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717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Lindsay A. Berkstresser

lberkstresser@postschell.com
717-612-6021 Direct
717-731-1985 Direct Fax
File #: 170929

February 8, 2018

VIA HAND DELIVERY

Rosemary Chiavetta, 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 Re-terminate Approximately 600 feet of the Existing Lackawanna-Shickshinny 500 kV Transmission Line in Blakely Borough, Lackawanna County, Pennsylvania
Docket No. A-2018-

Dear Secretary Chiavetta:

Enclosed for filing is the Letter of Notification of PPL Electric Utilities Corporation in the above-referenced proceeding. A CD containing a copy of the Letter of Notification and Attachments in Support of the Letter of Notification is also enclosed.

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.

Subject to Commission approval, construction is scheduled to begin in May 2018, to support an in-service date of January 2019.

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

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 Re-terminate Approximately 600 feet of the Existing Lackawanna-Shickshinny 500 kV Transmission Line in Blakely Borough, Lackawanna County, Pennsylvania	:	Docket No. A-2018-_____

LETTER OF NOTIFICATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric") hereby files, pursuant to 52 Pa. Code § 57.72(d), this Letter of Notification to request approval from the Pennsylvania Public Utility Commission ("Commission") to re-terminate approximately 600 feet of the existing single circuit Lackawanna-Shickshinny 500 kV Transmission Line in Blakely Borough, Lackawanna County, Pennsylvania (the "Project"). As explained below, the proposed Project is required to address a transformer overload identified by PJM Interconnection, LLC ("PJM"). Subject to the Commission's approval, the Project has a scheduled construction start date of May 2018 to meet an in-service date of January 2019. 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 PPL Electric Utilities Corporation, Two North Ninth Street, Allentown, Pennsylvania 18101.

3. PPL Electric's attorneys are:

Kimberly A. Klock (ID #89716)
Amy E. Hirakis (ID #310094)
PPL Services Corporation
Two North Ninth Street
Allentown, PA 18101
Voice: 610-774-5696
Fax: 610-774-6726
E-mail: kklock@pplweb.com
E-mail: aehirakis@pplweb.com

David B. MacGregor (ID # 28804)
Lindsay A. Berkstresser (ID # 318370
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
E-mail: lberkstresser@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 1.4 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 5,000 miles of transmission lines operating at 69 kV (kilovolts) or higher, approximately 375 substations with a capacity of 10 MVA (megavolt amperes) or more, and approximately 43,000 miles of distribution lines operating at less than 69 kV.

6. This Letter of Notification includes the following accompanying attachments:

- Attachment 1 Necessity Statement.
- Attachment 2 Design & Engineering Description.
- Attachment 3 Description of Right-of-Way.
- Attachment 4 PPL Electric Design Criteria and Safety Practices.

7. 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

8. The Lackawanna 500-230-69 kV Substation is part of the bulk power transmission system, serving customers in parts of Lackawanna County, Pennsylvania.

9. The Lackawanna 500-230-69 kV Substation is supplied by the Shickshinny-Lackawanna 500 kV Transmission Line and the Lackawanna-Hopatcong 500 kV Transmission Line. The Shickshinny-Lackawanna 500 kV Transmission Line extends approximately 33 miles and the Lackawanna-Hopatcong 500 kV Transmission Line extends approximately 78 miles.

10. Currently the Shickshinny-Lackawanna 500 kV Transmission Line is terminated into Bay 1 at the Lackawanna 500-230-69 kV Substation and the Lackawanna-Hopatcong 500 kV Transmission Line terminates into Bay 2 at the Lackawanna 500-230-69 kV Substation.

11. A description, aerial map, and one-line diagram of the existing system are provided in Attachment 1 to this Letter of Notification.

12. In the 2016 Regional Transmission Expansion Plan ("RTEP") Reliability Analysis, PJM identified a North American Electric Reliability Corporation ("NERC") reliability criteria violation when either of the two 500 kV lines connected to the Lackawanna 500-230-69 kV Substation experience a fault and a circuit breaker in the 500 kV switchyard fails to operate. Under this contingency, one of the two 500-230 kV transformers is removed from service and the transformer remaining in service becomes overloaded in violation of NERC criteria.

13. A detailed description of the need for the proposed Project is provided in Attachment 1 to this Letter of Notification.

B. THE PROPOSED PROJECT

14. To address the NERC reliability criteria violation identified in the 2016 RTEP Reliability Analysis, PJM approved PPL Electric's proposal to relocate the Lackawanna 500-230 kV Transformer 3 from the substation bus into a bay position. This will involve removing Transformer 3 from the west bus and connecting it to Bay 1.

15. As explained above, the Shickshinny-Lackawanna 500 kV Transmission Line is terminated into Bay 1 at the Lackawanna 500-230-69 kV Substation. In order to relocate Transformer 3 into the Bay 1 position, the Shickshinny-Lackawanna 500 kV Transmission Line will need to be removed from Bay 1 and re-terminated into a newly created Bay 3 at the Lackawanna 500 kV switchyard.

16. To re-terminate the Shickshinny-Lackawanna 500 kV Transmission Line from Bay 1 to Bay 3, PPL Electric proposes to realign approximately 350 feet of the existing conductors to a new tower structure to be located on PPL Electric's property for the Lackawanna 500-230-69 kV Substation.[1] PPL Electric also proposes to construct approximately 250 feet of new conductors that will extend from the new tower structure to the Bay 3 position.

17. In total, the Project involves approximately 600 feet of new and realigned conductors and one new tower structure, which will be located entirely on PPL Electric's property for the Lackawanna 500-230-69 kV Substation.

18. An aerial map and one-line diagram of the proposed Project are provided in Attachment 1 to this Letter of Notification.

19. The Lackawanna-Shickshinny 500 kV Transmission Line will continue to operate as a single-circuit 500 kV line that will utilize three power conductors and one overhead ground

[1] The existing conductors will be reused for the realigned segment of the Shickshinny-Lackawanna 500 kV Transmission Line.

wire. The power conductors for both the realigned and new segments of the Lackawanna-Shickshinny 500 kV Transmission Line will be 1590 kcmil[2] 54/7 steel-reinforced ACSR[3] conductors.

