

**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 (Enterprise Park)
Economic and Area Improvements Project))

Case No. 2018-00209

**DIRECT TESTIMONY OF
RANIE K. WOHNHAS
ON BEHALF OF KENTUCKY POWER COMPANY**

August 2018

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TESTIMONY INDEX

<u>SECTION</u>	<u>PAGE</u>
I. INTRODUCTION	1
II. BACKGROUND	1
III. PURPOSE OF TESTIMONY.....	3
IV. THE PROJECT OVERVIEW.....	4
A. The Project.....	4
1. The Transmission Line and Structures.	5
2. The Proposed Substation.....	6
3. The Retirement of the Fords Branch 46 kV Substation.....	7
4. Cedar Creek 138/69/46 kV Substation Upgrade.....	8
5. Construction Schedule.	8
B. Purpose of the Project.	9
C. Property Acquisition.	12
1. Right-of-Way Width.	12
2. Requested Authority To Relocate The Indicated Centerline.	13
V. NOTICES.....	17
VI. FINANCIAL ASPECTS OF THE PROJECT	19
VII. REVIEW OF THE PROJECT AND STAKEHOLDER INPUT.....	21

DIRECT TESTIMONY OF
RANIE K. WOHNHAS
ON BEHALF OF KENTUCKY POWER COMPANY

I. INTRODUCTION

1

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

3 A. My name is Ranie K. Wohnhas. My position is Managing Director, Regulatory and
4 Finance, Kentucky Power Company. My business address is 855 Central Avenue,
5 Suite 200, Ashland, Kentucky 41101.

II. BACKGROUND

6

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

9 A. I received a Bachelor of Science degree with a major in accounting from Franklin
10 University, Columbus, Ohio in December 1981. I began work with Columbus
11 Southern Power Company in 1978, and worked in various customer service and
12 accounting positions. In 1983, I transferred to Kentucky Power Company and
13 worked in the areas of accounting, rates, and customer service. I became the Billing
14 and Collections Manager in 1995. My duties included overseeing all billing and
15 collection activity for the Company. In 1998, I transferred to Appalachian Power
16 Company and worked in the rates department. In 2001, I transferred to the American
17 Electric Power Service Corporation (“AEPSC”) working as a Senior Rate Consultant.
18 In July 2004, I transferred back to Kentucky Power Company and assumed the
19 position of Manager, Business Operations Support. I was promoted to Director in

1 April 2006. I was promoted to my current position as Managing Director, Regulatory
2 and Finance effective September 1, 2010.

3 **Q. WHAT ARE YOUR RESPONSIBILITIES AS MANAGING DIRECTOR,**
4 **REGULATORY AND FINANCE?**

5 A. I am primarily responsible for managing the regulatory and financial strategy for
6 Kentucky Power. This includes planning and executing rate filings for both federal
7 and state regulatory agencies, as well as filings for certificates of public convenience
8 and necessity before this Commission. I am also responsible for managing the
9 Company's financial operating plans. Included as part of this responsibility is the
10 preparation and coordination of various capital and O&M operating budgets with
11 other American Electric Power Company, Inc. affiliates. I work with various AEPSC
12 departments to ensure that adequate resources such as debt, equity, and cash are
13 available to build, operate, and maintain Kentucky Power's electric system assets
14 used to provide service to our retail and wholesale customers. I report directly to
15 Matthew J. Satterwhite, President and Chief Operating Officer of Kentucky Power in
16 my role as Managing Director, Regulatory and Finance.

17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

18 A. Yes, I have testified on multiple occasions in a wide variety of proceedings, including
19 numerous rate cases, fuel adjustment clause cases, an environmental compliance plan
20 case, the proceeding to transfer a fifty percent undivided interest in the Mitchell
21 generating station to Kentucky Power, and in connection with the Company's
22 application to convert Big Sandy Unit 1 to a gas-fired unit. Most pertinent to this

1 proceeding, I filed testimony in Case No. 2011-00295,¹ Case No. 2017-328,² and
2 Case No. 2018-00072.³

3 **III. PURPOSE OF TESTIMONY**

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

5 A. I am testifying in support of Kentucky Power’s application for a certificate of public
6 convenience and necessity to build the “Enterprise Park Economic & Area
7 Improvements Transmission Project” (the “Project”). The Project is intended to
8 address identified thermal and voltage criteria violations on Kentucky Power’s
9 Pikeville Area 46 kV subtransmission network. The Project also will improve the
10 reliability and capacity of Kentucky Power’s 12 kV distribution system in the area
11 and is intended to improve the capacity of the existing area 34.5 kV distribution
12 system. Next, the Project will support the additional load associated with the
13 development of the Kentucky Enterprise Industrial Park in Pike County, Kentucky,
14 including the planned Enerbli, Inc. Energy Innovation manufacturing campus.
15 Finally, the Project addresses the aging infrastructure and deteriorating components
16 of the Fords Branch 46 kV Substation and upgrades certain components at the Cedar
17 Creek 138/69/46 kV Substation.

¹ *In the Matter of: The Application Of Kentucky Power Company For A Certificate Of Public Convenience And Necessity To Construct A 138 kV Transmission Line In and Associated Facilities in Breathitt, Knott and Perry Counties, Kentucky (Bonnyman-Soft Shell Line).*

² *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 In Perry And Leslie Counties, Kentucky And Associated Facilities (Hazard-Wooton Line).*

³ *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 In Boyd County, Kentucky (EastPark 138 kV Transmission Line (Phase 1)), Case No. 2018-00072 (Ky. P.S.C. Filed June 27, 2018).*

1 **Q. WHAT TOPICS DO YOU ADDRESS IN YOUR TESTIMONY?**

2 A. In my testimony I:

- 3 • Provide an overview of the Project;
- 4 • Detail the Company's compliance with the notice requirements for this
- 5 proceeding; and
- 6 • Address the financial aspects of the Project.

7 **IV. THE PROJECT OVERVIEW**

8 **A. The Project.**

9 **Q. PLEASE DESCRIBE THE PROJECT.**

10 A. Kentucky Power is seeking authority to build an approximately five mile 138 kV

11 double-circuit transmission line in Floyd and Pike counties, Kentucky (the "Kewanee

12 138 kV Transmission Line Extension"). The proposed line is entirely a new project

13 and will not involve rebuilding an existing transmission line. Kentucky Power also is

14 seeking authority to construct portions of the Kewanee 138 kV Substation. The

15 Kewanee 138 kV Substation will serve as a terminus of the Kewanee 138 kV

16 Transmission Line Extension. Finally, Kentucky Power also proposes to retire the

17 existing Fords Branch 46 kV Substation and to upgrade certain equipment at the

18 Cedar Creek 138/69/46 kV Substation. Company Witness Lasslo provides additional

19 detail concerning both the nature of and the need for the transmission line and

20 substation work.

1 1. The Transmission Line and Structures.

2 **Q. WHAT IS THE STATUS OF THE ENGINEERING AND DESIGN WORK**
3 **FOR KEWANEE 138 kV TRANSMISSION LINE EXTENSION?**

4 A. Engineering and design work is ongoing and a final design and siting determination
5 will be made once the engineering and design work is complete. The results of this
6 preliminary work with respect to the structures, conductor, and groundwires are
7 described in more detail in Company Witness Lasslo's testimony.

8 **Q. PLEASE DESCRIBE THE PATH OF THE PROPOSED 138 kV**
9 **TRANSMISSION LINE**

10 A. The proposed Kewanee 138 kV Transmission Line Extension will connect to the
11 Beaver Creek – Cedar Creek Circuit of the Company's existing Sprigg – Beaver
12 Creek 138 kV Transmission Line between Route 3379 and Route 1426 in eastern
13 Floyd County, Kentucky. It will then proceed parallel to the existing Big Sandy –
14 Broadford 765 kV Transmission Line for approximately 1.3 miles. The transmission
15 line then turns in a more easterly direction for approximately 3.7 miles where it
16 terminates at the proposed Kewanee 138 kV Substation. The transmission line
17 principally crosses remote and rugged terrain that previously was surface mined and
18 reclaimed. More detailed information regarding the area the line will cross and its
19 path is provided in both the testimony of Ms. Larson and the Siting Report
20 **(EXHIBIT 17)**.

1 **Q. WHY IS KENTUCKY POWER PROVIDING INFORMATION TO THE**
2 **COMMISSION CONCERNING THE PORTION OF THE SUBSTATION TO**
3 **BE CONSTRUCTED AND OWNED BY KENTUCKY TRANSCO?**

4 A. The Commission previously found that Chapter 278 of the Kentucky Revised Statutes
5 did not provide the Commission with jurisdiction over Kentucky Transco.⁴ Kentucky
6 Power is supplying this information to the Commission to provide the Commission
7 with a full understanding of the entirety of the work that will be performed at the
8 Kewanee 138 kV Substation. No authority is being sought from the Commission for
9 the portions of the project to be constructed and owned by Kentucky Transco.

10 3. The Retirement of the Fords Branch 46 kV Substation.

11 **Q. WHERE IS THE FORDS BRANCH 46 kV SUBSTATION LOCATED?**

12 A. The existing Fords Branch 46 kV Substation, which will be retired, is located near 46
13 Old Shelbiana Road in Pike County, Kentucky, approximately two miles east of the
14 proposed Kewanee 138 kV Substation.

15 **Q. WHAT WORK IS REQUIRED TO RETIRE THE FORDS BRANCH 46 kV**
16 **SUBSTATION?**

17 A. Kentucky Power proposes to retire the Fords Branch 46 kV Substation in place. The
18 only remaining equipment following retirement of the Fords Branch 138 kV
19 Substation will be the 46 kV structure that will allow the existing Elwood – Cedar

⁴ Order, *In The Matter of: Application Of AEP Kentucky Transmission Company, Inc. For A Certificate Of Public Convenience And Necessity Pursuant TO KRS 278.020 To Provide Wholesale Transmission Service In The Commonwealth*, Case No. 2011-00042 at 8 (Ky. P.S.C. June 10, 2013) (“[T]he Commission finds that the service that KY Transco proposes to provide in Kentucky cannot be classified as ‘utility service,’ as that term is used in the CPCN statute, KRS 278.020(1), since KY Transco’s service would not be a Commission regulated activity. Consequently, KY Transco does not legally qualify for the issuance of a CPCN to provide only wholesale transmission service which would not be a Commission regulated activity and which would be provided under rates and tariffs that are not filed here as required by KRS 278.160(1) for regulated activities.”)

1 Creek 46 kV subtransmission line to pass through the former Fords Branch
2 Substation. Again, Company Witness Lasslo provides additional information
3 regarding the retirement of the Fords Branch 46 kV Substation and the need to do so.

4 4. Cedar Creek 138/69/46 kV Substation Upgrade.

5 **Q. WHERE IS THE CEDAR CREEK 138/69/46 kV SUBSTATION LOCATED?**

6 A. The substation is located in Pike County, Kentucky at 263 Cedar Creek Road.

7 **Q. WHAT WORK WILL BE PERFORMED AT THE CEDAR CREEK 138/69/46**
8 **kV SUBSTATION?**

9 A. Kentucky Power is proposing to replace an existing relay panel pointing toward the
10 Beaver Creek 138 kV Substation with an upgraded version. As such, it is similar to
11 the work the Company is proposing to perform at the Chadwick 138 kV Substation in
12 connection with its pending application in Case No. 2018-00072.⁵ Company Witness
13 Lasslo provides additional information regarding the need for the proposed upgrade
14 work at the Cedar Creek 138 kV Substation.

15 5. Construction Schedule.

16 **Q. WHEN DOES KENTUCKY POWER PROPOSE TO BUILD THE**
17 **TRANSMISSION LINE AND THE SUBSTATION IF THE CERTIFICATE IS**
18 **GRANTED?**

19 A. The Company anticipates beginning construction during the first quarter of 2019 and
20 completing all work (including restoration) by November 2019.

⁵ *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 In Boyd County, Kentucky (EastPark 138 kV Transmission Line (Phase 1), Case No. 2018-00072 (Ky. P.S.C. Filed June 27, 2018).*

1 B. Purpose of the Project.

2 **Q. WHAT IS THE PURPOSE OF THE PROJECT?**

3 A. The Project addresses multiple needs. First, the Project is intended to address the
4 existing thermal and voltage violations on Kentucky Power's Pikeville Area 46 kV
5 subtransmission network. Company Witness Lasslo addresses the need to remedy
6 those violations in his testimony. Second, through the retirement of the existing
7 Fords Branch 46 kV Substation and the construction of the proposed Kewanee 138
8 kV Substation, the Project allows Kentucky Power to address the aging infrastructure
9 associated with the Fords Branch 138 kV Substation. Third, the Project will augment
10 the capacity and reliability of Kentucky Power's existing 12 kV distribution system
11 in the area while also supplementing the capacity of the existing 34.5 kV distribution
12 system. Again, Company Witness Lasslo addresses these second and third needs in
13 his testimony. Finally, the Project will support the increased load associated with
14 service to the Kentucky Enterprise Industrial Park, including Enerbli, Inc.'s planned
15 154-acre Energy Innovation manufacturing campus. I address this final requirement
16 immediately below.

17 **Q. WHAT IS THE KENTUCKY ENTERPRISE INDUSTRIAL PARK AND**
18 **WHERE IS IT LOCATED?**

19 A. The Kentucky Enterprise Industrial Park is located in Pike County, Kentucky, south
20 of the area of the Pikeville city center. It is a more than 300-acre industrial park
21 located on a former surface mine site adjacent to the U.S. 23 industrial corridor.
22 Announced tenants include Silverliner. The park also is the future site of Enerbli,
23 Inc.'s 154-acre Energy Innovation manufacturing campus. The campus will occupy

1 nearly one-half of the industrial park. Detailed information regarding Kentucky
2 Enterprise Industrial Park is available at its website:
3 <https://www.whypikeville.com/kentucky-enterprise-industrial-park>.

4 **Q. CAN YOU PROVIDE ADDITIONAL BACKGROUND ON THE ENERBLÜ,**
5 **INC. ENERGY INNOVATION MANUFACTURING CAMPUS?**

6 A. Yes. Information made publicly available by Enerblü, Inc. indicates that Enerblü
7 plans to construct a manufacturing campus in the Kentucky Enterprise Industrial
8 Park. Publicly available information indicates the manufacturing campus initially
9 will have one million square feet under roof. The campus will include a “lithium
10 battery gigafactory for its eLTO™ batteries; production of the AESU™ System and
11 other “grid-tied” products; and the manufacturing of its eTransport commercial
12 vehicles.”⁶ Enerblü indicates the facility is expected to employ up to 875 persons.
13 Additional information regarding Enerblü and its proposed manufacturing campus is
14 available at <https://www.enerblu.energy/> . Enerblü informs Kentucky Power that its
15 maximum load is anticipated to total 40 MW when the campus is fully constructed
16 and in operation.

