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File #: 165396

April 22, 2016

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

RECEIVED
2016 APR 22 PM 12: 24
PA PUC
SECRETARY'S BUREAU

Re: Letter of Notification of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57, Subchapter G, for Approval to Add an Approximately 1.6 Mile Second 138/69 kV Circuit on the Existing Schoeneck and Victaulic 138/69 kV Tap Lines in Lower Macungie Township and Alburtis Borough, Lehigh County, Pennsylvania - Docket No. A-2016-

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 August 2016 to support an in-service date of November 2016.

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

Rosemary Chiavetta, Secretary
April 22, 2016
Page 2

Respectfully submitted,



Christopher T. Wright

CTW/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
Nicholas Okoro
Kimberly Hafner

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PA FUC
SECRETARY'S BUREAU

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

Pennsylvania Department of Transportation
Honorable Leslie S. Richards, Secretary
c/o Office of Chief Counsel
Commonwealth Keystone Building
400 North Street, 8th Floor
Harrisburg, PA 17120
Attn: William J. Cressler

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

Lehigh Valley Planning Commission
961 Marcon Boulevard, Suite
Allentown, PA 18109
Attn: Mr. Michael Kaiser, AICP

Lehigh County Board of Commissioners
17 South Seventh Street
Allentown, PA 18101-2400
Attn: Mr. Brad Osborne, Chairman

Lower Macungie Township
Planning Commission
3400 Brookside Road
Macungie, PA 18062
Attn: Mr. Irvin Keister, Chairman

Lower Macungie Township
3400 Brookside Road
Macungie, PA 18062
Attn: Mr. Bruce Fosselman,
Township Manager

Lower Macungie Township Planning,
Community Development and Zoning
3400 Brookside Road
Macungie, PA 18062
Attn: Ms. Sara Pandl, Director, Planning
& Community Development

Alburtis Borough
260 Franklin Street
Alburtis, PA 18011
Attn: Ms. Kathleen Palmer, Mayor

Alburtis Borough Council
260 Franklin Street
Alburtis, PA 18011
Attn: Mr. Ronald Delaco,
Council President

Alburtis Borough Planning Commission
260 Franklin Street
Alburtis, PA 18011
Attn: Ms. Robyn Petric, Chairwoman

SECRETARY'S OFFICE

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PPL-Real Estate Taxes Gentw2
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Allentown, PA 18101-1139

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Macungie, PA 18062

Pennsylvania Lines LLC
C-O Norfolk Southern Railway Company
110 Franklin Rd SE
Roanoke, VA 24042-0028

Tamerler, Alexander G
1628 Barkwood Dr
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C-O AMB Property Corporation
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518 17th Street, 17th Floor
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Mack Trucks Inc.
PO Box 60577
Fort Myers, FL 33906-6577

Date: April 22, 2016



Christopher T. Wright

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PA JUD
SECRETARY'S BUREAU

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Letter of Notification of PPL Electric :
Utilities Corporation, Filed Pursuant to :
52 Pa. Code Chapter 57 Subchapter G, : Docket No. A-2016-_____
for Approval to Add an Approximately :
1.6-Mile Second 138/69 kV Circuit on :
the Existing Schoeneck and Victaulic :
138/69 kV Tap Lines In Lower :
Macungie Township and Alburdis :
Borough, Lehigh County, Pennsylvania :

RECEIVED
2016 APR 22 PM 12: 25
SECRETARY'S OFFICE

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 add an approximately 1.6-mile second 138/69 kV circuit on the existing Schoeneck and Victaulic 138/69 kV Tap Lines (the "Project"). As explained below, the second 138/69 kV circuit is needed to serve the projected load in the area as a result of new industrial development. The entire Project is located within the existing rights-of-way and the PPL Electric owned property for the existing Schoeneck 69-12 kV Substation. The proposed Project is located in Lower Macungie Township and Alburdis Borough, Lehigh County, Pennsylvania. PPL Electric has provided information regarding this Project to these political subdivisions, which have not objected to the Project.

