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 Replace and Upgrade Portions of the Bellefonte Station In Boyd County, Kentucky (Bellefonte Station Upgrade Project)	)))))	Case No. 2024-00343

ERRATA DIRECT TESTIMONY OF

DANIEL T. BARR

ON BEHALF OF KENTUCKY POWER COMPANY

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TESTIMONY INDEX

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I. INTRODUCTION

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

A. My name is Daniel T. Barr. I am employed by American Electric Power Service Corp. ("AEPSC") as a Planning and Engineering Supervisor. 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 ("Kentucky Power" or the "Company"). My business address is 40 Franklin Road SW, Roanoke, VA 24011.

II. BACKGROUND

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I graduated with a Bachelor of Science in Civil Engineering from Virginia Tech in 2009 and worked in highway construction as a field engineer. I started with AEPSC in 2013 as a project scheduler, then as an outage planner, then worked as a transmission line engineer. I was promoted to Supervisor of Station Engineering in 2019.

Q. WHAT ARE YOUR RESPONSIBILITIES AS RELATED TO THE PROJECT?

A. As Supervisor of Station Engineering, my primary duties involve the oversight of the engineering, logistical, and other technical requirements associated with the construction of the station components of the Proposed Project.

III. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I am testifying in support of Kentucky Power's application for a Certificate of Public Convenience and Necessity ("CPCN") authorizing Kentucky Power to construct the Bellefonte Station Upgrade Project (the "Project") located in Boyd County just northwest of Ashland. I will provide information related to the upgrade, replacement, and installation work in connection with facilities and equipment at Kentucky Power's existing 138/69kV Bellefonte Transmission Station ("Bellefonte Station") and associated station remote end work.

IV. THE PROJECT

Q. PLEASE DESCRIBE THE EXISTING BELLEFONTE STATION.

A. The existing Bellefonte Station, originally built in 1954, is located in Boyd County, KY, to the northwest of Ashland, KY. The Station consists of two yards: a 34.5kV yard and a shared 138/69kV yard. The 138/69kV yard is in a narrow, constrained space between U.S. Highway 23 and a large non-operational industrial complex adjacent to the Ohio River (see Exhibit 4). The 138/69kV Station is located in the load center related to the area's surrounding commercial and residential development and the large industrial facilities. It is a major hub with 12 transmission lines[1], five power transformers, and four distribution circuits, and is a major source into the 69kV network that serves the northern part of AEP's service territory in Kentucky. The 34.5kV yard's original purpose was to serve the blast furnace facility that was previously located adjacent to the site, but which is no longer in

[1] One of these lines is no longer in operation.

operation; for this reason, the 34.5kV yard facilities are proposed to be retired as part of the Project.

Q: WHAT STATION ISSUES WILL BE RESOLVED BY THE PROPOSED PROJECT?

A. The circuit breakers at the Station are overdutied for the fault current rating, meaning that the available fault current at the Station could exceed the breaker's capabilities under certain fault conditions (see Koehler Direct Testimony for additional information). This could result in a premature failure of the breaker, which puts other equipment at the Station at risk of damage or failure. Additionally, the Station's 69kV underground power cables' ampacity does not meet the necessary electric current rating requirements. Further, the current Station design is complex and tightly compact after many years of additions, which makes maintenance and any construction in its current configuration more difficult, expensive, and complex.

Q. PLEASE DESCRIBE THE PROJECT COMPONENTS THAT WILL ADDRESS ISSUES AT THE BELLEFONTE STATION DESCRIBED ABOVE.

A. The approximate $6 million baseline component replaces six overdutied 69kV breakers (at the 138/69kV yard) and the associated risers and disconnects switches. This also includes associated remote end upgrades at the Coalton Station and Pleasant Street Station and replaces underground cables with overhead conductors.

The $20.3 million supplemental components address other needs (see Koehler Direct Testimony for more detail), including:

(i) In the 138/69kV yard, replaces and upgrades one power transformer, adds a 138kV circuit switcher, replaces additional underground cables with overhead conductors,

upgrades bus conductors, modernizes the AC station service system, replaces two 69kV breakers, expands the yard for improved access, consolidates the two separate control houses into one new control house, adds a capacitor bank breaker, replaces a significant number of relays in the 138/69kV yard, and expands the constrained existing yard by 30’ x 300’; and

(ii) Retires the flood-prone and damaged 34kV yard as well as its supporting equipment in the 138/69kV yard, which includes two power transformers, and the bus tie lines between the yards.

