

**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 Expand And Upgrade Portions Of )  
The Baker Substation In Lawrence County, )  
Kentucky (Baker Reactor Breaker Project) )

Case No. 2025-00335

**DIRECT TESTIMONY OF**  
**TYLER M. BENEDUM**  
**ON BEHALF OF KENTUCKY POWER COMPANY**

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**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
I. INTRODUCTION.....	1
II. BACKGROUND.....	1
III. PURPOSE OF TESTIMONY.....	2
IV. THE PROJECT.....	2
V. SUMMARY OF PROJECT COMPONENTS.....	5
VI. ALTERNATIVES TO PROPOSED PROJECT.....	5
VII. PERMITTING AND ENVIRONMENTAL STUDIES.....	6

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**I. INTRODUCTION**

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

2 A. My name is Tyler M. Benedum. I am employed by American Electric Power Service Corp.  
3 (“AEPSC”) as a Transmission Station Engineer. AEPSC supplies engineering, financing,  
4 accounting, planning, advisory, and other services to the subsidiaries of the American  
5 Electric Power (“AEP”) system, one of which is Kentucky Power Company (“Kentucky  
6 Power” or the “Company”). My business address is 40 Franklin Road S.W., Roanoke, VA  
7 24011.

**II. BACKGROUND**

8 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**  
9 **BUSINESS EXPERIENCE.**

10 A. I received a Bachelor of Science Electrical Engineering degree from West Virginia  
11 University in 2019. I have been employed by AEPSC for six years as a Transmission  
12 Station Engineer.

13 **Q. WHAT ARE YOUR RESPONSIBILITIES AS RELATED TO THIS PROJECT?**

14 A. As Transmission Station Engineer, my primary duties involve the oversight of the  
15 engineering, logistical, and other technical requirements associated with the construction  
16 of the station components of the project proposed in this proceeding.

### **III. PURPOSE OF TESTIMONY**

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

2 A. I am testifying in support of Kentucky Power’s application for a certificate of public  
3 convenience and necessity (“CPCN”) authorizing Kentucky Power to construct the Baker  
4 Reactor Breaker Upgrade Project (the “Baker Reactor Breaker Project” or the “Project”)  
5 located in Lawrence County. Specifically, I discuss the current Baker Substation and the  
6 Project from the substation engineering perspective.

### **IV. THE PROJECT**

7 **Q. PLEASE DESCRIBE THE EXISTING BAKER SUBSTATION.**

8 A. Baker Substation is currently a 24-acre 765/345/138kV substation located approximately  
9 one-half mile north of the Big Sandy Plant in Lawrence County, Kentucky and was built  
10 around 1969. The Substation is constrained between U.S. Route 23 and local Catalpa  
11 Blaine Creek Road, allowing only for expansion of the substation yard to the north. The  
12 Substation features seven transmission line exits across its three transmission voltages.  
13 More than one of the transmission lines are points of interconnection for independent  
14 power producers (“IPP”).

15 The reactors connected to the Baker-Broadford 765kV circuit are used to help control the  
16 voltage levels and fluctuations during varying system conditions. There are four reactor  
17 units associated with the 765 kV line in Baker Substation (one for each of the three phases  
18 of the system, plus a spare unit). These reactors are large in size, approximately 45 feet  
19 tall and weigh roughly 150 tons each. The reactors currently are not equipped with a circuit  
20 breaker.

1 **Q. WHAT SUBSTATION ISSUES NEED TO BE RESOLVED BY THE PROPOSED**  
2 **PROJECT?**

3 A. Reactor circuit breakers allow reactors to be switched on or off based on real-time system  
4 conditions. Currently, during high load conditions, as well as high transfer conditions, the  
5 reactors may need to be switched off to manage low 765kV conditions. However, because  
6 the current reactors are not equipped with a circuit breaker, they cannot be switched off  
7 while the 765kV line is energized, which poses operational risk and adds unnecessary  
8 operation cycles to the main line breakers. The Company therefore proposes to add a  
9 circuit breaker to the reactors as part of this Project. The addition of a reactor circuit breaker  
10 allows for switching the reactors in and out of service without also having to take the 765kV  
11 transmission circuit they are attached to out of service. This operational flexibility is  
12 necessary to ensure regional system reliability and optimal performance.

13 Further, the existing reactors are located in a space-constrained area in the 765kV yard,  
14 lack necessary space clearances to add the proposed reactor circuit breaker, and must be  
15 relocated to install the reactor circuit breaker. The existing Baker-Broadford 765kV line  
16 reactors are currently located directly under the 765kV line and are between the substation  
17 structure and the eastern fence line of the substation. The eastern fence line directly abuts  
18 U.S. Route 23, which precludes acquiring any additional space in the easterly direction.  
19 This necessitates expanding the 765kV yard northward on Kentucky Power-owned  
20 property and relocating the existing reactors into an expanded portion, as shown on **Exhibit**  
21 **4** to the Application.

