COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC TARIFF FILINGS OF	**)**	
LOUISVILLE GAS AND ELECTRIC COMPANY	**)**	
AND KENTUCKY UTILITIES COMPANY TO	**)**	
REVISE PURCHASE RATES FOR SMALL	**)**	**CASE NO. 2023-00404**
CAPACITY AND LARGE CAPACITY	**)**	
COGENERATION AND POWER PRODUCTION	**)**	
QUALIFYING FACILITIES AND NET	**)**	
METERING SERVICE-2 CREDIT RATES	**)**	

RESPONSE OF
KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
THE KENTUCKY SOLAR INDUSTRIES ASSOCIATION, INC.'S INITIAL REQUEST FOR INFORMATION

DATED JANUARY 11, 2024

FILED: January 25, 2024

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Stuart A. Wilson**, being duly sworn, deposes and says that he is Director, Energy Planning, Analysis & Forecasting for LG&E and KU Services Company, 220 West Main Street, Louisville, KY 40202, 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 17th day of January 2024.

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

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 1

Responding Witness: Stuart A. Wilson

Q-1. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide the data used to calculate the values presented in Table 1: QF Generation Technologies in spreadsheet format with all formulae intact.

A-1. See attachments being provided in separate Excel files.

The attachments are being provided in separate files in Excel format.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 2

Responding Witness: Stuart A. Wilson

Q-2. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, page 4, please provide the following:

a. An explanation of the intended meaning of the word "decremental";

b. The reference upon which the intended meaning of the word "decremental" is based; and

c. A justification for the use of the word "decremental" in the context of calculating the avoided cost.

A-2.

a. The Companies intend the word "decremental" to mean the cost of energy at each MW *lower than* is forecast in each hour. For example, if a unit is operating at 300 MW in a particular hour in the forecast, the "decremental cost of energy" would be the cost to ramp down that unit to 299 MW, then 298 MW, then 297 MW, etc.

b. Dictionary.com defines decremental as "showing a gradual or serial decrease or reduction." This is consistent with the Companies' intended meaning. The word "incremental" is perhaps more frequently used in the context of cost of energy. Incremental cost of energy refers to the cost of the *next (higher)* MW.

c. The Companies' goal in this analysis was to quantify the cost savings of needing to produce *less* energy because of a QF facility. Therefore, decremental cost of energy, or the cost of ramping units *down* 1 MW at a time, is the appropriate measure.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 3

Responding Witness: Stuart A. Wilson

Q-3. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide the data and calculations used to calculate the values presented in Table 2: Annual Avoided Energy Cost ($/MWh) in spreadsheet format with all formulae intact.

A-3. See the response to PSC 1-3(b), including the reference to the supporting workpapers provided in response to JI 1-3.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 4

Responding Witness: Stuart A. Wilson

Q-4. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, Table 2: Annual Avoided Energy Cost ($/MWh), please provide the following:

a. An explanation of why 20 years of future prices were used to calculate the avoided energy cost for a contract with a 7-year term, as described in footnote 9 (page 5).

b. An explanation of what costs the utility avoids in years 8-20 during the 7-year term referenced in footnote 9 (page 5).

c. All the underlying data and the data sources used to determine the 20-year forecasted values for each technology.

d. The basis for, justification of, and sources supporting the use of a 6.55% discount rate as indicated in footnote 8 (page 5) to compute the levelized cost of energy.

A-4.

a. In Case Nos. 2020-00349 and 2020-00350, the Companies proposed two- and 20-year PPAs for Riders SQF and LQF, and they calculated avoided energy cost rates for their proposed 20-year PPAs based on avoided energy costs for 20 years.[1] The Commission's September 24, 2021 Order in those proceedings used the 20-year avoided energy cost component but required seven-year rather than 20-year PPA terms.[2] As noted in the footnote cited

---

[1] *Electronic Application of Kentucky Utilities Company for an Adjustment of Its Electric Rates, a Certificate of Public Convenience and Necessity to Deploy Advanced Metering Infrastructure, Approval of Certain Regulatory and Accounting Treatments, and Establishment of a One-Year Surcredit,* Case No. 2020-00349, and *Electronic Application of Louisville Gas and Electric Company for an Adjustment of Its Electric and Gas Rates, a Certificate of Public Convenience and Necessity to Deploy Advanced Meter Infrastructure, Approval of Certain Regulatory and Accounting Treatments, and Establishment of a One-Year Surcredit,* Case No. 2020-00350, Order at 27-30 (Ky. PSC Sept. 24, 2021).
[2] *Id*.

