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

ABDUL RAFAY

ON BEHALF OF KENTUCKY POWER COMPANY

DIRECT TESTIMONY OF
ABDUL RAFAY ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

CASE NO. 2026-00324

TABLE OF CONTENTS

SECTION **PAGE**

I. INTRODUCTION 1
II. BACKGROUND 1
III. PURPOSE OF TESTIMONY 2
IV. THE VENATOR SUBSTATION PROJECT 3
V. VENATOR SUBSTATION PROJECT ALTERNATIVES 5
VI. CONCLUSION 6

EXHIBITS

EXHIBIT	DESCRIPTION
EXHIBIT AR-1	Venator - General Arrangement Drawing
EXHIBIT AR-2	Venator 765kV List of Major Components

DIRECT TESTIMONY OF
ABDUL RAFAY ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

CASE NO. 2026-00324

I. INTRODUCTION

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

A. My name is Abdul Rafay. I am employed by American Electric Power Service Corporation ("AEPSC"), a wholly owned subsidiary of American Electric Power Company, Inc. ("AEP"), as a Station Engineering Manager. AEP is the parent company of Kentucky Power Company ("Kentucky Power" or the "Company"). AEPSC supplies engineering, financing, accounting, planning, advisory, and other services to AEP's regulated electric operating companies, including Kentucky Power. My business address is 40 Franklin Road S.W., Roanoke, VA 24011.

II. BACKGROUND

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I earned my Bachelors of Engineering in Electrical Power Engineering from Glasgow Caledonian University and began my career as an Electrical Engineer. I later pursued graduate studies, earning my Masters of Science in Electrical Engineering from the University of South Florida in 2018. After graduation, I worked as an Electrical Engineer for a contractor supporting Pacific Gas and Electric Company in California. In 2019, I joined AEPSC as a Station Engineer and later transitioned into Protection and Control Engineering. I subsequently joined Burns & McDonnell Engineering Company, Inc. as an

Electrical Engineer before returning to AEPSC in 2025 as a Station Engineering Manager.

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

A. As Station Engineering Manager, I primarily oversee the engineering, logistical, and other technical requirements associated with the construction of the substation components of the Venator Substation Project located in Boyd County (the "Venator Substation Project"). My responsibilities also include overseeing engineering resources and design quality, as well as coordinating with project management and construction teams to support compliance with applicable engineering standards.

III. PURPOSE OF TESTIMONY

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

A. I am testifying in support of Kentucky Power's application for a certificate of public convenience and necessity authorizing the Company to construct the Venator Substation Project. I provide information related to the installation work in connection with facilities and equipment at the Venator Substation Project.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes, I am sponsoring the following exhibits:

EXHIBIT	DESCRIPTION
Exhibit AR-1	Venator - General Arrangement Drawing
Exhibit AR-2	Venator 765kV List of Major Components

Q. WERE THESE EXHIBITS PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A. Yes.

IV. THE VENATOR SUBSTATION PROJECT

Q. PLEASE DESCRIBE THE VENATOR SUBSTATION PROJECT.

A. The Venator Substation Project consists of a joined 765/345kV yard located to the west of Virginia Boulevard near an existing industrial park. The Venator Substation Project will have four transmission lines, two 765kV lines and two 345kV lines, seven power transformers and six breakers. The two 765kV lines will split the existing 765kV line to connect the new Venator Substation Project to the existing Baker and Hanging Rock substation. The two 345kV lines will serve the Muskie Data Campus in the EastPark Industrial Park that spans Boyd and Greenup Counties (see Exhibit AR-1).

Q. PLEASE DESCRIBE HOW THE VENATOR SUBSTATION PROJECT WILL BE CONSTRUCTED.

A. Construction will begin with clearing and preparation of the substation site. Company Witness Larson describes the selected site, its grading requirements, existing access, associated environmental studies, and permitting requirements.

Once site preparation is complete below grade work can commence. This work includes pouring foundations/piers, installing substation grounding, underground cable/conduit, etc. grounding and conduits for electrical wiring will also be installed. The substation structures and equipment will then be erected or set on their foundations and electrically connected. Exhibit AR-2 summarizes the major electrical equipment, including the seven power transformers and six breakers described above, which will be installed consistent with the general arrangement shown in Exhibit AR-1. The completed substation equipment and connections will be tested before the substation is placed in service. Company Witness Koehler describes the construction schedule and principal milestones.

Q. WHAT ARE THE TOTAL CONSTRUCTION AND ON-GOING O&M COSTS FOR THE VENATOR SUBSTATION PROJECT?

A. The initial construction cost is approximately $285 million. The major cost components are outlined below:

Table AR-1

Substation Scope	Estimated Cost ($)
Engineering & Project Management	7,000,000
Material	193,000,000
Construction	69,000,000
AFUDC	16,000,000
Total	**285,000,000**

Q. DOES THE APPROXIMATELY $285 MILLION COST ESTIMATE REPRESENT A FIXED AND FINAL COST?

A. No. The estimate represents the Company's assessment of the costs as of the date of this Application. The exact cost will not be known until the Venator Substation Project is complete.