20. The new tower structure will be a single-circuit steel monopole dead-end structure with a height of approximately 160 feet. A depiction of the new tower structure is provided in Attachment 2 to this Letter of Notification.

21. An engineering description of the proposed Project is provided in Attachment 2 to this Letter of Notification.

22. The total estimated cost of the transmission line re-termination work associated with the proposed Project is $1.0 million.[4] The costs for this Project will be paid by PPL Electric.[5]

23. The proposed Project was approved as baseline project B2824 in the PJM 2016 RTEP. Pursuant to Schedule 6 of the Operating Agreement with PJM, PPL Electric must complete the proposed Project.

III. HEALTH AND SAFETY

24. The proposed Project will not create any unreasonable risk of danger to the public health or safety.

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[2] Kcmil stands for thousand circular mills. Kcmil wire size is the equivalent cross sectional area in thousands of circular mils. A circular mil is the area of a circle with a diameter of one thousandth (.001) of an inch.

[3] ACSR stands for aluminum conductor steel reinforced.

[4] The estimated cost for the proposed Project is an order-of-magnitude estimate developed using averages of recent costs for similar projects and without an in-depth analysis of filed investigation. The estimated 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.

[5] The costs and cost recovery of this Project are subject to the regulatory jurisdiction of the Federal Energy Regulatory Commission.

25. The Project 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 PPL Electric's design criteria and safety practices are provided in Attachment 4 to this Letter of Notification.

26. Consistent with its Magnetic Field Management Program, the proposed Project will be designed to exceed the NESC standards for ground clearance. A description of PPL Electric's Magnetic Field Management Program is provided in Attachment 2 to this Letter of Notification.

IV. DESCRIPTION OF THE RIGHT-OF-WAY

27. The entire Project will be constructed entirely within PPL Electric's property for the Lackawanna 500-230-69 kV Substation. No additional rights-of-way or easements are necessary for the proposed Project.

28. As explained in Attachment 3 to this Letter of Notification, land use and environmental impacts are anticipated to be minimal due to the fact that the Project will be constructed entirely on PPL Electric's substation property.

29. The Project area previously has been cleared of vegetation. As a result, limited vegetation management will be required for this project. In areas where vegetation management is required to complete the project, PPL Electric will apply its "*Specifications for Transmission Vegetation Management LA-79827*" to mitigate any impacts.

30. No communication towers, pipelines, or other utilities will be affected by the proposed Project.

31. PPL Electric does not anticipate any interference with airport operations because of the distance from the Project area, and the presence of existing electrical facilities in the Project area.

32. The Project area contains no state lands, national parks, state parks, or local parks.

33. The Project will not traverse or affect any unique geological, scenic, or natural areas.

34. The Project will not affect any recreational areas or natural landmarks.

35. Although one historic site was identified within 0.25-miles of the Project area, because the Project will be located entirely within the existing Lackawanna 500-230-69 kV Substation property, no impacts to historical, cultural, or archaeological resources are anticipated. PPL Electric will coordinate with the Pennsylvania State Historic Preservation Office Bureau for Historic Preservation regarding any potential impacts the proposed Project may have on cultural and archaeological resources.

36. While the Project will not require the installation of any permanent features within a wetland or waterbody, a small amount of tree removal within a wetland will be required to ensure sufficient clearance for the overhead wires. PPL Electric will obtain permits and other authorizations from the County Conservation District, Pennsylvania Department of Environmental Protection and the United States Army Corps of Engineers, as needed, and will comply with all of the terms and conditions placed on those permits or authorizations.

37. PPL Electric will acquire any required soil erosion and sedimentation control permits and will comply with any conditions placed on those permits.

38. PPL Electric has consulted with state and federal agencies to obtain information regarding endangered and threatened species in close proximity to the Project. Based on a review of the Pennsylvania Natural Heritage Program ("PNHP") web-mapping application, the Project will not impact any threatened and endangered species, or special concern species and

resources managed by the Pennsylvania Fish and Boat Commission and the Pennsylvania Department of Conservation and Natural Resources located within the Project area.

39. The Project is located within the known range of the state and federally threatened northern long-eared bat (*Myotis septentrionalis*). Although only minimal tree clearing activities are required for the proposed Project, PPL Electric will consult with the U.S. Fish and Wildlife Service and the Pennsylvania Game Commission to ensure that the tree clearing activities do not impact the northern long-eared bat.

40. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species. PPL Electric will obtain all approvals and permits necessary for the construction of the Project, and will comply with any conditions placed on those permits.

V. NOTICE

41. PPL Electric has provided information regarding the Project to representatives of Blakely Borough and Lackawanna County. These entities have not objected to the proposed Project.

42. Copies of this Letter of Notification will be served on the governmental agencies, municipalities, and other public entities agencies in accordance with 52 Pa. Code § 57.72(d)(3).

43. Copies of this Letter of Notification will be served on the owners of land subject to the right-of-way and easement in accordance with 52 Pa. Code § 57.72(d)(3). The entire Project will be located on PPL Electric-owned property. No additional landowners will be impacted by the proposed Project.

VI. LETTER OF NOTIFICATION

44. 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).

45. The proposed Project involves the re-termination of approximately 600 feet of the existing single circuit Lackawanna-Shickshinny 500 kV Transmission Line entirely within the PPL Electric-owned property for the Lackawanna 500-230-69 kV Substation.

46. Based on the foregoing, PPL Electric submits that the proposed Project qualifies as a Letter of Notification.

47. 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*.

VII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests Pennsylvania Public Utility Commission the proposed re-termination of approximately 600 feet of the existing single circuit Lackawanna-Shickshinny 500 kV Transmission Line in Blakely Borough, Lackawanna County, Pennsylvania as explained above and in the Attachments hereto.

