Post & Schell P.C.
ATTORNEYS AT LAW

17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Garrett P. Lent
Principal

glent@postschell.com
717-612-6032 Direct
717-731-1985 Direct Fax
File #: 216117

December 17, 2025

VIA ELECTRONIC FILING

Matthew L. Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, For Approval To Relocate and Reconfigure Approximately 0.4 Miles Of The Existing Keystone - Juniata 500 kV and Juniata - Alburtis 500 kV Transmission Lines To Re-Terminate Each Existing Transmission Line Into the Existing Juniata 500-230 kV Substation in Centre Township, Perry County, Pennsylvania
Docket No. A-2025-_____

Dear Secretary Homsher:

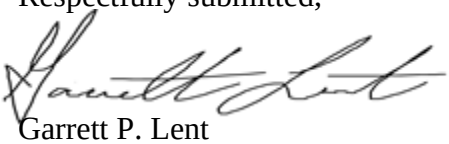
Attached for filing is the Letter of Notification of PPL Electric Utilities Corporation ("PPL Electric") for Approval to Relocate and Reconfigure Approximately 0.4 Miles of the Existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV Transmission Lines to Re-Terminate Each Existing Transmission Line into the Existing Juniata 500-230 kV Substation in Centre Township, Perry County, Pennsylvania.

As indicated on the Certificate of Service, copies of the Letter of Notification are being served by certified mail, return receipt requested, upon the involved governmental agencies, municipalities, and property owners. Construction of the Project will commence upon the Commission's approval of this filing, with an estimated construction start date of November 2026, with an anticipated in-service date of May 2028. To facilitate this construction date, PPL Electric requests that the Commission issue an order approving the Project by no later than the Public Meeting currently scheduled for October 22, 2026.

The associated $350.00 filing fee has been paid by Post & Schell, P.C. as of the time of filing.

If you have any questions concerning this matter, please contact me at the address or telephone numbers provided above.

Respectfully submitted,



Garrett P. Lent

GPL/dmc
Attachment

cc: Deb Backer (*via email; w/attachment*)
Jordan Van Order (*via email; w/attachment*)
Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Pennsylvania Bureau of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Allison Kaster

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Darryl A. Lawrence, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: NazAarah Sabree, Small Business Advocate

Pennsylvania Department of Environmental Protection
400 Market Street, 10th Floor
Rachel Carson State Office Building
Harrisburg, Pennsylvania 17101
Attn: Regional Permit Coordination Office

Pennsylvania Department of Transportation
Commonwealth Keystone Building
400 North Street, Fifth Floor
Harrisburg, Pennsylvania 17120
Attn: Jeffrey Spotts, Chief Counsel

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building
Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Ms. Emma Diehl, Division Manager

Pennsylvania Department of Conservation and Natural Resources
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17105-8767
Attn: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: David Gustafson, Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
450 Robinson Lane
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Federal Aviation Administration
Eastern Regional Office
1 Aviation Plaza
Jamaica, New York 11434-4809
Attn: Marie Kennington-Gardiner, Administrator

U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Planning Affairs Office

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Attn: Lesa Lindsay

Perry County Planning Commission
2 East Main Street
New Bloomfield, Pennsylvania 17068
Attn: Jason Finnerty, Coordinator

Perry County Agricultural Land
Preservation Board
PO Box 36, 31 West Main Street
New Bloomfield, Pennsylvania 17068
Attn: William Lyons, Chairman

Perry County Board of Commissioners
2 East Main Street
New Bloomfield, Pennsylvania 17068
Attn: R. Franklin Campbell, Chairman

Centre Township Board of Supervisors
2971 Cold Storage Road
New Bloomfield, Pennsylvania 17068
Attn: Colin Reynolds, Chairman

Centre Township Planning Commission
2971 Cold Storage Road
New Bloomfield, Pennsylvania 17068
Attn: Bill Roman

Dated: December 17, 2025

Garrett P. Lent

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, For Approval To Relocate and Reconfigure Approximately 0.4 Miles Of The Existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV Transmission Lines To Re-Terminate Each Existing Transmission Line Into the Existing Juniata 500-230 kV Substation in Centre Township, Perry County, Pennsylvania	:	Docket No. A-2025-_____

LETTER OF NOTIFICATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric") hereby files this Letter of Notification pursuant to Section 57.72(d)(1)(vi) of the Pennsylvania Public Utility Commission's ("Commission") regulations, 52 Pa. Code § 57.72(d)(1)(vi), to relocate and reconfigure approximately 0.4 miles of existing 500 kilovolt ("kV") transmission lines. Specifically, PPL Electric is seeking approval to relocate and reconfigure approximately 0.4 miles of the existing Keystone – Juniata 500 kilovolt ("kV") and Juniata – Alburtis 500 kV transmission lines in Centre Township, Perry County, Pennsylvania by re-terminating them into the existing Juniata 500-230 kV Substation (the "Juniata 500 kV Relocation Project" or "Project"). The Project also involves the construction of approximately 0.08 miles (447 feet) of string bus, including the installation of a new structure immediately outside the Juniata Substation to accommodate the Transformer #1 line re-termination. Although the string bus is partially situated outside of the substation fence area, it is a substation facility that is not part of this filing. The proposed Project is required to

resolve a thermal overload violation on the 500-230 kV Transformer #2 and a model nonconvergence issue for the Keystone – Juniata 500 kV and the Juniata – Alburtis 500 kV tie breakers at Juniata Substation.

This Project will be constructed in Centre Township, Perry County, Pennsylvania. PPL Electric has provided information regarding this Project to all identified political subdivisions, and none of them have objected to the Project. Construction of the Project will commence upon the Commission's approval of this filing, with an estimated construction start date of November 2026 and an anticipated in-service date of May 2028. The total estimated cost of this Project, as described below, is approximately $22.2 Million, and 100% of the Non-Load Ratio Share and 4.58% of the Load Ratio Share cost for the Project will be allocated to PPL Electric customers. PPL Electric is seeking the Commission's decision by no later than the Public Meeting scheduled for October 22, 2026.

In support thereof, PPL Electric states as follows:

I. INTRODUCTION

1. This Letter of Notification is filed by PPL Electric, a public utility that provides electric distribution, transmission, and provider of last resort services in Pennsylvania subject to the regulatory jurisdiction of the Commission.

2. PPL Electric's address is as follows:

PPL Electric Utilities Corporation
827 Hausman Road
Allentown, Pennsylvania 18104

3. PPL Electric's attorneys are:

Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. #321566)
Megan E. Rulli (I.D. # 331981)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
glent@postschell.com
mrulli@postschell.com

PPL Electric's attorneys are authorized to receive all notices and communications regarding this Letter of Notification.

4. PPL Electric furnishes electric service to approximately 1.5 million customers throughout its certificated service territory, which includes all or portions of twenty-nine counties and encompasses approximately 10,000 square miles in eastern and central Pennsylvania. PPL Electric is a "public utility" and an "electric distribution company" as defined in Sections 102 and 2803 of the Pennsylvania Public Utility Code, 66 Pa.C.S. §§ 102, 2803.

5. PPL Electric owns approximately 5,400 miles of transmission lines operating at 69 kV or higher, approximately 375 substations with a capacity of 10 MVA (megavolt amperes) or more, and approximately 45,600 miles of distribution lines operating at less than 69 kV.

6. The existing Juniata 500-230 kV Substation is in PPL Electric's Harrisburg Region and is part of a larger 500 kV and 230 kV transmission network that connects generation from western Pennsylvania to load throughout PPL Electric and the rest of PJM's eastern footprint. The 500 kV network includes the Keystone – Juniata 500 kV transmission line, Conemaugh – Juniata 500 kV transmission line, Juniata – Sunbury 500 kV transmission line, Juniata – Three Mile Island 500 kV transmission line, and the Juniata – Alburtis 500 kV transmission line that support bulk

inter-regional power flow. The 230 kV network includes the Lewistown – Juniata 230 kV transmission line, the Juniata – Dauphin 230 kV transmission line, and the Cumberland – Juniata 230 kV transmission line, which support bulk power flow and feed various 230-69 kV substations in the Harrisburg Region. The Juniata 500-230 kV Substation is an important hub for power flowing from western Pennsylvania to central and eastern Pennsylvania.

7. This Letter of Notification includes the following accompanying Attachments:

- Attachment 1 Necessity Statement.
- Attachment 2 Engineering Description.
- Attachment 3 Description of Project Area.
- Attachment 4 PPL Electric Design Criteria and Safety Practices.
- Attachment 5 Landowners And Agencies List.

8. This Letter of Notification and accompanying Attachments, which are incorporated herein by reference, contain all the information required by 52 Pa. Code § 57.72(d)(4).

