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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2021-0087

DIRECT TESTIMONY

OF

CURTISS FRAZIER

ON

BEHALF OF

AMEREN TRANSMISSION COMPANY OF ILLINOIS

**St. Louis, Missouri
April 28, 2021**

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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Curtiss Frazier. I work for Ameren Services Company (“Ameren
4 Services”) at 1901 Chouteau Avenue, St. Louis, Missouri 63103. Ameren Services is a subsidiary
5 of Ameren Corporation (“Ameren”) and an affiliate of the applicant in this case, Ameren
6 Transmission Company of Illinois (“ATXI”).

7 **Q. What is your position with Ameren Services?**

8 A. I am employed by Ameren Services as a Principal Engineer in the Transmission
9 Substation Department. In this role, I provide technical guidance on substation design and
10 equipment related topics, and provide substation designs as required on behalf of Ameren’s
11 transmission-owning entities, including ATXI.

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

13 A. I graduated from the University of Missouri – Rolla, now named Missouri
14 University of Science and Technology, in 2005 with a Bachelor of Science degree in Electrical
15 Engineering. I am a licensed Professional Engineer in Missouri (2016001249).

16 In 2007, I began my career at Ameren Services as a Substation Design Engineer, a position
17 I have held for my current thirteen years at Ameren. In this position I design and manage several
18 large-scale transmission and distribution substation projects. I provide technical expertise for
19 substation equipment, including power circuit breakers and power transformers. I provide industry
20 expertise and representation for Ameren to the Institute of Electrical and Electronics Engineers
21 (“IEEE”) Switchgear and IEEE Transformers committees under the IEEE Power and Energy
22 Society.

1 **Q. Have you previously provided testimony before the Missouri Public Service**
2 **Commission?**

3 A. No, I have not.

4 **Q. Are you familiar with the Transmission Line that ATXI proposes in its Petition**
5 **in this proceeding?**

6 A. Yes, ATXI requests a Certificate of Convenience and Necessity (“CCN”)
7 authorizing it to construct, operate and maintain an approximately 15-mile, 138 kilovolt (“kV”)
8 transmission line (“Transmission Line”) and a substation (“Whipple Substation”) to improve
9 energy reliability in Perry and Cape Girardeau Counties, Missouri and the surrounding region.
10 The Transmission Line and the Whipple Substation are referred to together as the “Project.” The
11 Transmission Line will connect two new substations: the new Whipple Substation in Cape
12 Girardeau County, to be owned by ATXI, and the new Wittenberg Substation in Perry County, to
13 be owned by Wabash Valley Power Alliance (“Wabash Valley”). The Whipple Substation will be
14 adjacent to an expanded Wabash Valley Trail of Tears Substation (“New TOT Substation”). While
15 outside of the scope of the Project and the Petition, Wabash Valley will also construct assets that
16 will connect the New TOT Substation to Wabash Valley’s Charmin Bulk Substation.

17 **Q. What is the purpose of your testimony?**

18 A. The purpose of my testimony is to provide an overview of the substation-related
19 work that ATXI will undertake as a part of the construction, operation, and maintenance of the
20 proposed Whipple Substation, a 138 kV to 161 kV substation component of the Project, as
21 described in more detail by Sean Black in his direct testimony.

22 **Q. Are you sponsoring any schedules with your testimony?**

1 A. Yes, I am sponsoring Confidential Schedule RCF-01, which is the proposed layout
2 for new Whipple Substation.

3 **II. OVERVIEW OF THE SUBSTATION WORK**

4 **Q. Please provide an overview of the proposed Whipple Substation.**

5 A. ATXI proposes to construct a new 138 kV to 161 kV substation, named Whipple
6 Substation, adjacent to Wabash Valley’s New TOT Substation as depicted in Confidential
7 Schedule RCF-01. The purpose of this substation is generally to provide transformation from the
8 voltage level of the Transmission Lines, 138 kV, to the voltage that will be used by the adjacent
9 facilities, 161 kV. ATXI will obtain real estate rights from Wabash Valley sufficient to
10 construction, own, and operate the Whipple Substation.