17 **Q. COULD KENTUCKY POWER SERVE ENERBLÜ’S 40 MW LOAD**
18 **WITHOUT THE PROJECT?**

19 A. No. Although I am not an engineer, it is my understanding that Kentucky Power’s
20 Pikeville Area 46 kV subtransmission network, as well as the distribution service

⁶ *EnerBlü Relocating And Investing Over \$400 Million In Kentucky, The Historic Energy Capital Of The U.S.*, PR NEWSWIRE (December 15, 2017, 10:50 EST) <https://www.prnewswire.com/news-releases/enerblu-relocating-and-investing-over-400-million-in-kentucky-the-historic-energy-capital-of-us-300572083.html> (last visited August 8, 2018).

1 currently available to Kentucky Enterprise Industrial Park, are inadequate to support
2 Enerblü's anticipated 40 MW load. Company Witness Lasslo provides additional
3 engineering details regarding the need for the Project

4 **Q. AT WHAT VOLTAGE LEVELS DOES ENERBLÜ ANTICIPATE TAKING**
5 **SERVICE?**

6 A. Enerblü informed Kentucky Power that it intends to take service at 12 kV.

7 **Q. WHAT IS THE STATUS OF THE PLANNED ENERBLÜ, INC. CAMPUS?**

8 A. Enerblü informed the Company that work has begun on the design and planning of
9 the campus and the first section of the assembly facility. Enerblü anticipates
10 beginning construction of the first section of the assembly facility by the end of 2018.

11 **Q. WILL THE PROJECT ENABLE KENTUCKY POWER TO PROVIDE**
12 **SERVICE TO OTHER CUSTOMERS LOCATING IN THE KENTUCKY**
13 **ENTERPRISE INDUSTRIAL PARK?**

14 A. Yes. The Project will enhance Kentucky Power's ability to support future
15 development of the remaining portions of the Kentucky Enterprise Industrial Park.

16 **Q. COULD THE SERVICE TO BE FURNISHED BY THE PROJECT BE**
17 **REASONABLY PROVIDED BY REBUILDING AN EXISTING**
18 **TRANSMISSION LINE OR EXTENDING SERVICE FROM AN EXISTING**
19 **SUBSTATION?**

20 A. No. Although generally the Company prefers to rebuild or upgrade an existing
21 transmission line when practicable, in this instance there are no existing transmission
22 lines in the vicinity of the proposed line that can be rebuilt or upgraded to meet the
23 needs addressed by the Project.

1 **Q. ARE ANY ADDITIONAL PROJECT PHASES REQUIRED TO SERVE THE**
2 **KENTUCKY ENTERPRISE INDUSTRIAL PARK?**

3 A. No. There are no current plans to provide additional transmission service to the
4 Kentucky Enterprise Industrial Park or the area.

5 C. Property Acquisition.

6 1. Right-of-Way Width.

7 **Q. WHAT IS THE WIDTH OF THE RIGHT-OF-WAY FOR THE PROPOSED**
8 **LINE?**

9 A. Generally, the right-of-way will measure 50 feet on each side of the centerline for a
10 total width of 100 feet.

11 **Q. WILL THE PROPOSED LINE'S RIGHT-OF-WAY EXCEED 100 FEET IN**
12 **SOME CIRCUMSTANCES?**

13 A. Yes. An expanded right-of-way may be required in certain circumstances. Company
14 Witness Lasslo provides additional information concerning the circumstances where
15 an expanded right-of-way might be required. The right-of-way could expand to 200
16 to 250 feet in width in those instances.

17 **Q. WHAT RIGHT-OF-WAY ACTIVITIES HAS KENTUCKY POWER**
18 **UNDERTAKEN TO DATE?**

19 A. Representatives of Kentucky Power have contacted all owners the Company has been
20 able to locate from public records, including the records of the Floyd County Property
21 Valuation Administrator and the Pike County Property Valuation Administrator, of
22 property located within the proposed right-of-way. Surveys are underway to identify
23 the boundaries of the required rights-of-way. In addition, Kentucky Power's right-of-

1 way representatives have completed title searches on the parcels to be crossed by the
2 proposed right-of-way. Kentucky Power anticipates completing right-of-way
3 acquisition in early 2019.

4 **Q. WHAT DID THE TITLE SEARCHES REVEAL?**

5 A: None of the parcels are subject to restrictive covenants or other restrictions that would
6 prevent the construction of the proposed line.

7 2. Requested Authority To Relocate The Indicated Centerline.

8 **Q. KENTUCKY POWER FILED MAPS ILLUSTRATING THE CENTERLINE**
9 **OF THE PROPOSED TRANSMISSION LINE AS EXHIBIT 3 TO ITS**
10 **APPLICATION. COULD THAT CENTERLINE CHANGE?**

11 A. Yes. Constructability issues, access requirements, and conditions that are not evident
12 until final engineering and landowner negotiations are complete may result in
13 Kentucky Power being required to place the identified centerline and adjacent right-
14 of-way outside the right-of-way indicated on **EXHIBIT 3**. The Company seeks
15 authority to place the centerline and adjacent right-of-way in the Filing Corridor if
16 required to address these conditions or issues. The Filing Corridor, which is
17 illustrated on **EXHIBIT 3**, consists of two strips of land that lie adjacent and parallel to
18 the right-of-way indicated on **EXHIBITS 3**. To be clear, the area comprising the
19 proposed centerline and right-of-way are excluded from the Filing Corridor.

1 **Q. WHAT IS THE WIDTH OF THE FILING CORRIDOR?**

2 A. It varies. The Filing Corridor for the 1.3 miles of the Kewanee 138 kV Transmission
3 Line Extension that parallels the existing Big Sandy – Broadford 765 kV
4 Transmission Line extends 450 feet to the northeast (500-foot Filing Corridor) of the
5 centerline indicated on **EXHIBIT 3** of the application. Kentucky Power is proposing
6 an expanded 1,000 foot Filing Corridor (from the outer edges of the indicated right-
7 of-way to 500 feet on each side of the proposed centerline) for the balance of the line.
8 Company Witness Lasslo explains the need for the 3.7 miles of expanded Filing
9 Corridor.

10 **Q. IS KENTUCKY POWER SEEKING UNLIMITED DISCRETION TO**
11 **RELOCATE THE TRANSMISSION LINE AND RIGHT-OF-WAY?**

12 A. No. Kentucky Power is seeking authority to move the centerline and associated
13 right-of-way only within the limits of the indicated Filing Corridor.

14 **Q. WERE OWNERS OF PROPERTY LOCATED IN THE FILING CORRIDOR**
15 **PROVIDED MAILED NOTICE OF THE COMPANY'S APPLICATION?**

16 A. Yes. Persons owning property within the Filing Corridor were mailed the same
17 notice provided to persons owning property within the indicated right-of-way.

18 **Q. DOES THE REQUESTED AUTHORITY TO RELOCATE THE**
19 **CENTERLINE AND RIGHT-OF-WAY WITHIN THE FILING CORRIDOR**
20 **DIFFER FROM THAT GRANTED BY THE COMMISSION IN OTHER**
21 **KENTUCKY POWER CASES?**

22 A. Yes. Kentucky Power always retained the ability to exercise its eminent domain
23 rights with respect to property lying within the indicated right-of-way. But, in earlier

1 applications Kentucky Power offered to forego its eminent domain rights if it were
2 required to move the centerline (or associated right-of-way) into the Filing Corridor,
3 and if it were unable to secure the required property rights through agreement.
4 Although Kentucky Power intends to negotiate in good faith with affected
5 landowners in the Filing Corridor to secure the required right-of-way, it cannot agree
6 at this time to forego its eminent domain rights if the Company were required to
7 move the centerline or right-of-way into the Filing Corridor and it could not secure
8 the required right-of-way by agreement.

9 **Q. WHAT IS DIFFERENT ABOUT THE PROJECT THAT REQUIRES**
10 **KENTUCKY POWER TO CHANGE ITS APPROACH TO PROPERTY**
11 **ACQUISITION IN THE FILING CORRIDOR?**

12 A. There are three differences that increase the probability that the centerline or right-of-
13 way may have to be relocated into the Filing Corridor, or that make the need for an
14 eminent domain action more likely. First, the timeframe for designing and
15 constructing the Project is compressed because of the need to meet Enerblü's
16 proposed schedule. As a result, the line design and siting are not as far advanced at
17 the time of this filing as they were at the time earlier applications were filed. This in
18 turn leads to a somewhat elevated probability that as the line design and siting is
19 developed some portion of the line may have to be relocated into the Filing Corridor.
20 Second, also increasing the probability that a portion of the line may be relocated into
21 the Filing Corridor is the rugged nature of the terrain the line crosses, particularly
22 once it diverges from its route parallel to the existing Big Sandy – Broadford 765 kV
23 Transmission Line. This rugged terrain increases the probability that some portion of

1 the line may have to be relocated because of the topography and geotechnical
2 characteristics of the area. The topography also makes it more likely that any
3 required relocation cannot be addressed by slight adjustments in the route. This
4 larger relocation in turn increases the probability the centerline and right-of-way will
5 be shifted into the Filing Corridor.

6 **Q. WHAT IS THE THIRD DIFFERENCE?**

7 A. Kentucky Power recently completed its review of the title to the property underlying
8 the indicated centerline and right-of-way. Although the title examination was limited
9 to the indicated centerline and right-of-way, some of these parcels also extend into
10 the Filing Corridor. The record addresses (including those addresses of record in the
11 office of the property valuation administrator) for three of the parcels (parcels 4, 7,
12 and 9 on EXHIBIT 11) are incomplete or inaccurate. Prior mailings by Kentucky
13 Power to the record addresses have been returned as undeliverable and the Company
14 has been unable to secure more accurate addresses. If Kentucky Power is unable to
15 locate the owners of the three parcels, and if it is required to move the centerline or
16 right-of-way into the Filing Corridor, it may be required to file an eminent domain
17 action to quiet title to the required right-of-way.

18 **Q. WILL THE COMMISSION BE INFORMED OF THE FINAL LOCATION OF**
19 **THE LINE AND THE ADJACENT RIGHTS-OF-WAY?**

20 A. Yes. Kentucky Power will file with the Commission a revised plan showing the final
21 location of the proposed line, structures, and the proposed Kewanee 138 kV
22 Substation after construction is completed.

V. NOTICES

1

2 **Q. DID KENTUCKY POWER COMPLY WITH THE REQUIREMENTS OF 807**
3 **KAR 5:120, SECTION 2(3) BY PROVIDING NOTICE TO ADJOINING**
4 **LANDOWNERS WHOSE PROPERTY MIGHT BE AFFECTED BY THE**
5 **PROJECT?**

6 A. Yes. Kentucky Power mailed notices to the owners of record of all parcels within the
7 proposed right-of-way and the Filing Corridor using the addresses for the subject
8 parcels shown in the offices of the property valuation administrators for Floyd
9 County and Pike County.⁷

10 **Q. WHEN WAS THE LANDOWNER NOTICE MAILED?**

11 A. The landowner notice was mailed on August 7, 2018. The list of landowners within
12 the proposed right-of-way and Filing Corridor to whom the notice was mailed is
13 attached as **EXHIBIT 11** to the application. The required verification of mailing is
14 attached as **EXHIBIT 12** to the application.

15 **Q. DID THE AUGUST 7, 2018 MAILED NOTICE CONTAIN THE**
16 **INFORMATION REQUIRED BY 807 KAR 5:120, SECTION 2(3)(A)-(E)?**

17 A. Yes. The form of the notice is attached to the application as **EXHIBIT 12**.

⁷ Certain of the addresses obtained from the records of the pertinent property valuation administrator were determined through earlier mailings or other landowner contact efforts to be incorrect or otherwise undeliverable. Where the Company was able to determine the correct mailing addresses through landowner communication or other research, Kentucky Power used the updated addresses to ensure the landowners received the required notice.

1 **Q. DID KENTUCKY POWER PREVIOUSLY ATTEMPT TO REACH THE**
2 **LANDOWNERS USING THE RECORDS OF THE TWO PROPERTY**
3 **VALUATION ADMINISTRATORS?**

4 A. Yes. Prior mailings to the owners of parcels 4, 7, and 9 using the addresses of record
5 in the office of the Floyd County Property Valuation Administrator were returned as
6 undeliverable. (The Floyd County Property Valuation Administrator's records
7 indicate that parcels 4 and 7 are owned by the same individual.) Subsequent efforts
8 to reach the two owners of the three parcels also proved unsuccessful. Kentucky
9 Power will continue to search for the owners of the three parcels.

10 **Q. DID KENTUCKY POWER MAIL NOTICES TO THE RECORD OWNERS**
11 **OF PARCELS 4, 7, AND 9?**

12 A. Yes. The required landowner notice was mailed to the addresses of record in the
13 office of the Floyd County Property Valuation Administrator for the three parcels to
14 comply with 807 KAR 5:120, Section 2(3). In addition, based on discussions with
15 Lydia M. Roberts, who is shown as the owner of Parcel 2 on the records of the Floyd
16 County Property Valuation Administrator, the Company learned that a portion of the
17 parcel is owned by Patricia Adkins. The subdivision of the parcel, and Ms. Adkins
18 ownership, are not reflected in the records of the Floyd County Property Valuation
19 Administrator. Kentucky Power nevertheless also mailed the landowner notice to
20 Ms. Adkins to ensure she was apprised of the filing.

1 **Q. DID KENTUCKY POWER PUBLISH THE REQUIRED NOTICE IN THE**
2 **FLOYD COUNTY AND PIKE COUNTY NEWSPAPERS OF RECORD?**

3 A. Yes. The required notices of the Company's intent to construct the Project and of this
4 proceeding were published on July 31, 2018 in the *Floyd County Times* and August 1,
5 2018 in the *Appalachian News Express*. The published notices contained all
6 information required by 807 KAR 5:120, Section 2(5). A copy of the published
7 notice and the affidavit of publication are attached as **EXHIBIT 13**.

8 **VI. FINANCIAL ASPECTS OF THE PROJECT**

9 **Q. WHAT IS THE PROJECTED COST OF THE PROJECT?**

10 A. The total functional estimate of the Company's share of the Project cost is \$33.6
11 million. That sum comprises: (a) approximately \$19.9 million for the construction of
12 the Kewanee 138 kV Transmission Line Extension, including right-of-way
13 acquisition; (b) approximately \$12.5 million for the construction of Kentucky
14 Power's portion of the new Kewanee 138 kV Substation; (c) \$0.7 million for the
15 retirement of the Fords Branch 46 kV Substation; and (d) \$0.5 million for upgrade
16 work at the Cedar Creek 138/69/46 kV Substation.