Subject to the Commission's approval, construction is scheduled to begin in August 2016 to support the in-service date of November 2016. PPL Electric therefore requests that the

Commission consider this Letter of Notification on an expedited basis. 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:

Paul E. Russell (Bar I.D. # 21643)
Kimberly A. Klock (ID #89716)
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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 Depictions of the Type of Monopoles used for this Project
- Attachment 3 PPL Electric's Design Criteria and Safety Practices
- Attachment 4 Aerial Plot Plan

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

1. Existing System

8. The existing Schoeneck 69-12 kV Substation provides service to Lower Macungie, and Alburytis Borough, Lehigh County, Pennsylvania. The Schoeneck 69-12 kV Substation currently supplies two 12 kV distribution lines, the Schoeneck 45-01 and 45-02 Lines, which collectively serve approximately 3,630 customers.

9. The Schoeneck 69-12 kV Substation has one 69-12 kV transformer, which is supplied from the existing Schoeneck 138/69 kV Tap. The Schoeneck 138/69 kV Tap extends approximately 0.3 miles from the Schoeneck 69-12 kV Substation to the existing Victaulic 138/69 kV Tap.

10. The Schoeneck 138/69 kV Tap was previously approved by the Commission to be designed, constructed, and operated as a double-circuit 138 kV line. However, the Schoeneck 138/69 kV Tap was to be operated as a single-circuit 69 kV tap line until future load increases make it appropriate for the installation of the second circuit and/or for the system to be operated at 138 kV. *See Re: Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, With Respect To The Schoeneck #1 and #2 138/69 kV Transmission Tap Line In Lower Macungie Township, Lehigh County, Pennsylvania, Docket No. A-2010-2161788, 2010 Pa. PUC LEXIS 1861 (July 20, 2010).* Currently, there is only one circuit on the Schoeneck 138/69 kV Tap, the Schoeneck #1 138/69 kV Tap.

11. The Schoeneck #1 138/69 kV Tap is supplied from the Victaulic 138/69 kV Tap. The Victaulic 138/69 kV Tap extends approximately 0.2 miles from a customer-owned substation to the tap point with the Schoeneck #1 138/69 kV Tap. From this tap point, the Victaulic 138/69 kV Tap continues approximately 1.2 miles to a tap point with the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap,¹ which supplies the Victaulic 138/69 kV Tap.

12. The Victaulic 138/69 kV Tap was previously approved by the Commission to be designed, constructed, and operated as a double-circuit 138 kV line. However, the Victaulic 138/69 kV Tap was to be operated as a single-circuit 69 kV tap line until future load increases

¹ The double-circuit Mack Macungie #1 & #2 138/69 kV Tap extends approximately 160 feet from a customer-owned substation to the tap point with the Victaulic 138/69 kV Tap, and then continues approximately 1.5 miles to the Wescosville-Breinigsville #1 & #2 138/69 kV Transmission Lines. The existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap is supplied by the Wescosville-Breinigsville #1 & #2 138/69 kV Transmission Lines, which in turn are supplied by the Wescosville 500-230-138-69 kV Regional Substation. *See Application of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G for Approval of the Siting and Reconstruction of a Portion of the Existing Mack Macungie #1 & #2 138/69 kV Line in Lower Macungie Township, Lehigh, County, Pennsylvania, Docket No. A-2012-2301049, 2012 Pa. PUC LEXIS 1118 (July 19, 2012)*

make it appropriate for the installation of the second circuit and/or for the system to be operated at 138 kV. *See Letter of Notification of Pennsylvania Power & Light Company filed pursuant to 52 Pa. Code, Chapter 57 with respect to the Proposed Victaulic 138/69 kV supply line, to be located, constructed, operated, and maintained in Lower Macungie Township and the Borough of Alburdis, Lehigh County, Pennsylvania, Docket No. A-110500F141 (September 24, 1991).* Currently, there is only one circuit on the Victaulic 138/69 kV Tap, the Victaulic #1 138/69 kV Tap.

13. A map and one-line diagram of the existing system are provided in the Necessity Statement included as Attachment 1 to this Letter of Notification.

2. Need for the Project

14. As explained above, both the Schoeneck and Victaulic 138/69 kV Tap Lines were previously approved by the Commission to be designed, constructed, and operated as a double-circuit 138 kV line. However, both Tap Lines were to be operated as single-circuit 69 kV tap lines until future load increases make it appropriate for the installation of the second circuit and/or for the system to be operated at 138 kV.