Respectfully submitted,

Kimberly A. Klock (ID #89716)
Amy E. Hirakis (ID #310094)
PPL Services Corporation
Two North Ninth Street
Allentown, PA 18101
Voice: 610-774-5696
Fax: 610-774-6726
E-mail: kklock@pplweb.com
E-mail: aehirakis@pplweb.com

David B. MacGregor (ID # 28804)
Lindsay A. Berkstresser (ID # 318370)
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
E-mail: lberkstresser@postschell.com

Date: February 8, 2018

Attorneys for PPL Electric Utilities Corporation

Before the
Pennsylvania Public Utility Commission

LACKAWANNA-SHICKSHINNY 500 kV TRANSMISSION LINE RE-TERMINATION PROJECT

ATTACHMENTS IN SUPPORT OF THE

Letter of Notification

Application Docket No. _____

Submitted by: PPL Electric Utilities Corporation

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Table of Contents

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or the "Commission") approval to re-terminate the existing Lackawanna-Shickshinny 500 kV Transmission Line at the PPL Electric Lackawanna 500-230-69 kV Substation in Blakely Borough, Lackawanna County, Pennsylvania (the "Project"). The Project addresses a transformer overload identified by PJM Interconnection, LLC ("PJM"). The Project was approved as a baseline project in the PJM 2016 Regional Transmission Expansion Plan ("RTEP").

Subject to the Commission's approval, the estimated cost to design and construct the Project is approximately $1,024,000.[1] Subject to the Commission's approval, the Project has a scheduled construction start date of May 2018 to meet an in-service date of January 2019. PPL Electric will own, operate and maintain the re-terminated portion of the Lackawanna-Shickshinny 500 kV Transmission Line. The cost for this Project will be paid by PPL Electric.

2.0 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 (transmission grid) be planned and designed to be highly reliable so that reliable electric service can be provided under peak and all loading conditions and when certain elements of the system are out of service (system contingencies) due to planned or unplanned outages.

[1] The estimated cost for the Project is an order-of-magnitude estimate developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The estimated 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.

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

- They are able to accommodate forecasted system flows during summer and winter peak load;
- They can adequately serve each customer's need with regard to 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, and National Electrical Safety Code ("NESC") standards.

PJM is a 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 most of Pennsylvania. In order to ensure reliable transmission service, PJM prepares an annual RTEP 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.[4]

[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 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.

PJM conducts RTEP studies in conjunction with its Transmission Owners and applies NERC, regional, and Transmission Owner reliability criteria to specific conditions on the transmission system. PJM's RTEP is an annual process that encompasses a comprehensive series of detailed analyses to ensure power continues to flow reliably to customers under stringent reliability criteria set by NERC. PJM's manual 14B[5] outlines the RTEP process and reliability criteria used for this process. As mentioned in manual 14B, every year PJM perform various reliability tests such as Baseline Thermal, Baseline Voltage, Load Deliverability, Generation Deliverability and Baseline Stability to ensure safe reliable of operation of electric grid.

When the studies show an inability of the transmission system to meet specific reliability criteria under these conditions, PJM opens an RTEP Window in accordance with FERC Order 1000[6] to identify the optimal solution to resolve the criteria violation.

PPL Electric, as a Transmission Owner and member of PJM, undertakes an independent analysis of both its BES transmission facilities and its non-BES transmission facilities in concert with the PJM RTEP process. PPL Electric identifies all conditions where the future system does not meet the NERC criteria, PJM reliability criteria, or PPL Electric Transmission Owner criteria. In this way, PPL Electric actively participates in the PJM RTEP process, and through this participation, PPL Electric provides results of its independent studies to PJM for consideration and inclusion in the PJM RTEP.

Alternatives that can mitigate violations to the reliability criteria are developed and analyzed to ensure that the PPL Electric transmission system meets the reliability criteria. Estimated costs and lead times to implement the reinforcements are prepared. PPL Electric then proposes solutions to PJM through an RTEP window. If the Project is awarded to PPL Electric, it then becomes a baseline RTEP project.

PPL Electric's Transmission Owner criteria address thermal, voltage, short circuit, and stability limits specific to the PPL Electric zone and also ensure compliance with NERC and PJM reliability criteria. These criteria ensure adequate and appropriate levels of electric service to PPL Electric

[5] PJM Manual 14B is available at http://www.pjm.com/~/media/documents/manuals/m14b.ashx
[6] http://www.ferc.gov/industries/electric/indus-act/trans-plan.asp

customers in accordance with good utility practices. In addition to these criteria, PPL Electric plans the system according to its own Transmission System Development Standards.

Projects created to support PPL Electric's Transmission System Standards are presented to PJM stakeholders at either a Transmission Expansion Advisory Committee ("TEAC") or Sub-Regional RTEP meeting and are assigned a Supplemental project number in the RTEP. PJM incorporates these projects into the power flow model that they use to perform various reliability analyses for the RTEP.

3.0 EXISTING SYSTEM

The existing Lackawanna 500-230-69 kV Substation is part of the bulk power transmission system. The existing Lackawanna 500-230-69 kV Substation serves customers in parts of Lackawanna County, Pennsylvania.

The Lackawanna 500-230-69 kV Substation is supplied by the Shickshinny-Lackawanna 500 kV Transmission Line and the Lackawanna-Hopatcong 500 kV Transmission Line. The Shickshinny-Lackawanna 500 kV Transmission Line extends approximately 33 miles between the 500 kV Shickshinny Substation and the Lackawanna 500-230-69 kV Substation. The Lackawanna-Hopatcong 500 kV Transmission Line extends approximately 78 miles between the Lackawanna 500-230-69 kV Substation to the Hopatcong 500 kV Substation.

Currently the Shickshinny-Lackawanna 500 kV Transmission Line is terminated into Bay 1 at the Lackawanna 500-230-69 kV Substation and the Lackawanna-Hopatcong 500 kV Transmission Line terminates into Bay 2 at the Lackawanna 500-230-69 kV Substation.

Figure 1-1 provides a map of the existing facilities. Figure 1-2 provides a one line diagram of the existing facilities.