in this request, the Companies therefore made their October 31, 2023 tariff filings to update SQF, LQF, and NMS-2 rates consistent with the approach approved in the Commission's September 24, 2021 Order in Case Nos. 2020-00349 and 2020-00350.

b. The utility does not avoid costs in years 8-20. Note that using a seven-year levelized annual avoided energy rather than the 20-year levelized cost the Companies used would result in lower, not higher, avoided energy costs. The table below shows the "7-Year Level Price for PPAs Beginning:" values from Table 3: Avoided Energy Costs ($/MWh) at page 6 of the document the request cites, which are values calculated using 20-year levelized annual avoided energy costs:

Technology	**20-year levelized cost beginning:**		**7-year levelized cost beginning:**	
	2024	2025	2024	2025
Solar: Single-Axis Tracking	30.51	30.90	29.70	30.15
Solar: Fixed Tilt	30.89	31.28	30.16	30.65
Wind	29.90	30.33	28.31	28.65
Other	30.27	30.74	28.94	29.48

c. See Attachment 5 provided in response to JI 1-3 at the filepath: \02_03_04\03_SAS.

d. The Companies' weighted average cost of capital at the time of making the cited calculations was 6.55%, which is the appropriate discount rate to use for such calculations. Notably, the Commission used the Companies' then-current 6.75% weighted average cost of capital discount rate in calculating components of the Rider NMS-2 rates it prescribed in Case Nos. 2020-00349 and 2020-00350.[3]

Key financial inputs for the Companies' 6.55% weighted average cost of capital are below.

Input	Value
Return on Equity	9.43%
Cost of Debt	4.34%
Capital Structure	
Debt	46.58%
Equity	53.42%
Tax Rate	24.95%
Discount Rate	6.55%

[3] Case Nos. 2020-00349 and 2020-00350, Order Appendix (Ky. PSC Nov. 4, 2021).

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 5

Responding Witness: Stuart A. Wilson

Q-5. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide the data and calculations used to calculate the values presented in Table 3: Avoided Energy Costs ($/MWh) in spreadsheet format with all formulae intact.

A-5. See the response to AG 1-4.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 6

Responding Witness: Stuart A. Wilson

Q-6. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide the data and calculations used to calculate the values presented in Table 4: Seasonal Capacity Need (MW) in spreadsheet format with all formulae intact.

A-6. See Attachment 5 provided in response to JI 1-3 at the filepath: \02_03_04\04_Report\20230821_ReserveMarginNeedTables_QF_2024BP.xlsx.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 7

Responding Witness: Stuart A. Wilson

Q-7. The Commission's September 24, 2021 Order in Case Nos. 2020-00349 and 2020-00350, page 35, found "that LG&E/KU should implement an ELCC method for valuing resource's capacity contribution." In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, Table 7: Availability of QF Resources during Peak Hours (% of Nameplate Capacity) and associated test, please provide the following:

a. Documentation describing the assumptions and methodology used in LG&E/KU's ELCC method; and

b. Documentation of the results of LG&E/KU's ELCC analysis.

A-7.

a. See the response to AG 1-6.

b. See the response to AG 1-6.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 8

Responding Witness: Stuart A. Wilson

Q-8. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, page 6, please provide all supporting information for the statement that reads "Table 4 summarizes the Companies' seasonal capacity need in each scenario as well as the average seasonal capacity need based on 17% summer and 24% winter reserve margins."

A-8. The Companies developed the reserve margins referenced in this statement as part of their most recent CPCN filing. As noted in footnote to this statement (footnote 10), the Companies' minimum summer reserve margin will almost certainly increase with the additions of solar generation in Case No. 2022-00402. However, a higher summer reserve margin will have no impact on the timing of the Companies' next capacity need. For the supporting workpapers, see Attachment 5 provided in response to JI 1-3 at the filepath: \02_03_04\04_Report\20230821_ReserveMarginNeedTables_QF_2024BP.xlsx.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 9

Responding Witness: Stuart A. Wilson

Q-9. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide all supporting information for the data in Table 22 and Table 23 in Appendix A, including the underlying methods, how those methods were selected, and details regarding the choice of method.

A-9. See Attachment 5 provided in response to JI 1-3 at the filepath: \02_03_04\04_Report\20230821_ReserveMarginNeedTables_QF_2024BP.xlsx. It is unclear what is meant by "methods." The reserve margin needs reflected in the cited tables reflect anticipated capacity needs assuming (in Scenario 2) the U.S. Environmental Protection Agency's recently proposed Clean Air Act 111(b) and (d) rules take effect as proposed. This has the effect of accelerating the potential need for capacity due to earlier unit retirements, which in turn increases avoided capacity costs.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 10

Responding Witness: Stuart A. Wilson

Q-10. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide the data and calculations used to calculate the values presented in Table 5: CT Capital and Fixed Operating Costs in spreadsheet format with all formulae intact.

