

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC JOINT APPLICATION OF)	
KENTUCKY UTILITIES COMPANY AND)	
LOUISVILLE GAS AND ELECTRIC)	
COMPANY FOR CERTIFICATES OF)	CASE NO. 2022-00402
PUBLIC CONVENIENCE AND NECESSITY)	
AND APPROVAL OF A DEMAND SIDE)	
MANAGEMENT PLAN)	


RESPONSE OF
KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT AND
LOUISVILLE/JEFFERSON COUNTY METRO GOVERNMENT'S JOINT
SUPPLEMENTAL REQUEST FOR INFORMATION
DATED APRIL 14, 2023

FILED: MAY 4, 2023

VERIFICATION

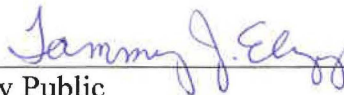
COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

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, 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.



Robert M. Conroy

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 1st day of May _____ 2023.



Notary Public
Notary Public ID No. KYNP61560



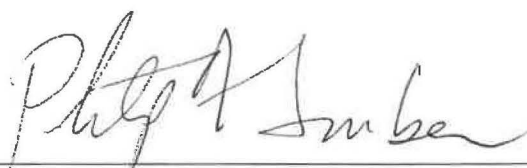
My Commission Expires:

November 9, 2026

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Philip A. Imber**, being duly sworn, deposes and says that he is Director – Environmental and Federal Regulatory Compliance 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.



Philip A. Imber

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 2nd day of May 2023.

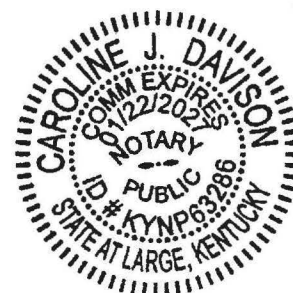


Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 1

Responding Witness: Lonnie E. Bellar

Q-1. Refer to the response to Louisville Metro/LFUCG Initial Request for Information, Item 1, in which the Companies state that its "CO₂ goals are important for many reasons and reflect their expectations that economic retirements will result in a lower CO₂-emitting generation resource portfolio over time." The Companies also state in the response that, in the context of a CPCN application, instead of proposing a least-cost option it could "otherwise explain why a particular proposal may not be least cost but should still be approved." Identify the reasons why CO₂ goals are important from the Companies' perspective. Also, provide the Companies' reasoning for determining when to select an alternative that is not least cost for approval in a CPCN application.

A-1. The rationale for the Companies CO₂ goals are described in detail in "Energy Forward: PPL's 2021 Climate Assessment Report."¹

The term "least-cost" is typically used by the Companies to reflect the present value revenue requirements over a broad range of possible futures. For some resources, such as the Brown Battery Energy Storage Site, their value may be hard to fully capture in present value revenue requirement terms or they may be least-cost in only certain futures, as was the case with the Brown Solar Project that came on-line in 2016. However, that does not mean the asset does not provide value to customers.

¹ https://www.pplweb.com/wp-content/uploads/2022/01/PPL_Corp-2021-Climate-Assessment_2022-01-04.pdf

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 2

Responding Witness: David S. Sinclair

- Q-2. Refer to the response to Louisville Metro/LFUCG Initial Request for Information, Item 5, regarding "best practice." Please elaborate on how the BESS system will be used – as backup power, optimization of NGCC, load shifting, etc. Do the Companies have any BESS plans that support solar generation at the distribution level of the grid?
- A-2. The Companies expect to utilize the BESS for a variety of potential functions, including shifting generation from low-cost hours to high-cost hours, meeting peak load needs, and providing instantaneous load following. The BESS could also allow the Companies to carry lower amounts of spinning reserves or compensate for fluctuations in intermittent generation that might otherwise require rapid ramping from the Companies' SCCT and NGCC units, reducing wear (and related costs) on such units. The Companies do not have any BESS plans that specifically support distribution-level solar generation.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 3