17 **Q. DOES THE \$33.6 MILLION COST ESTIMATE DESCRIBED ABOVE AND**
18 **SET OUT IN THE APPLICATION REPRESENT A FIXED AND FINAL**
19 **COST?**

20 A. No. The estimate represents the best engineering assessment of the costs as of the
21 date of this application. The exact cost will not be known until the Project is
22 complete.

1 **Q. IS ENERBLÜ, INC. CONTRIBUTING TO THE COST OF THE PROJECT?**

2 A. No. Such a contribution by Enerblü would contravene Kentucky Power's
3 Commission-approved contribution in aid of construction tariff (Tariff Sheets 2-7 and
4 2-8). The estimated revenue to be produced by Enerblü exceeds the annual cost to
5 serve Enerblü as defined in the tariff.

6 **Q. HOW WILL THE PROJECT COST BE FUNDED?**

7 A. Kentucky Power anticipates funding the cost of the transmission line extension and
8 the substation through its normal operating cash flow and other internally generated
9 funds. The Company will include, as appropriate, the costs associated with the
10 Project in its next general rate case.

11 **Q. WILL THE COST OF THE PROJECT MATERIALLY AFFECT THE
12 FINANCIAL CONDITION OF KENTUCKY POWER COMPANY?**

13 A. No. Kentucky Power's assets, net of regulatory assets and deferred charges, as of
14 June 30, 2018 totaled \$2,056 million. The cost of the Project thus represents an
15 increase of approximately 1.61 percent in those assets. Kentucky Power will not need
16 to secure any additional financing to complete the Project nor will it affect the
17 completion of any other current capital project.

18 **Q. WHAT IS THE PROJECTED COST OF OPERATION FOR THE PROPOSED
19 FACILITIES AFTER THEY ARE COMPLETED?**

20 A. Kentucky Power projects the annual operating cost will be approximately \$16,000 for
21 general maintenance and inspection. The projected annual ad valorem taxes resulting
22 from the Project are expected to total approximately \$229,000.

1 **VII. REVIEW OF THE PROJECT AND STAKEHOLDER INPUT**

2 **Q. IS THE PROJECT DENOMINATED BASELINE OR SUPPLEMENTAL BY**
3 **PJM INTERCONNECTION LLC (“PJM”)?**

4 A. This is a Baseline project. In addition, there are Project components and elements
5 that either do not change the transmission grid’s topology, or that are implicit in the
6 description of larger projects, and that as a result are not required to be submitted to
7 PJM for explicit review. Whether submitted as a Baseline project, or not submitted to
8 PJM for explicit review, all of the components of the Project are essential to
9 Company’s ability to provide efficient, reasonable, and adequate service to the
10 Kentucky Enterprise Industrial Park. Company Witness Lasslo provides further
11 information regarding the Company’s PJM submission.

12 **Q. IS KENTUCKY POWER RELYING ON THE PJM REVIEW OF THE**
13 **PROJECT TO DEMONSTRATE THE NEED FOR THE PROJECT?**

14 A. No. The necessity for the Project is demonstrated by the application, including this
15 testimony and Company Witness Lasslo’s testimony regarding both the need for the
16 Project and its components. Kentucky Power is required by statute⁸ to provide
17 efficient, reasonable, and adequate service to all of its customers, including the
18 planned Enerblü, Inc. Energy Innovation manufacturing campus and other future
19 customers that might require 12 kV and 34.5 kV service in the Kentucky Enterprise
20 Industrial Park. Absent the construction of the Project, Kentucky Power cannot meet
21 this statutory requirement. By the same token, Enerblü, Inc. cannot proceed with its
22 approximately \$350 million dollar investment absent the Project. It also is worth

⁸ KRS 278.030(2).

1 noting that under KRS 278.016, KRS 278.018(1), and KRS 278.018(4) Kentucky
2 Power is granted the exclusive right to provide retail electrical service to the site,
3 which lies within Kentucky Power's certified territory, and all other retail electric
4 suppliers are prohibited from providing such service.

5 **Q. HAVE RELEVANT STAKEHOLDERS BEEN AFFORDED AN**
6 **OPPORTUNITY TO PROVIDE INPUT REGARDING THE PROPOSED**
7 **TRANSMISSION LINE ROUTE?**

8 A. Most certainly. Representatives of Kentucky Power and POWER Engineers, Inc., the
9 Company's siting expert, met with multiple Pike County and City of Pikeville
10 officials, including the Pike County Deputy Judge-Executive, the Pike County
11 Director of Economic Development, and the Pikeville City Manager. Conversations
12 were also held with the Floyd County Judge-Executive. The Company also met with
13 right-of-way landowners (other than the two owners of the three parcels who cannot
14 be located) to apprise them of the details of the Project. Further, the Company
15 worked with stakeholders to address their reasonable concerns regarding the Project.
16 Finally, Kentucky Power and POWER employed multiple media to apprise all
17 stakeholders of the Project. The full details of the Company's efforts to engage all
18 stakeholders are provided in Ms. Larson's testimony.

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

20 A. Yes.

**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 In And Associated Facilities) Case No. 2018-00209
In Pike And Floyd Counties (Enterprise Park)
Economic and Area Improvements Project)

DIRECT TESTIMONY OF

**EMILY S. LARSON
POWER ENGINEERS, INC.**

ON BEHALF OF KENTUCKY POWER COMPANY

August 2018

**DIRECT TESTIMONY OF
EMILY S. LARSON, POWER ENGINEERS, INC.
ON BEHALF OF KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

CASE NO. 2018 -00209

<u>SECTION</u>	<u>TESTIMONY INDEX</u>	<u>PAGE</u>
I.	INTRODUCTION	1
II.	BACKGROUND	1
III.	PURPOSE OF TESTIMONY	3
IV.	THE SITING STUDY	3
	A. Overview	3
	B. The Kewanee 138 kV Substation Site.	5
	C. Transmission Line Siting Methodology.....	7
V.	RESULTS AND CONCLUSIONS OF THE STUDY	18
VI.	PERMITTING AND ENVIRONMENTAL STUDIES.....	22

DIRECT TESTIMONY OF

**EMILY S. LARSON
POWER ENGINEERS, INC.**

ON BEHALF OF KENTUCKY POWER COMPANY

I. INTRODUCTION

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

A. My name is Emily S. Larson. I am employed by POWER Engineers, Inc. (“POWER”),
2920 West Broad Street, Richmond, Virginia 23230, as Project Manager in the
Environmental Division.

II. BACKGROUND

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

A. I hold a Bachelor of Science degree in Environmental Science from Towson University
and have completed graduate coursework at George Washington University. I have been
associated with POWER since 2015 and have had various technical, supervisory, and
managerial roles in many of POWER’S electric utility transmission siting projects since
2015. I have eleven years of experience in siting and environmental permitting of
electric transmission lines. I routinely oversee the work of POWER technical staff
members who are responsible for the environmental permitting and siting aspects of
POWER’s transmission line projects with a focus in Kentucky, Virginia and West
Virginia.

1 **Q. PLEASE DETAIL FOR THE COMMISSION POWER'S EXPERIENCE IN**
2 **ANALYZING ALTERNATIVE ROUTING FOR ELECTRIC TRANSMISSION**
3 **LINES.**

4 A. POWER has been providing routing, siting, and permitting services for companies that
5 construct electric transmission lines throughout the country for over 40 years. POWER
6 has successfully sited and permitted over 400 transmission line projects covering
7 thousands of miles of high voltage transmission lines and associated facilities. POWER's
8 senior environmental specialists and transmission line engineers coordinate closely to
9 evaluate alternative routes, prudently weighing all aspects of the project based on need,
10 project specific criteria, agency and public concerns, resource studies, and project
11 technical specifications.

12 **Q. HAVE YOU PREVIOUSLY BEEN INVOLVED IN ELECTRIC TRANSMISSION**
13 **LINE SITING STUDIES?**

14 A. Yes. I have served as Project Manager or otherwise supervised routing, siting, planning
15 and permitting for large interstate transmission line projects in more than ten states over
16 my career, including Kentucky, Virginia, West Virginia, New Jersey, Pennsylvania,
17 Kansas, Missouri, Illinois, Indiana, Florida, and Idaho.

18 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY TO THIS COMMISSION**
19 **ON BEHALF OF KENTUCKY POWER?**

20 A. Yes. I filed testimony on behalf of Kentucky Power in connection with its application for
21 a certificate of public convenience and necessity for the Hazard – Wooton 161 kV
22 transmission line (Case No. 2017-00328).

23

III. PURPOSE OF TESTIMONY

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

A. I am testifying in support of Kentucky Power Company's ("Kentucky Power" or the "Company") Application for a Certificate of Public Convenience and Necessity to construct the proposed Enterprise Park Economic and Area Improvements Project in Floyd and Pike counties (the "Application"). In my testimony I:

- Describe the methodology employed by POWER in conducting the siting study that was used in identifying and evaluating the alternative transmission line routes and substation sites.
- Describe the results and conclusions of the siting study, as well as the basis for the recommendation of the Proposed Route.
- Sponsor the siting study.

IV. THE SITING STUDY

A. Overview

Q. PLEASE DESCRIBE POWER'S ROLE RELATED TO THE PROPOSED PROJECT.

A. POWER was retained by the Company to develop and evaluate alternative transmission line routes for the proposed five mile 138 kV double-circuit transmission line (the "Kewanee 138 kV Transmission Line Extension") beginning at a tap point on the Company's existing Sprigg – Beaver Creek 138 kV Transmission Line and extending to a proposed substation (the "Kewanee 138 kV Substation")¹ to be located immediately adjacent to and south of the Kentucky Enterprise Industrial Park in Pike County. The transmission line and substation, together with the retirement of the Fords Branch 46 kV

¹ Kentucky Power's existing Fords Branch 46 kV Substation will be retired in conjunction with the construction of the new Kewanee 138 kV Substation. See Company Witness Lasslo's Direct Testimony for additional information concerning the retirement of the Fords Branch 46 kV Substation.

1 Substation and upgrade work at the Cedar Creek 138 kV Substation, constitute the
2 “Enterprise Park Economic and Area Improvements Project” (or the “Project”). POWER
3 prepared a report to document environmental suitability and feasibility of the Project and
4 the alternative routes reviewed and evaluated. The Enterprise Park Economic and Area
5 Improvements Project Siting Study (the “Siting Study”) is filed as Exhibit 17 to the
6 Application. I served as the Project Manager on behalf of POWER in connection with
7 the siting work on the Project.

8 **Q. DID POWER WORK ALONE TO DEVELOP THE ALTERNATIVE ROUTES?**

9 **A.** No. A multi-disciplinary team assisted with the development of the alternative routes and
10 in the selection of the Proposed Route (the “Siting Team”). The Siting Team members
11 provided a wide range of experience including transmission line siting, impact
12 assessment for a wide variety of natural resources and the human environment, impact
13 mitigation, outreach, engineering, right-of-way, and construction management. Members
14 of the Siting Team were from several companies including Kentucky Power, POWER,
15 Engineering Analysis Services Incorporated (Outreach Support), and O. R. Colan
16 Associates (right-of-way support).

17 **Q. PLEASE DESCRIBE FOR THE COMMISSION THE PURPOSE OF THE**
18 **SITING STUDY.**

19 **A.** The purpose of the Siting Study is to identify a route for the Kewanee 138 kV
20 Transmission Line Extension that will enable the Company to acquire the required
21 right-of-way, engineer, build, operate, and maintain the line, while minimizing overall
22 environmental and land use impacts. The new transmission line will be located between
23 the existing Sprigg – Beaver Creek 138 kV Transmission Line and the proposed

1 Kewanee 138 kV Substation. The Siting Study also includes a Substation Selection
2 Study, which identified the proposed substation location.

3 B. The Kewanee 138 kV Substation Site.

4 **Q. WHAT FACTORS WERE CONSIDERED IN EVALUATING LOCATIONS FOR**
5 **THE PROPOSED KEWANEE 138 kV SUBSTATION SITE?**

6 A. The proposed Kewanee 138 kV Substation should be located within, adjacent to, or near
7 the Kentucky Enterprise Industrial Park to best serve the industrial park occupant
8 customers' proposed electrical loads and to minimize the length of the distribution lines.
9 As described in Company Witness Lasslo's Direct Testimony, four 34.5 kV distribution
10 circuits and six 12 kV distribution circuits exit the proposed substation. The specific
11 location of the substation was dependent on engineering and constructability
12 considerations, future development plans, as well as efforts to avoid or minimize
13 environmental and land use impacts. The location of the substation also affects the
14 transmission line routes and associated impacts on residences and environment. POWER
15 worked extensively with Kentucky Power and the City of Pikeville (the industrial park
16 owner and developer) to complete a Substation Site Selection Study to determine the best
17 location for the proposed substation (Attachment A to the Siting Study).

18 **Q. HOW MANY SUBSTATION SITES WERE EXAMINED?**

19 A. Five possible substation sites were considered and reviewed with the City of Pikeville to
20 ensure compatibility with the future industrial park plans. The proposed substation site
21 also needed to be located to enable the substation to provide service to both existing
22 customers served by the Fords Branch Substation (to be retired) and future electric
23 customers in the area. Three substation sites initially considered were eliminated due to

1 possible conflicts with the development of the industrial park or because the locations
2 were not advantageous for the 138 kV transmission line due to land use, terrain, or future
3 mining permits. Ultimately, the substation location was narrowed to the two alternative
4 sites that best avoided existing and future development.

5 **Q. WHERE ARE THE TWO ALTERNATIVES LOCATED?**

6 A. The northern alternative is located on the northeast side of the Enterprise Park south of
7 Left Fork Island Creek Road and between Long Branch Road and Road Fork. The
8 southern alternative is located at the very southern portion of the general Enterprise Park
9 area, but outside of the area owned by the City of Pikeville. See **Map 4** of the Siting
10 Study filed as **EXHIBIT 17** to the Application.

11 **Q. HOW WAS THE PROPOSED SUBSTATION SITE SELECTED?**

12 A. The two remaining sites were carried forward and shown to the public at an open house
13 (no opposition to either site was expressed). In summary, the transmission line route
14 entrance into the southern substation site is farther from development and residences
15 along Road Fork and Left Fork Island Creek Road. The southern substation site allows
16 for the most efficient transmission line design and avoids or minimizes impacts on people
17 and environment better than the study segments connecting to the northern substation
18 site. Ultimately, the southern substation site was chosen as the proposed substation site
19 because it has the least impact on natural resources and human uses of the land; it avoids
20 the need for nonstandard design requirements and has the least constructability risks; it
21 avoids unreasonable costs; and the landowner is willing to sell the property.²

22

² The Company has a signed option to purchase the 16.4 acre site as described in Company Witness Wohnhas' Direct Testimony.