15. PPL Electric's system planning studies concluded that it is necessary to add a second circuit to the Schoeneck and Victaulic 138/69 kV Tap Lines. The addition of the second circuit to the Schoeneck and Victaulic 138/69 kV Tap Lines is needed to accommodate increased load growth on the distribution system serving Lehigh County projected as early as November 2016, and to meet PPL Electric's Transmission System Development Standards. Further, the failure to add the second circuit could result in outages that would affect approximately 3,630 customers and two large industrial customers until transmission line repairs could be made on existing circuits.

16. The need for this Project is further explained in Attachment 1 to this Letter of Notification.

B. THE PROPOSED PROJECT

17. To accommodate the new load growth and industrial development in the area, PPL Electric plans to install a new 69-12 kV transformer at the Schoeneck 69-12 kV Substation, which will then supply two new 12 kV distribution circuits (the Schoeneck 45-03 and 45-04 distribution lines). To supply the new transformer at the Schoeneck 69-12 kV Substation, PPL Electric proposes to add a second circuit to the Schoeneck and Victaulic 138/69 kV Tap Lines.

18. The second 138/69 kV circuit to be added to the Schoeneck and Victaulic 138/69 kV Tap Lines will extend approximately 0.4 miles from Schoeneck 69-12 kV Substation to the existing Victaulic 138/69 kV Tap, and then continue approximately 1.2 miles to the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap. In total, the second 138/69 kV circuit will extend approximately 1.6 miles from the Schoeneck 69-12 kV Substation to the Mack Macungie #1 & #2 138/69 kV Tap.

19. The new second 138/69 kV circuit will utilize three new 556 kcmil² ACSR³ Parakeet phase conductors.⁴ The minimum conductor-to-ground clearance will be 30 feet, which occurs at a maximum conductor temperature of 125° C.⁵

² Kcmil stands for thousand circular mils. 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 maximum thermal rating for a 556.5 kcmil 24/7 strand ACSR is as follows:

Condition	Ambient Temperature (°C)	Wind Speed (Ft./sec)	Ampacity (Amps)
Summer Normal	35	0	800
Winter Normal	10	0	923
Summer Emergency	35	2.533	1047
Winter Emergency	10	2.533	1180

20. In addition, because the Schoeneck and Victaulic 138/69 kV Tap Lines do not meet current lightning protection standards and lack optical overhead ground wires, PPL Electric plans to install new fiber optic and ground wires for lightning protection and for communications between the transmission system facilities. The new fiber optic and ground wires will extend approximately 1.6 miles from the Schoeneck 69-12 kV Substation to the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap.

21. Upon completion, the entire 138/69 kV double-circuit extending from the Schoeneck 69-12 kV Substation to the Wescosville – Breinigsville #1 & #2 138/69 kV Transmission Line will be renamed the Schoeneck #1 & #2 138/69 kV Tap. That is, the renamed Schoeneck #1 & #2 138/69 kV Tap will include the following: approximately 0.4 miles of the Schoeneck 138/69 kV Tap that extends from the Schoeneck 69-12 kV Substation to the existing Victaulic 138/69 kV Tap; (ii) approximately 1.2 miles of the Victaulic 138/69 kV Tap that extends from the Schoeneck 138/69 kV Tap to the Mack Macungie #1 & #2 138/69 kV Tap; and (iii) the approximately 1.5 miles of the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap that extends from the Victaulic 138/69 kV Tap to the Wescosville – Breinigsville #1 & #2 138/69 kV Transmission Line.⁶ The Schoeneck #1 & #2 138/69 kV Tap will continue to operate as a 69 kV double-circuit until future load makes it appropriate for the system to be operated at 138 kV.

22. A map and one-line diagram of the proposed system are provided in the Necessity Statement included as Attachment 1 to this Letter of Notification.

⁵ The minimum conductor -to-ground clearances required for a double-circuit 556.5 kcmil 24/7 strand ASCR is 23.8 feet. These clearances are based on an initial maximum tension of 6,000-10,000 pounds at ½ inch ice, 0°F, 4 pound wind, and maximum ruling span of 200-1250 feet.