Responding Witness: Lonnie E. Bellar / David S. Sinclair

- Q-3. Refer to the response to Louisville Metro/LFUCG Initial Request for Information, Item 6.
- (a) State whether the Companies have developed plans, on an LG&E/KU specific basis, to achieve net-zero carbon emissions by 2050, with interim reduction targets of 80 percent from 2010 levels by 2040 and 70 percent by 2035. If so, provide those plans. If not, state how the Companies intend to achieve these carbon emissions goals.
 - (b) Further, the Companies primarily reference emission targets set by PPL in which the majority of reductions (57%) occurring between 2010 and 2021 due to the removal of emissions associated with PPL Energy Supply, LLC (see "PPL Corporation 2021 Carbon Emissions and Intensity Data" footnote 1, attached hereto as Exhibit 1 and available at https://pplweb.wpenginepowered.com/wp-content/uploads/2022/07/PPL_CSR-2021-Carbon-Intensity_Data.pdf). In contrast, the Companies' cited a reduction of 19% during the same time period in their response to Louisville Metro/LFUCG Initial Request for Information Item 12. For clarity, please provide carbon emissions and intensity goals specific to LGE-KU generation for the time periods 2010, 2021, 2035, 2040 and 2050 (the years coinciding with PPL milestones per <https://www.pplweb.com/sustainability/environment/climate-action/>), a copy of which is attached hereto as Exhibit 2.
- A-3.
- (a) See the response to KCA 2-13. The proposed resources in this case support the achievement of the 2035 and 2040 goals.
 - (b) There are no LGE-KU-specific goals for CO₂ emission reductions and intensity.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 4

Responding Witness: Lonnie E. Bellar

- Q-4. Refer to the response to Louisville Metro/LFUCG Initial Request for Information, Item 13. What is the anticipated service life of the newly proposed NGCC plants?
- A-4. The Companies assumed an economic life of 40 years for the NGCC resources.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 5

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

- Q-5. Refer to the response to Louisville Metro/LFUCG Initial Request for Information, Item 14. Provide an updated status of the Companies' request to U.S. EPA to allow the option of evaluating replacement generation for Mill Creek 2 and Ghent 2 as a Good Neighbor Plan compliance alternative now that the rule has been finalized.
- A-5. See the response to AG 2-4.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 6

Responding Witness: David S. Sinclair

- Q-6. Refer to response to Louisville Metro/LFUCG Initial Request for Information, Item 20 acknowledging that “tracts of land large enough for utility scale solar facilities are very limited in Kentucky” and noting that such tracts are likely to compete with other farm and business interests and also refer to the responses to Item 28 and 31. Please explain why the Companies’ established a 100 MWac threshold for project development.
- A-6. See the response to JI 1-35(a).

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government’s and
Louisville/Jefferson County Metro Government’s Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 7

Responding Witness: David S. Sinclair

- Q-7. Refer to response to Louisville Metro/LFUCG Initial Request for Information, Item 23. Quantify the benefits of the proposed solar PPAs as a hedge on future fuel prices and CO2 regulation risk. Further, please quantify the emission reductions associated with the proposed solar projects as a percent of the total emissions anticipated. Are the Companies committed to securing an equivalent (or greater) hedge in the event the proposed solar projects do not come to fruition?
- A-7. See the table below based on data comparing the MC5/BR12; 0 Solar portfolio with the MC5/BR12; 637 Solar portfolio from Stage One, Step Two of the Resource Assessment. The Companies would only seek to secure an equivalent or greater hedge if it were to result in reduced costs for customers. The availability and economics of such future alternative solar projects are not knowable at this time.

Fuel Price Scenario (Gas, CTG Ratio)	PVRR Delta, 637 MW less 0 MW (\$M, 2022 Dollars)	Average Annual CO ₂ Emissions Reduction, 2026- 2050 (Million Short Tons)	Average Annual CO ₂ Emissions Reduction %, 2026-2050
Low Gas, Mid CTG	50	(1.1)	-4.5%
Mid Gas, Mid CTG	(132)	(1.1)	-4.4%
High Gas, Mid CTG	(571)	(1.0)	-4.1%
Low Gas, High CTG	38	(1.1)	-4.6%
High Gas, Low CTG	(552)	(0.9)	-3.6%
High Gas, Current CTG	(838)	(1.1)	-4.5%

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 8

Responding Witness: Robert M. Conroy

- Q-8. Refer to response to Louisville Metro/LFUCG Initial Request for Information, Item 31 and 35. Planned solar capacity by the Companies greatly exceeds the forecast of distributed generation by customers and the response to Item 90(c) of the Commission Staff's Initial Request for Information predicts that growth of distributed generation will slow when the 1% cap defined in KRS 278.466 is reached. Considering the Companies' request to add significant solar capacity and to install generation and storage that can better accommodate renewable energy, limited land available for utility scale projects, potential CO2 regulations in the future, and the Companies' goal of net-zero emissions by 2050, do the Companies still advocate for the 1% cap on distributed generation?
- A-8. KRS 278.466(1) states "If the cumulative generating capacity of net metering systems reaches one percent (1%) of a supplier's single hour peak load during a calendar year, the supplier shall have no further obligation to offer net metering to any new customer-generator at any subsequent time." The Companies' will address the issue once it reaches close to the 1% cap on distributed generation eligible for service under Rider NMS-2. See the response to PSC 1-37(a).

