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**

DIRECT TESTIMONY OF
DAVID L. (DAVE) TUMMONDS
SENIOR DIRECTOR, PROJECT ENGINEERING
ON BEHALF OF
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Filed: February 28, 2025

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INTRODUCTION

Q. Please state your name, position, and business address.

A. My name is David L. (Dave) Tummonds. I am the Senior Director of Project Engineering for Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") (collectively, "Companies") and an employee of LG&E and KU Services Company, which provides services to KU and LG&E. My business address is 2701 Eastpoint Parkway, Louisville, Kentucky 40223. A complete statement of my education and work experience is attached to this testimony as Appendix A.

Q. Have you previously testified before this Commission, and what are your job duties as Senior Director of Project Engineering?

A. Yes, I testified before the Commission in a number of fuel adjustment clause review proceedings in 2011 and 2012 in my role as Director, Generation Services. More recently, I participated in preparing and sponsored a number of responses to data requests on behalf of the Companies in Case No. 2023-00361 concerning a site compatibility certificate for the Companies' Mercer County Solar Facility,[1] and I provided written testimony to the Commission and sponsored responses to data requests in Case No. 2024-00317 concerning LG&E's Retired Asset Recovery Rider implementation.[2] In my current role as Senior Director of Project Engineering, I lead the groups responsible for the Companies' large scale capital installations and facilities projects and services.

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[1] *Electronic Joint Application of Kentucky Utilities Company and Louisville Gas and Electric Company for a Site Compatibility Certificate for the Construction of a Solar Facility in Mercer County, Kentucky*, Case No. 2023-00361.

[2] *Electronic Application of Louisville Gas and Electric Company for Approval of Retired Asset Recovery Rider Cost Recovery for the Retirement of Mill Creek Unit 1 and of Retired Asset Recovery Rider Tariff Revisions and Monthly Reporting Forms*, Case No. 2024-00317.

Q. What is the purpose of your direct testimony?

A. My testimony will explain the details of the Companies' plans to construct the projects proposed in this case which are for the construction of: (1) two natural gas combined cycle ("NGCC") units, one at the E.W. Brown Generating Station ("Brown 12") and the other at the Mill Creek Generating Station ("Mill Creek 6"); (2) the construction of a battery energy storage system ("BESS") at the Cane Run Generating Station ("Cane Run BESS"); and (3) the construction of a selective catalytic reduction ("SCR") system at the Ghent Generating Station for Ghent 2. I will describe what is proposed to be constructed, the construction timeline, and the expected costs of these projects.

CONSTRUCTION OF NGCCS AT BROWN AND MILL CREEK

Q. Please describe the facilities the Companies propose to construct at Brown and Mill Creek.

A. The Companies plan to construct two approximately 645 megawatt (MW) net summer rating advanced class 1x1 single-shaft NGCC facilities.[3] One will be Brown 12 at the E.W. Brown Generating Station in Mercer County, Kentucky and the other will be Mill Creek 6 at the Mill Creek Generating Station in Jefferson County, Kentucky. Maps and conceptual and preliminary plans and drawings for Brown 12 and Mill Creek 6 are attached as Joint Application Exhibits 1 and 2, respectively.

Q. Why are the sites at Brown and Mill Creek best for the location of the proposed NGCCs?

[3] A 1x1 NGCC consists of one gas turbine, one heat recovery steam generator ("HRSG"), and one steam turbine. The Companies' proposed NGCCs will be single-shaft, meaning each NGCC's gas turbine and steam turbine will both power the same electrical generator. An advanced class natural gas turbine is essentially defined as a firing temperature in excess of 2600°F (about 1426°C) and up to about 2900°F (1600°C).

A. The Companies considered their various generating sites for the NGCCs, including KU's Green River Generating Station. The good land availability at Brown and Mill Creek is a significant factor. Beyond that and as discussed in more detail below, favorable transmission costs, a favorable gas supply environment, and the advantages of constructing Mill Creek 6 next to Mill Creek 5 make Brown and Mill Creek the most desirable sites.