4.0 DEFINITION OF THE PROBLEM

In the 2016 RTEP Reliability Analysis, PJM identified that the Lackawanna 500-230 kV transformer becomes overloaded beyond its emergency rating for a failed circuit breaker contingency. Specifically, PJM found that when either of the two 500 kV lines connected to the

Lackawanna 500-230-69 kV Substation experience a fault and a circuit breaker in the Lackawanna 500 kV switchyard fails to operate, the substation bus will be de-energized resulting in one of the transformers being removed from service. Under this contingency, the transformer remaining in service becomes overloaded beyond its summer emergency rating, which is a violation of NERC criteria.[7]

5.0 PROPOSED SOLUTION

In response to the findings of the 2016 RTEP Reliability Analysis, PJM opened a proposal window (FERC 1000 Proposal Window 2) in June of 2016 for proposers to bid on solutions to resolve the transformer overload. PPL Electric submitted a proposal to relocate the Lackawanna 500-230 kV Transformer 3 from the substation bus into a bay position. This will involve removing Transformer 3 from the west bus and connecting it to Bay 1. Moving the 500-230 kV transformer from the bus to Bay 1 will eliminate the tripping of both a 500 kV line and transformer due to a failed circuit breaker contingency, which will address the transformer overload problem identified by PJM.

As explained above, the Shickshinny-Lackawanna 500 kV Transmission Line currently is terminated into Bay 1 at the Lackawanna 500-230-69 kV Substation. In order to relocate Transformer 3 into the Bay 1 position, the Shickshinny-Lackawanna 500 kV Transmission Line will need to be removed from Bay 1 and re-terminated into a newly created Bay 3 at the Lackawanna 500 kV switchyard. This termination involves realigning two spans of conductor and installing a new pole outside the Lackawanna 500-230-69 kV Substation. PPL Electric herein seeks Commission approval to reterminate two spans of conductor and install one new pole at the Lackawanna 500-230-69 kV Substation to allow for the Lackawanna 500-230 kV Transformer 3 to be terminated into Bay 1.

The Project was presented at a PJM TEAC meeting and was approved as baseline project B2824 in the PJM 2016 RTEP. Pursuant to Schedule 6 of the Operating Agreement with PJM (after given

[7] The summer emergency rating for a 500-230 kV transformer is the four-hour thermal rating of the device.

construction responsibility, the Transmission Owner is obligated to construct the project), as the successful bidder, PPL Electric must complete the Project.