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 9

Responding Witness: Lana Isaacson

- Q-9. Refer to response to Louisville Metro/LFUCG Initial Request for Information, Item 41. The “midstream lighting” program described in Lana Isaacson Direct Testimony offers incentives to product distributors to stock higher efficiency models.
- (a) What conditions need to be met for distributors to receive midstream lighting incentives?
 - (b) Will the incentives be proportional to products installed by LGE-KU customers?
- A-9.
- (a) The Companies plan to collaborate with the two other PPL Corporation utilities who offer a Midstream Lighting program concerning (i) the specific conditions for lighting distributors and (ii) the deployment of this type of offering. The energy efficiency lighting options that are rebated through the Nonresidential Rebates Prescriptive Lighting are the same measures and incentive amounts for a lighting distributor as part of the Midstream Lighting program. To receive the incentive, the distributors would offer the rebate directly to customers at the point-of-sale and submit a request to the Companies separately for a rebate. The participating lighting distributors will need to provide adequate support documentation for the product and customer to validate the participant is an eligible LG&E or KU electric customer.
 - (b) The rebate amounts offered to a lighting distributor through the Midstream Lighting program will be the same as those offered through the Nonresidential Rebates Prescriptive Lighting rebates. The incentive amounts will be 15% of the estimated incremental cost for the energy efficient lighting option.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government’s and
Louisville/Jefferson County Metro Government’s Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 10

Responding Witness: Robert M. Conroy

- Q-10. Refer to response to Louisville Metro/LFUCG Initial Request for Information, Item 47 and Item 48. There is a significant gap between Green Tariff Option #3 and the other programs. To illustrate the gap, please quantify the capacity installed or purchased for the available programs: Net Metering, Solar Share, Green Tariff Option #1, Green Tariff Option #2 and Green Tariff Option #3. Are the Companies amenable to lowering the minimum monthly billing load of Green Tariff Option #3 to facilitate participation?

- A-10. The Companies are not certain what the phrase “significant gap” in the request for information means. In addition to the rate schedules referenced in the request, customers have options to install their own generation as a qualifying facility under Rider SQF (100 kW or less) and Rider LQF (greater than 100 kW up to 80 MW).

Qualifying Facilities (installed capacity as of March 31, 2023):

	Rider SQF	Rider LQF
KU	1,083 kW	2,291 kW
LG&E	73 kW	2,099 kW
Total	1,156 kW	4,390 kW

Net Metering (installed capacity as of March 31, 2023):

KU	18,047 kW
<u>LG&E</u>	<u>16,307 kW</u>
Total	34,354 kW

Solar Share (installed capacity as of March 31, 2023): 2,500 kW DC

Green Tariff Option #1: 0 kW - Green Tariff Option #1 does not directly impact installed renewable capacity. It allows customers the ability to indirectly purchase Renewable Energy Certificates (“RECs”) in the REC market.

Green Tariff Option #2: (Installed as of March 31, 2023)
LG&E 30 kW
KU 204 kW

Green Tariff Option #3: Two projects totaling 200 MW are under contract but are still in various states of development.

The Companies set the minimum monthly billing load of the Green Tariff Option #3 requirements to ensure the appropriate economy of scale could be achieved in support of large industrial customers. The aggregate 10 MW limit is deemed the minimum load level to support utility scale installations.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 11

Responding Witness: Lonnie E. Bellar / David S. Sinclair

Q-11. Refer to the response to Commission Staff's Initial Request for Information, Item 58, regarding the drop in pressure on the Texas Gas Transmission system during Winter Storm Elliott which resulted in curtailed output from the Companies' Cane Run 7 combined cycle unit and the Trimble County simple cycle units.

- (a) State when the Companies anticipate completing its investigation into the events of Winter Storm Elliott.
- (b) State whether the Companies have reviewed the upgrades in equipment and operating procedures that Texas Gas Transmission have proposed to implement to address the failure at one of its compressor stations to provide adequate pressure during Winter Storm Elliott. Also, state whether the Companies agree that these changes will mitigate similar type of failures on Texas Gas Transmission's system occurring in the future.
- (c) State whether the Companies have reached out to Texas Eastern or Tennessee Gas to discuss the impacts, if any, of Winter Storm Elliott on those two gas systems and whether there will be any changes made to either of those gas systems to address those impacts.