II. THE PROJECT

A. NEED FOR THE PROJECT

9. PPL Electric has a responsibility to provide transmission assets and maintain them in a manner that is safe, reliable, and resilient to meet the needs of the electric system and the service expectations of its customers. To meet this duty, PPL Electric applies its transmission asset management planning procedure, which includes system performance and condition assessments. These performance and condition assessments identify system needs and prioritize projects based on several variables such as equipment age, condition, maintenance schedule, and impact on system reliability and performance to ensure a reliable electric grid and reasonable

service to its customers. Robust Transmission Planning assures that the transmission system can supply electricity to all customer loads in a manner that is reliable and economical.

10. PJM Interconnection, LLC ("PJM") is a Federal Energy Regulatory Commission ("FERC")-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control (100 kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including Pennsylvania. In order to ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP")[1] to identify system reinforcements that are required to, among other things, meet the NERC Reliability Standards, PJM reliability planning criteria, and Transmission Owner reliability criteria.

11. When PJM's Reliability Analysis identifies a need to solve a reliability issue on electric transmission facilities, PJM opens a Proposal Window to solicit the submittal of potential solutions (i.e., reliability projects) to address those needs. The reliability projects that are selected through PJM's Reliability Window are presented to stakeholders and recommended to the PJM Board of Managers ("PJM Board") for approval. If approved, such reliability projects are included in the RTEP as Baseline Projects.

12. Importantly, pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, after the PJM Board approves a proposed reliability project, the successful project proponent is obligated to complete the project once PJM and the successful entity execute a

[1] PJM's RTEP process is currently set forth in Schedule 6 of PJM's Amended and Restated Operating Agreement ("Schedule 6"). Schedule 6 governs the process by which PJM's members rely on PJM to prepare an annual regional plan for the enhancement and expansion of the transmission facilities to ensure long-term, reliable electric service consistent with established reliability criteria. In addition, Schedule 6 addresses the procedures used to develop the RTEP, the review and approval process for the RTEP, the obligation of transmission owners to build transmission upgrades included in the RTEP, and the process by which interregional transmission upgrades will be developed.

Designated Entity Agreement or a Construction Responsibility Letter, which specifically designates the entity or entities having construction responsibility for the project.

13. As identified by PJM, the proposed Project is required to resolve a thermal overload violation on the 500-230 kV Transformer #2 and a model nonconvergence issue for the Keystone – Juniata 500 kV and the Juniata – Alburtis 500 kV tie breaker at Juniata Substation.

14. The Project as proposed addresses these concerns in a cost-efficient manner. Unlike the alternatives evaluated, the Project as proposed resolves all of the identified operational and reliability issues, and it is the lowest cost option. Therefore, and for the reasons more fully explained below, the Commission should approve the Project as proposed.

1. Existing System

15. The Keystone – Juniata 500 kV transmission line connects the Juniata 500-230 kV Substation in Perry County, Pennsylvania to FirstEnergy's Keystone 500-230 kV Substation in Armstrong County, Pennsylvania. This transmission line is approximately 118 miles long and is supported by lattice structures.

16. The Juniata – Alburtis 500 kV transmission line connects the Juniata 500-230 kV Substation in Perry County, Pennsylvania to PPL Electric's Alburtis 500 kV Substation in Lehigh County, Pennsylvania. This transmission line is approximately 88 miles long and is supported by lattice structures.

17. The existing Juniata 500-230 kV Substation is fed by the existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV transmission lines and a series of other 500 kV, 230 kV, and 138/69 kV transmission lines.

18. The Juniata Substation is in PPL Electric's Harrisburg Region and is part of a larger 500 kV and 230 kV transmission network that connects generation from western Pennsylvania to load throughout PPL Electric and the rest of PJM's eastern footprint. The 500 kV network includes

the Keystone – Juniata 500 kV, Conemaugh – Juniata 500 kV, Juniata – Sunbury 500 kV, Juniata – Three Mile Island 500 kV, and the Juniata – Alburtis 500 kV transmission lines, which support bulk inter-regional power flow. The 230 kV network includes the Lewistown – Juniata 230 kV, Juniata – Dauphin 230 kV, and Cumberland – Juniata 230 kV transmission lines, which support bulk power flow and feed various 230-69 kV substations in the Harrisburg Region.

19. The Juniata 500-230 kV Substation is an important hub for power flowing from western Pennsylvania to central and eastern Pennsylvania.

20. A one-line diagram of the existing 500 kV system is provided as **Figure 1-3** and a map of the existing system alignment is provided as **Figure 1-1** in **Attachment 1 – Necessity Statement**.

2. Description of the Problem

21. In July 2024, PJM opened a Proposal Window to solicit proposals to address, among other things, transmission reliability issues on the PPL Electric 500-230 kV system. PJM identified an N-1 thermal overload on 500-230 kV Transformer #2 at Juniata. Specifically, the 500-230 kV Transformer #2 at Juniata is overloaded during a P4 stuck breaker contingency on the Juniata – Three Mile Island 500 kV transmission line. If the Juniata – Three Mile Island 500 kV south breaker at Juniata fails to open during a fault event, the 500 kV South bus at Juniata will be taken out of service. The Juniata 500-230 kV Transformer #1 is connected to the 500 kV South bus and would be taken out of service as well. The loss of the Juniata – Three Mile Island 500 kV transmission line and the loss of 500-230 kV Transformer #1 results in the overload of the Juniata 500-230 kV Transformer #2. This is a NERC TPL-001-4 P4 contingency event.

22. PJM also identified an N-1 contingency at Juniata that resulted in a non-convergence of the power flow case. The P4 stuck breaker contingency of the tie breaker between Keystone – Juniata 500 kV transmission line and the Juniata – Alburtis 500 kV transmission line

resulted in the summer power flow case being unable to be solved (i.e., non-convergence). This is also a NERC TPL-001-4 P4 contingency event. A non-convergence indicates a severe voltage drop issue resulting from the contingency.

23. PJM posted these reliability violations open to proposals in the 2024 RTEP Window 1 posting. PJM received four proposals specifically to address the reliability concerns at Juniata 500-230 kV Substation. After evaluation and review with stakeholders, PJM selected Proposal 2024-W1-935 (this Project), because the solution mitigated all of the identified reliability issues and was the most cost-effective solution presented. On February 26, 2025, the PJM Board approved Proposal 2024-W1-935 (this Project) as a Baseline Upgrade with number B3909.1.

24. On October 29, 2025, PJM and PPL Electric executed a Designated Entity Agreement for PPL Electric for the Project. Pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, and as stated in the Designated Entity Agreement, PPL Electric is required to complete the Project by June 1, 2028.

B. THE PROPOSED PROJECT

25. In order to resolve the above-described concerns, PPL Electric proposes to relocate and reconfigure approximately 0.4 miles of the existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV transmission lines in Centre Township, Perry County, Pennsylvania by re-terminating them into the existing Juniata 500-230 kV Substation. The Project also involves the construction of approximately 0.08 miles (447 feet) of string bus, including the installation of a new structure immediately outside the Juniata Substation to accommodate the Transformer #1 line re-termination.

26. To resolve thermal overloads identified by PJM on the Juniata 500-230 kV Transformer #2, PPL Electric will relocate the 500 kV connection of the Juniata 500-230 kV Transformer #1 from the 500 kV south bus to a bay position in Bay #1. This requires a new

structure outside the Juniata Substation to connect the transformer 500 kV leads to a new 500 kV dead-end in Bay #1. This string bus structure, although outside of the substation fence, is a substation facility that is not part of this filing. This also requires replacing one tower and shifting the centerline on the Juniata – Alburtis 500 kV transmission line to make space for the new structure for the 500-230 kV Transformer #1 re-termination.

27. To resolve the contingency causing non-convergence, PPL Electric will relocate the termination point for the Keystone – Juniata 500 kV transmission line from Bay #2 to Bay #3 at Juniata Substation. The existing structure will be utilized, and the conductors will be transferred from the existing dead-end structure to a new dead-end structure in Bay #3. The Keystone – Juniata 500 kV transmission line and the Juniata – Alburtis 500 kV line will be terminated into separate bays and no longer share a tie breaker. This will eliminate the contingency that resulted in non-convergence.

28. The existing system configuration and the proposed system configuration are presented on **Figures 1-1 and Figure 1-2**, respectively, in **Attachment 1 – Necessity Statement**. In addition, a one-line diagram of the proposed 500 kV system is provided as **Figure 1-4** in **Attachment 1 – Necessity Statement**.

29. The existing conductors for the Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV transmission lines are 2493 kcmil[2] ACAR.[3] The arrangement also includes existing overhead ground wires ("OHGW"). The replaced 500 kV circuits include triple bundle 1590 kcmil ACSR.[4] The reconfiguration also includes optical ground wires ("OPGW").