Q. Do the Companies have experience with the construction and operation of NGCC units?

A. Yes. The Commission issued a CPCN to the Companies in Case No. 2011-00375 for construction of a 2x1 NGCC at the Cane Run Generating Station ("Cane Run 7").[4] The Companies then constructed the unit and have operated it since construction was completed in 2015. The facility was constructed on time and under budget. The Companies have had excellent experience with Cane Run 7 and expect the same excellent experience with the NGCCs proposed in this case. The Commission also issued a CPCN to the Companies in Case No. 2022-00402 for construction of the same type of advanced class 1x1 single-shaft NGCC at Mill Creek ("Mill Creek 5") that the Companies propose in this case. Construction of Mill Creek 5 is underway and proceeding according to plan, and the unit remains on track for commercial operation in the summer of 2027. The Companies will leverage their existing knowledge of construction and operation of these NGCCs to maximize efficiencies for the proposed units.

[4] The Companies' 2x1 F Class NGCC consists of two gas turbines (each with its own electrical generator) and two HRSGs that power a separate steam-turbine electrical generator, for a total of three electrical generators.

Q. What have the Companies done to leverage their Mill Creek 5 work into advantages for Mill Creek 6?

A. The Mill Creek 5 site layout design incorporated a footprint for a possible Mill Creek 6. Civil designs, such as roadways, stormwater flow paths, and building and structural layout, included high-level thought for a future unit. Much of the Mill Creek 5 work can be replicated for Mill Creek 6, including mechanical and instrumentation electrical routing designs. Laydown yards and temporary facilities used at Mill Creek 5 can be reused for Mill Creek 6. The gas line constructed to Mill Creek 5 can also serve Mill Creek 6 simultaneously with minimal additional construction or maintenance costs.

Q. Please explain the advantages of constructing one NGCC at Brown and another one at Mill Creek instead of constructing a single and larger NGCC at just one location.

A. Constructing one unit at each existing generating station optimizes the use of existing assets and creates advantages and savings for customers that would not be realized if a single and larger unit was constructed at one location by:

- Reducing equipment and location-related reliability risk. If a period of unavailability occurs with one unit, the Companies can address that problem while keeping the other NGCC operational. Risks that might affect operation and maintenance are spread across two units at two sites, thereby decreasing the chances of a significant interruption of generation.
- Reducing fuel supply and delivery risk. As Mr. Schram explains, gas supply at Brown 12 will be from either Texas Eastern or Tennessee Gas (both pipelines currently can serve the station), and gas supply for Mill Creek 6 will be from Texas

Gas, which will also supply gas for Mill Creek 5 when it becomes operational. In the unlikely event that gas supply or delivery becomes problematic at one location, this pipeline and locational diversity significantly improves the probability that the Companies will be able to operate the other NGCC.

- Using two sites will enable the Companies to better manage the burden that will be placed on the Companies' electric transmission infrastructure. This also means that the existing substations will suffice with relatively minimal electric transmission upgrades, which would not be the case with a single larger NGCC at one location.
- Using two locations will allow the Companies to more efficiently use existing space, water supply, and site facilities (utilities, security, and communications) to keep costs relatively low.
- Using two locations allows the Companies to manage their available land in the most prudent way. The footprint that would be required for a single and much larger unit at one location would be significantly larger than required for the proposed single-shaft units and would mean a larger land commitment for 30-40 years. Two smaller footprints optimize available land for future use.
- Using existing personnel at each site to operate each new NGCC, which should help reduce training time and expense.
- Having two different sites for construction of the NGCCs will reduce execution risk of the full generating capacity being installed. In executing the construction of each project from initial efforts through commercial operation, numerous issues and variables can affect the timing and completion of that construction. The Companies will manage that risk, but having two sites spreads the execution risk such that a

difficulty experienced at one site may not affect the other site at all. More specifically, utilizing existing electric transmission and gas facilities at each site reduces execution risk associated with the completion of additional construction projects, particularly those required outside the existing plant property, necessary for the operation of the NGCC units.