1 C. Transmission Line Siting Methodology.

2 **Q. ARE YOU FAMILIAR WITH THE ELECTRIC POWER RESEARCH**
3 **INSTITUTE/GEORGIA TRANSMISSION CORPORATION'S ("EPRI")**
4 **"OVERHEAD ELECTRIC TRANSMISSION LINE SITING METHODOLOGY"?**

5 A. Yes.

6 **Q. ARE YOU FAMILIAR WITH THE RELATED "KENTUCKY TRANSMISSION**
7 **LINE SITING METHODOLOGY" ("KENTUCKY EPRI METHODOLOGY")?**

8 A. Yes.

9 **Q. PLEASE DESCRIBE THE KENTUCKY EPRI METHODOLOGY.**

10 A. The Kentucky EPRI methodology develops and ranks alternative routes by assigning
11 differing weights to different landscape resources or variables.³ A study area comprising
12 multiple differing land uses/land covers can yield sufficient differentiation in the values
13 assigned to the alternatives to inform decision making; the larger the study area, the
14 greater the possibility to consider a larger number of alternative routes based on
15 differences in the land use or land cover across a large area.

16 **Q. WAS THE KENTUCKY EPRI METHODOLOGY USED HERE?**

17 A. No. Use of the Kentucky EPRI methodology was not feasible or probative due to the
18 homogenous landscape, including land use and land cover, in the area between the tap
19 point in the Sprigg – Beaver Creek 138 kV Transmission Line in Floyd County and the
20 eastern terminus of the line near the Kentucky Enterprise Industrial Park in Pike County.

³ The Kentucky EPRI Methodology considers a number of variables related to the project area landscape. These include parameters for land use, land cover, proposed development, presence and density of buildings, public lands, water and wetland resources, floodplains, cultural resources, wildlife habitat, infrastructure, and slope.

1 **Q. HOW DOES THE HOMOGENOUS LANDSCAPE AFFECT THE RESULTS**
2 **PRODUCED BY THE KENTUCKY EPRI METHODOLOGY?**

3 A. The study area is dominated by undeveloped land on former surface mining sites,
4 forested areas on slopes, and scattered residential development located along roadways
5 located in valley bottoms (Left Fork and Right Fork of Island Creek Road, Road Fork,
6 and Toler Creek Road). These predominant land uses and limited resource variability
7 would not yield sufficient differentiation among land uses or the resulting transmission
8 corridors under the Kentucky EPRI methodology to make its use probative. This lack of
9 differentiation was magnified here by the short length of the line, as the land use or land
10 cover does not change significantly over the usable portions of the study area. Further
11 constraining the usefulness of the Kentucky EPRI methodology was the linear residential
12 development in the valleys, running perpendicular across the study area, which limited
13 the locations where a transmission line right-of-way could be constructed. The spatial
14 distribution of homes within these valleys provided limited opportunities for a
15 transmission line to cross while avoiding impacts to residential structures.

16 **Q. WHAT METHODOLOGIES WERE USED?**

17 A. The Siting Team used a multi-step methodology to identify and evaluate potential routes.
18 It is the same multi-step methodology previously employed successfully by Kentucky
19 Power and its experts on the following projects: Hays Branch-Morgan Fork (Case No.
20 2007-00155), Bonnyman-Soft Shell (Case No. 2011-00295), Hazard-Wooton (Case No.
21 2017-00328), and EastPark (Case No. 2018-00072). These steps included efforts at
22 various points in the process to identify constraints and opportunities, to identify and
23 address stakeholder and landowner concerns, and to coordinate with local officials.

1 These traditional methodologies are industry accepted, robust, tested and defensible, and
2 the resulting alternative routes are buildable and efficient while avoiding or minimizing
3 impacts on environmental resources and residents of the surrounding areas. This
4 methodology has been used successfully on multiple other state-approved AEP projects
5 in Virginia, West Virginia and Ohio.

6 **Q. IS INFORMATION CONCERNING THE METHODOLOGY USED IN**
7 **LOCATING THE PROPOSED ROUTE OF THE KEWANEE 138 kV**
8 **TRANSMISSION LINE EXTENSION INCLUDED IN THE SITING STUDY?**

9 A. Yes. The methodology employed is described in detail in Section 2.0 of the Siting Study.
10 Section 3.0 of the Siting Study discusses the constraints within the study area that were
11 considered and discusses the development of the alternative routes. A detailed
12 comparison of the alternative routes based on the resource description of the study area is
13 provided in Section 4.0 of the Siting Study.

14 **Q. PLEASE OUTLINE THE GENERAL STEPS OF THE SITING METHODOLOGY**
15 **IMPLEMENTED.**

16 A. In general, the siting methodology consisted of six steps:

- 17 1. Identification of the study area and opportunities and constraints within;
- 18 2. Development of siting guidelines (general and technical);
- 19 3. Development of routing concepts;
- 20 4. Identification, evaluation, and refinement of the study segments, including the
21 consideration of stakeholder and public input;
- 22 5. Creation of alternative routes by assembling the study segments that best meet
23 the siting guidelines into individual routes for analysis; and
- 24 6. Completion of a quantitative and qualitative analysis and comparison of the
25 alternative routes to determine the preferred alternative route (the "Proposed
26 Route").

1 **Q. PLEASE DESCRIBE IN MORE DETAIL THE FIRST STEP OF THE SITING**
2 **METHODOLOGY UTILIZED BY THE SITING TEAM.**

3 A. The first step was to identify a study area for locating a new 100-foot wide transmission
4 line corridor. The study area generally consisted of the area between the Project end
5 points: the Sprigg – Beaver Creek 138 kV Transmission Line in Floyd County and the
6 Kentucky Enterprise Industrial Park in Pike County, near where the proposed Kewanee
7 138 kV Substation will be constructed. The existing Big Sandy – Broadford 765 kV
8 Transmission Line bounds the study area to the south and west, and the City of Pikeville
9 bounds the study area to the north and east. The Siting Team ultimately identified a
10 25.3-square mile area in Floyd and Pike counties as the study area. The boundaries of the
11 study area encompass the termini of the proposed transmission line and sufficient
12 surrounding area to accommodate reasonable routes between these end points. **Map 1** of
13 the Siting Study shows the study area. Following identification of the study area,
14 POWER initiated the collection of high-level data concerning environmental, land use,
15 and topographic constraints within this area.

16 **Q. BRIEFLY DESCRIBE YOUR DATA COLLECTION PROCESS AND**
17 **CONSTRAINTS MAPPING.**

18 A. A list of publically available data collected is included as Attachment E to the Siting
19 Study. In general, publically available data was collected regarding land use, natural
20 resources, and cultural resources. In addition to the collection of publically available
21 data, site visits and discussions with landowners and local stakeholders were conducted
22 to better understand the Project area. An open house was held to give the general public
23 the opportunity to offer comments and gather additional information. The Siting Team

1 also completed field reviews of the study area from publically accessible areas and
2 collected data regarding land use. Furthermore, LiDAR (airborne laser photography) was
3 performed May 9 – 11, 2018. LiDAR information provides current aerial photography
4 and contours data suitable for detailed transmission line design; this information is more
5 detailed than other data sources and provides information on areas otherwise not
6 publically accessible since it is collected via aircraft.

7 **Q. PLEASE DESCRIBE GENERALLY THE TOPOGRAPHY AND LAND USE**
8 **CURRENTLY FOUND IN THE STUDY AREA.**

9 A. The study area is characterized by forested mountainous ridgelines dissected by valleys
10 with roadways and scattered residential development. Extensive surface mining has
11 occurred in the past throughout the study area and a number of ridges have been
12 previously mined and are now terraced hillsides. Additionally, there are permitted, future
13 mining areas within the study area. The predominant land uses in the study area are
14 forested slopes and hillsides, reclaimed mine areas, and scattered residential development
15 located along roadways in the valley bottoms. The Kentucky Enterprise Industrial Park is
16 located at a high elevation and on a large flat benched area at which a surface mining
17 operation previously occurred. The former surface mining site subsequently was
18 converted into an industrial park.

19 **Q. WHAT WAS THE SECOND STEP IN THE SITING METHODOLOGY**
20 **EMPLOYED BY THE SITING TEAM?**

21 A. The Siting Team next developed the siting guidelines to be used in locating the
22 transmission line corridor to achieve three primary goals or objectives. The goals are that
23 the proposed route should (1) reasonably avoid or minimize adverse impacts on

1 residential areas and the natural and cultural environment; (2) minimize special design
2 requirements and unreasonable costs; and (3) permit the line to be constructed and
3 operated in a timely, safe, and reliable manner. The Siting Guidelines are listed in
4 Section 2.4.1 of the Siting Study.

5 **Q. WHAT WAS THE THIRD STEP IN THE SITING METHODOLOGY**
6 **EMPLOYED BY THE SITING TEAM?**

7 A. The Siting Team next identified routing concepts for consideration for the location of the
8 transmission line corridors. Routing concepts are high level ideas from which study
9 segments can be based. Three routing concepts were considered: northern routing
10 concepts, which minimized total length of transmission line; central routing concepts,
11 which took advantage of higher terrain and optimized the tap location; and southern
12 routing concepts, which considered a parallel alignment to the Big Sandy – Broadford
13 765 kV Transmission Line and are farthest from residential development (see **Map 2,**
14 **Routing Concepts,** of the Siting Study). Routing Concepts were refined into study
15 segments, which are partial alignments developed based on the routing concepts that can
16 be combined into alternative routes.

17 **Q. WHAT WAS THE FORTH STEP IN THE SITING METHODOLOGY**
18 **EMPLOYED BY THE SITING TEAM?**

19 A. From the routing concepts, study segments were created using the siting criteria, desktop
20 review, field visits, and stakeholder input (see **Maps 3 and 4,** Study Segments, of the
21 Siting Study). The Siting Team focused on creating study segments that would minimize
22 impact to the residential development in the valley bottoms and provide the most direct
23 route, while also considering constructability on steep terrain and paralleling

1 opportunities. Study segments developed from the northern routing concepts were
2 ultimately rejected due to denser residential development along roadways, terrain, future
3 mining areas, and the fact that additional angles and circuitous routes would be required.
4 Study segments originating from the central and southern routing concepts were further
5 developed.

6 **Q. WHY WERE STUDY SEGMENTS USED IN THE FOURTH STEP OF THE**
7 **SITING METHODOLOGY?**

8 A. Study segments are partial alignments based on the routing concepts that are created to
9 avoid known constraints, take advantage of opportunities, and most feasibly connect
10 Project end points. Study Segments can be combined in a variety of ways to create full
11 alternative routes. By using multiple shorter segments constraints can be more easily
12 avoided by providing multiple options to connect end points.

13 **Q. WAS THE ENTIRE STUDY AREA AVAILABLE IN CREATING THE**
14 **SEGMENTS?**

15 A. No. The study area was constrained in places by current and planned development or
16 mining activities, as well as residential development along Left Fork and Right Fork of
17 Island Creek Road, Road Fork, and Toler Creek Road. Once viable road crossings and
18 tap locations were identified, study segments were refined and developed into a network
19 that could be combined to form the alternative routes between the Sprigg – Beaver Creek
20 138 kV Transmission Line and the Kentucky Enterprise Industrial Park area. Stakeholder
21 input was critical and used to modify and refine study segments.

1 **Q. WHO WERE THE STAKEHOLDERS CONSULTED DURING THE SITING**
2 **PROCESS?**

3 A. Stakeholders included local public officials, the affected landowners, and the general
4 public. In the early stages of study segment development, members of the Siting Team
5 met with representatives of the City of Pikeville and Pike County on March 8, 2018.
6 Representatives attending the meeting included the Pike County Deputy Judge Executive,
7 the Pike County Executive Director of Economic Development, the Deputy City Manager
8 of Operations, the City Manager of Pikeville, and a member of the County Economic
9 Development Administration. These local stakeholders were supportive of the Project
10 and did not foresee any major issues or conflicts with the Project. Kentucky Power also
11 met with Central Appalachia Mining, LLC. (“CAM”), a mining company, that owns
12 permitted mining areas in the study area on March 19, 2018. Lastly, on April 4, 2018,
13 members of the Siting Team met with Utility Management Group, LLC. (“UMG”),
14 which owns a water tank and maintains water lines throughout the industrial park. UMG
15 informed the Siting Team of the existing and proposed waterline locations in the
16 Kentucky Enterprise Industrial Park and the upcoming development plans within the
17 industrial park. Lastly, Kentucky Power spoke with Judge Executive Hale from Floyd
18 County to discuss the Project; an in person meeting was not requested nor required by the
19 county, as Judge Hale did not have any comments on the Project.

20 **Q. WERE LANDOWNERS CONTACTED THROUGHOUT THE SITING**
21 **PROCESS?**

22 A. Yes. Kentucky Power right-of-way representatives contacted or met with numerous
23 landowners directly to address concerns, including future or existing land use conflicts.

1 The Company sent letters and postcards to potentially affected landowners, and used a
2 DAVOX automated call system to contact affected landowners. Kentucky Power also
3 produced multiple news releases, published advertisements in the local Pike County and
4 Floyd County newspapers, established a website, hosted a public open house, and directly
5 contacted landowners.

6 **Q. PLEASE DESCRIBE THE PUBLIC OUTREACH PROCESS IN MORE DETAIL.**

7 A. Kentucky Power published a news release on March 20, 2018 to announce the Project
8 and inform landowners that study segments were under development. Kentucky Power
9 right-of-way agents met with or spoke to many landowners within the study area who
10 might be affected by a study segment to start soliciting feedback early in the siting
11 process. Once a study segment network was created, the Company published another
12 news release on April 19, 2018 and held a public open house to solicit additional input.
13 After the open house Kentucky Power continued to speak with landowners along the
14 study segments about the Project to aid in the selection of the proposed route. Once the
15 proposed route was selected, Kentucky Power published a third News Release on June
16 25, 2018 and sent letters notifying previously contacted landowners of the proposed
17 route. Lastly, Kentucky Power right-of-way agents continued speaking with landowners
18 impacted by the proposed route to further solicit input. The Siting Team made certain
19 adjustments to the study segments and routes as necessary in response to input from the
20 public throughout the siting process.

