Exhibit No.:	
Issue(s):	CTG Project Description, Schedule, In-Service Criteria
Witness:	Christopher A. Stumpf
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Union Electric Company
File No.:	EA-2025-0238
Date Testimony Prepared:	June 26, 2025

MISSOURI PUBLIC SERVICE COMMISSION

File No. EA-2025-0238

DIRECT TESTIMONY

OF

CHRISTOPHER A. STUMPF

ON

BEHALF OF

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

St. Louis, Missouri
June 2025

P

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

CHRISTOPHER A. STUMPF

FILE NO. EA-2025-0238

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. Please state your name and business address.

A. Christopher A. Stumpf, One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri, 63103.

Q. By whom and in what capacity are you employed?

A. I am employed by Union Electric Company, d/b/a Ameren Missouri ("Company" or "Ameren Missouri"), as Vice President – Engineering, Design and Project Management. My responsibilities and those of my work groups include planning and budgeting capital projects, preparing design and procurement specifications associated with such projects, preparing requests for proposal ("RFP") to be sent out for bids, evaluating bids and selection of vendors, and supervising the construction of capital projects.

Q. Please describe your professional background and qualifications.

A. I joined Ameren Missouri in 2005 as a Project Engineer in Generation Engineering. Before coming to Ameren Missouri, I worked as a Mechanical Engineer at the engineering firm Burns & McDonnell from 2001 to 2005. In 2008, I was promoted to Supervising Engineer in Environmental Project Engineering responsible for the execution of environmental air projects for non-nuclear generation (Power Operations). In 2010, I was promoted to Managing Supervisor in Environmental Project Engineering to lead multi-faceted teams for the execution of large capital environmental projects. In 2013, I took over the Mechanical Engineering department responsible

for major boiler and turbine projects for Power Operations. In 2017, I was promoted to Senior Manager of Project Engineering with responsibility for the execution of Power Operations' capital projects. In 2018, the engineering organizations for Power Operations and Energy Delivery merged into one organization at which point I was promoted to Director, Project Management & Mechanical/Environmental Engineering, with the responsibility to manage Energy Delivery and Power Operations' capital projects. In 2019, I was promoted to the position of Senior Director, Engineering Design and Project Management. I was promoted to my current position of Vice President, Engineering Design and Project Management in January 2025. Much of my career has been in the planning, design, and execution of large capital projects on utility power plants.

I earned a Bachelor of Science degree in Mechanical Engineering from the University of Southern Illinois University at Carbondale in 2001. I am a licensed Professional Engineer in the state of Missouri and hold a Project Management Professional ("PMP") certificate.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide a description of the proposed 800 megawatt ("MW")[1] Big Hollow Combustion Turbine Generator Project (the "CTG Project" or "Big Hollow CTG") to be constructed at the site of the former Rush Island coal-fired plant, discuss its characteristics, the reason for its location, the CTG Project schedule, and permitting for the CTG Project. Company witness Scott Wibbenmeyer will provide testimony on these topics for the 400 MW_{AC}[2] battery energy storage system ("BESS") project that is also included in this certificate of convenience and necessity ("CCN") filing (the "Big Hollow BESS Project"), which will also be located at the former Rush Island site.

[1] Nameplate capacity.
[2] References to capacity of the BESS project are expressed as alternative current, unless otherwise noted.

Q. Are you sponsoring any schedules?

A. Yes. I am sponsoring the following schedules:

- **Schedule CS-D1** – A matrix of sites considered for the CTG Project.
- **Schedule CS-D2** – CTG Project plans and specifications.
- **Schedule CS-D3** – CTG Project permit list.
- **Schedule CS-D4** – CTG Project in-service criteria.

