COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Electronic Application Of Kentucky Power Company For A Certificate Of Public Convenience And Necessity To Construct A 138 kV Transmission Line And Associated Facilities In Pike And Floyd Counties (Kewanee-Enterprise Park 138 kV Transmission Project)	)	Case No. 2020-00062

SUPPLEMENTAL TESTIMONY OF

NICOLAS C. KOEHLER

ON BEHALF OF KENTUCKY POWER COMPANY

February 2021

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NICOLAS C. KOEHLER, ON BEHALF OF
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DIRECT TESTIMONY OF

NICOLAS C. KOEHLER

ON BEHALF OF KENTUCKY POWER COMPANY

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Nicolas C. Koehler. My position is Director, East Transmission Planning for American Electric Power Service Corporation ("AEPSC"). AEPSC supplies engineering, financing, accounting, planning, advisory, and other services to the subsidiaries of the American Electric Power ("AEP") system, one of which is Kentucky Power Company ("the Company"). My business address is 8600 Smiths Mill Road, New Albany, Ohio 43054.

II. BACKGROUND AND PURPOSE OF SUPPLEMENTAL TESTIMONY

Q. ARE YOU THE SAME NICHOLAS C. KOEHLER WHO OFFERED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes. My testimony was offered in support of the Company's application for a certificate of public convenience and necessity to construct, own, and maintain certain components of the Kewanee-Enterprise Park 138 kV Transmission Project ("Project"). I also provided responses to certain of the Commission's October 12, 2020 and November 17, 2020 data requests.

Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?

A. I am testifying in support of Kentucky Power's January 18, 2021 motion for rehearing, and in accordance with the Commission's February 3, 2021 Order granting rehearing. The Company's motion for rehearing requested that the Commission amend its

December 29, 2020 Order to authorize Kentucky Power to construct, own, and maintain the five 138 kV circuit breakers and the 28.8 MVAR capacitor bank to be located in the Kewanee 138 kV Substation. Four of the circuit breakers would be arranged in a four breaker ring bus configuration. The fifth circuit breaker would protect the 28.8 MVAR capacitor bank. The Company's September 3, 2020 application provided that the five 138 kV circuit breakers and 28.8 MVAR capacitor bank would be owned, constructed, maintained by AEP Kentucky Transmission Company, Inc. ("Kentucky Transco"). Kentucky Power requested on rehearing that the December 29, 2020 Order be amended to authorize it, in lieu of Kentucky Transco, to construct, own, and operate these assets to ensure that the overall Baseline Project is constructed and placed in service within the time period required by PJM.

Q. ARE YOU SPONSORING ANY EXHIBITS TO YOUR TESTIMONY?

A. Yes, I am sponsoring Exhibit NCK-S1 that illustrates the proposed ring bus layout utilizing four 138 kV circuit breakers plus a fifth breaker protecting the capacitor bank.

III. PROJECT NEED

Q. BEFORE ADDRESSING THE CIRCUIT BREAKERS AND CAPACITOR BANK THAT ARE THE SUBJECT OF THE COMPANY'S MOTION ON REHEARING, PLEASE DESCRIBE THE OVERALL NEED DRIVING THE PROJECT.

A. The Project is required to address PJM Baseline thermal and voltage criteria violations on the Company's existing 46 kV Pikeville area subtransmission network. Several criteria violations were identified in the Winter 2023 RTEP for the loss of various combinations of lines and transformers serving the area. These criteria violations are described in detail on pages 2-3 of my Direct Testimony in this case. The Project also addresses aging

infrastructure needs at the Fords Branch 46 kV Substation and provides additional capacity (through the 138 kV transmission system) for the Pikeville area's 34.5 kV and 12 kV distribution system.

Q. PLEASE DESCRIBE HOW THE PROJECT ADDRESSES THE NEEDS YOU IDENTIFY ABOVE.

A. The Baseline planning criteria violations arise because the load being served by the 46 kV network exceeds the network's capacity under certain system conditions. The Project removes the load that is currently served through the Fords Branch 46 kV Substation from the 46 kV network and transfers it to the Kewanee 138 kV Substation where it will be served through the higher capacity 138 kV transmission system.

IV. KENTUCKY POWER'S REQUEST ON REHEARING

Q. IS KENTUCKY POWER PROPOSING ON REHEARING TO MODIFY THE KEWANEE 138 SUBSTATION CONFIGURATION FROM THAT PRESENTED IN THE COMPANY'S SEPTEMBER 3, 2020 APPLICATION?

A. No. The station configuration is the unchanged and includes a four breaker ring bus configuration with an additional breaker for a 28.8 MVAR capacitor bank. The only difference from the proposal in the Company's application is that the five circuit breakers and capacitor bank are now to be constructed and owned by Kentucky Power and not by Kentucky Transco.