[2] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.

[3] ACAR stands for aluminum conductor alloy reinforced.

[4] ACSR stands for aluminum conductor steel reinforced.

30. The proposed transmission lines will be designed according to, and generally exceed, all National Electrical Safety Code ("NESC") minimum standards. The minimum conductor-to-ground clearance will be approximately 31.4 feet, which occurs at a maximum conductor temperature of 125°C (482°F). The design minimum conductor clearances and conductor thermal ratings for the proposed 500 kV re-terminations are shown in **Tables 2-2** and **2-3 in Attachment 2 – Engineering Statement**. Design specifications and safety rules practiced by PPL Electric are included in **Attachment 4 – Design Criteria and Safety**.

31. The Project will resolve all of the issues identified in this Letter of Notification and in **Attachment 1 – Necessity Statement**. The total estimated cost of this Project is approximately $22.2 Million and 100% of the Non-Load Ratio Share and 4.58% of the Load Ratio Share cost for the Project will be allocated to PPL Electric customers.[5]

III. HEALTH AND SAFETY

32. The proposed lines will not create any unreasonable risk of danger to public health or safety. The proposed lines will be designed, constructed, operated, and maintained in a manner that meets or surpasses all applicable National Electrical Safety Code ("NESC") minimum standards and all applicable legal requirements. Descriptions of the NESC standards, PPL Electric's design criteria, and PPL Electric's safety practices are provided in **Attachment 4** to this Letter of Notification.

33. **Attachment 4 – Design Criteria and Safety** accompanying this Letter of Notification also explains PPL Electric's standards for Magnetic Field Management. Ground

[5] The estimated cost was developed using averages of recent costs for similar projects and without an in-depth analysis or field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

clearances for the proposed Project will be at least three feet higher than those required by the NESC standard in order to reduce the magnetic field exposure. The implementation of additional modifications to reduce magnetic field levels is considered, provided those modifications can be made at low or no cost and will not interfere with the operation of the line.

IV. DESCRIPTION OF THE PROJECT AREA

34. The Juniata Substation property is located in Centre Township, Perry County, Pennsylvania. The Keystone – Juniata 500 kV Transmission Line will be reconfigured north of the existing Juniata Substation, while the Juniata – Alburtis 500 kV line and Juniata Transformer #1 500-230 kV string bus work will be reconfigured south of the Juniata Substation and located entirely on PPL Electric-owned property. PPL Electric has provided information about the proposed Project to representatives from Centre Township and Perry County.

35. The Project involves reusing one existing structure, removing one existing structure, and installing one new structure. The new structure will be a single-circuit steel monopole that will be located entirely on PPL Electric-owned property. As explained in **Attachment 3 – Project Area Description** and shown in **Figure 3-1**, the approximately 0.4 miles of relocated 500 kV transmission lines will be located entirely within PPL Electric owned property. No new ROW will be required to construct the relocated transmission line.

36. The existing 500 kV structures are approximately 110-115 feet tall and configured as horizontal 500 kV lattice towers. The new proposed structure will be taller and constructed in a vertical configuration to minimize the footprint of the structure. The new structure on the Juniata – Alburtis 500 kV line will be 195 feet. **Table 2-1** in **Attachment 2 – Engineering Statement** provides a summary of the existing and proposed structures. **Figure 2-1** in **Attachment 2 –**

Engineering Statement depicts the typical structure type that will be used for the Juniata – Alburtis 500 kV transmission line.

37. A network of existing access roads or temporary roads will be utilized during construction of the transmission line re-terminations. Detailed maps of the proposed 500 kV transmission line alignments are provided in **Figure 3-1 in Attachment 3 – Description of Project Area.**

V. LAND USE AND ENVIRONMENTAL EVALUATION

38. The proposed Project will take place entirely within PPL Electric fee-owned property, which currently contains an existing substation and HV transmission lines. Therefore, it is anticipated that the proposed relocated and reconfigured portions of the Transmission Lines will have minimal incremental impacts on land use in the area.

39. Land uses immediately surrounding the Juniata Substation predominantly consist of agricultural land, residential land, mixed-use industrial/commercial properties composed predominately of the Juniata Substation, and undeveloped forest.

40. The Project Area is generally bounded to the north by Keystone Way, to the east by Dix Hill Road, to the south by Soule Road, and to the west by the incorporated limits of New Bloomfield.

41. The closest communications tower is adjacent to and southwest of the Project Area. No pipelines or active or abandoned railroads are located within the Project Area.

42. The closest active Federal Aviation Administration ("FAA") facility relative to the Project Area is the Fox Field facility, which is a privately owned grass landing strip located approximately 4.4 miles northwest from the Project Area. The proposed structure associated with the relocated Juniata – Alburtis 500 kV Transmission Line is nearly 200 feet tall. PPL Electric

does not anticipate any interference with airport operations due to the distance from the Project to the nearest runway. However, PPL Electric will comply with any applicable requirements of the FAA and the Pennsylvania Department of Transportation, Bureau of Aviation.

43. No federal, state, or local conserved lands, recreational areas or natural landmarks were identified within 1 mile of the Project.

44. PPL Electric conducted an online review of the Project Area and surrounding landscape through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site. No State Historic Preservation Office ("SHPO") eligible or listed structures and districts were identified within 1 mile of the Project Area. Additionally, no known archaeological sites were identified within 1 mile of the Project Area. Therefore, no further coordination with the SHPO is required.

45. No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources ("DCNR").

46. Erosion and Sedimentation ("E&S") control plans will be developed and implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the Perry County Conservation District. No National Pollutant Discharge Elimination System ("NPDES") permits will be required from the Pennsylvania Department of Environmental Protection ("PADEP"). During construction, PPL Electric will adhere to all conditions specified in the E&S control plans. Impacts to local soil resources are anticipated to be minimal.

47. PPL Electric retained an environmental consultant to identify and delineate waterways and wetlands for an area that coincides with the southeastern portion of the Project Area. PPL Electric also reviewed current aerial imagery, the U.S. Geological Survey ("USGS")

National Hydrology Database ("NHD"), and the U.S. Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI") to identify potential waterways and wetlands for the remaining portions of the Project Area. Based on the combined data within the Project Area, the relocated Juniata – Alburtis 500 kV Transmission Line will span an unnamed tributary ("UNT") of Little Juniata Creek. However, no direct impact to this stream feature is anticipated by the Project activities.

48. No structures are proposed within delineated wetlands. The relocated Juniata – Alburtis 500 kV Transmission Line will aerially span one of the wetlands. PPL Electric will avoid impacts to wetlands and waterways where possible by aerially spanning these features.

49. The National Flood Hazard Layer for Perry County, Pennsylvania was obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains and regulatory floodways within the Project Area and surrounding landscape. Based on review of this data, no 100-year floodplains or regulatory floodways cross the Project.

50. Vegetative cover in the Project Area primarily consists of maintained ROW or agricultural cropland. of deciduous forest, agricultural fields, and low-maintenance lawn. Minimal vegetation clearing is anticipated for the relocated 500 kV transmission lines since they are located in cleared and maintained areas. PPL Electric will apply its "Specifications for Transmission Vegetation Management LA-79827" to minimize potential impacts.

51. A Pennsylvania Natural Diversity Inventory ("PNDI") was run for the Project on September 23, 2025, to assess the potential presence of threatened and endangered species and/or special concern species. The following agencies reviewed the Project: Pennsylvania Game Commission, Pennsylvania Fish and Boat Commission, DCNR, and United States Fish and

Wildlife Service. None of the agencies reported the presence of any known threatened and endangered species and/or special concern species and resources within the Project Area. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species, complete all required surveys; obtain all necessary approvals and permits for Project construction; and comply with all conditions placed on those permits.

VI. NOTICE

52. PPL Electric has provided information regarding the Project to representatives of Centre Township and the Perry County Planning Commission. These entities have not objected to the proposed Project. Copies of the Letter of Notification will be served upon all state agencies, federal agencies, county agencies, municipalities, and landowners in accordance with 52 Pa. Code § 57.72(d)(3). A list of the same impacted or potentially impacted by this project is provided in **Attachment 5 – Agency and Landowner List**.

VII. LETTER OF NOTIFICATION

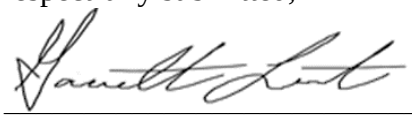
53. PPL Electric is proceeding by means of a Letter of Notification, instead of a full Application, pursuant to the Commission's regulations at 52 Pa. Code § 57.72(d)(1)(vi). The proposed Project qualifies for the use of a Letter of Notification because it has a proposed route of two miles or less. *See* 52 Pa. Code § 57.72(d)(1)(vi).