II. THE BIG HOLLOW CTG PROJECT

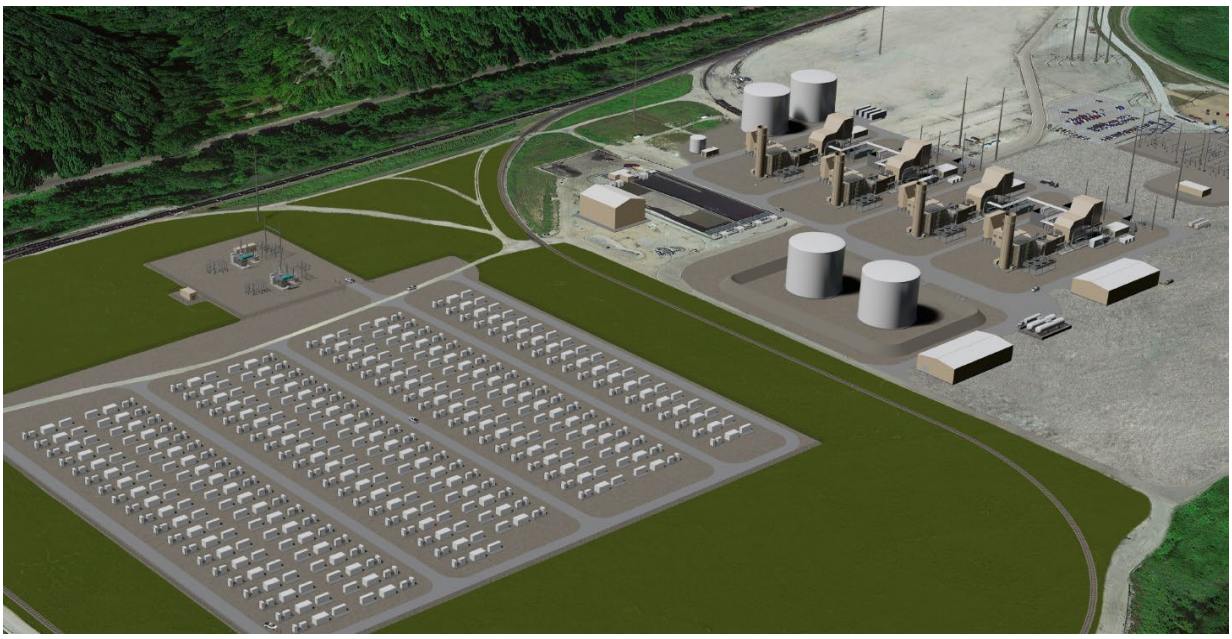
Q. Please describe the proposed installation.

A. The Big Hollow Energy Center will consist of four (4) simple cycle combustion turbine generators ("CTGs") in a dual fuel configuration. Each of the four units will be capable of generating approximately 170 MW during hot summer conditions while firing natural gas and approximately 200 MW on cold winter days on fuel oil back-up.

The CTGs will be equipped with selective catalytic reduction ("SCR") equipment for NOx control. The use of SCRs for NOx control under air permitting requirements will ensure the units are available to operate up to a 20% capacity factor and is further described later in this testimony.

The CTG Project will also include an office/control service building, natural gas compressors, fuel oil storage tanks, a demineralized water tank, an auxiliary building, and a warehouse. See Figure 1, which is an artist's rendering of both the CTG and BESS installations at the site, with the CTG plant located on the right and the BESS on the left:

Figure 1, Big Hollow CTG & BESS Project Site



Q. Where is the Big Hollow CTG plant located on the Rush Island site?

A. The Big Hollow CTG plant will be located to the west of the previous coal-fired units. The existing retired steam units at Rush Island will be dismantled starting later this year.

Q. You mentioned the Big Hollow BESS Project. How are the two projects related?

A. Construction of the projects will be independent of each other due to different designs and in-service dates, but they both will take advantage of the existing Rush Island transmission interconnection without the need for commencement of a new generator interconnection process. Except for water supply, their systems will not be common. As I previously discussed, Company witness Scott Wibbenmeyer's Direct Testimony provides more details about the BESS Project.