21 **Q. PLEASE DESCRIBE THE PUBLIC OPEN HOUSE.**

22 A. Kentucky Power conducted a public open house in Pikeville, Kentucky on May 3, 2018.
23 Affected landowners and general public were invited to meet with Kentucky Power

1 representatives to provide their input and to learn more about the Project. The open
2 house was preceded by the extensive public notification campaign described above. A
3 total of 41 people attended the open house. At the open house, representatives of
4 Kentucky Power provided information on the Project, were available to answer questions,
5 and collected concerns from the public. Additionally, representatives of Kentucky Power
6 aided attendees in locating their property or other features of concern on aerial maps
7 showing the array of existing infrastructure, study segments, and the two potential
8 substation locations under consideration.

9 **Q. ARE THERE OTHER MEANS BY WHICH PUBLIC OFFICIALS AND PUBLIC**
10 **MAY LEARN ABOUT THE PROJECT AND PROVIDE INPUT?**

11 A. Information regarding the Project also was made available to the public through a
12 website: <https://aeptransmission.com/kentucky/EnterprisePark/>. The website also
13 provides a link for the public to submit comments:
14 <https://aeptransmission.com/kentucky/EnterprisePark/contact-us.php>. In addition, the
15 website also provides a direct phone number and a named individual to whom comments
16 may be submitted. To date, the Company has only received one comment through the
17 website page.

18 **Q. WERE ROUTES MODIFIED AS A RESULT OF STAKEHOLDER AND**
19 **LANDOWNER INPUT?**

20 A. Yes, minor route adjustments requested by landowners were reviewed by the Siting
21 Team. The majority of suggestions were addressed. For example, a study segment was
22 moved slightly to avoid a previously unknown family cemetery. In several other areas,
23 there were route adjustments to reduce visual impacts and proximity to residences.

1 Additionally, Kentucky Power met with CAM, which owns permitted mining areas in the
2 study area. CAM indicated that several of the preliminary study segments crossed
3 permitted or future mining areas. The segments were modified or eliminated in response
4 to this information to avoid the future land use and to avoid a future relocation of the
5 transmission line.

6 **Q. WERE ANY ADDITIONAL MODIFICATIONS OR ELIMINATIONS TO STUDY**
7 **SEGMENTS MADE FOLLOWING THE OPEN HOUSE?**

8 A. Yes. Following the open house, the three remaining tap locations were reviewed again in
9 the field by the Siting Team to further evaluate constructability. At the middle tap,
10 previously mined areas and clear evidence of slips and slides were identified. These in
11 turn could result in future complications for structure placement and result in high
12 maintenance and replacement costs in addition to environmental degradation. The
13 residential development in the low valley areas near Keathley Branch Road and Toler
14 Creek Road resulted in a unique engineering design and would have required additional
15 structures at the tap. Due to the unstable hillside, land use constraints, and the need for
16 unique engineering design, the middle tap and associated study segments were eliminated
17 (see **Map 5**, Refined Study Segments, of the Siting Study).

18 **Q. DID THE SELECTION OF THE SITE FOR THE PROPOSED 138 kV**
19 **SUBSTATION ALSO RESULT IN THE ELIMINATION OF SOME STUDY**
20 **SEGMENTS?**

21 A. Yes. The southernmost substation site was chosen from the two alternative sites
22 displayed at the public open house. Subsequently, the study segments connecting to the
23 northernmost site were eliminated (see **Map 5** of the Siting Study).

1 **Q. WHAT WAS THE FIFTH STEP IN THE SITING METHODOLOGY?**

2 A. The remaining study segments were combined to form two alternative routes that connect
3 the existing Sprigg – Beaver Creek 138 kV Transmission Line and the proposed
4 Kewanee 138 kV Substation (see **Map 6**, Alternative Routes, of the Siting Study). More
5 information on these two alternative routes is provided in Sections 3.0 and 4.0 of the
6 Siting Study and in Section V of my testimony.

7 **Q. WHAT WAS THE FINAL STEP IN THE PROCESS?**

8 A. The two alternative routes were evaluated and a proposed route was selected. The
9 proposed route is further described in Section 5.0 of the Siting Study and in Section V of
10 my testimony.

11 **V. RESULTS AND CONCLUSIONS OF THE STUDY**

12 **Q. YOU PREVIOUSLY INDICATED THAT TWO ALTERNATIVE ROUTES**
13 **WERE DEVELOPED. WILL YOU PLEASE DESCRIBE EACH OF THOSE**
14 **ROUTES?**

15 A. Yes. The two alternative routes are presented on **Map 6** of the Siting Study and **EXHIBIT**
16 **4** to the Application. They can be generally described as follows:

- 17 • **Alternative Route A** is the northernmost route and is approximately 4.8 miles in
18 length. Alternative Route A is located on a combination of forested and
19 previously mined areas. Alternative Route A crosses more landowner parcels and
20 is in closer proximity to residences due to its location in the middle and northern
21 portions of the study area and closer to the City of Pikeville than Alternative
22 Route B. In order to avoid residential development, Alternative Route A has
23 more structures and more heavy angles (angles greater than 30 degrees), which
24 generally add to the total cost for construction. Alternative A was not chosen due
25 its closer proximity to more residences and the City of Pikeville, the fact it would
26 have required more structures and heavy angles, produce greater visual impacts,

1 and because it was not as efficient as, and was more costly than, Alternative
2 Route B.

- 3 • **Alternative Route B** is the southernmost route and parallels the Big Sandy –
4 Broadford 765 kV Transmission Line. It is approximately 5.0 miles and slightly
5 longer (approximately 0.2 mile) than Alternative Route A. Alternative Route B is
6 located farther away from residential areas and permitted mining areas.
7 Alternative Route B is located in the southern portion of the study area and
8 crosses rugged and remote terrain, most of which was previously mined and
9 reclaimed. Alternative Route B parallels the 765 kV transmission line for
10 approximately 1.3 miles and therefore limits the impacts on the viewshed and also
11 provides more existing access roads for use during construction. Alternative
12 Route B also provides a more direct route into the proposed substation, while
13 avoiding residential development along Right and Left Fork Island Creek Road
14 and Road Fork. Finally, it also minimizes the number of structures and heavy
15 angles required for construction.

16 **Q. WAS ALTERNATIVE B SELECTED AS THE PROPOSED ROUTE?**

17 A. Yes. An overview of the Proposed Route is provided in **Map 7** of the Siting Study,
18 detailed in Section 5.0 of the Siting Study, and shown on **Exhibit 3** of the Application.

19 **Q. WHAT WAS THE BASIS FOR THE SELECTION OF ALTERNATIVE ROUTE B**
20 **FOR FURTHER DEVELOPMENT?**

21 A. The Siting Team recommended, and Kentucky Power agreed, that Alternative Route B
22 should be further developed. Alternative Route B has following advantages over
23 Alternative Route A:

- 24 • Alternative Route B is a more direct route and provides a paralleling opportunity
25 to the Company's existing Big Sandy – Broadford 765 kV Transmission Line,
26 thereby reducing habitat fragmentation and minimizing additional viewshed
27 impacts. Paralleling existing linear infrastructure is a common and accepted
28 transmission line-siting criterion.

- 1 • Alternative Route B crosses fewer parcels, has a fewer number of residences
2 within 500 feet of the centerline, and is generally farther from residential
3 development and the public viewshed. Additionally, any known landowner
4 objections to Alternative Route B were addressed and no objections are known at
5 this time.

- 6 • Alternative Route B requires fewer road and parcel crossings, fewer structures,
7 fewer angles, and can make the greatest use of existing access roads for
8 construction and maintenance; these reasons, make Alternative B the most
9 efficient and least cost route.

10
11 Despite being slightly longer (0.2 mile), Alternative Route B is the most direct, efficient
12 route that minimizes impacts on residences, viewsheds and environmental resources.

13 Section 5.0 provides additional detail concerning the basis for the Company's
14 recommendation of Alternative Route B as the Proposed Route. In addition, Tables 1, 3,
15 and 4 of the Siting Study provide a comparative evaluation of the constraints and
16 opportunities attending Alternative Routes A and B.

17 **Q. YOU MENTIONED EARLIER THAT AFFECTED LANDOWNERS WERE**
18 **CONTACTED THROUGHOUT THE PROCESS. DID ANY LANDOWNERS**
19 **CONTACTED EXPRESS OPPOSITION TO THE ROUTE INITIALLY**
20 **CONSIDERED?**

21 A. Kentucky Power contacted, with the exception of the owners of the three parcels
22 discussed in the testimony of Company Witness Wohnhas, all persons or entities owning
23 property crossed by the right-of-way associated with the route initially developed through
24 the siting study to obtain permission to survey their property. The permission to survey
25 form includes a space in which the property owner may register opposition to the Project.
26 One of the landowners contacted requested the route be moved southwest to avoid the
27 owner's parcel and this was accommodated. As a result, the 100-foot right-of-way for
28 the transmission line will not cross the objecting landowner's property; however, the

1 Filing Corridor includes a portion of this landowner's property (see **EXHIBIT 3**, parcel
2 reference No. 24).

3 **Q. DID ANY OTHER LANDOWNERS WHO WERE CONTACTED OBJECT TO**
4 **THE ROUTE OF THE PROPOSED TRANSMISSION LINE?**

5 A. No. To date, other than the single landowner noted above, no property owners located
6 within the 100-foot right of way and who the Company has been able to contact, oppose
7 the Project.

8 **Q. WERE ANY OTHER ALIGNMENT SHIFTS REQUIRED FOR ALTERNATIVE**
9 **ROUTE B?**

10 A. Yes. After the selection of Alternative Route B, Kentucky Power began preliminary
11 engineering. Typical and minor engineering modifications were made to the Alternative
12 Route B as a result of these efforts. These additional adjustments were made to take
13 better advantage of topography, avoid side slopes, and to address engineering and
14 construction requirements. **Map 7** "Proposed Route with Modification" of the Siting
15 Study shows both route of Alternative Route B as well as the Proposed Route following
16 the modifications described above. It also illustrates the resulting preliminary
17 transmission line structure locations.

18 **Q. BASED ON THE EFFORTS UNDERTAKEN BY THE SITING TEAM AND**
19 **DESCRIBED ABOVE, DO YOU HAVE AN OPINION ON THE COMPANY'S**
20 **PROPOSED ROUTE FOR THE KEWANEE 138 kV TRANSMISSION LINE**
21 **EXTENSION?**

22 A. Yes. I believe the Proposed Route is the best route. It is most consistent with the siting
23 guidelines and meets the goals of minimizing impacts on land use and the natural and

1 cultural resources along the route, while avoiding circuitous routes, extreme costs, and
2 non-standard design requirements. The Proposed Route also spans residential
3 development along roadways in such a way to minimize visual impacts to the residences.
4 Long spans will be necessary to span the residential areas and take advantage of terrain
5 over Left Fork Island Creek Road, Long Branch and Bill Compton Branch. By spanning
6 the topography from peak to peak, impacts on the viewshed from residences located in
7 valleys will be minimized and residents will see fewer structures. By contrast, a route
8 that followed lower topography would likely require additional structures and impact the
9 viewshed. See preliminary structure locations shown on **EXHIBIT 3** of the Application.

10 **VI. PERMITTING AND ENVIRONMENTAL STUDIES**

11 **Q. WHAT ENVIRONMENTAL PERMITTING OR STUDIES ARE ANTICIPATED** 12 **FOR THIS PROJECT?**

13 A. Kentucky Power anticipates that the following environmental studies, permits or
14 approvals may be required for the construction of the Project:

15 A wetland delineation and stream identification survey will be conducted for the
16 Project. It is anticipated that any impact to these resources will be covered under
17 the United States Army Corps of Engineers (USACE) Nationwide Permit 12, non-
18 reporting, for the installation of culverts on access roads. Construction activities
19 that take place in, along, or over a wetland or a stream (if the watershed is one
20 square mile or more in size) will require a Kentucky Division of Water (KDOW)
21 Stream Construction Permit.

22 Because the total earth disturbance will be greater than one acre, a construction
23 stormwater permit will be required from KDOW. A Kentucky Pollutant
24 Discharge Elimination System (KPDES) Stormwater Pollution Prevention Plan
25 (SWPPP) will be developed for the Project.

26 Kentucky Power will coordinate with the U.S. Fish and Wildlife Service
27 (USFWS) regarding the potential for impacts to sensitive species. Based on
28 review of the USFWS Information for Planning and Consultation system, three
29 species of bats potentially occur in the study area. Mist net and portal searches
30 will be conducted for these species, as appropriate, and the results coordinated
31 with the USFWS.

1 A Phase I cultural resources survey will be conducted and coordinated with the
2 Kentucky Heritage Council and the Kentucky Office of State Archaeology.

3 In addition to the environmental permits, engineering related permits will be filed with
4 the appropriate agencies or companies once the transmission line design is completed. It
5 is anticipated that these may include aerial road crossing permits from the Kentucky
6 Transportation Cabinet (KYTC), Federal Highway Administration, or county engineering
7 offices; and construction entrance permits for state or county roads. The Company will
8 also coordinate with the Federal Aviation Administration and KYTC as necessary
9 regarding aviation related approvals.

10 **Q. HAVE ANY OF THE ENVIRONMENTAL PERMITS OR STUDIES BEEN**
11 **COMPLETED FOR THE PROJECT?**

12 A. The Company plans to complete the required environmental studies in August and
13 September of 2018 and will obtain the appropriate environmental permits and approvals
14 before the anticipated construction date in the first quarter of 2019. To date, a
15 preliminary design is complete; preliminary access roads have been identified; and the
16 majority of permissions to survey have been obtained for the Proposed Route and
17 associated access roads. The anticipated permit requirements are typical for a
18 transmission line and the Company does not anticipate any extraordinary issues or delays.

19 **Q. DO YOU EXPECT ANY ENVIRONMENTAL PERMITTING ISSUES OR**
20 **DELAYS DUE TO THE CONSTRUCTION OF THE SUBSTATION OR**
21 **LAYDOWN YARD?**

22 A. None are anticipated. During the site identification process, the Company's
23 environmental specialists inspected the site and did not identify any permitting
24 risks. Furthermore, a USACE representative reviewed the proposed Kewanee 138 kV

1 Substation Site and surrounding area for the presence of waters of the United States and
2 concluded that there are no federal jurisdictional wetlands on the proposed substation site
3 and that it is unlikely that there are any federal jurisdictional wetlands on the Industrial
4 Park as a whole (where the laydown yard will be located). As a result, there is a low
5 likelihood that USACE wetland or stream permitting will be required for the construction
6 of the substation or a laydown yard. Additionally, the site is located on a former strip
7 mine and has been previously disturbed; therefore, no archaeological or historical
8 resource risks are expected.