- Locating Mill Creek 6 right next to Mill Creek 5 maximizes operational efficiency. The Companies plan to use the same type of equipment for Mill Creek 6 as they are constructing at Mill Creek 5, making them "sister" units. This means that the Mill Creek 5 construction and operational experience can be directly applied to Mill Creek 6, which will be within walking distance of Mill Creek 5.

Q. Is demolition necessary at Brown and Mill Creek to make room for the NGCCs?

A. For Brown 12, KU plans to demolish Brown 1 and 2 prior to construction of Brown 12 to provide adequate safety clearance for the construction of Brown 12 and to avoid demolition risk in the future from demolishing Units 1 and 2 after Brown 12 becomes operational. The prime contractor for that demolition is already mobilized and has started initial work. Completing this demolition work prior to mobilization of the Brown 12 engineering, procurement, and construction ("EPC") contractor eliminates co-location of contractors that would have otherwise been necessary during simultaneous demolition of the old units and construction of the new unit. Furthermore, completion of demolition work provides for more optimal construction laydown and parking for the Brown 12 EPC contractor.

Minor demolition is needed for siting of Mill Creek 6, but it can be done in connection with the existing construction work for Mill Creek 5.

Q. Please describe the construction plans for the NGCCs.

A. The Companies plan to construct the NGCCs so that Brown 12 will be operational in 2030 and Mill Creek 6 will be operational in 2031. To achieve the most favorable and predictable pricing, the Companies plan to secure contracts for both units at approximately the same time in June 2026. The time between contracting and in-service operation will allow for reasonable construction and commissioning contingencies such as weather issues, supply chain issues, and force majeure type events. Thus, once regulatory approvals are obtained, the Companies will make every effort to construct and place the NGCCs into commercial operation by those dates. To that end, the Companies have already begun work on developing the specifications for the NGCC units, including the power island that consists of the gas turbine, steam turbine, electric generator, and heat recovery steam generator, and they have received a bid for the Brown 12 power island from GE, which is the same manufacturer who is providing the power island for Mill Creek 5.

The Companies plan on using GE for both Brown 12 and Mill Creek 6 given their good experience with GE and to leverage the growing knowledge they are acquiring from the construction of a GE unit at Mill Creek 5. The Companies have begun work on developing the EPC contract bid package for the NGCCs. The Companies have also begun developing the Title V air permit applications, submitted a generation interconnection request to TranServ International (the Companies' Independent Transmission Organization or "ITO") to interconnect Brown 12 to the LG&E/KU transmission system (Mill Creek 6 will be submitted in November 2025 per

ITO requirement), begun preparing the siting documentation, and had discussions with gas pipeline companies for gas supply (Texas Gas, Tennessee Gas, and Texas Eastern).

The build process will include an owner's engineer ("OE"), which will support our Project Engineering and Power Production staffs. As they did for the Cane Run 7 NGCC project and Mill Creek 5, the Companies have contracted with the engineering firm HDR to serve as the OE. HDR will also assist with design optimization, environmental permitting, and procurement efforts in a support role to our Project Engineering department. With timely regulatory approval and receipt of the construction permits, completion of the NGCCs can meet the targeted commercial operation dates.

Q. Please describe the onsite construction timeline for the NGCCs.

A. Before construction work can begin for the NGCCs, the Companies will need to receive needed regulatory approvals, including the requested CPCNs and site compatibility certificates, finalize power island purchases with GE, and issue a request for proposals ("RFP") for the EPC contractor. The critical time element for construction of an NGCC is the acquisition and delivery of the power island from GE. Current market indications from GE and EPC firms currently constructing NGCCs are that mechanical completion is approximately 45 months after EPC contract execution, followed by approximately 3 months of startup, final testing, and commissioning to reach commercial operation. In total, the Companies estimate that it will take approximately 48 months from execution of the EPC contract until commercial operation, not considering time required for permitting and regulatory approvals.