Q. When is the CTG Project expected to go into operation?

A. The CTG Project is scheduled to be in service September 1, 2028.

Q. Why did Ameren Missouri select the Rush Island site for construction of the CTG Project?

A. For several reasons, due to both cost and schedule advantages. First, building at an existing energy center site allows current infrastructure to be repurposed, saving time and money. The CTG Project intends to repurpose the existing Generator Step-Up ("GSU") transformer as well as the existing Station Service Transformers from the recently retired Rush Island coal plant, saving costs as well as reducing delivery and schedule risks. With the retirement of the coal plant in October 2024, Ameren Missouri will also be able to take advantage of using the former substation and transmission interconnection with minimal modifications. Planning, permitting, engineering, and construction of new transmission lines can take multiple years. Reuse of the transmission infrastructure that served the coal plant reduces this time and saves the cost of constructing new equipment. And, as discussed in greater detail by Messrs. Michels' and Meyer's Direct Testimonies, it simplifies the Midcontinent Independent System Operator ("MISO") interconnection process, which otherwise could take multiple years to complete. And, finally, Ameren Missouri currently owns the Rush Island property, which means that customers will avoid both costs and the time delay associated with the acquisition of a new site.

Q. Were other sites considered?

A. A number of sites were considered. Major factors considered in siting evaluations included the ability to be in service by the end of 2028, gas fuel availability, transmission system network upgrade requirements, permitting, property availability, and the overall cost. Of all the sites evaluated, Rush Island had the lowest cumulative present worth of revenue requirements for locating the CTGs. A summary of Ameren Missouri's analysis of site locations is included as **Schedule CS-D1**.

Q. Having addressed site selection, could you please address why the Company selected the equipment it chose for the CTG Project?

A. As it did when developing the recently approved Castle Bluff CTG installation, Ameren Missouri placed a high value on equipment reliability, particularly the specification for the gas turbine engines. Ameren Missouri's equipment requirements continue to be based on historically proven "F" class gas turbine engines in simple cycle service rather than the newer and larger advanced class engines which have recently become available. As was the case for Castle Bluff, Ameren Missouri can identify very few advanced class engines in simple cycle service to evaluate the reliability of these newer engines, while there are hundreds of "F" class engines in operation. From a reliability view, Ameren Missouri does not believe it would have been prudent to add risk to the CTG Project by selecting newer technology without sufficient historical performance data for engine starting reliability and maintenance while operating in long-term high cycling operation as will be the case for the Big Hollow simple cycle CTG installation.

Given Ameren Missouri's concern for reliability, there were two potentially viable alternatives--either the General Electric ("GE") Class F engines used for Castle Bluff or Siemens engines. [3] It should be noted that during this period of time, the combustion turbine market became very constrained; in fact, during the bid review phase for Castle Bluff, Siemens informed us that it could not timely offer production slots for the engines, which prevented Siemens from being a viable supply option. The risk of not being able to procure production slots in time to make the required in-service dates for the CTG Project was also very high given market conditions. As we were considering how best to source the engines we needed, GE informed us that four production slots within our required delivery window for Big Hollow had become available due to a canceled

[3] While Mitsubishi manufactures Class F engines, Mitsubishi declined to submit a proposal indicating it did not believe it could compete and thus Mitsubishi engines were not a viable option.

order from another customer. Given that there was only one other potential supplier, Siemens, we also requested that Siemens make its own proposal. After review of the two offerings and for the reasons discussed further below, we determined that the GE proposal was the best option.