A-11.

- (a) The Companies have reviewed the event with Texas Gas Transmission, and Texas Gas Transmission has publicly discussed plans for system upgrades and revised operational procedures for cold weather to prevent a recurrence of the low pressure issue that occurred in December 2022. The Companies will monitor Texas Gas Transmission's progress on the actions that they have proposed taking to further winterize their system.
- (b) See the response to PSC 2-67. The Companies have reviewed Texas Gas Transmission's plan for winterization upgrades and enhanced operating procedures. The Companies believe the pipeline is taking reasonable and

appropriate actions to prevent a reoccurrence of the low pressure issue and will monitor their progress.

- (c) The E.W. Brown CTs were connected to the Texas Eastern pipeline during Winter Storm Elliott, and the Companies did not experience low pressure or other pipeline problems. The Companies are currently discussing firm transportation services for the new Brown NGCC with Tennessee Gas Pipeline. Part of those discussions will include impacts, if any, to the pipeline during the December 2022 extreme weather and planned improvements if necessary.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 12

Responding Witness:

Q-12. This page intentionally left blank.

A-12.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government’s and
Louisville/Jefferson County Metro Government’s Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 13

Responding Witness: David S. Sinclair

- Q-13. Refer to the response to Commission Staff’s Initial Request for Information, Item 92(a). The question quoted the following statement from the Companies’ 2021 IRP: “the current environment does not support the installation of NGCC without CCS due to its CO₂ emissions.” (Emphasis added.) The Companies’ response indicated that no proposal was submitted with a proposal for an NGCC with CCS because an NGCC without CCS was “economically preferred.” The response, however, does not fully address the question posed. Aside from the economics of an NGCC with CCS vis-à-vis an NGCC without CCS, provide an explanation as to why the Companies accepted NGCC without CCS as a resource proposal to the RFP and are now proposing to construct NGCC units without CCS when the Companies’ 2021 IRP clearly determined that NGCC without CCS could not be a reasonable resource replacement alternative given the “current environment” and “due to its CO₂ emissions.”
- A-13. The Companies disagree with the characterization of their 2021 IRP *assumption* concerning CCS for NGCC as a “clear determin[ation].” See the response to KCA 2-12. Note also that the Companies demonstrated in the 2021 IRP proceeding that NGCC *without* CCS was a cost-effective technology if CCS was not required for NGCC.² The compliance requirements of the GNP and a holistic assessment of compliance requirements at the time of the CPCN filing resulted in NGCC without CCS as the safe, reliable, affordable, and compliant option for consideration.

² *Electronic 2021 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company*, Case No. 2021-00393, Companies’ Responses to PSC 2-1 and PSC 2-3 (Mar. 25, 2022); Case No. 2021-00393, Companies’ Response to PSC PHDR 1 (Aug. 8, 2022).

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 14

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

- Q-14. Refer to the response to Commission Staff's Initial Request for Information, Item 98. Provide the CO₂ emissions rates for the proposed new NGCC units on an annual basis.
- A-14. The New Source Performance Standard for the proposed new NGCC is 1,000 lbs CO₂ / gross MWh or 1,030 lbs CO₂ / net MWh on an annual basis. The annual CO₂ emissions rate is a function of the number of start-ups, the utilization of evaporative cooling, the utilization of duct firing, the load profile of the unit, and ambient conditions. The performance guarantees in the request for proposals will include the new source performance standard and a shorter-term guarantee of 116.98 lbs CO₂/MMBtu. Emissions rates for the proposed NGCC units were modeled at 119 lbs/MMBtu.

**KENTUCKY UTILITIES COMPANY
AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

**Response to Lexington-Fayette Urban County Government's and
Louisville/Jefferson County Metro Government's Joint Supplemental
Request for Information to the Joint Applicants
Dated April 14, 2023**

Case No. 2022-00402

Question No. 15

Responding Witness: Lonnie E. Bellar

- Q-15. Refer to the response to Kentucky Coal Association's Initial Request for Information, Item 13(p). Provide an explanation as to what caused the forced outage to one of the Companies' coal units and the derates to several coal units during the course of Winter Storm Elliott.
- A-15. The Companies assume the reference should be to the response to Attorney General 1-13(p). See the response to PSC 1-99.