Exhibit No.:
Issue(s): Transmission Line Work
Witness: Jessica Timmermann
Type of Exhibit: Direct Testimony
Sponsoring Party: Union Electric Company
File No.: EA-2021-0087
Date Testimony Prepared: April 28, 2021

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2021-0087

DIRECT TESTIMONY

OF

JESSICA TIMMERMANN

ON

BEHALF OF

AMEREN TRANSMISSION COMPANY OF ILLINOIS

St. Louis, Missouri
April 28, 2021

I. TABLE OF CONTENTS

DIRECT TESTIMONY

OF

JESSICA TIMMERMANN

FILE NO. EA-2021-0087

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Jessica Timmermann. I work for Ameren Services Company ("Ameren Services") at 1901 Chouteau Avenue, St. Louis, Missouri 63103. Ameren Services is a subsidiary of Ameren Corporation ("Ameren"), which is also the parent company of the applicant in this case, Ameren Transmission Company of Illinois ("ATXI").

Q. What is your position with Ameren Services?

A. I am employed by Ameren Services as the Supervising Engineer in the Transmission Line Design Department. In this role, I supervise a team of engineers completing transmission line design on behalf of Ameren's transmission-owning entities, including ATXI.

Q. Please describe your educational background and employment experience.

A. In December 2008 I received a Bachelor's of Science in Civil Engineering from Southern Illinois University located in Edwardsville, Illinois. After graduation I started with Ameren Services working in the Civil Engineering group. After working in that group for about 2.5 years I transitioned into Transmission Line Design. I worked as an Engineer in Transmission Line Design until my recent promotion to Supervisor of the same group in April 2020. I obtained a Professional Engineering License in the state of Illinois in June 2013 and maintain that certification.

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

A. I have not.

Q. Are you familiar with the Transmission Line that ATXI proposes in its Application in this proceeding?

A. Yes, ATXI requests a Certificate of Convenience and Necessity ("CCN") authorizing it to construct, operate and maintain an approximately 15-mile, 138 kilovolt ("kV") transmission line ("Transmission Line") and a substation in Cape Girardeau County ("Whipple Substation") to improve energy reliability in Perry and Cape Girardeau Counties in Missouri and the surrounding region. The Transmission Line and the Whipple Substation are referred to together as the "Project." The Transmission Line will connect two new substations: the new Whipple Substation in Cape Girardeau County, to be owned by ATXI, and the new Wittenberg Substation in Perry County, to be owned by Wabash Valley Power Alliance ("Wabash Valley"). The Whipple Substation will be adjacent to an expanded Wabash Valley Trail of Tears substation ("New TOT"). While outside of the scope of the Project and the Application, (1) Wabash Valley will also construct one additional line that will connect the New TOT substation to Wabash Valley's Charmin Bulk Substation and (2) Ameren Missouri will sell to Wabash Valley approximately 1.5 miles of an existing 138 kV transmission line that, after the Project is complete, will also connect those two stations.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide an overview of the line-related work that ATXI will undertake as a part of the construction, operation, and maintenance of the Transmission Line which is included in the proposed Project, as described in more detail by Sean Black in his direct testimony.

Q. Are you sponsoring any schedules with your testimony?

A. Yes, I am sponsoring the following:

- ATXI Schedule JT-01 – Example of typical tangent structure
- ATXI Schedule JT-02 – Example of a typical dead-end structure

II. OVERVIEW OF THE TRANSMISSION LINE WORK

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

A. ATXI proposes to construct the Transmission Line between the Wittenberg Substation and the Whipple Substation as depicted in the direct testimony of Dan Schmidt. Prior to construction, ATXI will request from landowners an easement that is 125 feet wide. That is the standard width required to accommodate the line design described in further detail below (initial 138 kV with the potential future addition of a 345 kV circuit). ATXI has identified a Proposed Route. The Proposed Route is discussed in the direct testimony and schedule of Mr. Schmidt.

Q. Please describe the Transmission Line in more detail.

A. As a part of this Project, ATXI intends to install one 138 kV electric transmission circuit, and associated lightning shield wires which also provide communication and relay. The structures are, however, going to be designed and installed to accommodate an additional 345 kV circuit in the future, for purposes of system expansion.