A-10. As stated in the referenced document, overnight capital and fixed operating and maintenance costs are taken from the National Renewable Energy Laboratory's 2023 Annual Technology Baseline, and firm gas transportation costs are based on the Companies' cost of firm gas transportation and are consistent with cost assumptions from Case No. 2022-00402. Supporting data and calculations are included in the Attachment 5 provided in response to JI 1-3 and are located at the filepath: 02_03_04\04_Report\PUBLIC_20230821_QFModel_2024BP_D06.xlsx. See also the attachment being provided in a separate Excel file.

The attachment is being provided in a separate file in Excel format.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 11

Responding Witness: Stuart A. Wilson

Q-11. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, page 8, footnote 11, please provide the specific reference in the National Renewable Energy Laboratory's 2023 Annual Technology Baseline, including the source file URL, worksheet name in the source file, and cell reference and supporting information for use of the "2%" rate.

A-11. The referenced footnote states that the Companies convert NREL's cost forecasts in real dollars to nominal dollars using a 2 percent inflation rate. This rate is consistent with the Federal Reserve's long-term objective inflation rate of 2 percent.[4] This assumption was not sourced from NREL's ATB, therefore there is no such reference to be provided.

---

[4] "*Monetary Policy Report*," Board of Governors of the Federal Reserve System, June 16, 2023. *See* https://www.federalreserve.gov/monetarypolicy/files/20230616_mprfullreport.pdf.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 12

Responding Witness: Stuart A. Wilson

Q-12. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, page 8, regarding the use of the National Renewable Energy Laboratory's (NREL's) 2023 Annual Technology Baseline (ATB), please provide the following:

a. Justification for the decision to exclude the interconnection cost provided in NREL's ATB;

b. Justification for the decision to exclude the construction financing cost provided in NREL's ATB; and

c. Justification for the decision to exclude the land acquisition cost provided in NREL's ATB.

A-12.

a. A new resource was assumed to be located at an existing site and utilize previously constructed interconnection facilities.

b. NREL's SCCT capital costs reflect the cost of constructing a SCCT at a greenfield site. The Companies used NREL's overnight capital cost (which excludes construction financing costs) to be consistent with the methodology used in Case Nos. 2020-00349 and 2020-00350 and because NREL does not provide capital costs for brownfield sites. In their 2021 IRP, the Companies estimated the capital cost of installing two or more SCCTs at an existing site to be approximately 25 percent lower than NREL's overnight SCCT capital cost.

c. A new resource was assumed to be located at an existing site with no need for incremental land acquisition.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 13

Responding Witness: Stuart A. Wilson

Q-13. In reference to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, page 3, regarding the statement "To focus the analysis on the cost of serving native load, off-system sales were not permitted in PROSYM.", please:

a. Provide the quantity of off-system sales excluded from the PROSYM modeling; and

b. Explain whether the generating units supporting these off-system sales are also used to provide electricity for native load.

A-13.

a. See the response to PSC 1-2.

b. Yes, generating units supporting the Companies' off-system sales are also used to provide electricity for native load.

KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s Initial Request for Information
Dated January 11, 2024

Case No. 2023-00404

Question No. 14

Responding Witness: Stuart A. Wilson

Q-14. In reference to the Generation Forecast Process Generation Planning and Analysis 2023, pages 5-7, attached to 2024-2025 Qualifying Facilities Rates & Net Metering Service-2 Bill Credit Generation Planning & Analysis October 2023, please provide documentation in spreadsheet format with all formulae intact showing the price forecasts for each fuel type and use of the fuel cost multiplier.

A-14. See Attachment 4 provided in response to JI 1-3 at the following filepaths:

- \OtherModelInputs\CONFIDENTIAL_Commodities\20230608_Price_Forecast_FuelOil.xlsx
- \OtherModelInputs\CONFIDENTIAL_Commodities\20230620_Price_Forecast_NaturalGas.xlsx
- \OtherModelInputs\CONFIDENTIAL_Commodities\20230724_Price_Forecast_Coal.xlsx
- \OtherModelInputs\CONFIDENTIAL_Fuel\Gas\20230616_2024BP_GasforPROSYM_2023-2050_Base_BUDGET.xlsx *(See tab "FCM")*