Question No. 1-34

Responding Witness: John Bevington / Robert M. Conroy

Q-1-34. Please refer to the Testimony of Witness Bevington at page 12, line 8, to page 13, line 10.

a. Does the Company have any minimum efficiency requirements, certifications, or designations for data load centers built in its service territory? If so, what are the requirements.

b. Does the Company work with data centers to evaluate the potential to encourage the installation of the most efficient equipment? If so, what is that process?

A-1-34.

a. No.

b. No.

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Question No. 1-35

Responding Witness: John Bevington

Q-1-35. Please refer to the Companies' response to PSC-1-21 in Case No. 2024-00326. Please define what the Company means by "higher-probability prospective data-center customers" and how that is determined. Please detail the levels of probability and the characteristics for each level of probability.

A-1-35. See the response to JI 1-16(c) in Case No. 2024-00326. See also PSC 1-18(c).

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Question No. 1-36

Responding Witness: Robert M. Conroy / Counsel

Q-1-36. Given the level of interest from large load entities, has the Company considered developing a large load tariff? If so, what would the proposed level of minimum load be for such a tariff?

A-1-36. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[11] Without waiving that objection, see the responses to PSC 1-28 and AG-KIUC 1-46.

[11] *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).

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Question No. 1-37

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

Q-1-37. If a new customer's load requires system upgrades, please detail how those costs are allocated between the new customer and the existing ratepayers. Please provide the citation, if available.

A-1-37. The Companies object to this request as irrelevant to the subject matter of this proceeding under KRS 278.020(1) and the Commission's prior orders.[12] Without waiving that objection, see the response in Case No. 2024-00326 to SC 2-22 and JI 2-25(b).

[12] *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).

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Question No. 1-38

Responding Witness: Charles R. Schram

Q-1-38. Please refer to the Testimony of David Schram at page 22, lines 12 – 18, which states, "The Companies do not procure transportation services until receiving regulatory approvals to construct new units. Nonetheless, upon approval of the proposed NGCC units in this proceeding, the Companies anticipate sufficient transportation services will be available based on their recent communications with Texas Gas and Tennessee Gas." With respect to this statement, please answer the following:

a. Please provide any communications that the Companies have had with Texas Gas Transmission, Texas Eastern, and/or Tennessee Gas regarding firm transportation service for Brown 12 and Mill Creek 6.

b. Please provide any draft firm gas transportation service contracts provided to the Companies by Texas Gas, Texas Eastern, and/or Tennessee Gas.

A-1-38.

a. The Companies assume Sierra Club intended to refer to the Direct Testimony of Charles R. Schram. Documents related to previous communication with Texas Eastern and Tennessee Gas regarding firm transportation for Brown 12 as well as recent communications related to both Mill Creek 6 and Brown 12 are attached as a separate files.

b. No such documents exist for Brown 12 and Mill Creek 6.

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Question No. 1-39

Responding Witness: Lonnie E. Bellar

Q-1-39. Please answer the following with respect to data center loads that will take service from the Companies:

a. Will the Companies require customers to install any of the following: SCADA telemetry, sequence of events recording, digital fault recording, dynamic disturbance recording, and/or power quality recording?

b. If the answer to subpart "a." is "yes," for what purpose will the Companies require these technologies? If the answer is "no," why won't the Companies require these?

c. Will the Companies implement processes to analyze and archive significant events and information?

A-1-39.

a. Yes - The Companies require all new end-user interconnections to meet requirements as outlined in the Company's "Facility Interconnection Requirements and Studies" document (Section 3) publicly available on OASIS at the following link: **Facility Interconnection Requirements and Studies**. This document includes requirements for SCADA telemetry as well as other functionality.

b. The Company's "Facility Interconnection Requirements and Studies" document states for native network load "The TO, using reasonable discretion, must select the real time telemetry and data to be received by the TO as deemed necessary for reliability, security, economics, and/or monitoring of system operations."

c. The Companies will use existing event analysis and review processes to evaluate impacts to the transmission system in any future situations that may occur related to data center loads.

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Question No. 1-40

Responding Witness: Lonnie E. Bellar

Q-1-40. Please refer to the response to Sierra Club 2-23(a) in Case No. 2024-00326, which states, "According to LG&E/KU's Transmission Service Request Study Criteria, EMT or transient stability studies are performed as part of a Facilities Study within the Transmission Service Request ("TSR") process. LG&E/KU may also perform such studies outside the TSR process. According to LG&E/KU's OATT, LG&E/KU is responsible for completing Facilities Studies and any studies outside the TSR process." With respect to this statement, please answer the following:

a. Do the Companies intend to conduct any EMT studies as part of the interconnection process for any new data center customers?

b. If the answer to subpart "a." is "yes," what data will the Companies require from potential customers for these studies? If the answer is "no," why won't the Companies require that these studies be conducted?

c. Do the Companies intend to conduct any transient stability studies as part of the interconnection process for any new data center customers?

d. If the answer to subpart "c." is "yes," what data will the Companies require from potential customers for these studies? If the answer is "no," why won't the Companies require that these studies be conducted?

A-1-40.

a. The Companies currently evaluate the need for EMT studies based upon the size of the load and its proximity to existing synchronous generation to look for potential transient power quality issues that may be introduced to the transmission system. EMT studies will be performed for new data center customers on a case-by-case basis.

b. If the Companies determine an EMT study is needed, they may require a PSCAD model from the potential customer.

c. The Companies currently evaluate the need for transient stability studies based upon the size of the load and its proximity to existing synchronous generation to look for potential transient power quality issues that may be introduced to the transmission system.

d. If the Companies determine a transient stability study is needed, they may require a PSS/E custom load model from the potential customer.

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Question No. 1-41

Responding Witness: Lonnie E. Bellar / John Bevington

Q-1-41. If the Companies have performed any facilities studies of data center customers please provide:

a. All workpapers created either to support inputs to these studies and/or to produce work products resulting from these studies, changing nothing.

b. Any internal presentations or reports related to these analyses including but not limited to documentation on specific results that support conclusions on what transmission and generation upgrades were necessary as well as what and why alternatives were found to be inadequate.

c. Any reports and/or summary tables (showing all contingencies, monitored elements, and violation levels reported) in an open format (.csv, .xlsx, etc.) capturing any thermal and voltage violations resulting from such studies

d. Do customers provide any dynamic load data in support of these studies? This includes but is not limited to cycling and fluctuation frequency, amplitude and character, as well as fault ride-thru behavior including tolerance for voltage and frequency disturbances.

e. Any subsystem, contingency, and monitor (.sub, .con, .mon) files used as inputs for these studies.

f. Any analysis performed to evaluate the risk of fluctuating active power or reactive power demand from data center customers. Please explain how such risks are planned to be controlled or mitigated. If this analysis has not been performed, please explain when it is planned, how it will be performed, or why is it deemed unnecessary.

A-1-41.

a. See attachments being provided in separate files. Certain information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

b. See attachment being provided in a separate file. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

c. See response to part (a).

d. Not at this time.

e. See attachments being provided as separate files. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

f. The Companies have not performed these types of studies to date. Fluctuating data center load characteristics are an emerging issue in the utility industry. The Companies are continuing to monitor these potential impacts and determine the best way to analyze.