COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Electronic Application Of Kentucky Power Company For 1) A Certificate Of Public Convenience And Necessity To Construct A Natural Gas-Fired Combined Cycle Generating Facility In Lawrence County, Kentucky; 2) A Site Compatibility Certificate; 3) A Certificate Of Public Convenience And Necessity To Construct A New Transmission Substation In Boyd County, Kentucky; 4) Approval Of A Short-Term Capacity Purchase Agreement; And 5) For All Other Required Approvals And Relief	)))))))))	Case No. 2026-00324

DIRECT TESTIMONY OF

NICOLAS C. KOEHLER

ON BEHALF OF KENTUCKY POWER COMPANY

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I. INTRODUCTION

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

A. My name is Nicolas C. Koehler. My position is Managing Director of 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 ("Kentucky Power" or the "Company"). My business address is 8500 Smith's Mill Road, New Albany, OH 43054.

II. BACKGROUND

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I earned a Bachelor's of Science – Electrical Engineering degree from Ohio Northern University in Ada, Ohio. In 2008, I joined AEP as a Planning Engineer where I advanced through increasing levels of responsibility. I received my Professional Engineer license in the state of Ohio in 2012 (license number 76967). In May 2025, I assumed my current position as Managing Director of East Transmission Planning.

Q. WHAT ARE YOUR RESPONSIBILITIES AS MANAGING DIRECTOR OF EAST TRANSMISSION PLANNING?

A. My responsibilities include organizing and managing all activities related to assessing the adequacy of AEP's transmission network to meet the needs of its customers in a reliable, safe, cost-effective, and environmentally compatible manner. I participate in planning activities with Kentucky Power to address overall system performance.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY (THE "COMMISSION")?

A. Yes. I previously submitted testimony in support of seven Kentucky Power transmission certificate of public convenience and necessity cases ("CPCN"): Kewanee-Enterprise Park 138kV Transmission Project (2020-00062); Garrett Area Improvements 138kV Transmission Project (Case No. 2021-00346); Wooton-Stinnett 161kV Transmission Project (Case No. 2022-00118); Belfry Area 69kV Transmission Project (Case No. 2023-00040); Bellefonte Station Upgrade Project (Case No. 2024-00343); and Breaks-Dorton 69kV Conversion Project (Case No. 2026-00184). I also adopted testimony in Kentucky Power's CPCN application for the Allen Station Project (Case No. 2026-00208).

III. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. I am testifying in support of Kentucky Power's application for a CPCN authorizing the Company to construct a 765/345kVsubstation located in Boyd County, Kentucky, northwest of Ashland (the "Venator Substation Project"). Specifically, my Direct Testimony provides information related to the need for the Venator Substation Project, overall construction schedule, PJM's Attachment M-3 process, and electrical line

alternatives. In addition, I provide context as to the substation capacity in relation to future load growth.

IV. VENATOR SUBSTATION PROJECT NEED AND SOLUTION

Q. PLEASE DESCRIBE THE NEED FOR THE VENATOR SUBSTATION PROJECT.

A. The Venator Substation Project is necessary to accommodate the TeraWulf interconnection request for new 345kV service at its proposed Muskie Data Campus. The peak demand at this delivery point will be approximately 1000 MW. The existing local 138kV and 69kV transmission system is inadequate to serve the requested 1000 MW data center load while adhering to North American Electric Reliability Corporation ("NERC") Transmission System Planning Performance Requirements. The existing 138kV and 69kV transmission system in the area does not have sufficient thermal capacity to serve a load of this magnitude. The Venator Substation Project requires creating a new 765/345kV substation that has sufficient capacity to serve this load during normal and outage conditions defined by NERC planning criteria.

Q. PLEASE DESCRIBE HOW THE VENATOR SUBSTATION PROJECT ADDRESSES THE NEEDS IDENTIFIED ABOVE.

A. The Venator Substation Project addresses this need by building a 765/345kV substation that will have the capacity to serve the requested 1000 MW load. The Venator Substation Project will allow the interconnection of this load while proactively preventing any NERC planning criteria violations.

Q. HOW LONG WILL IT TAKE TO CONSTRUCT THE VENATOR SUBSTATION PROJECT, INCLUDING LAND CLEARING AND GRADING?

A. Construction of the Venator Substation Project will be managed by AEPSC and is expected

to take approximately 18 months to complete. To achieve an October 2028 in-service date, the construction schedule begins with land clearing and grading in March 2027. The Company therefore requests Commission approval no later than March 1, 2027 to maintain that schedule. Table NCK-1 below identifies the principal construction milestones. Company Witness Rafay describes the physical layout and work for the Venator Substation Project in his Direct Testimony.