Q. Are there permits that will be required as part of the construction?

A. Yes. The environmental permits are discussed in Mr. Imber's testimony. In addition, permits normally required for construction (plumbing, building, etc.) will be obtained at the appropriate time as necessary.

Q. Why are the Companies seeking CPCNs for their proposed NGCCs at this time?

A. The Companies are requesting CPCNs at this time so they can ensure the timely execution of their cost-effective plans, position themselves to meet their obligation to reliably serve customers in the years ahead, and avoid future increases in NGCC pricing given the tightening NGCC market. The Companies also recognize that it may take a number of months for approval of the CPCNs and the necessary pre-construction environmental permits. We also know from experience that the large scope of the projects requested will require an intensive process of qualifying suppliers, evaluation of bids, and earnest negotiations. In light of the complexity of the construction project and the anticipated market impacts as numerous parties seek to construct similar or identical units, difficulties and resulting delays are possible. Taking all of that into account, in order to have new generation resources operational when the Companies will need them, we believe it is imperative to seek Commission approval at this time.

Q. Have the Companies performed any onsite construction work for the NGCCs at this time?

A. No. As indicated previously, the Companies have performed development engineering to size the units and locate the units at Brown and Mill Creek, and are performing other pre-engineering activities necessary to prepare a conceptual scope, estimate, and schedule. The Companies are proceeding with development of the engineering and permitting processes for the power island and EPC contracts, as well as continuing to

develop execution plans for all other associated onsite work necessary to implement the NGCCs. Finally, as Mr. Bellar explains, the Companies entered into a Unit Reservation Agreement with GE to ensure timely production and delivery of the Brown 12 NGCC equipment.

Q. Will any significant natural gas transmission work have to be performed in connection with the construction of the NGCCs?

A. No, not compared to the total cost of each project. For Brown 12, the Companies will need to install new gas compression at the site to allow the existing pipeline to serve the current simple-cycle gas turbines and Brown 12. As Mr. Schram discusses, the Companies have consulted with Tennessee Gas and have learned that Tennessee Gas has adequate capacity to serve the gas needs of Brown 12. Thus, Brown 12 will be served by either Tennessee Gas or Texas Eastern. As described above, for Mill Creek 6, the Companies will be able to utilize the gas infrastructure improvements that are being completed to serve Mill Creek 5 and Texas Gas has indicated it can supply both Mill Creek 5 and Mill Creek 6.

Q. What are the expected construction costs of the NGCCs?

A. The Companies currently estimate the construction cost of Brown 12 and Mill Creek 6 will be $1.383 billion and $1.415 billion, respectively.

Q. What will be the annual operating cost of the NGCCs?

A. The annual operating cost in 2030 dollars for Brown 12 is $5.1 million in fixed costs and $1.80/MWh in variable costs. The annual operating cost in 2031 dollars for Mill Creek 6 is $4.7 million in fixed costs and $1.86/MWh in variable costs.

Q. How do the Companies plan to transmit power from the NGCCs to serve their load?

A. Power from the new NGCCs will be transmitted using the existing network transmission infrastructure with limited modifications. Onsite interconnection facilities will also be constructed or modified at Mill Creek and Brown, as needed, to interconnect the NGCCs with the transmission network at each plant site. By using existing infrastructure, the Companies do not believe any significant system upgrades will be necessary that would require new right-of-way acquisition or electric transmission CPCNs to integrate the Mill Creek and Brown NGCCs with the transmission network. Transmission costs are estimated to be approximately 2% of the total cost of the NGCCs.

CONSTRUCTION OF CANE RUN BESS

Q. Why are the Companies proposing the construction of the Cane Run BESS?

A. Stuart A. Wilson notes in his testimony that the Companies' 2024 IRP demonstrated that adding at least 400 MW of four-hour BESS by 2032 was least-cost with projected load similar to what is projected in the 2025 CPCN Load Forecast. Therefore, to assist with resource planning for this application, the Companies developed cost estimates for BESS at Cane Run and Ghent based on the Companies' most recent estimates for the 125 MW, four-hour Brown BESS. The capital cost estimate for the Ghent BESS was higher than the estimate for the Cane Run BESS due to additional site work needed at Ghent to accommodate battery storage. Due to potential site space limitations, the Companies limited Cane Run BESS to 400 MW.