Q. Are there additional reasons that made the GE engines the best choice?

A. There were many reasons why the best approach was to utilize the GE engines. First, when on-site factors were included, such as reuse of Generator Step-Up Transformers, switchyard modifications required for Siemens equipment, and commonality of spare parts, the cost between GE and Siemens were within just over 1% of each other. Second, Ameren Missouri had already agreed upon terms and conditions with GE. Siemens, however, required a $9 million non-refundable payment up front as part of a Reservation Fee Agreement with no assurances that terms would be favorable to Ameren Missouri and its customers, or that a contract could even be successfully negotiated. Third, Siemens had a higher potential for delayed deliveries due to the need to engage in contract negotiations from scratch, and delivery risk due to the need to rely on overseas transportation. Fourth, qualitative factors were in GE's favor, including advantages in reduced O&M, shared parts, shared knowledge, shared training, commonality of the Mark VI control system with Castle Bluff, as well as the Audrain, Goose Creek and Raccoon Creek Energy Centers, construction specifications, and a shorter learning curve on construction and commissioning.

Q. Why is the site being designed for gas and fuel oil firing?

A. Natural gas will be the primary fuel for the CTGs. Use of fuel oil as a back-up is needed to provide winter peaking availability during periods of high natural gas demand for winter heating needs. As noted in Andrew Meyer's Direct Testimony, fuel contracts for firm gas supply are not available for the CTG Project, nor would they be economically viable at expected capacity

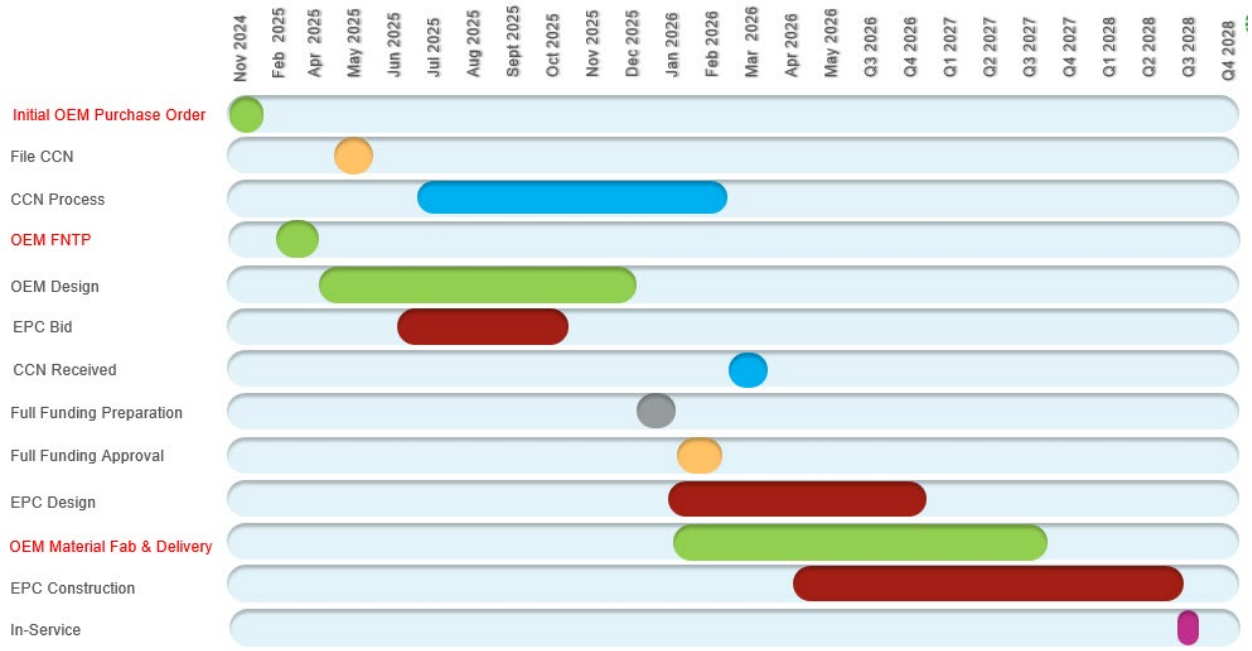
factors. Having the ability to operate with a loss of pipeline gas fuel, expected during the coldest days of the year, is key to the CTGs' ability to provide year-round reliable peaking capacity. Similar to Castle Bluff, oil storage has been designed to supply fuel for approximately 72 hours of operation with all four units operating at full load. Seventy-two hours was selected based on a combination of historical operational needs as well as modeling of future needs.