Table NCK-1

Milestones	Expected Start
Station Site Prep / Grading	Mar. 2027
Station Structure Install	Oct. 2027
Station Testing	Sept. 2028
Station In-Service	Oct. 2028

Q. WILL THERE BE ADDITIONAL CONSTRUCTION NECESSARY TO FACILITATE SERVICE?

A. Yes. The Company will seek a separate CPCN for the associated greenfield 765kV transmission lines required to connect the Venator Substation Project to the existing 765kV transmission infrastructure, as well as greenfield 345kV lines to connect the Venator Substation Project to the customer delivery point. The substation and associated transmission lines can proceed on different development and construction schedules. As Company Witness Larson explains, the substation location is an endpoint that must be established before the associated transmission line routes can be finalized, and the transmission line routes siting study is expected to be completed in the first quarter of 2027. That timing allows the Company to proceed with the earlier substation construction work while completing the siting and approval process for the associated transmission lines.

Q. WILL THE VENATOR SUBSTATION PROJECT ALLOW FOR FUTURE LOAD GROWTH?

A. Yes. As a result of substation design requirements, the Venator Substation Project will have additional capacity beyond the Muskie Data Campus need. Additional substation work and network capacity analysis will need to be completed to utilize the additional station capacity in the future.

Q. PLEASE EXPLAIN THE PJM PROCESS AND STATUS FOR THIS PROJECT.

A. All supplemental projects, including customer requests like the one driving the Venator Substation Project, go through PJM's Attachment M-3 process. First the need is presented, then the project solution is presented. PJM then runs a do-no-harm analysis and adds the project to the local plan. The Venator Substation Project need was presented in the July 7, 2026, Transmission Expansion Advisory Committee ("TEAC") meeting. The solution is expected to be presented at the December 2026 TEAC meeting.

Q. IS THIS A BASELINE OR SUPPLEMENTAL PROJECT?

A. The Venator Substation Project is a supplemental project.

Q. DO ANY OF THE COMPONENTS OF THE PROJECT RESULT IN WASTEFUL DUPLICATION?

A. No. All components of the Venator Substation Project are required to fully address the substation needs of the customer described above. By performing the work for a new substation, the Company is proposing to move forward with the most cost-effective solution to address the needs.

V. PROJECT ALTERNATIVES ANALYSIS

Q. WHAT ALTERNATIVES WERE EVALUATED BY THE COMPANY?

A. The Company evaluated physical substation location and electrical line alternatives to the Venator Substation Project. Company Witness Larson discusses the physical substation location alternatives, and I discuss the electrical alternatives below.

Q. WHAT ELECTRICAL ALTERNATIVES WERE EVALUATED BY THE COMPANY?

A. Extra-high-voltage solutions were evaluated and dismissed early due to the proximity of the existing Baker-Hanging Rock 765kV line. Resultingly, these potential solutions were not further developed. Ultimately, the Company determined that no reasonable electrical alternatives exists due to the magnitude and location of the load request. Please refer to Company Witness Larson's Direct Testimony for more discussion on the proximity to the existing 765kV line.

Q. WHY DID THE COMPANY CONCLUDE THAT NO REASONABLE ELECTRICAL ALTERNATIVE EXISTS?

A. The existing 765kV transmission line near the customer's load location has sufficient capacity to serve the requested load, while the existing 138kV and 69kV transmission lines in the area do not. Serving 1000 MW of new load from the 138kV or 69kV networks is impractical due to system limitations. The only solution is to connect directly to the 765kV lines. The proposed 765kV source is significantly closer than the next available alternatives, which are located more than 13 miles away. Connecting to those alternative sources would require additional transmission facilities across rugged terrain, substantially increasing construction complexity and cost. Therefore, no reasonable electrical alternative

exists. As such, the Venator Substation Project represents the least-cost, most reasonable option to address the needs identified above.

VI. CONCLUSION

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does. As described above, the need for the project exists. Likewise, the project does not result in wasteful duplication, and there are no reasonable alternatives.

VERIFICATION

The undersigned, Nicolas C. Koehler, being duly sworn, deposes and says he is the Managing Director Transmission Planning for American Electric Power 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.

Nicolas C. Koehler

Commonwealth of Kentucky)
)
County of Boyd)

Case No. 2026-00324

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Nicolas C. Koehler, on November 10, 2026.

Notary Public

My Commission Expires May 5, 2027

Notary ID Number KYNP71841

MARILYN MICHELLE CALDWELL
Notary Public
Commonwealth of Kentucky
Commission Number KYNP71841
My Commission Expires May 5, 2027