As Mr. Wilson's testimony confirms in this case, 400 MW of a four-hour BESS is part of the Companies' lowest reasonable cost plan to serve anticipated load. The

Companies can accomplish this by constructing the Cane Run BESS. The Cane Run BESS unit would be in addition to the Brown BESS the Commission authorized in Case No. 2022-00402. The Cane Run BESS would have an approximate 400 MW capacity over four hours for a total of approximately 1600 MWh. Here again, the Companies will leverage their growing knowledge and experience from Brown BESS to be as efficient as possible with the construction of the Cane Run BESS.

Q. Please describe the proposed Cane Run BESS.

A. The Companies will construct the Cane Run BESS at the Cane Run Generating Station in Jefferson County. The Companies plan to use lithium-ion battery technology similar to what will be used for Brown BESS absent a shift in technology in the battery industry. The Companies' Project Engineering team will lead the Companies' efforts to develop, permit, and construct the Cane Run BESS using an EPC. The power required to charge the Cane Run BESS and the subsequently delivered power will be transmitted via the existing electric transmission infrastructure at the Cane Run Generating Station. Maps and conceptual and preliminary plans and drawings for the Cane Run BESS are attached as Joint Application Exhibit 3.

Q. Are there transmission advantages to constructing the BESS at an existing generating station?

A. Yes. The transmission networks already in place at Cane Run allow for integration with limited impact. The Companies do not anticipate any significant system modifications or upgrades will be necessary to charge or transmit power stored in the batteries other than the electric transmission system upgrades on-site to connect the BESS to the existing electrical substation.

Q. Will any construction permits be required?

A. No major construction permits are anticipated.

Q. How much will it cost to construct the Cane Run BESS and what is the expected timing of construction?

A. The Companies expect it will cost approximately $775 million to construct the Cane Run BESS. The Companies expect to perform the necessary engineering planning for the BESS late in the first quarter of 2025 and begin construction in the third quarter of 2026 with commercial operation expected in 2028.

Q. How much will it cost to operate the Cane Run BESS on an annual basis?

A. Conceptual fixed operating and maintenance costs for the Cane Run BESS are assumed to be $25.11/kW-year or approximately $10 million in 2028 dollars.

CONSTRUCTION OF SCR AT GHENT 2

Q. Please describe the proposed SCR system.

A. The Companies propose to self-build the SCR system, which is a technology that has been used globally for decades to reduce NO_x thereby reducing ozone levels at fossil fuel plants. SCR works by injecting ammonia into the exhaust gas upstream of a catalyst. This results in a chemical process that turns the NO_x into harmless nitrogen and water. The Companies' Project Engineering team will lead the effort to develop, permit, and EPC the SCR facility. The Companies have experience operating and maintaining SCR systems. From 2002 to 2013, Project Engineering constructed SCRs on eight coal-fired units in the Companies' generation fleet. All of those projects met construction, operations, and reliability expectations.

Q. Please describe the construction process for the SCR system.

A. The Companies are in the process of performing the engineering planning necessary for the development of this project. They plan to issue an EPC contract by the end of 2025. That timing will allow for commencement of construction in August 2026. Commercial operation is planned to begin in May 2028. Maps and conceptual and preliminary plans and drawings for the SCR facility are attached as Joint Application Exhibit 4.

Q. Will any construction permits be required?

A. It is possible that some could be required depending on the final layout, but, at this time, no such permits are required.

Q. How much will it cost to construct the SCR at Ghent 2?

A. The capital cost of an SCR for Ghent 2 is estimated at $152.3 million for a 2028 commissioning.

Q. What will be the annual operating cost of the Ghent 2 SCR?

A. The annual operating cost in 2028 dollars for the Ghent 2 SCR is $1.3 million in fixed costs and $0.41/MWh in variable costs.