(iii) Associated remote end work at Raceland Station.

Q. PLEASE DESCRIBE THE REMOTE END WORK THAT IS NEEDED AT THE COALTON, RACELAND, AND PLEASANT STREET STATIONS.

A. When stations are upgraded, other associated stations typically have equipment that must be replaced or added to help the relay coordination between those stations. This remote end work includes replacing relays and/or adding or replacing potential devices to support the relaying needs on the line. Generally, this work is necessary to facilitate the upgrades to the Bellefonte Station as it relates to relay communication with the connected associated stations. The Pleasant Street Station also will require additional installation of interstate metering due to spacing limitation in the Bellefonte Station.

Q. WILL THE PROJECT RESULT IN WASTEFUL DUPLICATION FROM AN ENGINEERING PERSPECTIVE?

A. No. The Company will use as much of the existing Station structures and equipment as practical (i.e., a CCVT at Raceland will be reused, and the 69kV steel box bay will be reused). The Company plans to consolidate the two control houses into a single control

house and use the existing Station property rather than constructing a new station (as described in the Project Alternative, in Section VI of my testimony).

Q. WHY IS IT NECESSARY TO EXPAND THE STATION?

A. The yard expansion is required to provide the necessary space to consolidate the two separate control houses into one new control house (the proposed new Drop-In-Control Module ("DICM")). The expansion would occur entirely within Company owned property and will be approximately 300 x 30 feet. The additional space allows for the replacement DICM in the clear, while keeping both existing control buildings in operation during the multi-year construction period to avoid or minimize outages. Lastly, after the Project is completed, the expanded yard will allow for improved safety clearances for maintenance and any future upgrades.

V. SUMMARY OF PROJECT COMPONENTS

Q. HAS THE COMPANY PREPARED A DOCUMENT TO SUMMARIZE THE VARIOUS COMPONENTS OF THE BELLEFONTE STATION PROJECT?

A. Yes. As part of the Application the Company prepared a table to succinctly summarize the various Project components (see Application Exhibit 3).

VI. PROJECT ALTERNATIVE

Q. DID THE COMPANY CONSIDER ALTERNATIVE SOLUTIONS TO THE PROPOSED PROJECT?

A. Yes. The Company considered and rejected a more costly project alternative that would have resulted in wasteful duplication.

Q. PLEASE DESCRIBE THE REJECTED AND MORE COSTLY PROJECT ALTERNATIVE FROM A STATION ENGINEERING PERSPECTIVE.

A. The project alternative would generally consist of building a completely new 69kV station (the "Project Alternative") as compared to the Proposed Project, which uses existing 69kV facilities. Specifically, the Project Alternative would consist of rebuilding and relocating the existing Bellefonte 69kV Station facilities and seven existing transmission lines, plus two transformer feeds to the existing Bellefonte Station 34kV yard located to the north-west of the existing 138/69kV yard (see Exhibit 6). This Project Alternative would consist of a 69kV ring bus configuration made up of nine 69kV breakers, and an additional breaker for the capacitor bank.

If the Company were to construct this Project Alternative, costly and extensive site grading and civil work would be necessary at the existing 34kV yard. This site is located in a 100-year floodplain, and due to permitting requirements, would involve significant additional fill to raise the yard elevation out of the floodplain and corresponding cut to prevent alteration to the extents of the floodplain, if a permit was approved. The new location would be separately fenced with a separate DICM and station service system. Additionally, seven existing 69kV lines would be relocated to new dead-end structures on the ring and the two transformer feeds from the current 138/69kV yard would be extended to energize the ring bus. Moving seven transmission lines in this constrained space also would require significant work and costs and complex outage coordination and planning.