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

10 A. Yes.

**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) Case No. 2018-00209
Transmission Line And Associated Facilities)
In Pike And Floyd Counties (Enterprise Park)
Economic and Area Improvements Project))

**DIRECT TESTIMONY OF
MICHAEL G. LASSLO
ON BEHALF OF KENTUCKY POWER COMPANY**

August 2018

**DIRECT TESTIMONY OF
MICHAEL G. LASSLO, ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

CASE NO. 2018-00209

TESTIMONY INDEX

<u>SECTION</u>	<u>PAGE</u>
I. INTRODUCTION	1
II. BACKGROUND	1
III. PURPOSE OF TESTIMONY	3
IV. THE PROJECT	4
A. The Transmission Line.	4
1. The Transmission Line and Its Route.	4
2. Structures and Conductors.	6
3. Right-Of-Way.	7
4. The Filing Corridor	9
B. The Kewanee 138 kV Substation.....	11
C. The Retirement of the Fords Branch 46 kV Substation.....	16
D. The Cedar Creek 138/69/46 kV Substation Upgrade.	17
E. The Project Schedule.	18
V. THE NEED FOR THE PROJECT.....	18
A. The Kewanee 138 kV Transmission Line Extension.....	18
B. The Kewanee 138 kV Substation.....	19
C. The Retirement of the Fords Branch 46 kV Substation.....	23
D. The Upgrade of the Cedar Creek 138/69/46 kV Substation.	24
E. Alternatives to the Project.....	24
F. PJM Review of the Project.	25

DIRECT TESTIMONY OF
MICHAEL G. LASSLO
ON BEHALF OF KENTUCKY POWER COMPANY

I. INTRODUCTION

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

A. My name is Michael G. Lasslo. My position is Reliability Manager for Kentucky Power Company. My business address is 1400 E. Main Street, Hazard, Kentucky.

II. BACKGROUND

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Bachelor of Science Degree in Electrical Engineering from the University of Kentucky. I am a native of Hazard, KY and have 40 years of experience with Kentucky Power Company. My work experience includes: engineering and design for new and upgraded electrical service to residential, commercial and industrial customers; preparation of detailed studies to evaluate the existing distribution infrastructure and to plan for future system improvements; transmission/sub-transmission construction, operation and maintenance; substation construction, operation and maintenance; power quality studies and customer complaint resolution; budgeting for capital, operation and maintenance expenditures; implementation and monitoring of safety programs and performance, accident/incident investigation; marketing of electro-technologies; customer service; and various supervisory and management positions.

1 **Q. WHAT ARE YOUR RESPONSIBILITIES AS RELIABILITY MANAGER FOR**
2 **KENTUCKY POWER COMPANY?**

3 A. My role is to lead the activities of the Kentucky Power Reliability Team to provide safe,
4 efficient, and reliable electric service to the Company's over 166,000 residential,
5 commercial, and industrial customers. I manage talented professionals who are
6 organized into the functions of distribution engineering; project management; risk
7 management; customer service; distribution right-of-way acquisition; technical design;
8 and power quality. Among my responsibilities are customer service; restoration of service
9 interruptions (including major storms); provision of new and upgraded service to
10 distribution customers from 120V single phase through 34.5 kV three phase; and the
11 provision of new and upgraded service to transmission customers from 46kV through
12 138kV. I also participate in planning activities with AEP distribution and transmission
13 assets planning groups to address overall system performance. My duties also include
14 evaluating and recommending large system improvements. I also have multiple
15 administrative, budgeting, personnel, and expenditure responsibilities. Finally, I work
16 with state and local community officials and civic leaders and support the Company's
17 economic development activities.

18 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

19 A. Yes. I filed written testimony in the following cases:

- 20 • Case No. 2011-00295¹ in support of the Company's application seeking a
21 certificate of public convenience and necessity to construct the approximately 20-
22 mile Bonnyman-Soft Shell 138 kV transmission line in Breathitt, Knott, and Perry
23 counties in eastern Kentucky. The Commission granted the Company's application

¹ *In the Matter of: Application Of Kentucky Power Company For A Certificate Of Public Convenience And Necessity To Construct A 138 kV Transmission Line And Associated Facilities In Breathitt, Knott, And Perry Counties, Kentucky (Bonnyman-Soft Shell Line).*

1 by Order dated January 26, 2012. The Bonnyman-Soft Shell Transmission line was
2 placed in service in late 2014.

- 3 • Case No. 2017-00328² in support of the Company's application seeking a
4 certificate of public convenience and necessity to rebuild approximately 6.6 miles
5 of the Hazard-Wooton 161 kV transmission line in Perry and Leslie counties in
6 eastern Kentucky.
- 7 • Case No. 2018-00072³ in support of Kentucky Power's application seeking a
8 certificate of public convenience and necessity to construct approximately 2.7 miles
9 of 138 kV transmission line and associated facilities in Boyd County, Kentucky.

10 **III. PURPOSE OF TESTIMONY**

11 **Q. BEFORE DISCUSSING THE PURPOSE OF YOUR TESTIMONY PLEASE**
12 **PROVIDE THE COMMISSION WITH AN OVERVIEW OF WHY KENTUCKY**
13 **POWER IS PROPOSING THE ENTERPRISE PARK ECONOMIC & AREA**
14 **IMPROVEMENTS PROJECT.**

15 A. The Enterprise Park Economic & Area Improvements Project (the "Project") addresses
16 four needs. The Project is required to remedy thermal and voltage criteria violations on
17 the Company's existing 46 kV Pikeville area subtransmission network. Second, it also
18 will provide added reliability and capacity for the 12 kV distribution network in the area,
19 and additional capacity for the area's 34.5 kV distribution system. Third, the Project
20 addresses the aging infrastructure needs of the Fords Branch 46 kV Substation and
21 upgrades equipment at the Cedar Creek 138/69/46 kV Substation. Finally, the Project
22 will enable Kentucky Power to serve the Kentucky Enterprise Industrial Park, including
23 the planned Enerblü, Inc. Energy Innovation manufacturing campus.

² *In the Matter of: Application Of Kentucky Power Company For A Certificate Of Public Convenience And Necessity To Construct A 161 kV Transmission Line And Associated Facilities In Perry and Leslie Counties, Kentucky (Hazard-Wooton Line).*

³ *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 In Boyd County, Kentucky (EastPark 138 kV Transmission Line (Phase 1)).*

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

2 A. I am testifying in support of Kentucky Power’s application for a Certificate of Public
3 Convenience and Necessity authorizing Kentucky Power to construct the Project. The
4 Project consists of four components: (1) the construction of approximately five miles of
5 new double circuit 138 kV transmission line in Floyd and Pike counties, Kentucky (the
6 “Kewanee 138 kV Transmission Line Extension”); (2) the construction of a new 138 kV
7 substation in the Kentucky Enterprise Industrial Park (the “Kewanee 138 kV
8 Substation”); (3) the retirement of the existing Fords Branch Substation; and (4) the
9 upgrade of equipment at Kentucky Power’s Cedar Creek 138/69/46 kV Substation. *See*
10 **EXHIBIT 10** (Present System and Project Components).

11 **IV. THE PROJECT**

12 A. The Transmission Line.

13 1. The Transmission Line and Its Route.

14 **Q. PLEASE DESCRIBE THE PROPOSED TRANSMISSION LINE PORTION OF**
15 **THE PROJECT.**

16 A. The Company is proposing to construct a 138 kV double circuit (three phase)
17 transmission line. The proposed line connects the proposed Kewanee 138 kV Substation,
18 to be located south of but adjacent to the Kentucky Enterprise Industrial Park, to the
19 Beaver Creek – Cedar Creek 138 kV circuit of the Sprigg – Beaver Creek 138 kV
20 Transmission Line. The Kewanee 138 kV Transmission Line Extension will be
21 approximately five miles in length.

22 **Q. WHAT IS THE PROPOSED ROUTE FOR THE LINE?**

23 A. The proposed line begins at a tap point located between Route 3379 and Route 1426 in
24 eastern Floyd County, Kentucky on the Beaver Creek – Cedar Creek 138 kV Circuit of

1 the Company's existing Sprigg – Beaver Creek 138 kV Transmission Line. The route
2 of the line proceeds in a southeasterly direction parallel to the existing Big Sandy –
3 Broadford 765 kV Transmission Line right-of-way for approximately 1.3 miles. It then
4 diverges from its parallel route and proceeds in a slightly more easterly direction for
5 approximately 3.7 miles to the Company's proposed Kewanee 138 kV Substation. Maps
6 of the proposed route are provided as **EXHIBIT 3** to the application

7 **Q. IS THE SPRIGG – BEAVER CREEK 138 kV TRANSMISSION LINE THE**
8 **NEAREST 138 kV TRANSMISSION INFRASTRUCTURE TO THE KENTUCKY**
9 **ENTERPRISE INDUSTRIAL PARK?**

10 A. Yes.

11 **Q. WHY IS KENTUCKY POWER PROPOSING A DOUBLE CIRCUIT**
12 **TRANSMISSION LINE?**

13 A. The double-circuit line will permit the Company to provide looped service to the area.
14 Looped service provides multiple benefits, particularly in light of the size and nature of
15 the electrical load to be served out of the Kewanee 138 kV Substation. The load to be
16 served includes the current and future tenants of the Kentucky Enterprise Industrial Park
17 as well as a portion of the load currently served by the existing Fords Branch 46 kV
18 Substation.

19 **Q. WHAT ARE THE BENEFITS OF THE DOUBLE-CIRCUIT CONFIGURATION?**

20 A. The Kewanee 138 kV Transmission Line Extension double-circuit configuration will
21 “loop” the Sprigg – Beaver Creek 138 kV Transmission Line through the Kewanee 138
22 kV Substation. This in turn will provide two sources to the Kewanee 138 kV Substation:
23 one from the Sprigg side of the Sprigg – Beaver Creek 138 kV Transmission Line and

1 one from the Beaver Creek side of the same transmission line. As a result, service to
2 customers served from the Kewanee 138 kV Substation can be maintained in the event of
3 the loss of one of the two transmission sources. It also permits more flexible and
4 efficient maintenance of the transmission lines. For example, either line can be de-
5 energized when needed without affecting service to customers served by the Kewanee
6 138 kV Substation.

7 2. Structures and Conductors.

8 **Q. WILL THE DOUBLE-CIRCUIT CONFIGURATION REQUIRE TWO SETS OF**
9 **TRANSMISSION STRUCTURES?**

10 A. No. Both three phase 138 kV transmission lines (with three conductors each) will be
11 supported by a single set of transmission structures.

12 **Q. PLEASE DESCRIBE THE PRINCIPAL TYPES OF STRUCTURES THAT WILL**
13 **BE USED FOR THE PROPOSED LINE.**

14 A. Structure types and numbers will be determined during final engineering, which includes
15 ground survey and geotechnical studies, and will depend on terrain crossed, spans,
16 turning angles, and other engineering considerations. Nevertheless, based on preliminary
17 engineering, the Company anticipates that the Kewanee 138 kV Transmission Line
18 Extension will consist of 15 structures. Fourteen of the structures currently are
19 anticipated to be double-circuit galvanized lattice steel towers. The remaining structure
20 required for the Kewanee 138 kV Transmission Line Extension is anticipated to be a
21 double-circuit monopole with davit arms. The monopole will be located at the Kewanee
22 138 kV Substation site. An additional structure (for a Project total of 16 structures) will

1 be constructed as part of the Sprigg – Beaver Creek 138 kV Transmission Line at the tap
2 point. This structure will be a double-circuit galvanized lattice steel tower.

3 **Q. WHAT ARE THE PROJECTED HEIGHTS OF THE SIXTEEN STRUCTURES**
4 **THAT WILL BE ERECTED AS PART OF THE PROJECT?**

5 A. The structure heights are expected to vary in height with an average height of 110 feet.

6 Sketches and images of the proposed steel lattice and steel monopole structures are
7 attached to the application as EXHIBIT 8 and EXHIBIT 9.

8 **Q. PLEASE DESCRIBE THE TYPES OF CONDUCTORS THAT WILL BE USED**
9 **FOR THE PROPOSED LINE.**

10 A. The proposed double circuit structures will support a total of six phase conductors (three
11 for each circuit transmission circuit) and two overhead groundwires. The conductors will
12 consist of 1033.5 kcmil ACSR conductors; the overhead groundwires will consist of one
13 Alumoweld wire and one fiber optic overhead groundwire. The optical fiber will be used
14 for transmitting data for protection and control between substations and remote
15 monitoring and operation of equipment via Supervisory Control And Data Acquisition
16 (SCADA).

17 3. Right-Of-Way.

18 **Q. WHAT IS THE RIGHT-OF-WAY WIDTH FOR THE PROPOSED LINE?**

19 A. The proposed line generally will be located in a 100-foot right-of-way. The Company is
20 seeking authority for a wider right-of-way where required by the safe and efficient
21 operation of the proposed transmission line.

1 **Q. PLEASE DESCRIBE WHY A WIDER RIGHT-OF-WAY MAY BE REQUIRED.**

2 A. Rough or steep terrain and other topographic considerations may require a wider right-of-
3 way to accommodate the safe movement of the 138 kV transmission conductors during
4 high wind conditions. Each span of the proposed 138 kV transmission line will be
5 evaluated under various design conditions such as temperature and wind speed. High
6 winds can cause considerable movement of the conductors and a wider right-of-way is
7 required to permit the removal of trees that otherwise might come into contact with the
8 swinging conductors. Also, because the proposed transmission line will cross through
9 areas of very steep terrain, additional right-of-way width may be required, as part of the
10 construction and maintenance of the line, to facilitate the removal of trees from the uphill
11 side of the transmission line to limit the risk of the trees falling onto the structures or the
12 conductors. Depending on the circumstances, in some instances the right-of-way may
13 need to be expanded to as much as 250 feet in width (125 feet on each side of the
14 centerline).

15 **Q. WILL THE TRANSMISSION LINE RIGHT-OF-WAY BE CLEAR CUT?**

16 A. To ensure the safe and reliable operation of the proposed transmission line Kentucky
17 Power anticipates the entire right-of-way width will be cleared of woody stem vegetation
18 on those portions of the right-of-way where the conductor-to-ground clearance is 100 feet
19 or less. When the conductor-to-ground clearance exceeds 100 feet, right-of-way trees will
20 be cut under two circumstances: (a) to obtain or maintain the required conductor
21 clearance (25 feet); or (b) where cutting is required to permit wire set-ups, work areas,
22 and similar work. Under certain circumstances, unique topographic and/or
23 environmentally sensitive conditions, Kentucky Power may allow compatible, low-

1 growing species to remain in the right-of-way. Kentucky Power anticipates initially
2 clearing approximately 70 percent to 80 percent of the right-of-way in the mountainous
3 portions of the proposed transmission line route.