54. This Letter of Notification is filed on the date set forth below. As provided in 52 Pa. Code § 57.72(d)(5), the Commission will review and, by order, approve or disapprove this Letter of Notification. If the Commission approves this Letter of Notification, the proposed Project will be constructed as proposed herein without the formal application process set forth at 52 Pa. Code §§ 57.71, *et seq*.

VIII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission approve the proposed Juniata 500 kV Re-Termination Project located in Centre Township, Perry County, Pennsylvania, that is explained above and in the Attachments hereto, by no later than October 22, 2026.

Respectfully submitted,



Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. #321566)
Megan E. Rulli (I.D. # 331981)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
glent@postschell.com
mrulli@postschell.com

Date: December 17, 2025

Attorneys for PPL Electric Utilities Corporation

Attachment 1

JUNIATA 500 KV
RELOCATION PROJECT

TABLE OF CONTENTS

List of Figures

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") seeks approval from the Pennsylvania Public Utility Commission ("PUC" or "Commission") to relocate and reconfigure approximately 0.4 miles of the existing Keystone – Juniata 500 kilovolt ("kV") and Juniata – Alburtis 500 kV transmission lines in Centre Township, Perry County, Pennsylvania by re-terminating them into the existing Juniata 500-230 kV Substation (the "Juniata 500 kV Relocation Project" or "Project"). The Project also involves the construction of approximately 0.08 miles (447 feet) of string bus, including the installation of a new structure immediately outside the Juniata Substation to accommodate the Transformer #1 line re-termination. Although the string bus is partially situated outside of the substation fence area, it is a substation facility and is not part of this filing. The Project is required to resolve a thermal overload violation on the 500-230 kV Transformer #2 and a model nonconvergence issue for the Keystone – Juniata 500 kV and the Juniata – Alburtis 500 kV tie breaker at Juniata Substation.

The Project, as approved by PJM Interconnection, LLC ("PJM"), involves moving the 500 kV connection of the Juniata 500-230 kV Transformer #1 from the 500 kV south bus to a bay position in Bay #1 and replacing a structure and shifting the alignment of the Juniata – Alburtis 500 kV transmission line to accommodate the Transformer #1 re-termination. The Project also includes moving the termination point of the Keystone – Juniata 500kV transmission line from Bay #2 to Bay #3 at Juniata 500 kV Substation. The existing system configuration and the proposed system configuration are presented below on **Figures 1-1** and **1-2**, respectively.

Subject to the Commission's approval, construction will begin in November 2026 to support an in-service date of May 2028. The total estimated cost of this Project, as described below, is approximately $22.2 Million and 100% of the Non-Load Ratio Share and 4.58% of the Load Ratio Share cost for the Project will be allocated to PPL customers.[1]

[1] The estimated cost was developed using averages of recent costs for similar projects and without an in-depth analysis or field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

2.0 TRANSMISSION SYSTEM PLANNING PROCESS

The nation's interconnected transmission grid serves as the backbone for the safe and reliable delivery of large amounts of electricity from generating stations over substantial distances to customers served by transmission and local distribution systems. It is critically important that this interconnected transmission system (*i.e.*, the "Transmission Grid") be planned and designed to ensure that reliable electric service can be provided under all loading conditions and when certain elements of the Transmission Grid are out of service (system contingencies) due to planned or unplanned outages.

Robust Transmission Planning assures that the transmission system can supply electricity to all customer loads in a manner that is reliable and economical. This System Planning process ensures that both the Bulk Electric System ("BES")[2] and non-Bulk Electric System (non-BES)[3] are planned and constructed so that:

- They can accommodate forecasted system flows during summer and winter peak load;
- They can adequately serve each customer's need regarding capacity, voltage, and reliability for all load levels throughout the daily load cycle;
- They can sustain probable contingencies and disturbances with minimal customer service interruptions; and
- They are in conformance with North American Electric Reliability Corporation ("NERC"), PJM, and the Transmission Owner's reliability criteria for all normal and emergency operating conditions.

PJM is a Federal Energy Regulatory Commission ("FERC")-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control (100kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including Pennsylvania. In order to ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP")[4] to

[2] Bulk Electric System (BES) – Includes transmission facilities operated at voltages of 100 kV or higher.

[3] Non-Bulk Electrical System (non-BES) – Includes transmission facilities operated at voltages less than 100 kV.

[4] PJM's RTEP process is currently set forth in Schedule 6 of PJM's Amended and Restated Operating Agreement ("Schedule 6"). Schedule 6 governs the process by which PJM's members rely on PJM to prepare an annual regional plan for the enhancement and expansion of the transmission facilities to ensure long-term, reliable electric service consistent with

identify system reinforcements that are required to, among other things, meet the NERC Reliability Standards, PJM reliability planning criteria, and Transmission Owner reliability criteria.

When PJM's Reliability Analysis identifies a need to solve a reliability issue on electric transmission facilities, PJM opens a Proposal Window to solicit the submittal of potential solutions (i.e., reliability projects) to address those needs.

The reliability projects that are selected through PJM's Reliability Window are presented to stakeholders and recommended to the PJM Board of Managers ("PJM Board") for approval. If approved, such reliability projects are included in the RTEP as Baseline Projects.

Importantly, pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, after the PJM Board approves a proposed reliability project, the successful project proponent is obligated to complete the project once PJM and the successful entity execute a Designated Entity Agreement or a Construction Responsibility Letter, which specifically designates the entity or entities having construction responsibility for the project.

established reliability criteria. In addition, Schedule 6 addresses the procedures used to develop the RTEP, the review and approval process for the RTEP, the obligation of transmission owners to build transmission upgrades included in the RTEP, and the process by which interregional transmission upgrades will be developed.

3.0 THE NEED FOR THE PROJECT

3.1 Existing System

The Keystone – Juniata 500 kV transmission line connects the Juniata 500-230 kV Substation in Perry County, Pennsylvania to FirstEnergy's Keystone 500-230 kV Substation in Armstrong County, Pennsylvania. This transmission line is approximately 118 miles long and is supported by lattice structures. The Juniata – Alburtis 500 kV transmission line connects the Juniata 500-230 kV Substation in Perry County, Pennsylvania to PPL Electric's Alburtis 500 kV Substation in Lehigh County, Pennsylvania. This transmission line is approximately 88 miles long and is supported by lattice structures. The existing Juniata 500-230 kV Substation is fed by the existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV transmission lines and a series of other 500 kV, 230 kV, and 138/69 kV transmission lines.

The Juniata Substation is in PPL Electric's Harrisburg Region and is part of a larger 500 kV and 230 kV transmission network that connects generation from western Pennsylvania to load throughout PPL Electric and the rest of PJM's eastern footprint. The 500 kV network includes the Keystone – Juniata 500 kV transmission line, Conemaugh – Juniata 500 kV transmission line, Juniata – Sunbury 500 kV transmission line, Juniata – Three Mile Island 500 kV transmission line, and the Juniata – Alburtis 500 kV transmission line that support bulk inter-regional power flow. The 230 kV network includes the Lewistown – Juniata 230 kV transmission line, the Juniata – Dauphin 230 kV transmission line, and the Cumberland – Juniata 230 kV transmission line, which support bulk power flow and feed various 230-69 kV substations in the Harrisburg Region. The Juniata 500-230 kV Substation is an important hub for power flowing from western Pennsylvania to central and eastern Pennsylvania.

A one-line diagram of the existing 500kV system is provided as **Figure 1-3**. A map of the existing system alignment is provided as **Figure 1-1**.

3.2 Project Need

In July 2024, PJM opened a Proposal Window to solicit proposals to address, among other things, transmission reliability issues on the PPL 500-230 kV system. PJM identified an N-1 thermal overload on 500-230 kV Transformer #2 at Juniata. The 500-230 kV Transformer #2 at Juniata is overloaded during a P4 stuck breaker contingency on the Juniata – Three Mile Island 500 kV transmission line. If

the Juniata – Three Mile Island 500 kV south breaker at Juniata fails to open during a fault event, the 500 kV South bus at Juniata will be taken out of service. The Juniata 500-230 kV Transformer #1 is connected to the 500 kV South bus and would be taken out of service as well. The loss of the Juniata – Three Mile Island 500 kV transmission line and the loss of 500-230 kV Transformer #1 results in the overload of the Juniata 500-230 kV Transformer #2. This is a NERC TPL-001-4 P4 contingency event.

PJM also identified an N-1 contingency at Juniata that resulted in a non-convergence of the power flow case. The P4 stuck breaker contingency of the tie breaker between Keystone – Juniata 500 kV transmission line and the Juniata – Alburtis 500 kV transmission line resulted in the summer power flow case being unable to be solved (i.e., non-convergence). This is also a NERC TPL-001-4 P4 contingency event. A non-convergence indicates a severe voltage drop issue resulting from the contingency.