⁶ As explained in Attachment 1 to this Letter of Notification, the remaining segments of the Victaulic Tap (approximately 0.2 miles) and Mack Macungie Tap (approximately 160 feet) will remain in place and continue to serve the customer-owned substations.

23. Although both the Schoeneck and Victaulic 138/69 kV Tap Lines were previously approved by the Commission to be designed, constructed, and operated for double-circuit 138/69 kV design, it is necessary to install eight new tower structures to accommodate the addition of the previously approved second 138/69 kV circuit.

24. The first new tower structure will replace an existing 65-foot steel monopole on the Mack Macungie #1 and #2 138/69 kV Tap located near the tap point for the customer-owned substation. The new tower structure is necessary to re-configure the Mack Macungie #1 and #2 138/69 kV Tap to interconnect with the new double-circuit Schoeneck #1 & #2 138/69 kV Tap. The new tower structure will be a direct embedded steel monopole with an estimated height of 85 feet. The new structure will be located entirely within the existing right-of-way for the Mack Macungie #1 and #2 138/69 kV Tap, will be placed in close proximity to the existing tower structure, and will not be placed on any property that currently does not have a tower structure.

25. The second new tower structure will replace an existing 85-foot angle structure located on the Schoeneck 69-12 kV Substation property. The existing angle structure does not meet PPL Electric's current standards for a double-circuit 138/69 kV angle design. The new angle structure will be a two-pole design that will utilize direct embedded steel monopoles with an estimated height of 100 feet. The new angle structure will be located entirely on the PPL Electric-owned Schoeneck 69-12 kV Substation property.

26. The remaining new tower structures include five new monopole structures and one switch pole that will be located on the Schoeneck 69-12 kV Substation property. These new tower structures are required to tie the two circuits from the Schoeneck #1 & #2 138/69 kV Tap into the existing 69-12 kV transformer and the second new 69-12 kV transformer to be added to the Schoeneck 69-12 kV Substation. These new monopole structures will be direct embedded

steel monopoles with an average height of 85 feet. These new monopole structures will be located entirely on the PPL Electric-owned Schoeneck 69-12 kV Substation property.

27. Depictions of the type of monopoles used for this Project are provided in Attachment 2 to this Letter of Notification.

28. The total estimated cost of the proposed Project is \$2.3 million.⁷

29. Upon Commission approval, the Project has a scheduled construction start date of August 2016 to support the in-service date of November 2016. PPL Electric therefore requests expedited consideration of this Letter of Notification.

III. HEALTH AND SAFETY

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

31. 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 of PPL Electric's design criteria and safety practices are provided in Attachment 3 to this Letter of Notification.

IV. DESCRIPTION OF RIGHT-OF-WAY

32. As explained above, the new tower structures required to accommodate the addition of the second circuit to the previously-approved, double-circuit Schoeneck and Victaulic 138/69 kV Tap Lines will be located entirely within the existing right-of-way for the Mack Macungie #1 and #2 138/69 kV Tap and on the PPL Electric-owned Schoeneck 69-12 kV Substation property.

⁷ 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 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.

33. The right-of-way for the existing Mack Macungie #1 & #2 138/69 kV Tap varies from 70 to 100 feet in width. However, the segment of right-of-way where the new monopole structure will be installed is 100 feet in width. The new structure to be located within the existing right-of-way for the Mack Macungie #1 and #2 138/69 kV Tap will be placed in close proximity to the existing tower structure.

34. The existing rights-of-way and substation property are sufficient to accommodate the construction activities required for this Project. No additional right-of-way is required for the construction, operation, or maintenance of the double-circuit Schoeneck #1 & #2 138/69 kV Tap.

35. An aerial plot plan is provided as Attachment 4 to this Letter of Notification.

36. Although the eight new structures required will increase in height slightly as compared to the existing structures, impacts will be minimal because the Project will be rebuilt entirely within the existing right-of-way and on the Schoeneck 69-12 kV Substation property, and in close proximity to the existing structures. Further, no new poles will be placed on any property that currently does not have an existing pole.