4 4. The Filing Corridor

5 **Q. KENTUCKY POWER FILED MAPS ILLUSTRATING THE CENTERLINE OF**
6 **THE PROPOSED TRANSMISSION LINE AS EXHIBIT 3 TO ITS**
7 **APPLICATION. COULD THE INDICATED CENTERLINE CHANGE?**

8 A. Yes. Kentucky Power is seeking authority to move the centerline and the associated
9 right-of-way within the Filing Corridor illustrated on EXHIBIT 3 when required by
10 conditions discovered after this application is filed. Company Witness Wohnhas
11 describes the requested authority in his testimony.

12 **Q. WHAT CONDITIONS OR ADDITIONAL INFORMATION MIGHT LEAD**
13 **KENTUCKY POWER TO DEVIATE FROM THE FILED CENTERLINE AND**
14 **RIGHT-OF-WAY?**

15 A. Ground survey and title work in connection with the 100-foot right-of-way has begun.
16 But additional title and survey work, as well as work in connection with the design and
17 construction of the transmission line, can reveal topographical or subsurface conditions
18 that require or make it economically advantageous to move the centerline and right-of-
19 way. For example, steep terrain may preclude the construction of the required access
20 roads or make the placement of the structures problematic. Rock outcrops and cliff lines
21 may similarly impede the construction of the structures and access roads where originally
22 indicated. Even where the construction of the access roads or structures is technically
23 feasible, it may be less expensive to move the structure or access road to accommodate

1 topographical or subsurface conditions. In addition, Kentucky Power attempts to work
2 with landowners concerning the location of the line and access roads, and to
3 accommodate where practicable reasonable landowner requests.

4 **Q. WHY IS KENTUCKY POWER NOT PROPOSING A UNIFORM FILING**
5 **CORRIDOR FOR THE PROPOSED TRANSMISSION LINE?**

6 A. The differing Filing Corridor widths reflect the extent of the Company's knowledge of
7 the area to be crossed by the proposed transmission line and hence the risk the centerline
8 and right-of-way may have to be relocated. The route of the Kewanee 138 kV
9 Transmission Line Extension will parallel the existing Big Sandy – Bradford 765 kV
10 Transmission Line right-of-way for the first 1.3 miles after the proposed 138 kV line
11 leaves its tap point in the Company's existing Sprigg – Beaver Creek 138 kV
12 Transmission Line. Kentucky Power's experience in building, operating, and
13 maintaining the Sprigg – Beaver Creek 138 kV Transmission Line provides it with
14 additional information concerning, and greater certainty regarding, the topography and
15 subsurface conditions likely to be encountered along this portion of the route of the
16 proposed 138 kV transmission line. This greater information and certainty allows the
17 Company to limit the width of the Filing Corridor for the portion of the proposed line in
18 this area. In addition, Kentucky Power anticipates it may be able to use some of the 765
19 kV transmission line's access roads in the construction and maintenance of the first 1.3
20 miles of the proposed Kewanee 138 kV Transmission Line Extension.

1 **Q. WHY IS A WIDER FILING CORRIDOR REQUESTED FOR THE REMAINING**
2 **PORTION OF THE PROPOSED TRANSMISSION LINE?**

3 A. The Company lacks similar detailed information and experience with respect to the area
4 to be crossed by the easternmost 3.7 miles of the Kewanee 138 kV Transmission Line
5 Extension. This more limited information increases the risk the line may have to be
6 relocated. In addition, the area's very steep ridges and extremely rough terrain make it
7 more likely that any conditions or issues encountered requiring relocation cannot be
8 remedied through a minor deviation in the indicated centerline. Instead, the centerline
9 and right-of-way are more likely to have to be moved onto an adjoining ridgeline thus
10 requiring a larger deviation and a wider Filing Corridor. In sum, although Kentucky
11 Power limited the width of the Filing Corridor where it was possible to do so, the
12 Company requires the additional flexibility of the wider requested Filing Corridor for the
13 easternmost 3.7 mile section of the proposed 138 kV double circuit transmission line.

14 B. The Kewanee 138 kV Substation.

15 **Q. WHERE WILL THE PROPOSED KEWANEE 138 kV SUBSTATION BE**
16 **LOCATED.**

17 A. The substation will be located on a 16.4-acre tract located south of and adjacent to the
18 Kentucky Enterprise Industrial Park. The fenced and graveled portion of the proposed
19 substation site will measure approximately 335 feet by 280 feet, or approximately 2.15
20 acres. Kentucky Power will acquire the 16.4-acre tract from a private landowner.

1 **Q. IS THE FENCED AND GRAVELED PORTION OF THE SITE THE ONLY**
2 **PORTION OF THE TRACT THE COMPANY WILL DEVELOP?**

3 A. No. Approximately five acres of the 16.4-acre tract are flat and developable. Kentucky
4 Power will use the balance of this five-acre portion of the larger tract to construct storm
5 water management measures and access roads.

6 **Q. WHY IS KENTUCKY POWER ACQUIRING THE ENTIRE 16.4-ACRE TRACT**
7 **WHEN IT IS DEVELOPING ONLY FIVE ACRES?**

8 A. Although the Company will develop five acres of the larger parcel, Kentucky Power will
9 require portions of remaining parcel for the distribution circuits that will be served from
10 the Kewanee 138 kV Substation. Four 34.5 kV distribution circuits and six 12 kV
11 distribution circuits will cross portions of the remaining 11 acres. In addition, because
12 the five-acre portion of the parcel that will be developed constitutes the only developable
13 portion of the tract the owner was unwilling to subdivide the parcel and sell Kentucky
14 Power only the five-acre tract.

15 **Q. WILL THE ACQUISITION OF THE ENTIRE TRACT IMPOSE**
16 **UNREASONABLE COSTS ON THE COMPANY'S CUSTOMERS?**

17 A. No. The five-acre developable portion of the larger tract represents most, if not all, of the
18 value of the entire tract. Whatever value, if any, that might be assigned to the balance of
19 the tract did not materially alter the consideration the Company would have paid if the
20 owner had been willing to subdivide. As a result, the purchase of the entire tract is
21 reasonable, practical, and cost effective.

1 **Q. WHAT COMPONENTS DOES KENTUCKY POWER PROPOSE TO INSTALL**
 2 **AT THE PROPOSED KEWANEE 138 KV SUBSTATION?**

3 A. The Company is proposing to install the following equipment at the substation:

<u>Component</u>	<u>Function</u>
<p>Two 30 MVA 138/34.5 kV transformers. Associated with each transformer will be a standard 34.5 kV rural distribution structure with one 34.5 kV low side circuit breaker, two 34.5 kV distribution feeder circuit breakers, and a single 34.5 kV tie circuit breaker between the distribution structures</p>	<p>These two transformers will step down the 138 kV transmission voltage to the 34.5 kV distribution voltage level. The 34.5 kV bay is a structure that supports conductors, insulators, switches, and other equipment associated with the 34.5 kV circuit breakers. Each transformer will have one 34.5 kV low side circuit breaker that will provide protection for the low side of the transformer and the bay equipment. Each transformer will have two 34.5 kV circuit breakers that supply two 34.5 kV distribution circuits. These breakers can be opened either manually or automatically to de-energize the 34.5 kV distribution feeders as needed for proper operation and maintenance. The 34.5 kV tie circuit breakers permit the transfer of load between the 34.5 kV distribution structures when an outage is required on either 138/34.5 kV transformer.</p>
<p>Two 30MVA 138/12 kV transformers. Associated with each transformer will be a standard 12 kV rural distribution structure, one 12kV low side circuit breaker and three 12 kV distribution feeder circuit breakers, and one 12 kV single tie circuit breaker between the distribution structures</p>	<p>These two transformers will step down the 138 kV transmission voltage to the 12 kV distribution voltage level. The 12 kV bay is a structure that supports conductors, insulators and switches associated with the 12 kV circuit breakers. Each transformer will have one 12 kV low side circuit breaker that will provide protection for the low side of the transformer and the bay equipment. Each transformer will have three 12 kV circuit breakers that supply three 12 kV distribution circuits. These breakers can be opened either manually or automatically to de-energize the 12kV distribution feeders as needed for proper</p>

<u>Component</u>	<u>Function</u>
	operation and maintenance. The 12 kV tie circuit breakers permit the transfer of load between the 12 kV distribution structures when an outage is required on either 138/12 kV transformer.
One 16-foot by 36-foot base drop-in control module (DICM) with a 12-foot expansion module	The DICM is a pre-fabricated building that will house the various control panels that contain microprocessor based relays, control switches, voltage and current meters, telecommunication terminal units, stationary batteries and charging equipment for DC power. The DICM provides a climate controlled environment for the equipment and a small office area for storage and use of station drawings, equipment manuals, and written switching orders. The DICM also provides an added margin of safety for personnel as the various equipment located throughout the substation can be operated remotely from within the DICM. The final size for the expansion module will be 16-feet by 48-feet.

1 In addition, ancillary equipment such as, but not limited to, relays, current transformers,
2 potential transformers, and telecommunications equipment will be installed. This
3 ancillary equipment is required to provide low voltage AC and DC power; monitoring
4 and metering of various operational parameters such as power, voltage, current,
5 temperature, pressure, equipment status, and alarms; protection and control; area lighting,
6 security systems, manual and automatic on-site operations; and telecommunications for
7 remote operation via SCADA. The proposed layout drawing and location map for the
8 Kewanee 138 kV Substation is included as **Exhibit 5** to the application.

1 **Q. WHAT IS THE ANTICIPATED HEIGHT OF THE SUBSTATION**
2 **STRUCTURES?**

3 A. The bay heights are expected to be approximately 50 feet tall.

4 **Q. WILL COMPONENTS OTHER THAN THOSE DESCRIBED ABOVE BE**
5 **INSTALLED AT THE KEWANEE 138 kV SUBSTATION?**

6 A. Yes. AEP Kentucky Transmission Company, Inc. (“Kentucky Transco”) will construct
7 and own six 138 kV circuit breakers (3000A 40 kA) arranged in a ring bus configuration
8 in the substation. The six 138 kV circuit breakers will provide switching and fault
9 (overcurrent) protection for the six 138 kV bus positions of the ring layout. One 138 kV
10 position will be dedicated to the transmission line towards Beaver Creek, and one 138 kV
11 position will be dedicated to the transmission line towards Cedar Creek. In addition, two
12 positions will be dedicated to the 138/12 kV transformers and two positions will be
13 dedicated to the 138/34.5 kV transformers. Each 138 kV bus position will be bounded by
14 two of the six 138 kV circuit breakers. The two circuit breakers can be opened either
15 manually or automatically to de-energize the bus position and connected equipment as
16 needed for proper operation and maintenance.

17 **Q. IS KENTUCKY TRANSCO A PARTY TO THIS APPLICATION?**

18 A. No. The Commission previously found it lacked jurisdiction over Kentucky Transco.⁴
19 Company Witness Wohnhas provides additional information concerning the
20 Commission’s earlier determination.

⁴ Order, *In The Matter of: Application Of AEP Kentucky Transmission Company, Inc. For A Certificate Of Public Convenience And Necessity Pursuant TO K RS 278.020 To Provide Wholesale Transmission Service In The Commonwealth*, Case No. 2011-00042 at 8 (Ky. P.S.C. June 10, 2013).

1 **Q. WILL KENTUCKY TRANSCO CONSTRUCT OR OWN ANY OF THE OTHER**
2 **COMPONENTS OF THE PROJECT?**

3 A. No. Kentucky Power will own and be responsible for the Kewanee 138 kV Transmission
4 Line Extension, the retirement of the Fords Branch 46 kV Substation, the upgrade work
5 at the Cedar Creek 138/69/46 kV Substation, as well as the construction of those portions
6 of the Kewanee 138 kV Substation described above.

7 C. The Retirement of the Fords Branch 46 kV Substation.

8 **Q. PLEASE DESCRIBE THE INFRASTRUCTURE AND EQUIPMENT ISSUES AT**
9 **THE FORDS BRANCH 46 kV SUBSTATION.**

10 A. The 46/34.5 kV transformer (vintage 1992) at Fords Branch 46 kV Substation is showing
11 signs of dielectric breakdown (insulation), accessory damage (bushings/windings), and
12 short circuit breakdown (due to amount of through faults). The wood pole phase-over-
13 phase switch that currently serves the Fords Branch 46 kV Substation is inoperable and in
14 need of replacement. The 34.5 kV circuit breakers “A” & “B” at Fords Branch are ESV
15 type breakers manufactured in 1992. These oil-type breakers are being replaced across
16 the AEP footprint due to issues associated with maintenance and relay coordination. In
17 addition, breakers “A” & “B” experienced 262 and 333 fault operations, respectively,
18 exceeding the manufacturer’s recommendation of ten. **EXHIBIT 6** illustrates the layout of
19 the work to be performed and the location of the Fords Branch 46 kV Substation.

20 **Q. PLEASE DESCRIBE HOW THE FORDS BRANCH 46 kV SUBSTATION WILL**
21 **BE RETIRED?**

22 A. The substation will be retired in place. Current plans provide for the removal of the
23 existing 30MVA 46/34.5 kV transformer, the 46 kV 7.2MVAR capacitor bank, the 34.5
24 kV distribution bay structure, the two 34.5 kV distribution feeder circuit breakers, and

1 other associated equipment once the entire Fords Branch distribution load is transferred
2 to the Kewanee 138 kV Substation. The load transfer will be accomplished by
3 constructing new 34.5 kV distribution circuit ties from the new proposed Kewanee 138
4 kV Substation. The existing Fords Branch – Shelby 34.5 kV Circuit will be transferred to
5 the new Kewanee –Shelby 34.5 kV Circuit, and the existing Fords Branch –Robinson
6 Creek 34.5 kV Circuit will be transferred to the new Kewanee –Robinson Creek 34.5 kV
7 Circuit. The existing inoperable 46 kV high side motor operated switches “W” and “Y”
8 will be permanently bolted in the closed position and the motor operators for the switches
9 will be removed.

10 The only equipment that will remain following retirement of the substation will be the 46
11 kV structure that will allow the existing Elwood – Cedar Creek 46 kV subtransmission
12 line to pass through the former Fords Branch Substation site.

13 D. The Cedar Creek 138/69/46 kV Substation Upgrade.

14 **Q. WHAT WORK IS KENTUCKY POWER PROPOSING TO PERFORM AT THE**
15 **CEDAR CREEK 138/69/46 kV SUBSTATION?**

16 A. Kentucky Power is proposing to replace an existing relay panel at the Cedar Creek
17 138/69/46 kV Substation with an upgraded version of the relay panel. The upgrade is
18 similar to the work the Company is proposing to perform at the Chadwick 138 kV
19 Substation in connection with its pending application in Case No. 2018-00072.⁵ **EXHIBIT**
20 **7** illustrates the layout of the work to be performed and the location of the Cedar Creek
21 138/69/46 kV Substation.