Q. Please elaborate on the schedule for the Big Hollow CTG Project.

A. For the reasons discussed above, the Big Hollow CTGs are currently scheduled to be in-service by September 1, 2028, to allow the new units to bid into the MISO capacity markets for the Winter of 2028/2029. To meet this in-service date, Ameren Missouri released a preliminary purchase order to the CTG supplier, GE, on November 19, 2024. The initial funds secure pricing, limited notice to proceed ("LNTP") to begin design, secure production slots for long lead materials (e.g., castings, forgings, raw materials, etc.), as well as our production reservation slots for timely fabrication of equipment. A final notice to proceed ("FNTP") for CTG fabrication was issued on February 20, 2025, so that the CTG Project could achieve schedule.

A high-level schedule for the CTG Project (Figure 2) is as follows:

Figure 2



Q. Why do the in-service date and the CTG Project's construction schedule require a CCN to be issued by March 2026, the date identified in the Company's Application?

A. The Company requests that the Commission issue a CCN for the Big Hollow CTG Project no later than March 31, 2026, so that the Company is able to start construction by April 1, 2026, which is essential to ensuring that the project can be placed in service no later than September 1, 2028. This date allows Ameren Missouri, under MISO's tariff, to take advantage of the existing interconnection rights at the Rush Island site without the delays and higher costs associated with obtaining new interconnection rights for that location.

Q. What features make the addition of CTGs at Big Hollow an ideal project for Ameren Missouri's system?

A. Large frame CTGs have many advantages for Ameren Missouri's system operation due to their inherent flexibility. As noted, we are using the same engines as used at Castle Bluff

with the same operating flexibility and features, including the capability to be remotely started from the Energy Management and Trading ("EM&T") Operating Center, which is manned on a 24/7 basis, thereby allowing immediate engagement of the engines, and the capability to achieve fast ramp rates. These features provide an excellent, ready source of peaking power for Ameren Missouri's system and complement Ameren Missouri's existing fossil fleet and its expansion of renewable generation. The Company has designed the CTGs to be capable of operating in any temperature condition expected, from -20° F to 125° F. The systems are proven to be reliable--there are one hundred-seventy 7FA.04 engines in service in the United States with a combined average operating reliability of over 98%.

Q. What is the estimated cost for the Big Hollow CTG plant?

A. Ameren Missouri's current base case estimate for Big Hollow CTG Project is approximately ***_____*** with a risk adjusted estimate of ***_____***. The risk adjusted estimate is based on a case where all of the project risks come to fruition and all of the higher contingency allowance for such a case is needed to cover total project costs.

Q. What are these potential risks associated with the CTG Project, and how is Ameren Missouri planning to mitigate those risks should they arise?

A. A key risk for the CTG Project is successfully and timely negotiating the Engineering, Procurement and Construction ("EPC") contract. Ameren Missouri is mitigating this risk through early bidding and leveraging local contractors to participate in the bid process. Delivery of major materials and sequencing of construction activities with the demolition of the existing facility and BESS Project is also a risk. Mitigation efforts for this risk include coordination with the separate project teams, EPC contractors, and major equipment deliveries. Finally, obtaining permit approvals is also a risk to the successful completion of the Project. To

mitigate these risks, Ameren Missouri will file the permit requests at a time that is intended to allow for timely permit approvals.

Q. How does Ameren Missouri intend to issue contracts for the Big Hollow CTG plant?

A. The four combustion turbine generators planned for the CTG Project are already under contract with GE. Contracts were executed in 2024 to secure production and delivery of the units in time for the planned in-service date.

The Generator Step-Up Transformers (4), Unit Auxiliary Transformers (2), and Starting Transformers (2) from Rush Island Energy Center will be refurbished and utilized for the Big Hollow project to save cost and avoid long lead time component risk for major components of the installation.