Q. WHAT IS THE PROJECTED COST OF OPERATION FOR THE VENATOR SUBSTATION PROJECT AFTER IT IS COMPLETED?

A. Kentucky Power estimates that the annual cost of operation will be approximately $82,000 for general maintenance and inspection. The Company also estimates that the Venator Substation Project will result in approximately $427,000 in additional annual ad valorem taxes.

Q. PLEASE DESCRIBE THE REMOTE END WORK THAT IS NEEDED AT THE HANGING ROCK AND BAKER 765kV SUBSTATIONS.

A. As part of the Venator Substation Project, the existing protective equipment at the Hanging

Rock and Baker 765kV substations was evaluated. The equipment meets the engineering requirements, accordingly no new protective equipment is needed. The only work required at these stations will be to update the relay settings.

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

A. No. No substations currently exist in the area to supply the requested load.

Q. ARE ADDITIONAL TRANSMISSION PROJECTS NECESSARY TO SERVE THE MUSKIE DATA CAMPUS?

A. Yes. The required associated transmission lines needed to electrically complete the system will be presented in a subsequent certificate of public convenience and necessity application as discussed in Company Witness Elliott's Direct Testimony.

V. VENATOR SUBSTATION PROJECT ALTERNATIVES

Q. WHAT ALTERNATIVES WERE EVALUATED BY THE COMPANY?

A. The Company evaluated electrical line alternatives for serving the customer's requested 1,000 MW load and alternative locations for the new substation. Company Witness Larson explains why the selected site is a reasonable location for the Venator Substation Project. Company Witness Koehler explains that no existing 345kV substation in the area is capable of meeting the customer's requirements, and that no reasonable electrical line alternative exists. The requested load cannot be served from an existing substation or another reasonable transmission line alternative in the area. As a result, a new substation is required to transform power from the nearby 765kV transmission system to 345kV and provide the necessary capacity.

VI. CONCLUSION

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

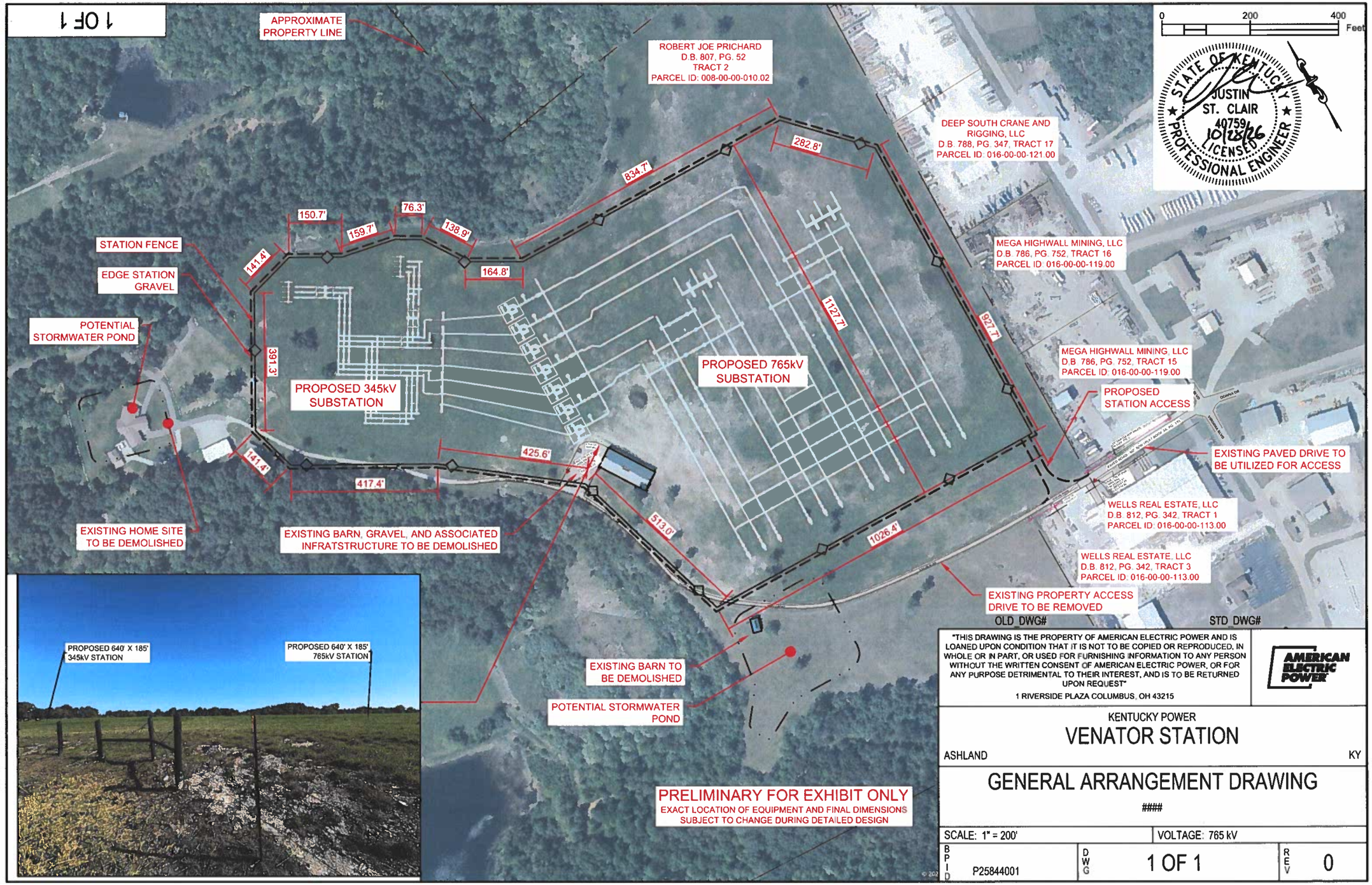
A. Yes, it does.