Q. HOW WILL THE 28.8 MVAR CAPACITOR BANK MITIGATE CRITERIA VIOLATIONS AS PART OF THE PROJECT?

A. Low voltage magnitude violations were identified at Kewanee Substation for the N-1-1 loss of the Beaver Creek Transformer plus the Cedar Creek-Johns Creek 138 kV line or

the N-1-1 loss of the Beaver Creek-Kewanee 138 kV line plus the Cedar Creek-Johns Creek 138 kV line. The capacitor bank is needed to help support 138 kV voltages in the area after the load is moved from the 46 kV network to the 138 kV network. By installing a capacitor bank at Kewanee Substation, the voltage violations are mitigated by injecting reactive power at the station, keeping the voltage above the low voltage criteria threshold.

Q. WHAT PURPOSE WILL BE SERVED BY THE FIVE 138 KV CIRCUIT BREAKERS THE COMPANY PROPOSES TO CONSTRUCT, OWN, AND OPERATED IN THE KEWANEE SUBSTATION?

A. Circuit breakers are switching devices that are used to open, or "break," an electrical circuit when current is flowing. When certain electrical problems are detected, a circuit breaker can automatically open to interrupt the flow of power and limit damage to equipment. The circuit breakers at the Kewanee Substation will serve to separate individual station elements into their own isolation zones. This allows for other elements at the station to remain in service under fault conditions. See Exhibit NCK-1 for a diagram of the proposed ring bus configuration. Without proper sectionalizing, a single component could result in an outage of the whole station. Additionally, sectionalizing improves the reliability of individual element as well as the station overall. When a breaker operates for a fault, the expected life of that breaker is reduced. Separating the zones and protection devices serves to limit the operation of individual breakers and helps preserve their useful life.

Q. DID THE COMPANY EVALUATE ELECTRICAL ALTERNATIVES TO THE FIVE 138 KV CIRCUIT BREAKERS AND CAPACITOR BANK?

A. Yes. The Company considered other alternatives to connect the substation to the transmission 138 kV network, such as a straight bus. These alternatives would be inadequate because they would expose customers to additional outages. The components discussed here are an integral part of overall project approved by the Commission. Any change in the proposed configuration would need to be presented to and approved by PJM to ensure that the criteria violations would still be addressed and that an alternative configuration does not create additional violations. These components are required for the Project to operate as intended.

Q. EXPLAIN THE PROCESS FOR DETERMINING WHETHER PROJECT ELEMENTS ARE TO BE DEVELOPED BY KENTUCKY POWER OR KENTUCKY TRANSCO.

A. The decisions associated with the scope of work to be performed by Kentucky Power in connection with addressing transmission needs in Kentucky Power's service territory are fact-specific and may vary on a project by project and need by need basis. The Company plans its transmission development in coordination with the AEP transmission organization, within the framework of local, siting, operational, and service requirements, NERC rules, and other applicable parameters, as well as PJM's Regional Transmission Expansion Process ("RTEP") planning process. AEPSC and AEP Transmission also have developed project selection guidelines for use in determining which facilities will be developed by Kentucky Power and which are eligible to be developed by Kentucky Transco. Facilities that qualify to be owned by Kentucky Transco are subject to case-by-case evaluation that takes all of the foregoing considerations, as well as Kentucky Power's capital budget, into account.

Q. PLEASE DESCRIBE THE METHODOLOGY USED BY KENTUCKY POWER TO FUNCTIONALLY CLASSIFY A SUBSTATION AND ITS ASSETS AS EITHER TRANSMISSION OR DISTRIBUTION.

A. Kentucky Power examines the functionality of the assets it owns in a particular station and then based on the functionality of the majority of those assets, classifies all of its assets in that station as Transmission or Distribution consistent with its use of predominant use accounting. Company witness West addresses the consequences of that distinction for purposes of cost recovery.