Q. The Companies are proposing multiple complicated projects as part of the overall portfolio submitted in this case while, at the same time, they will be executing the projects approved in Case No. 2022-00402. Do you have any concerns over the Companies' Project Engineering team's ability to deliver these projects?

A. No. The Companies recognize that the requested projects in this case in addition to the projects approved in Case No. 2022-00402 will require a tremendous amount of time, planning, expense, and expertise. However, the Companies have proven they can and will devote the resources necessary to handle multiple complex projects

contemporaneously when it is in the best interests of customers. For example, the Companies proposed and the Commission approved multiple environmental compliance projects as part of their 2011 Environmental Compliance Plan cases,[5] which included: (1) the construction of particulate matter control systems at all the generating units at Brown, Ghent, Mill Creek, and Unit 1 at Trimble County; removal of the flue gas desulfurization ("FGD") systems at Mill Creek 1 and 2 and construction of a single FGD system to serve both units; construction of a new FGD system at Mill Creek 4; and removal of the existing FGD system at Mill Creek 3 and tying Mill Creek 3 into the FGD system that was serving Mill Creek 4. The Companies managed and completed all those projects while also constructing the Cane Run 7 NGCC the Commission approved in Case No. 2011-00375.

Likewise, the Companies again proposed and the Commission approved multiple complex projects as part of their 2016 Environmental Compliance Plan cases related to some 19 surface impoundments and four process water systems.[6] There again, the Companies successfully have managed all projects. Thus, with the Companies' advanced planning and timely approvals from the Commission, the Companies have demonstrated an ability to execute on multiple complex projects simultaneously.

CONCLUSION

Q. What is your recommendation to the Commission?

[5] Those cases were Case No. 2011-00161 (KU) and Case No. 2011-00162 (LG&E).
[6] Those cases were Case No. 2016-00026 (KU) and Case No. 2016-00027 (LG&E).

A. I recommend that the Commission approve the proposed NGCCs, BESS, and SCR for Ghent 2 as cost-effective methods of ensuring adequate generating capacity while complying with current and proposed environmental laws.

Q. Does this conclude your testimony?

A. Yes, it does.

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 foregoing testimony, and that 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 20th day of February 2025.

Notary Public

Notary Public, ID No. KYNP45777

My Commission Expires:

April 1, 2028

APPENDIX A

David L. (Dave) Tummonds
Senior Director, Project Engineering
LG&E and KU Services Company
2701 Eastpoint Parkway
Louisville, Kentucky 40223

Relevant Work and Professional Experience

LG&E and KU Services Company	
Senior Director, Project Engineering	2022 – Present
General Manager, Ghent Generating Station	2020 – 2022
General Manager, Cane Run Generating Station (Natural Gas Fired)	2015 – 2020
General Manager, Cane Run Generation Station (Coal Fired)	2013 – 2015
Director, Generation Services	2011 – 2013
Manager, Generation Engineering	2010 – 2011
Deputy Director, Center of Competence (Fossil)	2008 – 2010
Production Supervisor, E.W. Brown Generating Station	2006 – 2008
Production Supervisor, E.W. Brown Combustion Turbines	2002 – 2006
Alstom Power, Richmond, Virginia	
Thermal Commissioning Engineer	2000 – 2002

Professional and Trade Memberships

Combustion Turbine Operations Technical Forum (CTOTF) Member	2003 – Present
National Chairman	2021 – Present

Education and Training

Executive Development Program Graduate	
Northwestern University, Kellogg School of Management	2013
Strategic Business Integration Training	2011
Personal Awareness and Effective Leadership Training	2011
Six Sigma and Advanced Statistics Trainings	2000
Bachelor of Science in Mechanical Engineering	
United States Military Academy, West Point, New York	1994

Civic Activities

Louisville Zoo Foundation	
Vice Chairman of the Board	2022 – Present
Chairman of Exhibits and Facilities Committee	2018 – 2022
Carroll County Community Development Corporation, Industrial Chairman	2020