37. Land use impacts are anticipated to be minimal due to the fact that the Project will be constructed entirely within the existing right-of-way and on the PPL Electric-owned Schoeneck 69-12 kV Substation property. Where practical, PPL Electric will use previously established access roads for construction to further reduce interference with existing land uses.

38. 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 Initial Clearing and Control of Vegetation On or Adjacent to Electric Line Right-of-Way Through Use of Herbicides, Mechanical and Hand Clearing Techniques" to mitigate any impacts.

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

40. The closest airport is the Allentown Queen City Municipal Airport, which is located approximately 2 miles northeast of the right-of-way for the proposed Project. PPL Electric does not anticipate any interference with airport operations because of the distance from the Project area, the presence of existing electrical facilities in the Project area, and the similar height of the new facilities and the existing facilities. However, PPL Electric will file all required documentation with both the Federal Aviation Administration and the Pennsylvania Department of Transportation, Bureau of Aviation.

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

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

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

44. The Project area was reviewed with the Pennsylvania Historical and Museum Commission ("PHMC"). The PHMC has concluded in a letter dated January 6, 2016, that the Project will have no adverse impacts to cultural and archaeological resources.

45. The Project area contains no wetlands and will not impact any streams.

46. The Project will not require any permits from the United States Army Corps of Engineers ("USACE") or the Pennsylvania Department of Environmental Protection ("PADEP"). However, if permits become necessary, PPL Electric will obtain all necessary permits from the USACE and PADEP and will comply with all of the terms and conditions placed on those permits.

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

48. To the extent required, PPL Electric will obtain all permits necessary from state and federal agencies with jurisdiction over endangered and threatened species, and will comply with all the terms and conditions placed on any permits required.

49. The Project is located in Lehigh County, which is within the known range of the federally threatened bog turtle (*Clemmys muhlenbergii*). However, based on field reviews, no wetlands were identified within the Project area and, therefore, no impacts to bog turtles are anticipated.

V. NOTICE

50. PPL Electric has provided information regarding the Project to representatives of Lehigh County, Lower Macungie Township, and Alburty Borough. These entities have not objected to the proposed Project.

51. 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).

52. 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).

VI. REQUEST FOR EXPEDITED TREATMENT

53. PPL Electric further requests that the Commission consider this Letter of Notification on an expedited basis. Timely approval of this Letter of Notification is important for several reasons.

54. As explained above, the addition of the second circuit to the Schoeneck and Victaulic 138/69 kV Tap Lines is needed to accommodate increased load growth on the distribution system serving Lehigh County projected as early as November 2016. Further, the

failure to add the second circuit could result in outages that would affect approximately 3,630 customers and two large industrial customers until transmission line repairs could be made on existing circuits.

55. As explained above, PPL Electric plans to begin construction in August 2016 to support the in-service date of November 2016. Expedited approval of this Letter of Notification will help ensure that customers in the Lower Macungie and Alburty Borough area continue to receive safe and reliable electric service.

VII. LETTER OF NOTIFICATION

56. 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)(v) and (vi).

57. As explained above, both the Schoneck and Victaulic 138/69 kV Tap Lines were previously approved by the Commission to be designed, constructed, and operated as 138 kV double-circuit tap lines. However, both Tap Lines were initially operated as single-circuit 69 kV tap lines until future load increases make it appropriate for the installation of the second circuit and/or for the system to be operated at 138 kV.

58. As explained above, PPL Electric herein seeks Commission approval to add an approximately 1.6-mile second 138/69 kV circuit on the existing Schoeneck and Victaulic 138/69 kV Tap Lines.

59. PPL Electric submits that this proposed Project qualifies for use of a Letter of Notification because the project is less than two miles, and the new tower structures will be located entirely within the existing right-of-way and on PPL Electric-owned property without substantially altering the existing right-of-way as described above.

60. 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.*

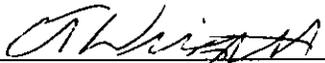
VIII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission (1) consider this Letter of Notification on an expedited basis, and (2) approve the addition of an approximately 1.6-mile second 138/69 kV circuit on the existing and previously approved Schoeneck and Victaulic 138/69 kV Tap Lines in Lower Macungie Township and Alburty Borough, Lehigh County, Pennsylvania, as explained above and in the Attachments hereto.