Figure 1-1: Project Overview Map

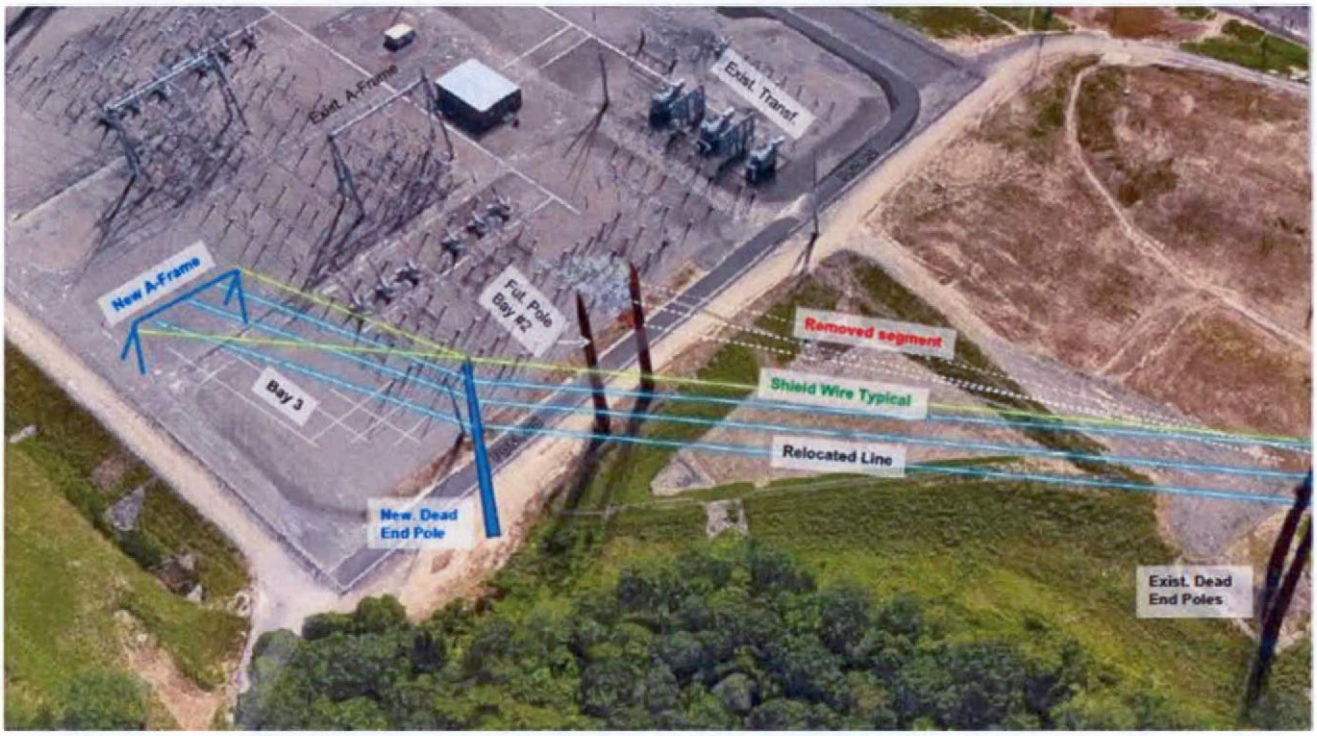


Figure 1-2: Diagram of Existing Substation Facilities

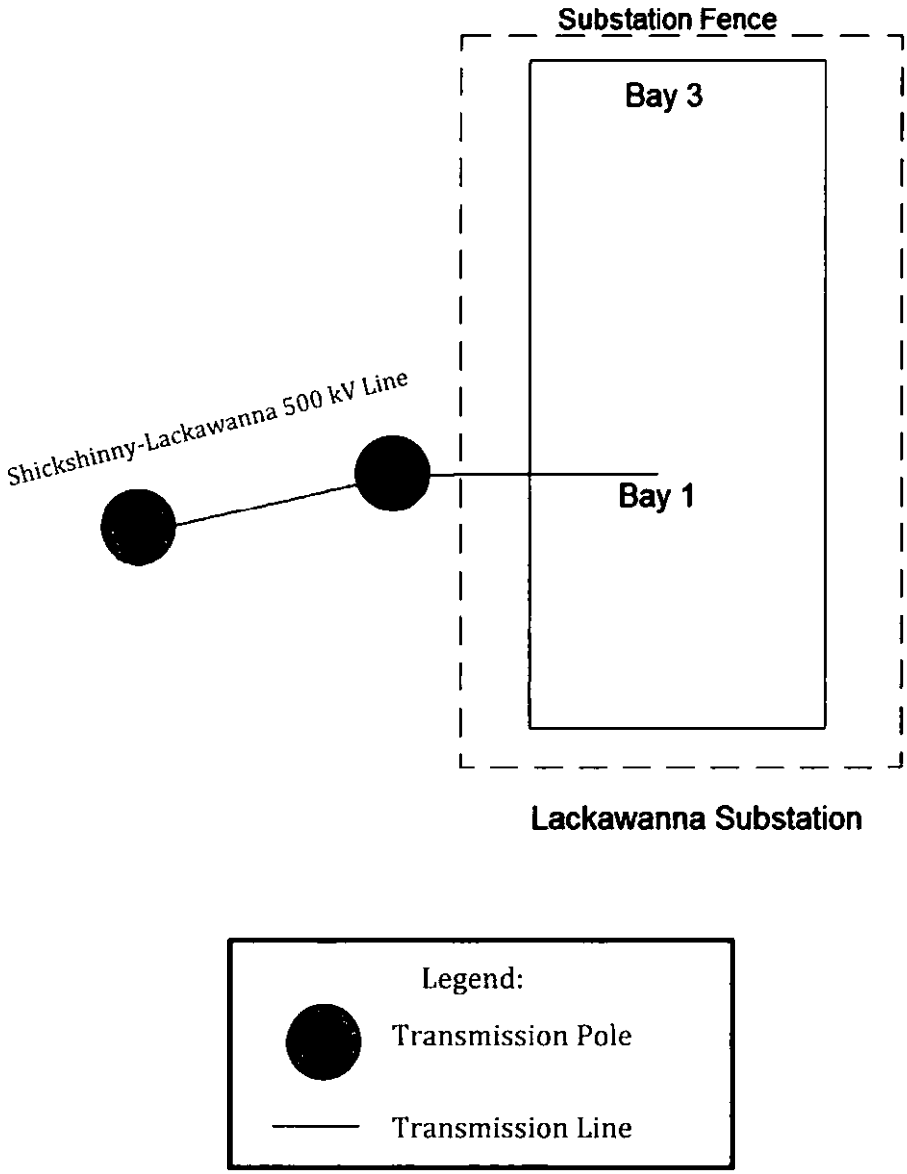


Figure 1-3: Diagram of Proposed Substation Facilities

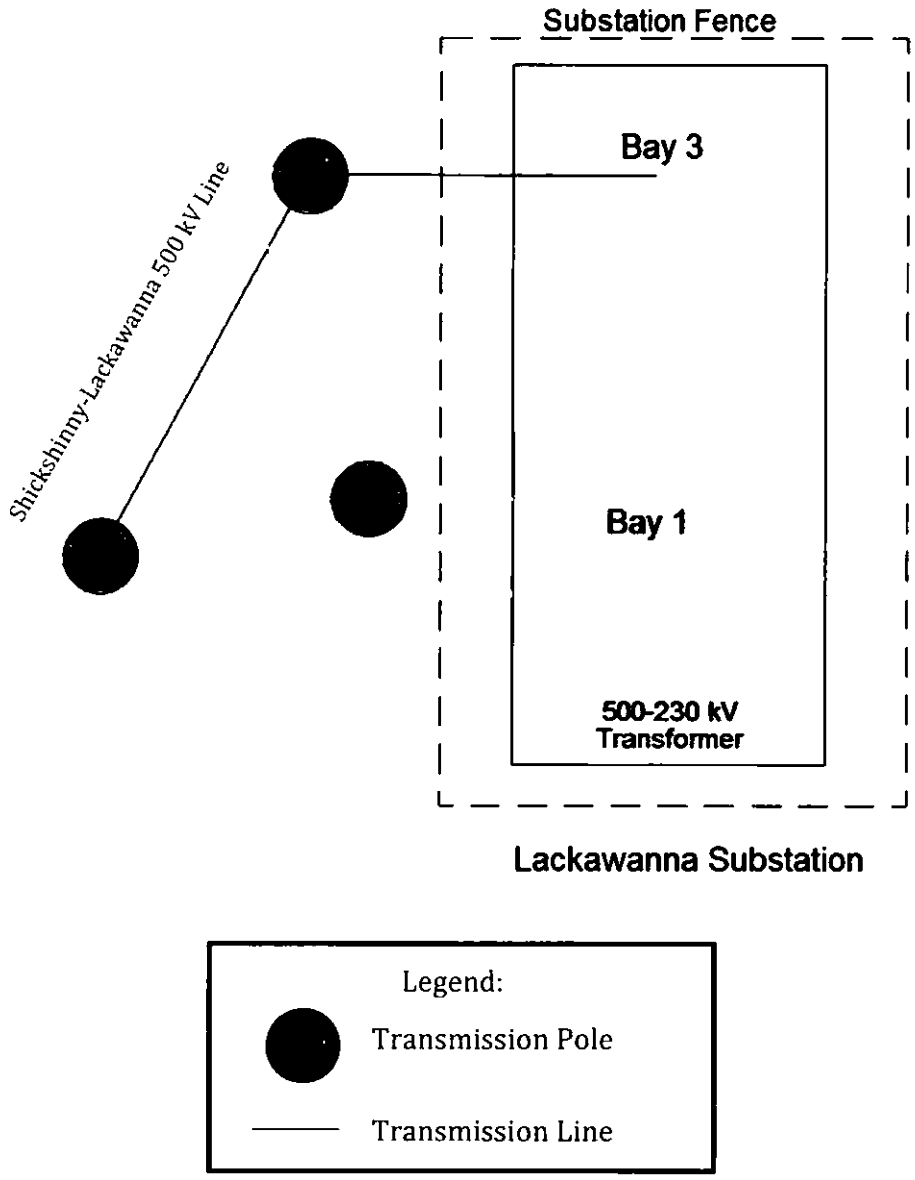


Table of Contents

Figures

List of Tables

1.0 DESCRIPTION OF THE MODIFIED LINE

As explained in Attachment 1, PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or the "Commission") approval to re-terminate the existing Lackawanna-Shickshinny 500 kV Transmission Line at the PPL Electric Lackawanna 500-230-69 kV Substation in Blakely Borough, Lackawanna County, Pennsylvania (the "Project").

As explained in Attachment 1, PPL Electric plans to relocate the Lackawanna 500-230 kV Transformer 3 from the west bus and connect it to Bay 1 at the Lackawanna 500-230-69 kV Substation to address a transformer overload identified by PJM Interconnection, LLC ("PJM"). Currently, the Shickshinny-Lackawanna 500 kV Transmission Line terminates into Bay 1 at the Lackawanna 500-230-69 kV Substation. In order to relocate Transformer 3 into the Bay 1 position, the Shickshinny-Lackawanna 500 kV Transmission Line will need to be removed from Bay 1 and re-terminated into a newly created Bay 3 at the Lackawanna 500 kV switchyard.

To re-terminate the Lackawanna-Shickshinny 500 kV Transmission Line into the Bay 3 position, PPL Electric proposes to realign approximately 350 feet of the existing conductors to a new tower structure to be located on PPL Electric's property for the Lackawanna 500-230-69 kV Substation. PPL Electric also proposes to construct approximately 250 feet of new conductor that will extend from the new tower structure to the Bay 3 position. In total, the Project involves approximately 0.1 miles (~ 600 feet) of new and realigned conductors, which will be located entirely on PPL Electric's property for the Lackawanna 500-230-69 kV Substation.