ATXI is proposing to use galvanized steel monopole structures. The structures will be self-supporting and will not use down wires or "guys." The typical structures will be approximately 100 to 160 feet tall. ATXI estimates that it will install approximately 6 to7 structures per mile with an average span range of 800 to 1,000 feet between structures. The typical steel monopole structures will have 7 to 12-foot diameter drilled pier concrete foundations. The foundations will range from 30 to 40 feet deep, depending upon the soil conditions.

A typical tangent (*i.e.* in-line) structure will have a three phase vertical conductor design on one side of the structure with two shield wires located at the top. The structure design will also include the potential future addition of one circuit of three phase (345 kV) vertical conductors. Typical arm lengths will range from 15 to 20 feet from the face of the pole to the end of the arm.

The Transmission Line will be designed for a minimum 25-foot clearance to grade at the maximum operating temperature, which meets or exceeds the National Electrical Safety Code ("NESC"). For reference, an example of a typical structure is attached to my testimony as Schedule JT-01. For additional frame of reference, these are the same type of structures that ATXI used recently on the portion of the Mark Twain project between Kirksville and the Iowa border.

Q. Are there any places where we will use something other than the standard design you've described thus far?

A. Yes. There are two situations where we will use a different design: (1) dead-end structures and (2) possibly just to the south of Wittenberg Substation, as we continue to design an efficient way to tie into the substation facilities.

Q. Please provide more detail regarding the dead-end structures. What will ATXI need to build, how prevalent will that be, and will it change easement width or minimum ground clearance?

A. Dead-end structures will be used for any location where the transmission line turns more than 15 degrees. Additionally, dead-end structures are occasionally utilized to improve the overall structural stability of the Transmission Line.

Initially, the dead-end structure will utilize a single pole, designed for a three phase vertical conductor (138 kV) with shield wire connections at the top. If the 345 kV conductor is installed at a later date, a second pole would be constructed to hold the future circuit. The design parameters such as clearances, conductor type, shield wire type, and easement width would not change. For reference, an example of a typical dead-end structure is attached to my testimony as Schedule JT-02.

Q. Please provide more detail regarding the design required as the Transmission Line approaches the Wittenberg Substation.

A. As we work through design, there may be a need to evaluate other structure types just outside of the Wittenberg Substation in order to accommodate the potential future 345 kV circuit. Coordination with Wabash Valley will be done to minimize line crossings and non-typical structure types as the circuit routes into the new Wittenberg Substation. This design process will impact up to two structures and will be limited to the parcel immediately to the south of the Wittenberg Substation. While the structure configuration may change, the design parameters such as clearances, conductor type, shield wire type, and easement width would not change. Ameren is currently still working with Wabash Valley to minimize line crossings and non-typical structure types as the circuit routes into the new Substation.