PJM posted these reliability violations open to proposals in the 2024 RTEP Window 1 posting. PJM received four proposals, all submitted by PPL, specifically to address the reliability concerns at Juniata 500-230 kV Substation. After evaluation and review with stakeholders, PJM selected Proposal 2024-W1-935 (this Project), because the solution mitigated all of the identified reliability issues and was the most cost-effective solution presented. On February 26, 2025, the PJM Board approved Proposal 2024-W1-935 (this Project) as a Baseline Upgrade with number B3909.1.

4.0 ALTERNATIVES

PPL Electric submitted four potential solutions to address the thermal overload violations on the Juniata 500-230 kV Transformer #2 and the contingency resulting in non-convergence.

1) PPL Electric Proposal 72, to rebuild the Juniata – Cumberland 230 kV transmission line to double circuit and reconductor the Cumberland – Williams Grove 230 kV transmission line. This project was estimated at $78.59 Million.
2) PPL Electric Proposal 330, to build a new 500 kV line for approximately 40 miles from Juniata 500-230 kV Substation to FirstEnergy's Hunterstown 500-230 kV Substation. This project was estimated at $329.03 Million.
3) PPL Electric Proposal 386, to rebuild the Juniata – Three Mile Island 500 kV transmission line to double circuit 500 kV operation for approximately 44 miles from Juniata 500-230 kV Substation to FirstEnergy's Three Mile Island 500-230 kV Substation. This project was estimated at $334.61 Million.
4) PPL Electric Proposal 935 (i.e., the Proposed Solution), to install a new bay at Juniata and move the termination points for Keystone – Juniata 500 kV line and 500-230 kV Transformer #1 to resolve the stuck breaker contingencies. This project was estimated at $22.2 Million.

PJM evaluated all the proposals submitted based on ability to solve the reliability problems, not create new problems (i.e., the "do no harm" test), impact on operational flexibility, and associated project cost. PJM selected Proposal 935 as it was substantially less costly than the other proposed solutions while still resolving the reliability violations.

5.0 PROPOSED SOLUTION

The Project, as approved by PJM to resolve the thermal overloads identified on the Juniata 500-230 kV Transformer #2, includes moving the 500 kV connection of the Juniata 500-230 kV Transformer #1 from the 500 kV south bus to a bay position in Bay #1. This requires a new structure outside the Juniata Substation to connect the transformer 500 kV leads to a new 500 kV dead-end in Bay #1. This string bus structure, although outside of the fence, is a substation facility and not part of this filing. This also requires replacing one tower and shifting the centerline on the Juniata – Alburtis 500 kV transmission line to make space for the new structure for the 500-230 kV Transformer #1 re-termination.

To resolve the contingency causing non-convergence, the termination point for the Keystone – Juniata 500 kV transmission line will be moved from Bay #2 to Bay #3 at Juniata Substation. The existing structure will be utilized, and the conductors will be transferred from the existing dead-end structure to a new dead-end structure in Bay #3. The Keystone – Juniata 500 kV transmission line and the Juniata – Alburtis 500 kV line will be terminated into separate bays and no longer share a tie breaker. This will eliminate the contingency that resulted in non-convergence.

On October 29, 2025, PJM and PPL Electric executed a Designated Entity Agreement for PPL Electric for the Project. Pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, and as stated in the Designated Entity Agreement, PPL Electric is required to complete the Project by June 1, 2028. A one-line diagram of the proposed 500 kV system is provided as **Figure 1-4**. A map of the proposed system alignment is provided as **Figure 1-2**.

Figure 1-1: Existing System Configuration

- Existing Structure to Remain
- Existing Structure to Remove
- Existing Transmission Line

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

Figure 1-1
Existing System Configuration

Juniata 500 kV Relocation Project

ppl wsp

0 150 300 Feet

N

Figure 1-2: Proposed System Configuration

- Existing Structure to Remain
- Existing Structure to Remove
- Proposed Structure
- Transformer 500kV Lead Lines (Substation Asset)
- Proposed 500kV Relocation
- Existing 500kV to be Relocated
- Existing Transmission Line

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2022)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

Figure 1-2
Proposed System Configuration

Juniata 500 kV Relocation Project

ppl wsp

0 150 300 Feet

Figure 1- 3: Existing 500 kV One Line Diagram

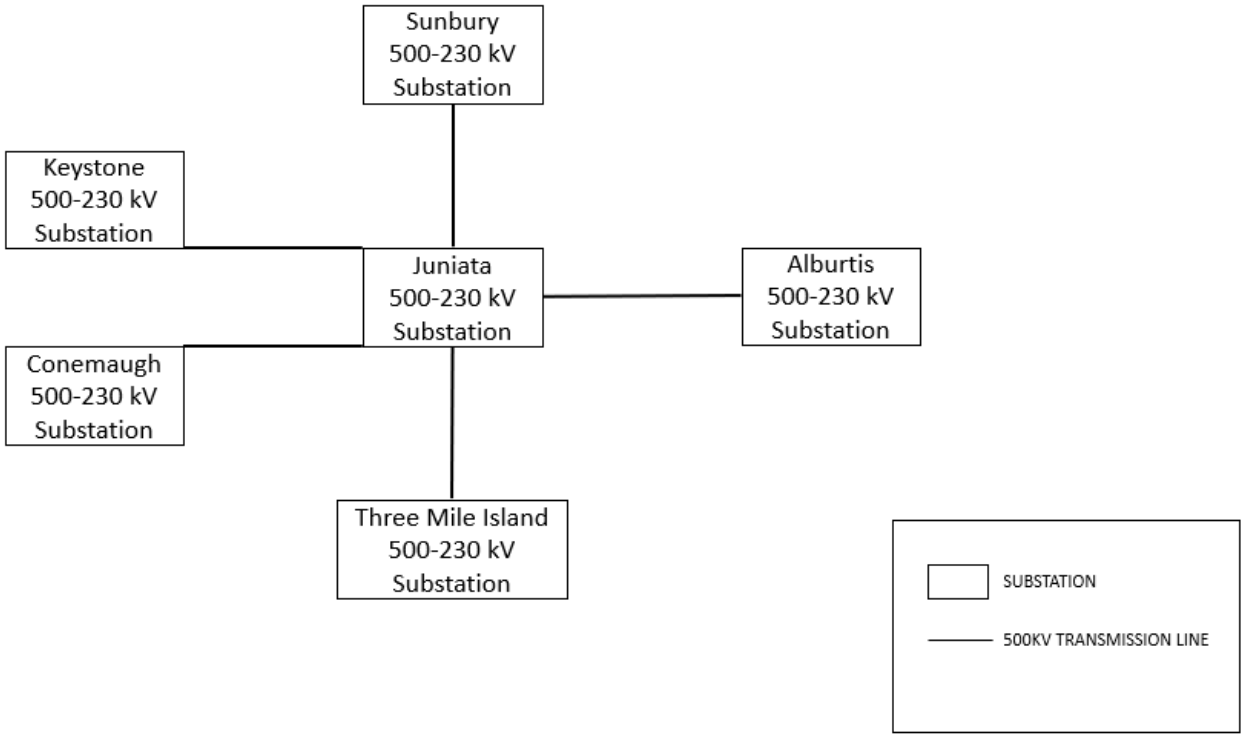
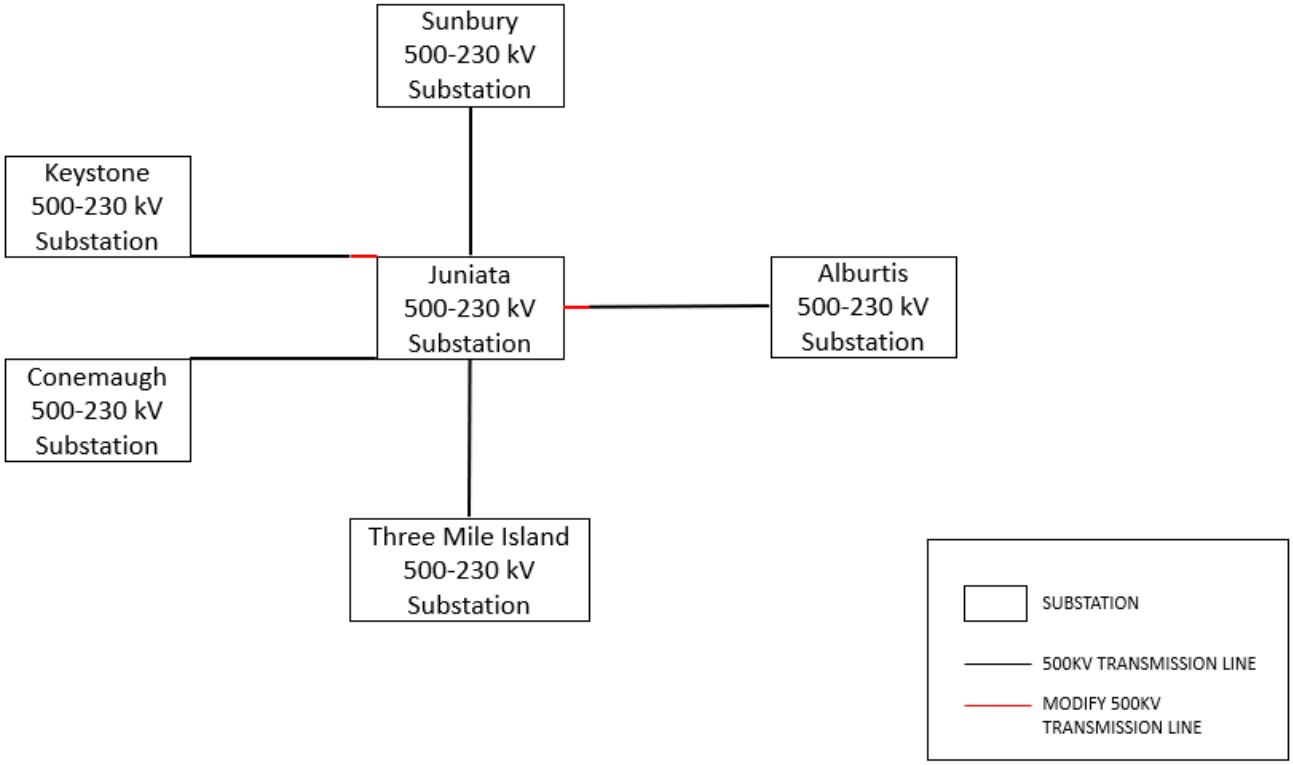