1 **Q. PLEASE DESCRIBE THE PROJECT COMPONENTS THAT WILL ADDRESS**  
2 **ISSUES AT THE BAKER SUBSTATION DESCRIBED ABOVE.**

3 A. The Project includes:

4 a) Expanding the yard (an approximate 640-foot by 185-foot expansion) at  
5 the Baker Substation;

6 b) Relocating the existing reactors within the expanded yard at the Baker  
7 Substation;

8 c) Installing a new three-phase 765kV 50kA circuit breaker on the reactors  
9 on the Baker-Broadford 765kV line within the Baker Substation;

10 d) Reconnecting the existing Baker-Broadford 765kV circuit to the relocated  
11 reactors; and

12 e) Associated distribution work and relocating an existing gas line located  
13 within the property.

14 **Q. WHY IS IT NECESSARY TO EXPAND THE SUBSTATION?**

15 A. The proposed yard expansion is required to fit the relocated reactors and new circuit  
16 breaker. Expansion of the yard to the east is not possible because of the proximity to U.S.  
17 Route 23 and, therefore, the only direction to expand while remaining within Company  
18 property is to the north. The yard expansion will increase the Substation's footprint by an  
19 approximately 185x645 foot area north of the existing Substation completely within  
20 Company property. No new right-of-way is necessary for the proposed expansion. **Exhibit**  
21 **4** to the Application demonstrates what I have explained here.

22

23

1 **Q. COMPANY WITNESS WOLFFRAM DISCUSSES THAT THIS PROJECT IS THE**  
2 **SAME PROJECT INVOLVED IN THE PREVIOUS CASE NO. 2024-00283,**  
3 **WHERE KENTUCKY POWER SOUGHT A DECLARATORY ORDER. HAVE**  
4 **THERE BEEN ANY CHANGES TO THE PROJECT SINCE THE**  
5 **DECLARATORY ORDER APPLICATION?**

6 A. Electrically, there is no difference between the project involved in the declaratory order  
7 case and the Project proposed in this case. However, the cost of moving a third-party gas  
8 pipeline located in the expansion area has increased since the original planning and scoping  
9 of the Project prior to filing the declaratory order case.

#### **V. SUMMARY OF PROJECT COMPONENTS**

10 **Q. HAS THE COMPANY PREPARED A DOCUMENT TO CLEARLY SUMMARIZE**  
11 **THE VARIOUS COMPONENTS OF THE BAKER SUBSTATION PROJECT?**

12 A. Yes. As part of the Application, the Company prepared a table to succinctly summarize  
13 the various Project components (see Application Exhibit 6).

#### **VI. ALTERNATIVES TO PROPOSED PROJECT**

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

16 A. Yes. The Company considered and rejected a more costly project alternative where the  
17 Company would construct a new greenfield 765kV substation. That alternative was  
18 rejected in favor of the Proposed Project. Constructing an entirely new substation would  
19 result in unnecessary and imprudent spending. The existing Substation is capable of  
20 expansion, and the Project as designed utilizes already existing property and infrastructure.

21 **Q. HOW DOES THE ESTIMATED COST OF THE PROJECT ALTERNATIVE**

1           **COMPARE TO THE ESTIMATED COST OF THE PROPOSED PROJECT?**

2    A.     The estimated cost of the Project alternative at this time is approximately \$266 million,  
3           and the estimated cost of the proposed Project at this time is approximately \$29.4 million.

4    **Q.     PLEASE SUMMARIZE WHY THE PROJECT ALTERNATIVE WAS**  
5           **REJECTED.**

6    A.     Generally, the Project alternative was rejected because it would require unnecessary  
7           property acquisition and construction, and would cost significantly more. Put simply, it  
8           would result in significant unnecessary investment compared to the proposed Project.

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

11   A.     No. For the reasons stated above in my testimony, the Project will not result in wasteful  
12           duplication from an engineering perspective.

## **VII. PERMITTING AND ENVIRONMENTAL STUDIES**

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

15   A.     Environmental studies and permitting requirements associated with the Project are  
16           expected to be minimal. Kentucky Power anticipates that a wetland delineation and stream  
17           identification survey will be conducted for the Project. It is anticipated that any impact to  
18           these resources will be covered under the United States Army Corps of Engineers'  
19           Nationwide Permit, non-reporting, for the installation of culverts on access roads.  
20           Construction activities that take place in, along, or over a wetland or a stream (if the  
21           watershed is one square mile or more in size) or within a flood plain will require a  
22           Kentucky Division of Water Stream Construction Permit.



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

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

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

12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 A. Yes

**VERIFICATION**

The undersigned, Tyler M. Benedum, being duly sworn, deposes and says he is a Transmission Station Engineer 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.

*Tyler Benedum*

\_\_\_\_\_  
Tyler M. Benedum

Commonwealth of Virginia )  
\_\_\_\_\_) )  
\_\_\_\_\_) )

Case No. 2025-00335

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Tyler M. Benedum, on October 22, 2025

*Nancy Milburn*  
\_\_\_\_\_  
Notary Public

My Commission Expires 5/31/2027

Notary ID Number 7661022