The Lackawanna-Shickshinny 500 kV Transmission Line will continue to operate as a single-circuit 500 kV line that will utilize three power conductors and one overhead ground wire. The power conductors for both the realigned and new segments of the Lackawanna-Shickshinny 500 kV Transmission Line will be 1590 kcmil[1] 54/7 steel-reinforced ACSR[2] conductors. The existing overhead ground wires will remain in their current location, and new overhead ground wire will

[1] Kcmil stands for thousand circular mills. Kcmil wire size is the equivalent cross sectional area in thousands of circular mils. A circular mil is the area of a circle with a diameter of one thousandth (.001) of an inch.
[2] ACSR stands for aluminum conductor steel reinforced.

be installed on the new conductor segment.

As explained above, the Project will require the installation of one new tower structure, which will be located entirely on PPL Electric's property just outside the fence line of the Lackawanna 500-230-69 kV Substation. The new tower structure will be a single-circuit steel monopole dead-end structure with a height of approximately 160 feet. Figure 2-1 below provides a diagram of the proposed new dead-end tower structure.

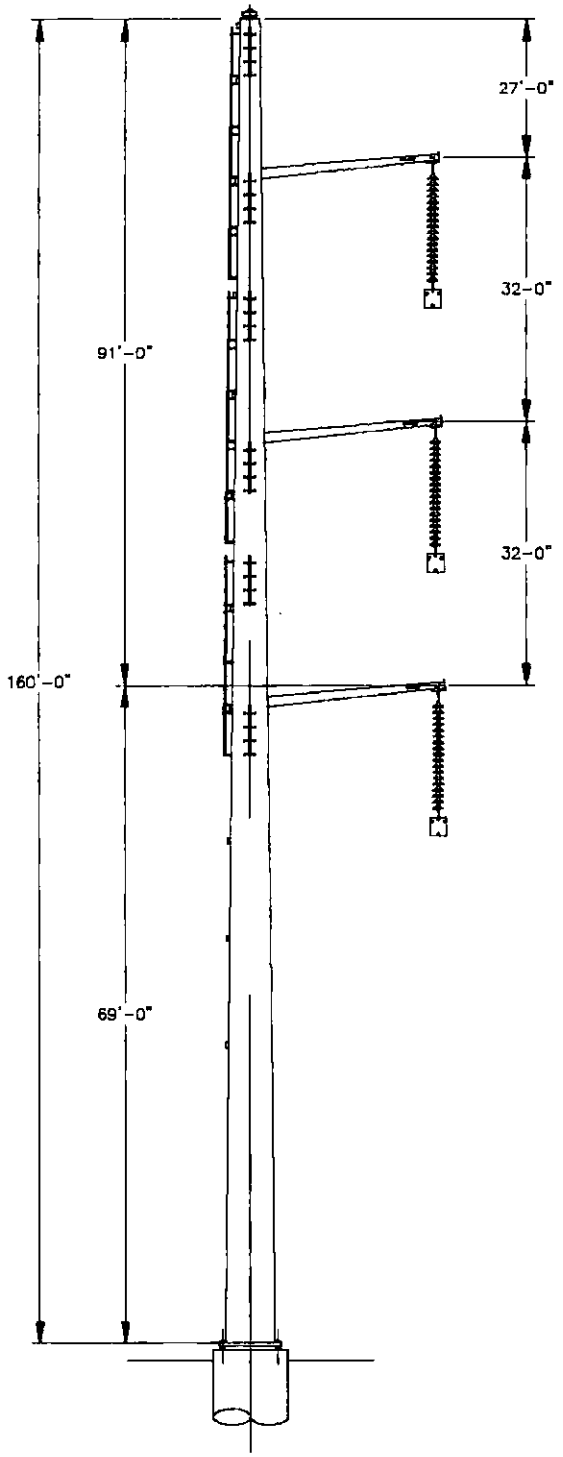


Figure 2-1 – 500 kV Single Circuit Steel Monopole Dead-End Structure Diagram

The design minimum conductor clearances and conductor thermal ratings are shown in Tables 2-1 and 2-2.