Figure 1-4: Proposed 500-230 kV One Line Diagram



Attachment 2

JUNIATA 500 KV RELOCATION PROJECT

TABLE OF CONTENTS

List of Tables

List of Figures

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") seeks approval from the Pennsylvania Public Utility Commission ("PUC" or "Commission") to relocate and reconfigure approximately 0.4 miles of the existing Keystone – Juniata 500 kilovolt ("kV") and Juniata – Alburtis 500 kV transmission lines in Centre Township, Perry County, Pennsylvania by re-terminating them into the existing Juniata 500-230 kV Substation in a new configuration (the "Juniata 500 kV Re-Termination Project" or "Project"). The Project also involves the construction of approximately 0.08 miles (447 feet) of string bus including the installation of a new structure immediately outside the Juniata Substation to accommodate the Transformer #1 line re-termination. Although the string bus is partially situated outside of the substation fence area, it is a substation facility and is not part of this filing. As discussed in **Attachment 1**, the Project is required to resolve a thermal overload violation on the 500-230 kV Transformer #2 and a model nonconvergence issue for the Keystone – Juniata 500 kV and the Juniata – Alburtis 500 kV tie breaker at Juniata Substation.

The proposed transmission line system will be designed according to, and generally exceed, all National Electrical Safety Code ("NESC") standards. Design specifications and safety rules adhered to by PPL Electric are included as **Attachment 4** to the Letter of Notification.

2.0 DESCRIPTION OF THE EXISTING AND PROPOSED 500 KV LINES AND STRUCTURES

The existing Juniata 500-230 kV Substation is fed by a series of 500 kV, 230 kV, and 138/69 kV transmission lines. In the vicinity of the existing substation, the existing Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV conductors and ground wires are supported by single-circuit lattice towers. The existing aforementioned 500 kV transmission lines need to be shifted and reconfigured to re-terminate the Keystone line in a new position at the Substation as well as make room for the proposed Transformer #1 connection. To accomplish this work, PPL proposes to replace and install a new structure on the Juniata-Alburtis 500 kV line and reconfigure and reuse an existing tower on the Keystone-Juniata 500 kV line. The Project also includes re-terminating the Juniata 500-230 kV Transformer #1 from the 500 kV south bus to a different bay position through installation of a substation structure directly outside and south of Juniata Substation.

A detailed aerial exhibit of the Project alignment is provided as **Figure 3-1** in **Attachment 3**.

The existing 500 kV structures are approximately 110-115 feet tall and configured as horizontal 500 kV lattice towers. The new proposed structure will be taller and constructed in a vertical configuration to minimize the footprint of the structure. The new structure on the Juniata – Alburtus 500 kV line will be 195 feet. **Table 2-1** provides a summary of the existing and proposed structures. **Figure 2-1** depicts the typical structure type that will be used for the Juniata – Alburtis 500 kV transmission line.

Table 2-1. Existing and New Transmission Line Structures

Transmission Line	No. of Existing Structures	Existing Structure Height (feet)	Proposed No. of New Structures	Proposed Structure Height Range (feet)	Applicable Framing/ Specifications
Keystone – Juniata 500 kV	1	110	0	N/A	N/A, Reuse of tower
Juniata – Alburtis 500 kV	1	115	1	195	7-010-014
Total	**2**		1		

As part of the Project, one existing structure will be reused, one existing structure will be removed, and one new structure will be installed. The new structure will be a single-circuit steel monopole. As explained in **Attachment 3** and shown in **Figure 3-1**, approximately 0.4 miles of relocated 500 kV transmission lines are located entirely within PPL Electric owned property. No new ROW will be required to construct the relocated transmission line (see **Attachment 3**).

The existing conductors for the Keystone – Juniata 500 kV and Juniata – Alburtis 500 kV transmission lines are 2493 kcmil[1] ACAR[2]. The arrangement also includes existing overhead ground wires ("OHGW"). The replaced 500 kV circuits include triple bundle 1590 kcmil ACSR.[3] The reconfiguration also includes optical ground wires ("OPGW").

[1] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.
[2] ACAR stands for aluminum conductor alloy reinforced.
[3] ACSR stands for aluminum conductor steel reinforced.

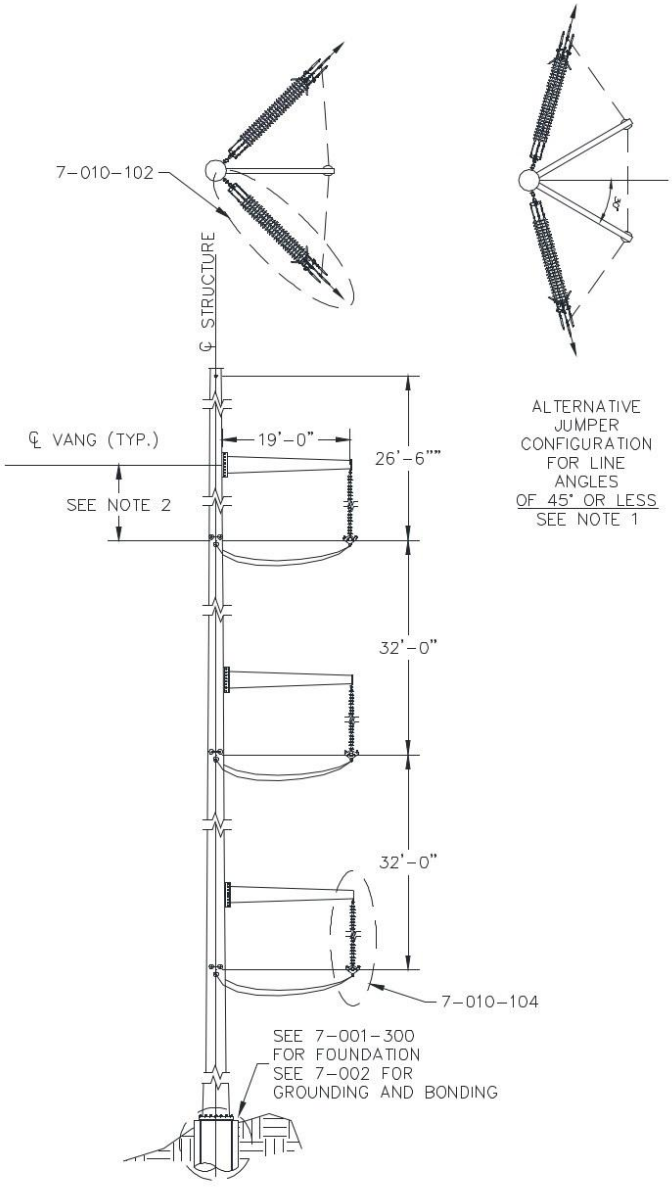
The proposed transmission lines will be designed according to, and generally exceed, all National Electrical Safety Code ("NESC") minimum standards. The minimum conductor-to-ground clearance will be approximately 31.4 feet, which occurs at a maximum conductor temperature of 125°C (482°F). The design minimum conductor clearances and conductor thermal ratings for the proposed 500 kV re-terminations are shown in **Tables 2-2** and **2-3**. Design specifications and safety rules practiced by PPL Electric are included in **Attachment 4**.