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

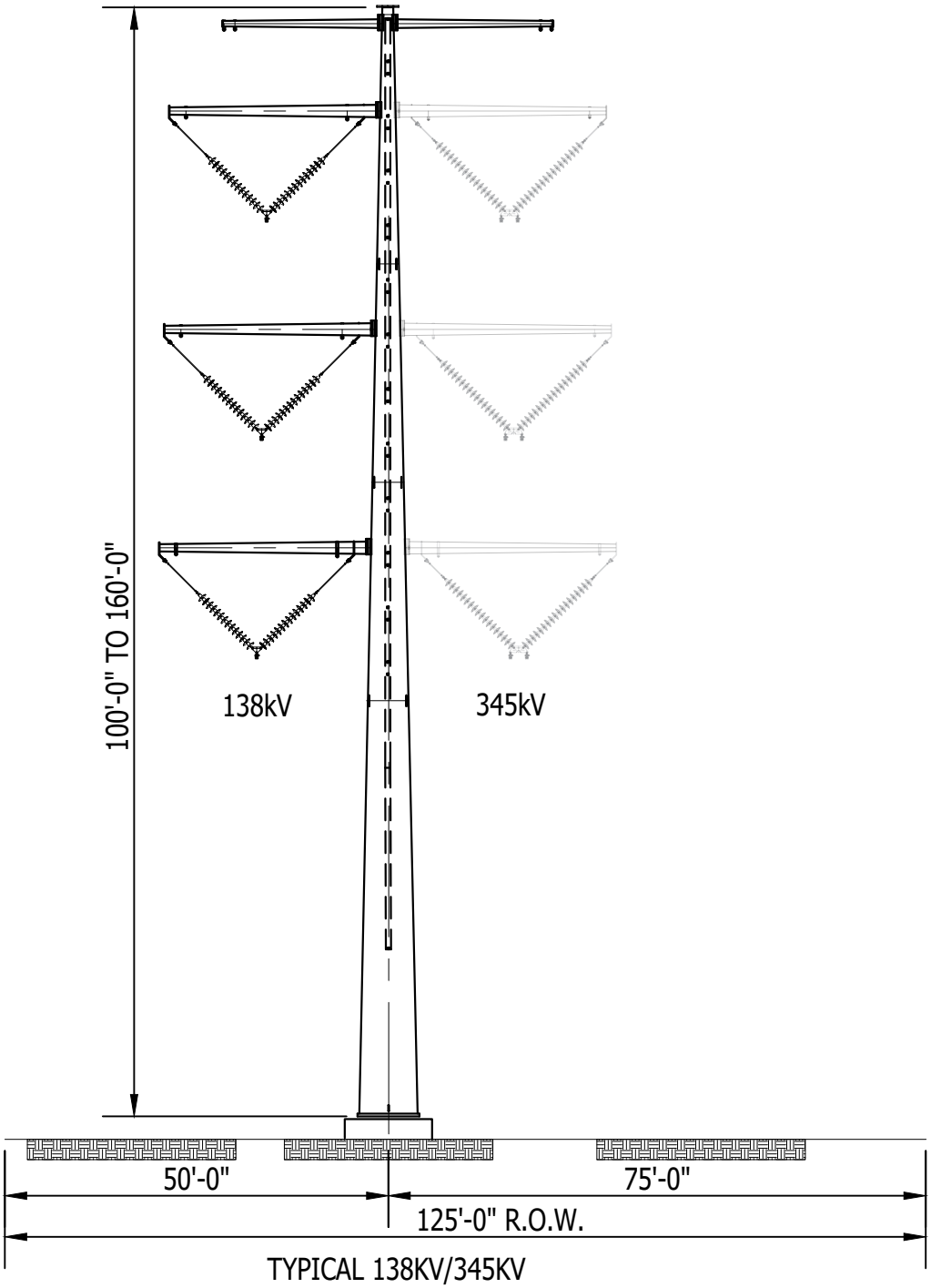
A. Yes. All known costs associated with the Transmission Line are reflected in the Project costs identified in the direct testimony of James Jontry.

III. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, it does.

Schedule JT-01



TYPICAL 138KV/345KV
TANGENT STEEL POLE STRUCTURE
(SHOWN WITH POTENTIAL FUTURE 345KV CIRCUIT)