Exhibit AR-1

Venator - General Arrangement Drawing

Q:\Production\Station\Kentucky\Venator\P25844001\Drawings\Concept-Funct\Panda Site 8.dwg

1 OF 1



PRELIMINARY FOR EXHIBIT ONLY
EXACT LOCATION OF EQUIPMENT AND FINAL DIMENSIONS SUBJECT TO CHANGE DURING DETAILED DESIGN

OLD_DWG# STD_DWG#

"THIS DRAWING IS THE PROPERTY OF AMERICAN ELECTRIC POWER AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE COPIED OR REPRODUCED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF AMERICAN ELECTRIC POWER, OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST"
1 RIVERSIDE PLAZA COLUMBUS, OH 43215

AMERICAN ELECTRIC POWER

KENTUCKY POWER

VENATOR STATION

ASHLAND KY

GENERAL ARRANGEMENT DRAWING

####

SCALE: 1" = 200'	VOLTAGE: 765 kV	
BPID P25844001	DWG 1 OF 1	REV 0

ENERGY DELIVERY

ANSI B (11 x 17)

BY: BRANDON K SCOTT
AT: 8:58:47 AM
PLOTTED DATE: 10/28/25

Exhibit AR-2

Venator 765kV List of Major Components

Venator 765 kV List of Major Components and Purpose

Project Section	Description	Asset	Associated Assets	Purpose
Venator Station Work	This is a supplemental project to provide service to a new customer in Boyd County, KY, the peak demand of the new load is 1000 MW. To meet the customer's needs, AEP will construct a new in/out line from the existing Hanging Rock – Baker 765 kV line. A new 765/345 kV step-down station will need to be constructed. The customer requested two 345 kV feeds from the new 765/345 kV station to their station. Install four 765 kV CBs in a folded breaker and half layout with a ring bus configuration. Install two 765/345 kV 2250 MVA XFRs (six single phase 765/345 kV 750 MVA XFRs with a seventh single phase 765/345 kV 750 MVA XFR as a shared switchable spare. Install two 345 kV CBs on the two 345 kV feeds to the customer with metering.	765kV Breakers	Three Phase CCVT	Circuit Breakers provide protection and disconnect means for the feeders. PCE utilizes the Line Potential Transformers to measure voltage changes on the line which informs their protection relays. Surge Arresters limit the voltage that can appear across the breaker terminals, preventing damage from transient over voltages to nearby equipment. Switches provided to provide a means to disconnect breakers from energized bus for maintenance
			476kV MCOV Surge Arrester	
			765kV Motor Operated Switches	
		765/345kV Transformers	765/345kV Transfer Switch	The transfer switches are used to transfer the load of a transformer to the spare in the case of a transformer failure. Surge Arresters limit the voltage that can appear across the transformer terminals, preventing damage from transient over voltages to nearby equipment. PCE utilizes the Bus Potential Transformers to measure voltage changes on the bus which informs their protection relays.
			476/209kV MCOV Surge Arrester	
			Three Phase CCVT	
		345kV Breaker	Three Phase CCVT	Circuit Breakers provide protection and disconnect means for the feeders. PCE utilizes the Line Potential Transformers to measure voltage changes on the line which informs their protection relays. Surge Arresters limit the voltage that can appear across the breaker terminals, preventing damage from transient over voltages to nearby equipment. Switches provided to provide a means to disconnect breakers from energized bus for maintenance
			209kV MCOV Surge Arrester	
			345kV Motor Operated Switches	

VERIFICATION

The undersigned, Abdul Rafay, being duly sworn, deposes and says he is a Station Engineering Manager 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.

Abdul Rafay

State of Virginia)
) Case No. 2026-00324
~~County~~ of Roanoke)
City

Subscribed and sworn to before me, a Notary Public in and before said County and State, by Abdul Rafay, on 11/10/26.

Nancy Mills Morris
Notary Public

NANCY MILLS MORRIS
NOTARY PUBLIC
REG. #7661022
MY COMMISSION EXPIRES
MAY 31, 2027
COMMONWEALTH OF VIRGINIA

My Commission Expires 5/31/27

Notary ID Number 7661022