The 138kV and 345kV breakers will utilize existing Ameren Missouri contracts, entered into pursuant to the Company's procurement policies and procedures, for production slots to reduce long lead-time major component risk and to take advantage of more favorable pricing and terms.

Ameren Missouri plans to purchase the following items on a lump sum, firm price basis through competitive bidding:

- Dilution Air SCR's (4)
- Power Distribution Centers (PDC) (4)
- Natural Gas Compressors (4)
- Continuous Emission Monitors (4)
- 18kV Generator Circuit Breakers (4)

Installation of Ameren Missouri-furnished equipment and the balance of the plant will be executed through an EPC contract. The EPC contract will be competitively bid, including both local and

national contractors. The EPC contractor will be responsible for all balance of plant design, foundations, tanks, buildings, materials, commissioning, and include installation of Ameren Missouri-furnished materials listed above.

Q. Please provide the plans and specifications for the generators and associated component equipment required by the Project.

A. Attached as **Schedule CS-D2** are the following plans and specifications that exist as of this filing:

File Name	Description
CTG – NS-SPEC-00001 Rev 1 – Conformed for Contract	Combustion Turbine Generator Major Equipment Supply (Power Island)
Dilution Air SCRs BH-SPEC-000002 For Bid	Selective Catalytic Reduction
CEMS CB-SPEC-000008 Rev A – DRAFT	Continuous Emissions Monitoring Equipment Supply
Power Distribution Centers (PDC) BH-SPEC-000003 For Bid	Electrical Power Distribution Centers
Gas Compressors – BH-SPEC-000004 For Bid	Natural Gas Compressor Equipment Supply

Q. Please describe Ameren Missouri's qualifications to build and operate a new CTG energy center.

A. Ameren Missouri has the qualifications and experience to build and manage a project of this type and size. Ameren Missouri has been responsible for CTG construction in the past, with the Castle Bluff Energy Center in execution phase and the last two large projects entering service at Venice and Peno Creek. Moreover, Ameren Missouri currently operates a fleet of 43 CTGs at twelve different plants across both Missouri and Illinois, providing a total summer net capability in 2025 of 2,761 MW and winter net capability of 3,331 MW. The CTG fleet has a variety of ages, engine sizes, and configurations. In 2024, Ameren Missouri's CTGs had a starting

reliability—a measure of the percentage of successful starts versus total starts—of 98.9%. Ameren Missouri is clearly qualified to construct and operate the CTG Project at Big Hollow.

Q. You earlier referred to the permitting required for the CTG Project. Can you discuss permitting and emissions from the new units, as compared to the previous steam plant installation?

A. In addition to the CCN required for this Project, a number of permits will be required for the Project from Jefferson County, the Missouri Department of Natural Resources ("MDNR"), and other entities. A complete list of the permits required for the Project is attached as **Schedule CS-D3**. The primary permit required from MDNR will be a construction permit for air emissions. The Big Hollow CTGs will have substantially lower emissions than the former Rush Island units. On a per megawatt-hour (MWh) basis, Ameren Missouri expects emission rate reductions of 99% for sulfur dioxide, 90% for nitrogen oxides, and 40% for carbon dioxide while firing natural gas fuel.

Q. Can you describe in more detail the air permitting process for the Big Hollow CTGs?

A. Yes. As referenced earlier, the CTG Project is located in Jefferson County, Missouri, which carries a non-attainment classification for ozone in the St. Louis Metro area. This in turn requires NOx control equipment (SCRs) at the site since the non-attainment statute will limit the units to emitting 50 tons of NOx annually. To comply with the applicable air quality standards, Ameren Missouri filed for a "minor source permit" in April 2025 for the Big Hollow CTG plant. The permit application included air quality modeling as well as expected performance from GE as well as the SCR manufacturer.