11 The Whipple Substation will connect to Wabash Valley’s Wittenberg Substation located
12 in Perry County, Missouri, via the proposed Transmission Line running along the Proposed Route
13 identified in Dan Schmidt’s direct testimony and schedule.

14 **Q. Please describe the Whipple Substation in further detail.**

15 A. ATXI will construct the proposed the 138 to 161 kV Whipple Substation as a two
16 breaker substation, 138 kV and 161 kV, with a 300MVA transformer for transforming the voltage.
17 Two breaker disconnect switches will be installed on standard steel switch stands for breaker
18 isolation. Instrument transformers will be installed on all line terminals for voltage indication and
19 sensing for relay metering and protection. One 138 kV power potential transformer will be
20 installed to provide station power from the transmission system. All substation structures will be
21 our standard tubular steel design. The substation will contain one relay control enclosure that will
22 house all substation protective relaying and control, Supervisory Remote Terminal (SCADA
23 RTU), relay communications, 125V DC battery system and station service panels.

1 **Q. Q. Have you included schedule depicting the layout of the proposed new**
2 **substation?**

3 A. Yes. Confidential Schedule RCF-01 is a diagram depicting the layout of the
4 Whipple Substation. This schedule is designated as Confidential pursuant to 20 CSR 4240-
5 2.135(2)(A)(7) because it contains detailed information about critical infrastructure.

6 **Q. What are the operational benefits of the proposed new Whipple Substation?**

7 A. The Whipple Substation, and by extension, the Project, as a part of the overall
8 ATXI-Wabash Development, will improve energy reliability for local communities in Southeast
9 Missouri. The Whipple Substation, paired with New TOT Substation will connect, via the
10 Transmission Line, to the new Wabash Valley Wittenberg Substation in Perry County. Wabash
11 Valley’s New TOT Substation will also be connected, via two 161kV transmission lines, to the
12 Wabash Valley Charmin Bulk Substation. The Whipple Substation will improve energy reliability
13 for the local electric distribution companies, provide a second transmission source to a local
14 manufacturing facility and allow for efficient future expansion of the transmission grid. Through
15 this Project, Ameren Missouri and Citizens Electric Corporation customers in Southeast Missouri
16 will have improved system reliability and support for continued economic growth in the area, as
17 further described by in Mr. Black’s direct testimony. The Whipple Substation will connect
18 adjacent ATXI lines via circuit breakers and, in doing so, increase reliability to the transmission
19 system by virtue of this additional segmentation. The new substation will also promote additional
20 operational flexibility in that it will allow ATXI to switch lines for maintenance activities or forced
21 outages while reducing the impact to other transmission and distribution facilities.

22 **Q. Will the new substation site abide by applicable protocol?**

**Schedule RCF-01 contains details about
Critical Energy Infrastructure
and is Confidential in its entirety**

20 CSR 4240-2.135(2)(A)(7)

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Ameren)
Transmission Company of Illinois for a)
Certificate of Public Convenience and)
Necessity to Construct, Install, Own, Operate,)
Maintain, and Otherwise Control and Manage) Case No. EA-2021-0087
a 138 kV Transmission Line and associated)
facilities in Perry and Cape Girardeau)
Counties, Missouri)

AFFIDAVIT

1. My name is Curtiss Frazier. I am Principal Engineer for Ameren Services, which is a subsidiary of Ameren Corporation and an affiliate of Ameren Transmission Company of Illinois, the Applicant in the above-captioned proceeding.
2. I have read the above and foregoing Direct Testimony and the statements contained therein are true and correct to the best of my information, knowledge and belief.
3. I am authorized to make this statement on behalf of Ameren Transmission Company of Illinois.
4. Under penalty of perjury, I declare that the foregoing is true and correct to the best of my knowledge and belief.



Curtiss Frazier
Principal Engineer
Ameren Services

Date: 4-22-2021