Q. WHY IS THE PROJECT ALTERNATIVE INFERIOR TO THE PROPOSED PROJECT?

A. Specifically, the Project Alternative consists of building an entirely new 69kV station and

incurring additional investment, while the Proposed Project uses the existing 69kV station and facilities to the extent practical. Moreover, the relocation of seven transmission lines to the newly constructed station, as contemplated by the Project Alternative, also would result in a large, unnecessary expense. These transmission line relocations would not be necessary as part of the Proposed Project. Furthermore, the additional grading that would be required in the floodplain to construct the new station with a ring bus configuration would require additional permitting and construction time, as well as additional costs. The removal of the 69kV equipment would still be necessary and would be required to a greater extent than if the Company constructed the Proposed Project. The resulting two station yards would each require their own DICM and station service system, adding further unnecessary investment in this instance. Additionally, this could complicate the control cabling needs and relaying trips between the yards and would require a communication network between the two control houses. Each DICM would have an independent battery system which, in this instance, would be unnecessarily duplicative, and would double the need for battery maintenance. Both the Proposed Project and the Project Alternative would still require completing the proposed supplemental work at the existing Bellefonte 138/69kV Station yard and retiring the obsolete 34kV equipment. These costs would not be significantly reduced or avoided if the Project Alternative were constructed. In the case of the 69kV equipment removals, the costs would actually be greater under the Project Alternative.

Q. HOW DOES THE ESTIMATED COST OF THE PROJECT ALTERNATIVE COMPARE TO THE ESTIMATED COST OF THE PROPOSED PROJECT.

A. The estimated Project Alternative cost is $46.5 million, and the estimated Proposed Project

cost is $26.3 million.

Q. PLEASE SUMMARIZE WHY THE PROJECT ALTERNATIVE WAS REJECTED.

A. Generally, the Project Alternative was rejected because it would cost significantly more to construct and would result in unnecessary investment compared to the proposed Project.

VII. PERMITTING AND ENVIRONMENTAL STUDIES

Q. WHAT ENVIRONMENTAL PERMITTING OR STUDIES ARE ANTICIPATED FOR THIS PROJECT?

A. The vast majority of the proposed work will be contained to the existing Bellefonte Station and environmental studies and permitting requirements are expected to be minimal. Kentucky Power anticipates that the following typical environmental studies, permits or approvals may be required for the construction of the Project.

A wetland delineation and stream identification survey will be conducted for the Project. It is anticipated that any impact to these resources will be covered under the United States Army Corps of Engineers' Nationwide Permit, non-reporting, for the installation of culverts on access roads. Construction activities that take place in, along, or over a wetland or a stream (if the watershed is one square mile or more in size) or within a floodplain will require a Kentucky Division of Water Stream Construction Permit.

Because the total earth disturbance will be greater than one acre, a construction stormwater permit will be required from the Kentucky Department of Environmental Protection, Division of Water. A Kentucky Pollutant Discharge Elimination System Stormwater Pollution Prevention Plan will be developed for the Project. Additionally the Company will acquire a local flood plain permit as needed.

Q. DOES THE COMPANY ANTICIPATE THAT THE PROJECT WILL AFFECT ANY FEDERALLY- OR STATE-PROTECTED SPECIES?

A. No. Where applicable, habitat studies or species-specific surveys will be conducted prior to final engineering and construction to ensure protected species impacts are avoided or mitigated to the extent practicable. Compliance with existing regulations and laws relating to protected species is of high importance to the Company.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

VERIFICATION

The undersigned, Daniel T. Barr, being duly sworn, deposes and says he is a Planning and Engineering Supervisor for AEP Service Corporation, that he has personal knowledge of the matters set forth in the foregoing testimony and the information contained therein is true and correct to the best of his information, knowledge, and belief after reasonable inquiry.

Signed by:
Daniel T. Barr
90C83863C27B4BC...

Daniel T. Barr

KY
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Kentucky
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Case No. 2024-00343

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Daniel T. Barr, on 12/18/2024 | 9:34 AM EST.

Signed by:
Michelle Caldwell
E9B1BC7AC31F421...

Notary Public

MARILYN MICHELLE CALDWELL
ONLINE NOTARY PUBLIC
COMMONWEALTH OF KENTUCKY
Commission #KYNP71841
My Commission Expires 5/5/2027

My Commission Expires 05/05/2027

Notary ID Number KYNP71841

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