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Issue(s): Transmission Line Design
Witness: Justin D. Wenk
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Sponsoring Party: Union Electric Company
File No.: EA-2026-0058
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MISSOURI PUBLIC SERVICE COMMISSION

File No. EA-2026-0058

DIRECT TESTIMONY

OF

JUSTIN D. WENK

ON

BEHALF OF

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

St. Louis, Missouri
November 2025

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DIRECT TESTIMONY

OF

JUSTIN D. WENK

FILE NO. EA-2026-0058

I. INTRODUCTION

Q. Please state your name and business address.

A. Justin D. Wenk, Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. What is your position with the Ameren Missouri?

A. I am a Transmission Line Design Engineer.

Q. What are your responsibilities as a Transmission Line Design Engineer?

A. My responsibilities as a Transmission Line Design Engineer include, but are not limited to, designing electric transmission lines over 100kV in accordance with industry standards and company standards.

Q. **Please describe your educational background and employment experience?**

A. In 2012, I completed a Bachelor of Science Degree in Civil Engineering from the University of Missouri Columbia. I have been a licensed professional engineer in the state of Missouri since 2016. I have been employed by Ameren since October 2012. During the years of 2012 through 2016, I worked in the civil structural group performing foundation design for transmission lines and substations, and substation site grading. Since 2016 and continuing through the present, I have worked in the transmission line design group self-performing and/or managing large capital programs. These capital projects include transmission line rebuilds, line reconductors and individual structure replacements.

Q. Have you previously testified before the Missouri Public Service Commission?

A. Yes.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to support Ameren Missouri's request for a Certificate of Convenience and Necessity ("CCN") authorizing Ameren Missouri to construct, operate, and maintain the Montgomery – Burns 5515 and Montgomery – Burns 5527 transmission lines referred to as the Montgomery – Callaway Connector Project. Ameren Missouri proposes to construct an approximately 28-mile, double circuit, 345-kilovolt ("kV") transmission line ("Transmission Line") to connect Ameren Missouri's Burns Substation in Callaway County, Missouri to Ameren Missouri's Montgomery Substation in Montgomery County, Missouri. The Montgomery – Callaway Connector Project will be developed solely by Ameren Missouri. My testimony will provide an overview of the line design and related work that Ameren Missouri will undertake as part of the construction of the Transmission Lines.

Q. Are you sponsoring any schedules with your testimony?

A. Yes, I am sponsoring the following:

Schedule JDW-D1: Plan and Profile

Schedule JDW-D2: General Structure Type Configuration

Schedule JDW-D3A: Cross Section View of Transmission Corridor-Existing Wood H-frames

Schedule JDW-D3B: Cross Section View of Transmission Corridor-Future Steel H-frames

Schedule JDW-D4A: Burns Substation Existing

Schedule JDW-D4B: Burns Substation Future

Schedule JDW-D5A: Montgomery Substation Existing

Schedule JDW-D5B: Montgomery Substation Reconfiguration

III. OVERVIEW OF THE TRANSMISSION LINE DESIGN AND WORK

Q. Please provide an overview of the proposed Transmission Line.

A. The new 345-kV double circuit transmission line will connect Ameren Missouri's existing Montgomery and Burns Substations. The new transmission line is approximately 28 miles in length, constructed on a 150ft right of way, using galvanized steel monopoles on foundations. **Schedule JDW-D1** depicts the route of the proposed transmission line. **Schedule JDW-D2** depicts the typical double circuit structure configuration. The new transmission line will parallel the existing Montgomery – Burns 4581transmission line, **Schedule JDW-D3A** and **Schedule JDW-D3B** depict the typical cross section view of the new transmission line adjacent to the existing Montgomery – Burns transmission line.

Q. Would you describe the Transmission Line in more detail in terms of its design?

A. Yes. As I have stated, the structures will be designed for two 345-kV circuits. The lines will meet or exceed the National Electric Safety Code 2017, currently adopted by the state of Missouri, National Electric Safety Code 2023, and Ameren specific design standards. The design of the monopoles is depicted in **Schedule JDW-D2**. Foundations will be site specific designed based on soil borings taken at each location. Foundations will be drilled piers ranging in diameter from 8 to 12ft, depending on the design requirements for each monopole.

Q. Will the new transmission lines utilize an advanced conductor?

A. Yes, the new transmission line will utilize an advanced conductor. Federal Energy Regulatory Commission ("FERC") Order 2023-A defines advanced conductors are advanced relative to conventional aluminum conductor steel reinforced ("ACSR") conductor. The Electric Power Research Institute ("EPRI") has provided further guidance that an advanced conductor should operate at a sustained temperature of 150 degrees Celsius or higher. The conductor proposed for this project is Aluminum Conductor Steel Supported ("ACSS") and will be operated at 160 degrees Celsius normal and 200 degrees Celsius emergency. The advanced conductor selected for this project is sized to meet current planning requirements. In the future if additional capacity is required, Grid Enhancing Technologies ("GET's"), like dynamic line ratings, advanced power flow controls and topology optimization could be implemented on this line.

Q. How is the Project designed to connect to the existing Burns Substation?

A. The existing Burns Substation will be expanded to a six-position ring bus to accommodate the two new 345kv lines. The open terminal positions are located on the Southwest side of the substation. See **Schedule JDW-D4A** and **Schedule JDW-D4B** for the Burns substation expansion.

Q. How is the Project designed to connect to the existing Montgomery Substation?

A. To minimize 345kV line crossings at Montgomery Substation, a new terminal position will be constructed to relocate the existing Montgomery – Rootbeer 345kV line, Montgomery – Callaway-7 345kV line, and Montgomery – Callaway-8 345kV line. The existing Montgomery – Vanhorn 345kV line will terminate at the vacated Montgomery – Rootbeer terminal position. This will open two terminal positions on the west side of Montgomery Substation to

accept two new Montgomery – Burns 345kV lines. See **Schedule JDW-D5A** and **Schedule JDW-D5B** for the Montgomery Substation reconfiguration.

Q. How is the Project designed to coexist with the solar development around Burns Substation?

A. The project team has worked closely with the solar development operator to co-locate the new line with the solar farm. Based on the solar panel layout provided, structures have been spotted to avoid removing any solar panels.

Q. Does the Project require any existing transmission line(s) to be relocated on property not owned by Ameren Missouri?

A. Along the proposed route, there are two locations where the new transmission line will impact existing landowner facilities and potentially require the existing Montgomery – Burns 345kV line to be relocated.

Q. Are all known costs associated with the required Transmission Line work reflected in the overall Project costs?

A. Yes. All known costs associated with the Transmission Line are reflected in the Project costs identified in the direct testimony of Ameren Missouri witness Samuel Gardner.

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 Company for a Certificate of Convenience and Necessity to Construct, Own, Operate and Maintain Upgrades to the Transmission System in Montgomery and Callaway Counties, Missouri	)))))))	File No. EA-2026-0058

AFFIDAVIT OF JUSTIN D. WENK

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

Justin D. Wenk, being first duly sworn states:

My name is Justin D. Wenk, and on my oath declare 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.

Justin D. Wenk

Sworn to me this 10th day of November, 2025.