Table 2-2. Design for Minimum Conductor Clearances for Selected Conductor[4]	
Condition	**Transmission Single-Circuit Design Clearance-to-Ground**
Heavy Ice (1" Ice at 0°C ambient temperature)	31.4 feet
Predicted extreme thermal load (125°C conductor temperature)	31.4 feet
Predicted blowout (6 psf, 16°C ambient temperature)	31.4 feet

Table 2-3. Conductor Thermal Rating			
Condition	**Ambient Temperature (°C)**	**Wind Speed (Ft./sec)**	**Ampacity (Amps)**
Keystone – Juniata 500 kV (2493 ACAR)			
Summer Normal	35	0	3,394
Winter Normal	10	0	4,177
Summer Emergency	35	2.533	4,310
Winter Emergency	10	2.533	5,108
Juniata – Alburtis 500 kV (1590 ACSR)			
Summer Normal	35	0	5,014
Winter Normal	10	0	5,774
Summer Emergency	35	2.533	6,190
Winter Emergency	10	2.533	6,969

[4] Clearances based on an initial maximum tension of 6,000-10,000 pounds at 0.5 inch ice, 0°F, 4# wind and maximum ruling span of 200-1,250 feet.

Figure 2-1. Typical 500 kV Single-Circuit Tension on Pole Structure



Attachment 3

JUNIATA 500 KV RELOCATION PROJECT

TABLE OF CONTENTS

List of Figures

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") seeks approval from the Pennsylvania Public Utility Commission ("PUC" or "Commission") to relocate and reconfigure approximately 0.4 miles of the existing Keystone – Juniata 500 kilovolt ("kV") and Juniata – Alburtis 500 kV transmission lines in Centre Township, Perry County, Pennsylvania by re-terminating them into the existing Juniata 500-230 kV Substation (the "Juniata 500 kV Re-Termination Project" or "Project"). Specifically, one existing structure will be replaced. The Project also involves the construction of approximately 0.08 miles (447 feet) of string bus, including the installation of a new structure immediately outside of the Juniata Substation to accommodate the Transformer #1 line re-termination. Although the string bus is partially situated outside of the substation fence area, it is a substation facility and is not part of this filing. As discussed in **Attachment 1**, the Project is required to resolve a thermal overload violation on the 500-230 kV Transformer #2 and a model nonconvergence issue for the Keystone – Juniata 500 kV and the Juniata-Alburtis 500 kV tie breaker at Juniata Substation.

The Juniata Substation property is located in Perry County, Pennsylvania. As explained in **Attachment 1**, PPL Electric plans to move the 500 kV connection of the Juniata 500-230 kV Transformer #1 from the 500 kV south bus to a bay position in Bay #1 as well as replace a structure and shift the alignment of the Juniata – Alburtis 500 kV transmission line to accommodate the Transformer #1 re-termination. The Project also includes moving the termination point of the Keystone – Juniata 500 kV transmission line from Bay #2 to Bay #3 at Juniata 500 kV Substation.

The Keystone – Juniata 500 kV Transmission Line will be reconfigured north of the existing Juniata Substation while the Juniata – Alburtis 500 kV line and Juniata Transformer #1 500-230 kV string bus work will be reconfigured south of the Juniata Substation and located entirely on PPL Electric-owned property. PPL Electric has provided information about the proposed Project to representatives from Centre Township and Perry County.

The Project involves reusing one existing structure, removing one existing structure, and installing one new structure. The new structure will be located entirely on PPL Electric-owned property. A network of existing access roads or temporary roads will be utilized during construction of the

transmission line re-terminations. Detailed maps of the proposed 500 kV transmission line alignments are provided in **Figure 3-1.**

2.0 LAND USE

PPL Electric evaluated the existing land uses on the PPL Electric owned properties and within 0.25 miles (1,320 feet) of the Project centerline ("Project Area"). This broader Project Area was reviewed to provide a sense of the landscape in which the Project is located. The Project Area is generally bounded to the north by Keystone Way; to the east by Dix Hill Road; to the south by Soule Road; and to the west by the incorporated limits of New Bloomfield. Based on review of current area maps, land use in the Project Area is 50% agricultural land, 20% residential, and 20% mixed-use industrial/commercial properties composed predominately of the Juniata Substation, and 10% undeveloped forest.

The closest communications tower is adjacent to and southwest of the Project Area. No interstate, state, or U.S. highways are located within the Project Area. Additionally, no pipelines or active or abandoned railroads are located within the Project Area.

The closest active Federal Aviation Administration ("FAA") facility relative to the Project Area is the Fox Field facility, which is a privately owned grass landing strip located approximately 4.4 miles northwest from the Project Area. The proposed structure associated with the relocated Juniata – Alburtis 500 kV Transmission Line is nearly 200 feet tall. PPL Electric does not anticipate any interference with airport operations due to the distance from the Project to the nearest runway. However, PPL Electric will comply with any applicable requirements of the FAA and the Pennsylvania Department of Transportation, Bureau of Aviation.

Conserved Lands

No federal, state, or local conserved lands, recreational areas or natural landmarks were identified within 1 mile of the Project.

3.0 CULTURAL RESOURCES

An online review of the Project Area and surrounding landscape was conducted through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site. No State Historic Preservation Office ("SHPO") eligible or listed structures and districts were identified within 1 mile of the Project Area. Additionally, no known archaeological sites were identified within 1 mile of the Project Area. Therefore, no further coordination with the SHPO is required.

4.0 NATURAL FEATURES

Unique Natural Features

No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources ("DCNR").

Soils

The Project Area is located on gently undulating terrain, predominantly surrounded by a rural landscape and undeveloped land uses. Topography within the Project Area ranges between approximately 670 feet and 680 feet above mean sea level ("msl"). Soils present within the Project Area predominantly consist of silt loams, ranging between 0 and 25 percent slopes.

Erosion and Sedimentation ("E&S") control plans will be developed and implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the Perry County Conservation District. During construction, PPL Electric will adhere to all conditions specified in the E&S control plans. Impacts to local soil resources are anticipated to be minimal.

Waterways and Wetlands

PPL Electric retained an environmental consultant to identify and delineate waterways and wetlands for an area that coincides with the southeastern portion of the Project Area. Additionally, PPL Electric reviewed current aerial imagery, the U.S. Geological Survey ("USGS") National Hydrology Database ("NHD"), and the U.S. Fish and Wildlife Service ("USFWS") National

Wetland Inventory ("NWI") to identify potential waterways and wetlands for the remaining portions of the Project Area.

Based on the combined data within the Project Area, the relocated Juniata – Alburtis 500 kV Transmission Line will span an unnamed tributary ("UNT") of Little Juniata Creek. However, no direct impact to this stream feature is anticipated by the Project activities.

No structures are proposed within delineated wetlands. The relocated Juniata – Alburtis 500 kV Transmission Line will aerially span one of the wetlands. PPL Electric will avoid impacts to wetlands and waterways where possible by aerially spanning these features.

100-Year Floodplains and Regulatory Floodway

The National Flood Hazard Layer for Perry County, Pennsylvania was obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains and regulatory floodway within the Project Area and surrounding landscape. Based on review of this data, no 100-year floodplains or regulatory floodways cross the Project.

Vegetation

Vegetative cover in the Project Area primarily consists of deciduous forest, agricultural fields, and low-maintenance lawn. Minimal vegetation clearing is anticipated for the relocated 500 kV transmission lines since they are located in cleared and maintained areas. PPL Electric will apply its "Specifications for Transmission Vegetation Management LA-79827" to minimize potential impacts.

5.0 THREATENED AND ENDANGERED SPECIES

A Pennsylvania Natural Diversity Inventory ("PNDI") was run for the Project on September 23, 2025, to assess the potential presence of threatened and endangered species and/or special concern species. Specific agencies reviewing the Project included the following:

- Pennsylvania Game Commission ("PGC")
- Pennsylvania Fish and Boat Commission ("PFBC")

- DCNR
- USFWS

None of the agencies reported the presence of any known threatened and endangered species and/or special concern species and resources within the Project Area. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species, complete all required surveys; obtain all necessary approvals and permits for Project construction; and comply with all conditions placed on those permits, if needed.