V. THE ABSENCE OF WASTEFUL DUPLICATION

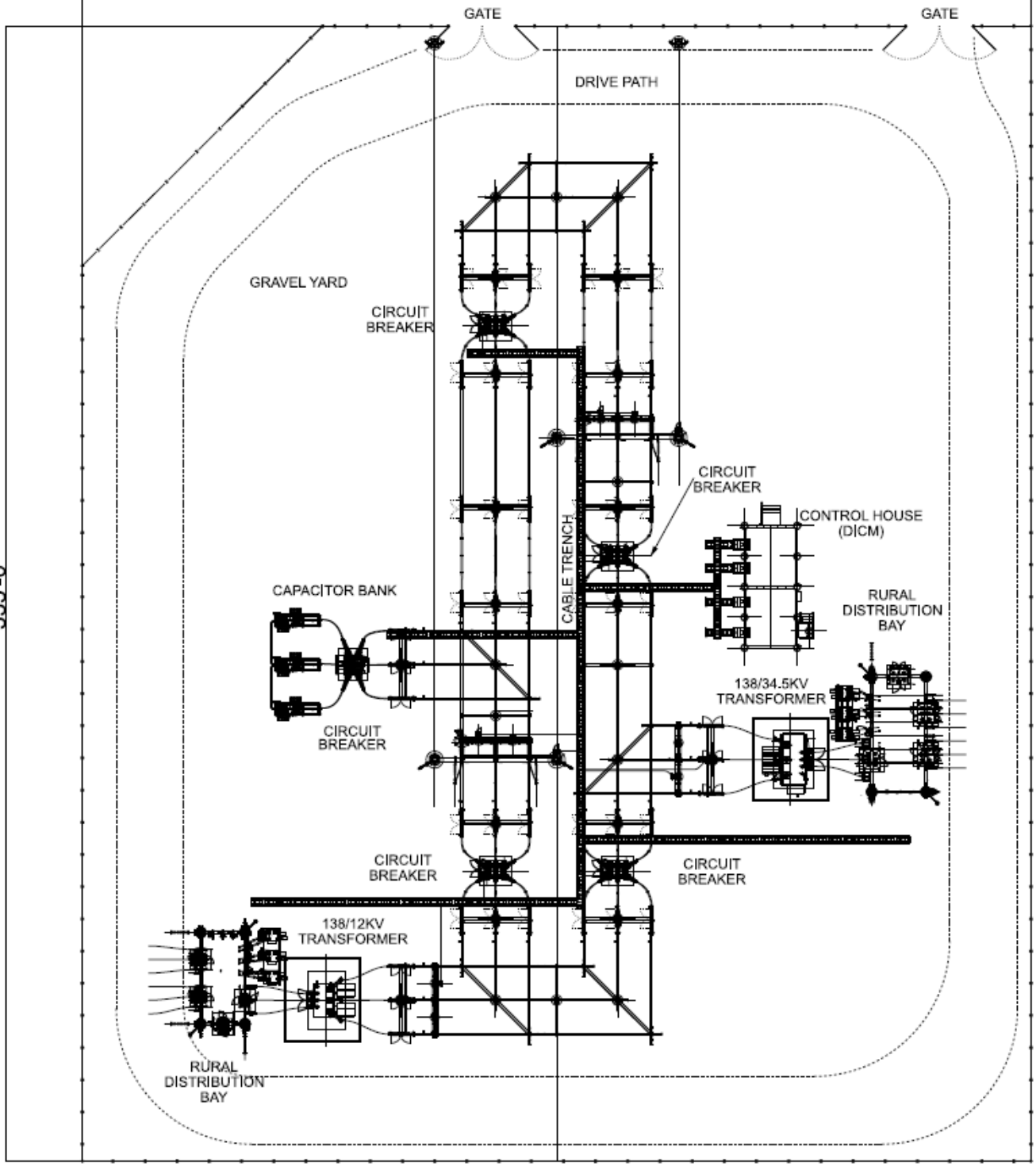
Q. WILL KENTUCKY POWER'S PROPOSED CONSTRUCTION, OWNERSHIP, AND OPEATION OF THE 28.8 MVA CAPACITOR BANK AND FIVE 138 kV CIRCUIT BREAKERS RESULT IN WASTEFUL DUPLICATION?

A. No. The Project capacitor bank and circuit breakers that are the subject of the Company's motion for rehearing are required to address Baseline thermal and voltage criteria violations as mandated by PJM. The Project will not duplicate any existing facilities in an area and will not result in an excess of capacity over need, or excess investment in relation to the productivity and efficiency to be gained. Finally, Kentucky Power performed a thorough review of all reasonable alternatives and selected the most appropriate and cost-effective solution.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

RING BUS LAYOUT



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February 18, 2021 06:02:39 -8:00 [845726EDBBCA] [167.239.221.84]
nckoehler@aep.com (Principal) (Personally Known)

E-Signature Notary: S. Smithhisler (SRS)
February 18, 2021 06:02:39 -8:00 [1C876D40B89A] [167.239.221.83]
srsmithhisler@aep.com
I, S. Smithhisler, did witness the participants named above electronically sign this document.

VERIFICATION

The undersigned, Nicolas C. Koehler, being duly sworn, deposes and says he is the Director of Transmission Planning, American Electric Power Service Corporation, that he has personal knowledge of the matters set forth in the forgoing testimony and the information contained therein is true and correct to the best of his information, knowledge and belief after reasonable inquiry.

Nicolas C Koehler
Signed on 2021/02/18 06:02:39 -8:00

Nicolas C. Koehler

STATE OF OHIO)
) ss Case No. 2020-00062
COUNTY OF FRANKLIN)

Subscribed and sworn to before me, a Notary Public, in and for said County and State, Nicolas C. Koehler this 18th day of February, 2021.

S Smithhisler
Signed on 2021/02/18 06:02:39 -8:00

NOTARY PUBLIC STATE OF OHIO
Sarah Smithhisler
Commission # 2019-RE-775042
Electronic Notary Public
State of Ohio
My Comm Exp. Apr 29, 2024
Notary Stamp 2021/02/18 07:02:39 PST 1C876D40B89A

Notary Public

Notary ID number: __2019-RE-775042_____

My Commission Expires: _April 29, 2024____