Q. What operating limits do you anticipate for the Big Hollow CTG plant?

A. Ameren Missouri intends to file the air permit application with MDNR for a construction permit by third quarter 2025. As part of the permit process, Ameren Missouri expects to have a facility limited to a capacity factor of approximately 20%, which is tied to NOx limits of 50 tons.[4] On May 9, 2024, the EPA published in the *Federal Register* its final rule under Section 111(b) of the Clean Air Act, "New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel Fired Electric Generating Units," effective July 8, 2024.[5] The new 111(b) rules will limit CO_2 emissions from new gas-fired combustion turbines. The Big Hollow CTG units will comply with the new rule's Best System of Emission Reductions by firing "low emitting fuels," which include natural gas and fuel oil. Under the new rule, the Big Hollow CTGs fall within the "Low Load Subcategory," which imposes a capacity factor limit of 20%. It should be noted that a capacity factor of 20% is significantly higher than any of our current CTGs have historically operated or would be expected to operate under in the future.

Q. **Are there any benefits to the local community driven by construction of Big the Hollow CTG plant?**

A. Yes. Developing the Big Hollow CTG plant will employ hundreds of construction workers, create permanent on-site operations positions, and provide additional tax revenue for Jefferson County and the surrounding region. With a projected base case estimated investment of approximately ***_____*** the entire community will benefit in these different ways.

[4] Capacity factor refers to the ratio of the electrical energy produced by a generating unit for the period of time considered to the electrical energy that could have been produced at continuous full power operation during the same period. Theoretically, a plant with a capacity factor of 100% means it is producing power all the time.

[5] The new 111(b) rules will be subject to significant litigation, and challenges have already been filed by West Virginia (joined by 24 other states including Missouri), by Ohio, Kansas, and by National Rural Electric Cooperative Association.

Q. Please describe the plans for operation and maintenance of the facility and how this compares with existing Ameren CTG installations.

A. It is anticipated the Big Hollow CTG Energy Center will be staffed and operated in a similar manner as Ameren Missouri's Venice Energy Center and its sister plant at Castle Bluff. Full-time, Ameren Missouri-employed staff will monitor the facility 24 hours a day, seven days a week. Units will be operated locally with on-site staff or remotely dispatched by the Company's EM&T department, similar to Ameren Missouri's other gas turbine operations. Routine maintenance will be handled by on-site staff. Non-routine maintenance will be handled either with outside contractors or by supplementing Big Hollow staff with other Ameren Missouri craft labor on a temporary basis from other locations.

Q. Please describe the criteria by which Ameren Missouri will use to determine that the Big Hollow CTG Project is in-service.

A. Because of the Project's similarity with the Castle Bluff Energy Center, Ameren Missouri proposes to use identical in-service criteria agreed upon with MPSC Staff and approved by the Commission for Castle Bluff. Those criteria are attached to my testimony as **Schedule CS-D4**.

Q. Why is Ameren Missouri seeking a variance to submit plans for the restoration of safe and adequate service for the Project?

A. For the same reasons that the Company sought and the Commission granted such a variance in its order resolving File EA-2024-0237. Specifically, the Company requests to provide the project plans for restoration of safe and adequate service within 60 days after the date the CTG plant will go into commercial operation. Plans for restoration of safe and adequate service will not

be complete until final equipment selection, installation, and discussions between Ameren Missouri operations personnel and the project's contractors and equipment suppliers take place.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and Certificate of Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	)))))	File No.: EA-2025-0238

AFFIDAVIT OF CHRISTOPHER A. STUMPF

STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

Chrisopher A. Stumpf, being first duly sworn on his oath, states:

My name is Christopher A. Stumpf, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Direct Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

/s/ Christopher A. Stumpf
Christopher A. Stumpf

Sworn to me this 26th day of June 2025.