Table 2-1 - Design for Minimum Conductor Clearances for 1590-kcmil 45/7 Stranding ACSR[3]	
Conductor	Transmission Double-Circuit Design Clearance-to-Ground
Heavy Ice (1-inch Ice at 0°C ambient temperature)	53 feet
Predicted extreme thermal load (125°C conductor temperature)	53 feet
Predicted blowout (6 pounds, 16°C, ambient temperature)	53 feet

Table 2-2 - Conductor Thermal Rating 1590-kcmil 45/7 Stranding ACSR 125°C Maximum Conductor			
Condition	Ambient Temperature (°C)	Wind Speed (feet/second)	Ampacity (amps, day/night)
Summer Normal	35	0	1626/1758
Winter Normal	10	0	1873/1989
Summer Emergency	35	2.5	2013/2122
Winter Emergency	10	2.5	2267/2363

The re-terminated Lackawanna-Shickshinny 500 kV Transmission Line will be designed to meet, and generally exceed, all current North American Electric Reliability Corporation ("NERC"), PJM, PPL Electric reliability criteria for all normal and emergency operating conditions, and National Electrical Safety Code ("NESC") standards. Design specifications and safety rules practiced by PPL Electric are included in Attachment 4.

2.0 MAGNETIC FIELD MANAGEMENT

PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. The company does not believe that the current scientific evidence

[3] Clearances based on an initial maximum tension of 6,000 to 10,000 pounds at 14-inch ice. 0 Fahrenheit. 4# wind and maximum ruling span of 200 to 1,250 feet.

demonstrates that magnetic fields cause any adverse health efforts or pose a health or safety danger to the public. Nevertheless, PPL Electric has determined, as a matter of policy, to design its new and rebuilt transmission lines to reduce magnetic fields when that can be done at low or no cost and consistent with functional requirements. To reduce magnetic field exposures, the Magnetic Field Management Program generally prescribes the use of a line design with ground clearance higher than required by the NESC standards and reverses phasing of new double-circuit lines where it is feasible to do so at low or no cost.

The re-terminated Lackawanna-Shickshinny 500 kV Transmission Line will be designed to exceed the NESC standards for ground clearance. This measure will reduce the potential for exposure to magnetic fields.

Table of Contents

Figures

1.0 DESCRIPTION OF THE PROJECT AREA

As explained in Attachment 1, PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or the "Commission") approval to re-terminate the existing Lackawanna-Shickshinny 500 kV Transmission Line at the PPL Electric Lackawanna 500-230-69 kV Substation (the "Project"). As explained in Attachment 2, the entire Project will be located on PPL Electric's property for the Lackawanna 500-230-69 kV Substation in Blakely Borough, Lackawanna County, Pennsylvania. An aerial map and one-line diagram depicting the transmission facilities are provided as Figures 1-1 and 1-2 in Attachment 1. Figure 3-1 is an aerial map of the Project that identifies the location and properties crossed by the Project.

The existing Lackawanna 500-230-69 kV Substation is located in an industrial area, and there are no residences adjacent to the Project area. The Project does not cross any state roads or railroads. The area surrounding the Project is a mix of forested land and utility right-of-way.

2.0 CULTURAL RESOURCES

PPL Electric's contractor reviewed Pennsylvania's Cultural Resources Geographic Information System to identify cultural resources, including archaeological sites, aboveground historic resources, and surveys conducted within 0.25 mile of the Project. Historic properties are defined as properties that are included in the National Register of Historic Places ("NRHP") or that meet the criteria for inclusion on the NRHP.

The file search identified one historic resource and no prehistoric sites within 0.25 mile of the Project. The historic site (36LW0060) is not eligible for listing in the NRHP.

As explained above and in Attachment 2, the Project will be located entirely within the existing Lackawanna 500-230-69 kV Substation property. Therefore, no impacts to archeological, historic, or cultural resources are anticipated.

3.0 LAND USE AND NATURAL FEATURES

Impacts to land use are anticipated to be minimal because the Project will be constructed entirely within an existing Lackawanna 500-230-69 kV Substation. No additional property acquisition will

be required to complete the Project. PPL Electric will use previously established access roads for construction to the extent practicable to further reduce interference with existing land uses. The Project includes one new access road around the perimeter of the Lackawanna 500-230-69 kV Substation expansion.

PPL Electric delineated water resources within the Project area. While the Project will not require the installation of any permanent features within a wetland or waterbody, a small amount of tree removal within a wetland will be required to ensure sufficient clearance for the overhead wires. If needed, PPL Electric will obtain the appropriate permits from the Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers.

PPL Electric will prepare required soil erosion and sedimentation control plans and, if necessary, will obtain National Pollutant Discharge Elimination System ("NPDES") permits.

4.0 THREATENED AND ENDANGERED SPECIES

PPL Electric reviewed the Pennsylvania Natural Heritage Program ("PNHP") web-mapping application. Based on this review, the Project will not impact any threatened and endangered species, or special concern species and resources managed by the Pennsylvania Department of Conservation and Natural Resources, or Pennsylvania Fish and Boat Commission.

The Project is within Lackawanna County, an area identified within the northern long-eared bat (*Myotis septentrionalis*) range in Pennsylvania. As noted above, the Project will require a small amount of tree-clearing to ensure sufficient clearance for the overhead wires. PPL Electric will work with the U.S. Fish and Wildlife Service and the Pennsylvania Game Commission to ensure that the tree clearing activities do not impact the northern long-eared bat.

Figure 3-1 Project Aerial Map

Table of Contents

List of Tables

1.0 DESIGN CONSIDERATIONS

PPL Electric's new and rebuilt transmission lines will be designed according to, and generally exceed, all NESC minimum standards. The NESC is a set of rules to safeguard people 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. PPL Electric's transmission line design standards meet or surpass the NESC clearances and loading standards.