REV	DATE	DRF	DESCRIPTION	ENG	RVW	APPD
000A	02/25/2021	ACW	FIRST ISSUE	CNB	NOT	CNB

Ameren

LINE CONSTRUCTION - 138KV/345KV
STEEL POLE OUTLINE
DOUBLE CIRCUIT TANGENT STRUCTURE

LOC

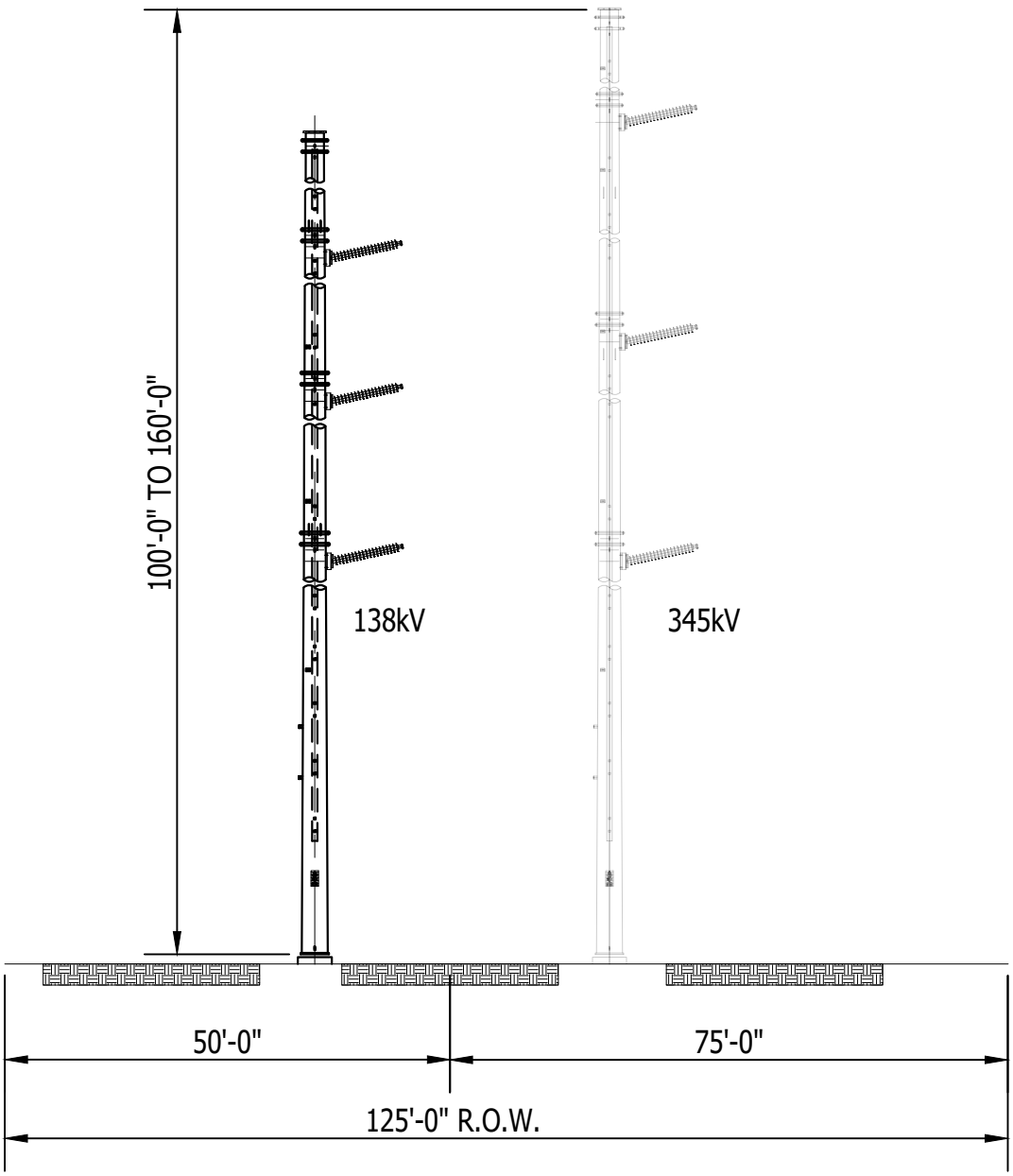
DFR: ACW	DATE: 02/25/2021	SCALE:	SUB CLASS:
ENG: CNB	DRAWING NUMBER		REV
RVW: NOT	EXHIBIT		000A0
APPD:CNB			

SK-B-210225-002

8.5 x 11 (inches)

Schedule JT-01

Schedule JT-02



TYPICAL 138KV/345KV
DEADEND STEEL POLE STRUCTURE
(SHOWN WITH POTENTIAL FUTURE 345KV CIRCUIT)

REV	DATE	DRF	DESCRIPTION	ENG	RVW	APPD
000A	02/25/2021	ACW	FIRST ISSUE	CNB	NOT	CNB

Ameren

LINE CONSTRUCTION - 138KV/345KV
STEEL POLE OUTLINE
DOUBLE CIRCUIT DEADEND STRUCTURE

LIMESTONE RIDGE | LOC

DFR: ACW	DATE: 02/25/2021	SCALE:	SUB CLASS:
ENG: CNB	DRAWING NUMBER		REV
RVW: NOT	EXHIBIT		000A0
APPD:CNB			

SK-B-210225-001

8.5 x 11 (inches)

Schedule JT-02

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 a 138 kV Transmission Line and associated facilities in Perry and Cape Girardeau Counties, Missouri	)	Case No. EA-2021-0087

AFFIDAVIT

1. My name is Jessica Timmermann. I am Supervising 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.

Jessica Timmermann

Jessica Timmermann
Supervising Engineer
Ameren Services

Date: 4/26/21