Simple Cycle – Site 3 Location Evaluation

- Scenarios:
  - Only evaluating scenarios where the COD is on/before 2028
  - All evaluated scenarios are 4 units, from combinations of locations:
    - Rush Island with SRCs – 4 units
    - Sioux without SCRs – 2 Units
    - Huck Finn / Tom Sawyer without SCRs – 2 units
    - High Prairie without SCRs – 2 units
- Inputs:
  - Project cost estimates based on Engineering Studies
  - Updated unit capability to match GE performance guarantee
    - 60degrees = 173,800kW/unit with SCR
    - 60degrees = 179,893kW/unit without SCRs
  - In-service Date set to 9/1/2028
- Analysis:
  - Recommendation based on CPWRR ($) per kilowatt
- Assumptions:
  - SCRs are only required at Rush Island due to Non-attainment area
  - Sioux will not have Capacity Revenue until after 2031, based on Sioux retirement date
  - High Prairie & Huck Finn / Tom Sawyer Capacity & Energy revenue were halved due to dispatchability conflicts with Renewables
  - Base capacity and energy values were provided by Corporate Planning and are consistent with current IRP analysis.

EA-2025-0238

Schedule CS-D1 Page 2 is Confidential in its Entirety

P

EA-2025-0238

Schedule CS-D2 is Confidential in its Entirety

P

PERMIT MATRIX

Agency	Permit or Regulatory Scope
Missouri Department of Natural Resources (MoDNR)	Spill Prevention, Containment, and Countermeasure Plan (SPCC)
EPA – Regional Administrator and County	Facility Response Plan
Federal Aviation Administration (FAA)	Use of Temporary Construction Crane
Federal Aviation Administration (FAA)	Obstruction Evaluation For Permanent Structures
Missouri Department of Natural Resources (MoDNR)	Land Disturbance
St. Louis County / Missouri Department of Natural Resources (MoDNR)	Section 5 Construction Air Permit
St. Louis County / Missouri Department of Natural Resources (MoDNR)	Part 70 (Title V) Operating Air Permit
Missouri Department of Natural Resources (MoDNR)	Stormwater Pollution Prevention Plan (SWPPP)
Missouri Department of Natural Resources (MoDNR)	National Pollutant Discharge Elimination System Permit (NPDES)
Missouri Department of Transportation (MoDOT)	Highway Permits
Midcontinent Independent System Operator (MISO)	Generator Interconnection Agreement
Jefferson County Department of County Services & Code Enforcement	Commercial Building Permit
Jefferson County Department of Public Works	Land Disturbance Permit
Jefferson County Department of Public Works	Stormwater Pollution Prevention Plan (SWPPP)
Jefferson County Department of County Services & Code Enforcement	Site Drainage & Floodplain Development
Jefferson R7 Fire Department	Fire Permit

Combustion Turbine Unit In-Service Test Criteria

Proposed In-Service Criteria:

1. All major construction work is complete.
2. All preoperational tests have been successfully completed.
3. Unit is in compliance with air permit requirements for operation.
4. Unit successfully demonstrates its ability to initiate the proper start sequence resulting in the unit operating from zero (0) rpm (or turning gear) to full load when prompted at a location (or locations) from which it is normally operated.
5. Unit successfully demonstrates its ability to initiate the proper shutdown sequence from full load resulting in zero (0) rpm (or turning gear) when prompted at a location (or locations) from which it is normally operated.
6. Unit successfully demonstrates its ability to operate at minimum load for one (1) hour.
7. Unit successfully demonstrates its ability to operate at or above 95% of nominal capacity for four (4) continuous hours.
8. Unit successfully demonstrates its ability to produce an amount of energy (MWhr) within a 72-hour period that results in a capacity factor of at least 30% during the period when calculated by the formula: capacity factor = (MWhr generated in 72 hours) / (nominal capacity x 72 hours).
9. Sufficient transmission interconnection facilities shall exist for the total plant design net electrical capacity at the time the unit is declared fully operational and used for service per the MISO Interconnection Agreement.
10. The unit successfully demonstrates its ability to start on the back up/secondary fuel as described in item 4.
11. The unit successfully demonstrates its ability to transfer between the two fuels while on line.