Figure 3-1. Aerial Map of the Project

- Existing Structure to Remain
- Proposed Structure
- Transformer 500kV Lead Lines (Substation Asset)
- Proposed 500kV Relocation
- Existing 500kV to be Relocated
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- PPL-Owned Parcel

Imagery (PEMA 2021 & Nearmap 2024)
Parcels (Perry 2024)
Floodplains (FEMA 2024)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2024)
NWI Wetlands (USFWS 2024)
Streams (USGS 2024)

Coordinate System:
State Plane Pennsylvania South
Datum: North American 1983

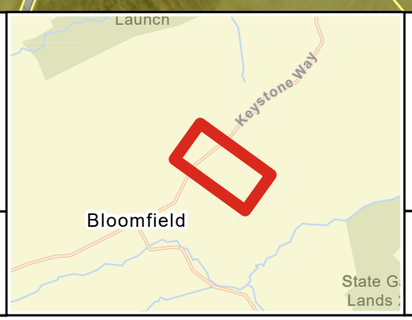


Figure 3-1
Aerial Map

Juniata 500 kV Relocation Project

0 200 400 Feet

N

1:3,600

Attachment 4

JUNIATA 500 KV RELOCATION PROJECT

TABLE OF CONTENTS

List of Tables

1.0 DESIGN CONSIDERATIONS

PPL Electric Utilities Corporation's ("PPL Electric") new and rebuilt transmission lines are designed according to, and generally exceed, all National Electric Safety Code ("NESC") minimum standards. The NESC is a set of rules guiding safety standards during the installation, operation, and maintenance of electric power lines. The NESC contains the basic provisions considered necessary for the safety of employees and the public. Although it is not intended as a design specification, its provisions establish minimum design requirements. PPL Electric has developed design specifications and safety rules which meet or surpass all requirements specified by the NESC.

The NESC includes loading requirements and clearances for the design, construction, and operation of power lines. The "loads" on conductors and supporting structures are the mechanical forces that develop from the weight of the conductors, the weight of ice on the conductors, plus wind pressure on the conductors and supporting structures. Loading requirements are the loads on the conductors and structures that are anticipated assuming certain ice and wind conditions. Loading requirements always contain "safety factors" to allow for unknown or unanticipated contingencies. The clearances and loading requirements contained in the NESC are designed to maintain public safety.

The NESC specifies strength and loading rules based on three different "grades of construction" for conductors and supporting structures:

- Grade B – This grade of construction provides the highest margin of safety and is required when the pole supports spans that cross limited access highways, railroads, and waterways.
- Grade C – This grade of construction is most common and provides a basic margin of safety. It is often utilized for the typical power and joint-use distribution pole.
- Grade N – This is the lowest grade of construction and is most often used for emergency and temporary construction.

PPL Electric designs all its transmission lines for Grade B construction. The use of Grade B design and construction translates to higher levels of structural reliability and safety to withstand the environmental conditions of ice and/or wind loading.

PPL Electric's rigorous design standards are further incorporated into the parameters utilized to account for ice and wind loadings on the wires and structure. Structure loading and line designs must accommodate a variety of operating conditions as different ice and wind combinations can impact the conductor sags and tensions of the line. PPL Electric's transmission lines are designed to exceed NESC requirements by accounting for additional load cases due to various ice and wind loading conditions beyond what is required by NESC. This means that PPL Electric lines are designed to operate safely and reliably during extreme inclement weather. In addition, PPL Electric design standards include a clearance to ground buffer in excess of NESC required clearances to account for construction and design tolerances and the filling or grading of land within the right-of-way by property owners. This buffer also significantly reduces the risk of a property owner inadvertently contacting a transmission line. This has occurred on PPL Electric's system in the past and higher clearances minimize the likelihood of future occurrences.

Table 4-1. 69 kV Vertical Clearance to Ground

Surface Underneath Conductors	NESC Standard Clearance	PPL Electric Clearances
Roads, streets, and other areas subject to truck traffic	19.2 Ft.	22.2 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	19.2 Ft.	22.2 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	15.2 Ft.	22.2 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	27.2 Ft.	30.2 Ft.

Table 4-2. 138 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	20.6 Ft.	23.6 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	20.6 Ft.	23.6 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	16.6 Ft.	23.6 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	28.6 Ft.	31.6 Ft.

Table 4-3. 230 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	22.5 Ft.	25.5 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	22.5 Ft.	25.5 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	18.5 Ft.	25.5 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	30.5 Ft.	33.5 Ft.

Table 4-4. 500 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	28.4 Ft.	31.4 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	28.4 Ft.	31.4 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	24.4 Ft.	31.4 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	36.4 Ft.	39.4 Ft.

A relay protection system is also used on PPL Electric's transmission lines to protect public safety, as well as the equipment on the transmission system. The purpose of relay protection is to automatically de-energize the line in the unlikely event that the line or supporting structure fails and the line contacts the ground.

2.0 PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES

To ensure continued public safety and integrity of service, a periodic maintenance and inspection program is implemented for every transmission line. The program is administered using helicopter patrols, with supplemental foot patrols as needed. Helicopter patrols are performed on all lines on a predetermined frequency, depending on voltage level. The two-man helicopter crew flies parallel to and above the line so that the observer can look for signs of line damage or deterioration and observe clearances between vegetation and conductors. The observations are included in a report that is forwarded to the appropriate department for corrective action.

3.0 PERSONNEL SAFETY RULES

Overall, PPL Electric designs and constructs projects with high regard to both public and employee safety and follows or exceeds all codes and requirements. The following are a few examples of PPL Electric's safety rules that demonstrate its dedication to employee and contractor safety:

- Procedures have been developed to allow work to be performed on energized facilities in a safe manner. When lines or apparatus are removed from service to be worked on, the Energy Control Process system is applied. This system provides that a red tag must be physically placed on the control handle of the de-energized equipment.
- The red tag may be removed only after proper authorization to energize the equipment has been received.
- Various other tags are used for limited operations and informational purposes.
- Employees or contractors will not apply or remove a tag or change the status of tagged equipment unless authorized.

- Temporary safety grounds are used on de-energized facilities for employee lineman safety during maintenance, construction, or reconstruction work. Safety grounds are wires connecting the de-energized facility to an electrical ground. If the facility should be energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury.
- Before applying grounds, a test is done to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability.
- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.

4.0 MAGNETIC FIELD MANAGEMENT PLAN

PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. Although there is no current scientific evidence demonstrating that magnetic fields cause any adverse health effects or pose a health or safety threat to the public, PPL Electric has established a policy to design its new and rebuilt transmission lines to reduce magnetic fields. To lower magnetic field exposures, the program generally prescribes the use of a line design that provides ground clearances higher than the required minimum NESC ground clearance and reverse phasing of new double circuit lines where it is feasible to do so at low or no cost. The implementation of additional modifications to reduce magnetic field levels is considered, provided those modifications can be made at low or no cost and will not interfere with the operation of the line.

The program will be applied to this Project and the Project is designed with clearances that are at least 3 feet higher than NESC standards.

Attachment 5

JUNIATA 500 KV
RELOCATION PROJECT

State Agencies

Pennsylvania Bureau of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Allison Kaster

Pennsylvania Department of Environmental Protection
400 Market Street
10th Floor Rachel Carson State Office Building
Harrisburg, Pennsylvania 17101
Attn: Regional Permit Coordination Office

Pennsylvania Department of Transportation
Commonwealth Keystone Building
400 North Street, Fifth Floor
Harrisburg, Pennsylvania 17120
Attn: Jeffrey Spotts, Chief Counsel

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Ms. Emma Diehl, Division Manager

Pennsylvania Department of Conservation and Natural Resources
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17105-8767
Attn: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: David Gustafson, Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
450 Robinson Lane
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Darryl A. Lawrence, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: NazAarah Sabree, Small Business Advocate

Federal Agencies

Federal Aviation Administration
Eastern Regional Office
1 Aviation Plaza
Jamaica, New York 11434-4809
Attn: Marie Kennington-Gardiner, Administrator

U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Planning Affairs Office

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Attn: Lesa Lindsay

County Agencies

Perry County Planning Commission
2 East Main Street
New Bloomfield, Pennsylvania 17068
Attn: Jason Finnerty, Coordinator

Perry County Agricultural Land Preservation Board
PO Box 36, 31 West Main Street
New Bloomfield, Pennsylvania 17068
Attn: William Lyons, Chairman

Perry County Board of Commissioners
2 East Main Street
New Bloomfield, Pennsylvania 17068
Attn: R. Franklin Campbell, Chairman

Municipalities

Centre Township Board of Supervisors
2971 Cold Storage Road
New Bloomfield, Pennsylvania 17068
Attn: Colin Reynolds, Chairman

Centre Township Planning Commission
2971 Cold Storage Road
New Bloomfield, Pennsylvania 17068
Attn: Bill Roman

VERIFICATION

I, JOSEPH B. LOOKUP, being the Vice President – Transmission & Distribution Planning and Asset Management at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: Decernber 17, 2025

Joseph B. Lookup