⁵ *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 In Boyd County, Kentucky (EastPark 138 kV Transmission Line (Phase 1), Case No. 2018-00072 (Ky. P.S.C. Filed June 27, 2018).*

1 E. The Project Schedule.

2 **Q. PLEASE SUMMARIZE THE COMPANY'S SCHEDULE FOR SERVING THE**
 3 **KENTUCKY ENTERPRISE INDUSTRIAL PARK, INCLUDING ENERBLÜ,**
 4 **INC.**

5 A. The Company worked extensively with Enerblü, Inc. to develop a plan to meet Enerblü's
 6 ambitious construction schedule. The planned in-service date sequence is as follows:

- 7 • **January 2019:** Begin construction of access roads to the Kewanee 138 kV Transmission
 8 Line Extension locations and tree clearing for the transmission line.
- 9 • **March 2019:** Begin construction of the Kewanee 138 kV Substation, the Kewanee 138
 10 kV Transmission Line Extension, and associated 12 kV and 34 kV distribution circuits.
- 11 • **September 2019:** Place the Project in service including permanent service to Enerblü,
 12 Inc. Construction power for the Enerblü, Inc. facility can be provided by means of the
 13 existing distribution service in the park.
- 14 • **Retire the Fords Branch 46 kV Substation:** The existing Fords Branch 46 kV
 15 Substation will be retired after the distribution tie line from the new Kewanee – Robinson
 16 Creek 34.5 kV distribution circuit is completed and connected to the existing Fords
 17 Branch – Robinson Creek 34.5 kV distribution circuit. There will be a new access road
 18 constructed from the Kentucky Enterprise Industrial Park to the east to U.S. Route 23.
 19 The new Kewanee – Robinson Creek 34.5 kV distribution circuit will be constructed
 20 along the right-of-way of this new access road. The construction of Kewanee – Robinson
 21 Creek 34.5 kV distribution circuit cannot begin until the new access road is completed.

22 **V. THE NEED FOR THE PROJECT.**

23 A. The Kewanee 138 kV Transmission Line Extension.

24 **Q. WHAT PURPOSE WILL BE SERVED BY THE KEWANEE 138 kV**
 25 **TRANSMISSION LINE EXTENSION?**

26 A. The new transmission line will provide an additional transmission source to the area and
 27 also provide additional capacity. This additional capacity will enable Kentucky Power to
 28 meet the anticipated needs of the Kentucky Enterprise Industrial Park, including the
 29 proposed Enerblü 40 MW peak load, and to meet the growing demand in the Pikeville

1 area. The additional capacity provided by the proposed transmission line also will
2 strengthen the capacity of Kentucky Power's 34.5 kV and 12 kV distribution systems in
3 the area. Finally, the transmission line's double-circuit configuration also will provide
4 additional reliability to the area.

5 B. The Kewanee 138 kV Substation.

6 **Q. PLEASE DESCRIBE THE NEED FOR THE PROPOSED KEWANEE 138 kV**
7 **SUBSTATION?**

8 A. The Kewanee 138 kV Substation, in conjunction with the transmission line, will
9 strengthen the Company's existing 34.5 kV and 12 kV distribution systems near the
10 Kentucky Enterprise Industrial Park. Second, the substation, as part of the Project, will
11 assume load currently being served through the existing Fords Branch 46 kV Substation
12 and thereby help remedy the thermal and voltage violations identified on the existing
13 Pikeville Area 46 kV network. Third, the proposed substation allows Kentucky Power to
14 address the aging infrastructure needs of the existing Fords Branch 46 kV Substation.
15 Finally, the Kewanee Branch 138 kV Substation will serve as a distribution delivery point
16 to industrial and commercial customers at the Kentucky Enterprise Industrial Park,
17 including the planned Enerbliu, Inc. Energy Innovation manufacturing campus to be
18 located in the industrial park.

19 **Q. HOW WILL THE KEWANEE 138 kV SUBSTATION STRENGTHEN THE**
20 **PIKEVILLE AREA DISTRIBUTION SYSTEM?**

21 A. As presently configured, the proposed substation will include two 30MVA 138/12 kV
22 transformers that will serve six 12 kV distribution circuits (three circuits each). One of
23 the six 12 kV distribution circuits will be connected to the existing South Pikeville –
24 Island Creek 12 kV Circuit; a second distribution circuit will be connected to the existing

1 South Pikeville – Hospital 12 kV Circuit. These connections provide an additional
2 source to each of the two 12 kV circuits and thereby strengthen their reliability. In
3 addition, the connections provide additional capacity for the two circuits.

4 **Q. IS ADDITIONAL CAPACITY REQUIRED FOR THE SOUTH PIKEVILLE –**
5 **ISLAND CREEK 12 kV CIRCUIT AND THE SOUTH PIKEVILLE – HOSPITAL**
6 **12 kV CIRCUIT?**

7 A. Yes. The City of Pikeville area, which is served in part by these two circuits, has seen
8 load growth over the past several years due to expansions at the University of Pikeville,
9 at the Pikeville Medical Center, and by businesses in the downtown Pikeville area.

10 **Q. WILL THE SUBSTATION ALSO PROVIDE ADDITIONAL CAPACITY FOR**
11 **THE PIKEVILLE AREA 34.5 kV NETWORK?**

12 A. Yes. As presently configured, the two planned Kewanee 138 kV Substation 30MVA
13 138/34.5 kV transformers will serve four 34.5 kV distribution circuits (two circuits will
14 be served by each transformer). One of the four substation circuits will be connected to
15 the existing Fords Branch – Shelby 34.5 kV circuit; a second distribution circuit from the
16 substation will be connected to the existing Fords Branch – Robinson Creek 34.5 kV
17 circuit. These connections will provide additional capacity (through the 138 kV
18 transmission system) to the Pikeville Area 34.5 kV distribution system.

1 **Q. PLEASE EXPLAIN HOW THE PROPOSED SUBSTATION WILL REMEDY**
2 **THE THERMAL AND VOLTAGE VIOLATIONS THAT HAVE BEEN**
3 **IDENTIFIED ON THE PIKEVILLE AREA 46 kV SUBTRANSMISSION**
4 **NETWORK.**

5 A. The thermal and voltage violations arise because the load that currently is being served
6 by the 46 kV network exceeds the network's capacity under certain system conditions.
7 The project removes a portion of the load that is currently served through the Fords
8 Branch 46 kV Substation from the 46 kV network and transfers it to the Kewanee 138 kV
9 Substation where it will be served through the higher capacity 138 kV transmission
10 system.

11 **Q. COMPANY WITNESS WOHNHAS TESTIFIED THAT ENERBLÜ PLANS TO**
12 **ESTABLISH ITS ENERGY INNOVATION MANUFACTURING CAMPUS IN**
13 **THE KENTUCKY ENTERPRISE INDUSTRIAL PARK. CAN THE**
14 **COMPANY'S EXISTING SYSTEM SERVE THAT PROPOSED NEW LOAD?**

15 A. No. Enerblü anticipates a peak load of 40 MW. There is inadequate capacity on the
16 system currently serving the Kentucky Enterprise Industrial Park. The Project provides
17 Kentucky Power with the required additional capacity by tying the industrial park to the
18 Company's 138 kV system through the Sprigg – Beaver Creek 138 kV Transmission
19 Line and Kewanee 138 kV Substation.

1 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL SUPPORTING YOUR**
2 **TESTIMONY THAT KENTUCKY POWER'S EXISTING SYSTEM IS**
3 **INADEQUATE TO MEET ENERBLÜ'S PROJECTED PEAK DEMAND?**

4 A. Certainly. Kentucky Enterprise Industrial Park currently is served by the South Pikeville
5 – Island Creek 12 kV circuit that is supplied by the 25MVA 69/12 kV transformer at the
6 South Pikeville 69 kV Substation. (The South Pikeville 69 kV Substation is located
7 approximately 2.7 miles north of the industrial park). The available capacity on the
8 South Pikeville – Island Creek 12 kV circuit is approximately 4 MW, or only ten percent
9 of the capacity required to meet Enerblü's projected peak load. Further constraining the
10 Company's ability to serve Enerblü through the South Pikeville 69 kV Substation is that
11 the substation also supplies the existing South Pikeville – Hospital 12 kV Circuit that lies
12 to the north of the park as well as the South Pikeville – Pikeville 12 kV Circuit. Both of
13 these existing circuits, which serve the University of Pikeville, the Pikeville Medical
14 Center, and businesses in the City of Pikeville downtown, face increasing demands.

15 **Q. COULD THE SOUTH PIKEVILLE 69 kV SUBSTATION BE EXPANDED TO**
16 **PROVIDE THE REQUIRED ADDITIONAL CAPACITY?**

17 A. No. There is insufficient space at the substation to permit the installation of the two
18 30MVA transformers and the four dedicated 12 kV circuits required to serve Enerblü. In
19 addition, the existing 69 kV transmission network currently serving the South Pikeville
20 69 kV Substation lacks the available capacity to serve the projected Enerblü load.

1 **Q. HOW WILL KENTUCKY POWER SERVE ENERBLÜ AND THE OTHER**
2 **TENANTS IN THE KENTUCKY ENTERPRISE INDUSTRIAL PARK FROM**
3 **THE KEWANEE 138 KV SUBSTATION?**

4 A. Enerblü is requesting to take service at 12 kV. To meet its requirements four 12 kV
5 distribution circuits leaving the Kewanee 138 kV Substation 30MVA 138/12 kV
6 transformers will be used to serve the Enerblü, Inc. facility. In addition, the two
7 remaining 34.5 kV distribution circuits provided by the Kewanee 138 kV Substation
8 30MVA 138/34.5 kV transformers will be dedicated to serving other industrial and
9 commercial customers in the Kentucky Enterprise Industrial Park.

10 **Q. COULD KENTUCKY POWER PROVIDE ADEQUATE, REASONABLE, AND**
11 **EFFICIENT DISTRIBUTION SERVICE TO ENERBLÜ AND THE KENTUCKY**
12 **ENTERPRISE INDUSTRIAL PARK IN THE ABSENCE OF THE PROPOSED**
13 **KEWANEE 138 kV SUBSTATION?**

14 A. No.

15 C. The Retirement of the Fords Branch 46 kV Substation

16 **Q. WHY IS KENTUCKY POWER PROPOSING TO RETIRE THE FORDS**
17 **BRANCH 46 kV SUBSTATION?**

18 A. The substation's equipment and infrastructure are deteriorating or otherwise inadequate
19 and must be replaced. Replacement or upgrading of existing equipment is both
20 impracticable and ineffective. The footprint of the Fords Branch 46 kV substation is
21 constrained by a nearby neighborhood and the adjacent Fords Branch waterway and there
22 is inadequate space for the two 30 MVA transformers and the four dedicated 12 kV
23 circuits required to serve Enerblü. Second, even if there were adequate space for the
24 required distribution equipment, adding the additional load to the Fords Branch 46 kV

1 Substation to serve Enerbliü would only exacerbate the existing thermal and voltage
2 violations on the Company's Pikeville Area 46 kV network.

3 **Q. CAN KENTUCKY POWER PROVIDE ADEQUATE, EFFICIENT, AND**
4 **REASONABLE SERVICE ABSENT THE CONSTRUCTION OF THE PROJECT,**
5 **INCLUDING THE RETIREMENT OF THE FORDS BRANCH 46kV**
6 **SUBSTATION?**

7 A. No.

8 D. The Upgrade of the Cedar Creek 138/69/46 kV Substation.

9 **Q. WHY IS KENTUCKY POWER PROPOSING TO UPGRADE AN EXISTING**
10 **RELAY PANEL AT ITS CEDAR CREEK 138/69/46 kV SUBSTATION?**

11 A. The panel being upgraded currently points toward the Beaver Creek 138 kV Substation.
12 The Kewanee 138 kV Substation will be located between the Cedar Creek 138/69/46 kV
13 Substation and the Beaver Creek 138 kV Substation. The upgrade will coordinate the
14 Cedar Creek 138 kV Substation protection and controls with the protection and controls
15 to be installed at the Kewanee 138 kV Substation.

16 E. Alternatives to the Project.

17 **Q. COULD IMPROVEMENTS TO OTHER COMPANIES' TRANSMISSION**
18 **SYSTEMS ADDRESS THESE NEEDS ON KENTUCKY POWER'S SYSTEM AT**
19 **A LESSER COST?**

20 A. No. The required distribution service to the Kentucky Enterprise Industrial Park,
21 including the proposed Enerbliü, Inc. battery manufacturing facility, can only be provided
22 by the extension of 138 kV transmission line and construction of the Kewanee 138 kV
23 Substation. Improvements to other utilities' systems will not provide additional reliability
24 and capacity to the Company's 12 kV distribution system in the area or additional capacity

1 to Kentucky Power's 34.5 kV distribution system. Improvements to other utilities'
2 systems likewise will not remedy the thermal and voltage violations on Kentucky Power's
3 46 kV subtransmission or address the aging equipment and infrastructure needs at the
4 Fords Branch 46 kV Substation.

5 **Q. WILL THE PROPOSED PROJECT RESULT IN WASTEFUL DUPLICATION?**

6 A. No. The Project will not duplicate any existing facilities in an area that is largely a
7 former strip mine site.

8 F. PJM Review of the Project.

9 **Q. IS THE PROJECT DESIGNATED AS SUPPLEMENTAL OR BASELINE BY**
10 **PJM?**

11 A. It is a Baseline Project.

12 **Q. HAS KENTUCKY POWER SUBMITTED THE PROJECT TO PJM FOR**
13 **REVIEW?**

14 A. Yes. The Project was submitted on August 9, 2018.

15 **Q. WILL ALL OF THE PROJECT COMPONENTS BE SUBMITTED TO PJM?**

16 A. No. There are Project components and elements that either do not change the
17 transmission grid's topology, or that are implicit in the description of larger projects, that
18 are not required to be submitted to PJM for explicit review. These project elements do
19 not affect the transmission grid analysis within the framework of PJM's FERC-approved
20 planning process. These project elements nevertheless are essential to the larger projects
21 submitted to PJM.

22 **Q. IS KENTUCKY POWER RELYING UPON THE PJM REVIEW PROCESS TO**
23 **DEMONSTRATE THE NEED FOR THE PROJECT?**

24 A. No. The evidence of the need for the project and its components is detailed above.

1 **Q. WILL KENTUCKY TRANSCO SUBMIT ITS PORTION OF THE KEWANEE**
2 **138 kV SUBSTATION (THE SIX CIRCUIT BREAKERS (3000A 40 KA)) TO PJM**
3 **FOR REVIEW?**

4 A. Yes. It was submitted on August 9, 2018.

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

6 A. Yes.