For example, 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 of its transmission lines for Grade B construction. The use of Grade B design and construction translate to higher levels of structural reliability and safety to withstand the environmental conditions of ice and/or wind loading, which provides a higher margin of safety.

Another example is the design parameters utilized to account for ice and wind loadings on the wires and structure. The conductor sags and tensions along with the structure loading used in line designs are the result of various ice and wind combinations. PPL Electric's transmission lines are designed to exceed NESC requirements by accounting for additional load due to various ice and wind loading conditions not required by NESC. This means that PPL Electric lines are designed to operate safely and reliably during inclement weather even more severe than assumed by the NESC. In addition, where practicable, PPL Electric transmission lines are designed with more clearance to the ground than required by the NESC. The tables below compare PPL Electric's general conductor to ground design and the NESC minimum ground clearances for lines of various voltages.

TABLE 4-1: 69 kV Vertical Clearance to Ground

Surface Underneath Conductors	NESC Standard Clearance	PPL Conductor Clearances
Roads, streets, alleys	19.2 Ft.	30 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	19.2 Ft.	30 Ft.
Spaces accessible to pedestrians only	15.2 Ft.	30 Ft.
Railroad tracks	27.2 Ft.	31.5 Ft.

TABLE 4-2: 138 kV Vertical Clearance to Ground

Surface Underneath Conductors	NESC Standard Clearance	PPL Conductor Clearances
Roads, streets, alleys	20.6 Ft.	31 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	20.6 Ft.	31 Ft.
Spaces accessible to pedestrians only	16.6 Ft.	31 Ft.
Railroad tracks	28.6 Ft.	35 Ft.

TABLE 4-3: 230 kV Vertical Clearance to Ground

Surface Underneath Conductors	NESC Standard Clearance	PPL Conductor Clearances
Roads, streets, alleys	22.4 Ft.	33 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	22.4 Ft.	33 Ft.
Spaces accessible to pedestrians only	18.4 Ft.	33 Ft.
Railroad tracks	30.4 Ft.	35 Ft.

TABLE 4-4: 500 kV Vertical Clearance to Ground

Surface Underneath Conductors	NESC Standard Clearance	PPL Conductor Clearances
Roads, streets, alleys	28.4 Ft.	40 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	28.4 Ft.	40 Ft.
Spaces accessible to pedestrians only	24.4 Ft.	40 Ft.
Railroad tracks	36.4 Ft.	53 Ft.

A relay protection system is also used on PPL Electric's transmission lines to protect the public safety, as well as the equipment and the transmission system. Relay protection is installed for all transmission lines 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 through the use of 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 the left, 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 designs and constructs projects with high regards to both public and employee safety, and follows or exceeds all codes and requirements.

The following are a few, but not all, of the PPL Electric safety rules that demonstrate the Company's concern for employee and contractor safety:

- Work 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.
- 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.

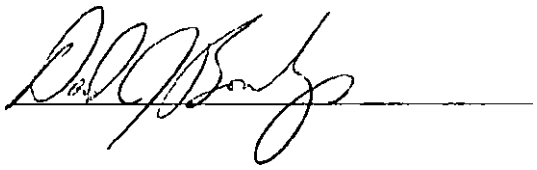
4.0 MAGNETIC FIELD MANAGEMENT PLAN

PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. In order 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, are considered, provided those modifications can be made at low or no cost and will not interfere with the operation of the line.

VERIFICATION

I, DAVID J. BONENBERGER, being the VICE PRESIDENT-TRANSMISSION AND SUBSTATIONS at PPL Electric Utilities 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: 2/6/18



Respectfully submitted,

Lindsay A. Berkstresser

Lindsay A. Berkstresser

LAB/jl
Enclosures

cc: Certificate of Service
Office of Consumer Advocate
Office of Small Business Advocate
Bureau of Investigation & Enforcement
Robert F. Young
Paul T. Diskin
Yasmin Snowberger
Kimberly Hafner

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **Letter of Notification** 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

PA Department of Environmental Protection
P.O. Box 2063
Market Street State Office Building
Harrisburg, PA 17105-2063
Attn: Office of Field Operations

PA Department of Transportation
Commonwealth Keystone Building
400 North Street, 8th Floor
Harrisburg, PA 17120
Attn: Jason Sharp, Acting Chief Counsel

PennDOT District 4
55 Keystone Industrial Park
Dunmore, PA 18512

PA Historical and Museum Commission
Pennsylvania State Historic Preservation Office
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120-0053
Attn: Mr. Douglas C. McLearen, Chief

PA Department of Conservation and
Natural Resources
Rachel Carson State Office Building
PO Box 8767
400 Market Street
Harrisburg, PA 17105-8767
Attn: Rebecca Bowen

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
Attn: John Taucher

PA Fish and Boat Commission
Northeast Region Office
5566 Main Road
Sweet Valley, PA 18656

U.S. Army Corps of Engineers
Baltimore District
City Crescent Building
10 South Howard Street
Baltimore, MD 21201

U.S. Fish and Wildlife Services
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801
Attn: Lora Lattanzi

Lackawanna County Commissioners
Lackawanna County Administration Building
200 Adams Avenue #600
Scranton, PA 18503

Lackawanna County Conservation District
1038 Montdale Road
Scott Township, PA 18447

Blakely Borough Planning Commission
1439 Main Street
Peckville, PA 18452

Blakey Borough Manager
1439 Main Street
Peckville, PA 18452

Lackawanna County Administrator
Lackawanna County Administration Building
200 Adams Avenue
Scranton, PA 18503

Lackawanna County Library System
520 Vine Street
Scranton, PA 18509

Date: February 8, 2018

Lindsay A. Berkstresser

First Class Mail

POST & SCHELL P.C.
ATTORNEYS AT LAW
CELEBRATING 50 YEARS

17 North Second Street
12th Floor
Harrisburg, PA 17101-1601

170929

To: Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265