Respectfully submitted,

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Date: April 22, 2016

Attorneys for PPL Electric Utilities Corporation

ATTACHMENT 1
SCHOENECK #2 138/69 KV TAP INSTALLATION
NECESSITY STATEMENT

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ATTACHMENT 1
SCHOENECK #2 138/69 KV TAP INSTALLATION
NECESSITY STATEMENT

A. INTRODUCTION

PPL Electric Utilities Corporation (“PPL Electric”) proposes to install an approximately 1.6-mile second 138/69 kV circuit on the existing Victaulic and Schoeneck 138/69 kV Tap Lines located in Lower Macungie Township and Alburty Borough, Lehigh County, Pennsylvania (the “Project”). As explained below, the Project is required in order to serve the projected increased load in the area as a result of new industrial development and to enhance electric reliability by replacing traditional overhead ground wires with fiber optic ground wires. The entire Project will be located within the Schoeneck 69-12 kV Substation property and within the existing double-circuit Mack Macungie #1 & #2 Tap Line right-of-way.

The estimated cost to design and construct the transmission component of the Project is approximately \$2.3 million¹. Subject to the Commission’s approval, the Project has a scheduled construction start date of August 2016 to meet an in-service date of November 2016.

B. 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 (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 proposed 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 Interconnection, LLC ("PJM"), and the Transmission Owner's reliability criteria for all normal and emergency operating conditions.

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 Regional Transmission Expansion Plan (RTEP)⁴ 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.

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 14B⁵ outlines the RTEP process and reliability criteria use 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 1000⁶ 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.

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>

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 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.

In addition to NERC, PJM, and Transmission Owner criteria-based projects, PPL Electric also initiates projects based on the Transmission System Development Standards. These projects address local load growth, provide load restoration flexibility, and replace poor performing transmission assets in order to provide an advanced level of reliability on the local system.

PPL Electric's Transmission System Development Standards also consider transmission needs to support the development of the distribution system. When the distribution system needs to either expand existing distribution substations with new transformation or install new distribution substations to support local load growth on the distribution system, new transmission facilities are required to accommodate that expansion.

Projects created to support PPL Electric's Transmission System Development Standards are presented to PJM stakeholders at either a 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 which they use to perform various reliability analyses for the RTEP.

As explained below, the proposed Project is necessary to accommodate the local load growth on the distribution system serving Lehigh County according to PPL Electric Transmission System Development Standards. The proposed Project has been presented at a PJM Mid-Atlantic Sub-Regional RTEP stakeholder meeting and has been approved as supplemental project S0971 in PJM's RTEP process.

C. EXISTING SYSTEM

The existing Schoeneck 69-12 kV Substation provides service to the Lower Macungie area and Alburtis Borough, Lehigh County, Pennsylvania. The Schoeneck 69-12 kV Substation currently supplies two 12 kV distribution lines, the Schoeneck 45-01 and 45-02 Lines, which collectively serve approximately 3,630 customers.

The Schoeneck 69-12 kV Substation has one 69-12 kV transformer, which is supplied from the existing Schoeneck 138/69 kV Tap. The Schoeneck 138/69 kV extends approximately 0.3 miles from Schoeneck 69-12 kV Substation to the existing Victaulic 138/69 kV Tap.

The Schoeneck #1 138/69 kV Tap is supplied from the Victaulic 138/69 kV Tap. The Victaulic 138/69 kV Tap extends approximately 0.2 miles from a customer-owned substation to the tap point with the Schoeneck #1 138/69 kV Tap. From this tap point, the Victaulic 138/69 kV Tap extends approximately 1.2 miles to the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap, which supplies the Victaulic 138/69 kV Tap.

The double-circuit Mack Macungie #1 & #2 138/69 kV Tap extends approximately 160 feet from a customer-owned substation to the tap point with the Victaulic 138/69 kV Tap, and then continues approximately 1.5 miles to the Wescosville-Breinigsville #1 & #2 138/69 kV Transmission Lines. The existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap is supplied by the Wescosville-Breinigsville #1 & #2 138/69 kV Transmission Lines, which in turn are supplied by the Wescosville 500-230-138-69 kV Regional Substation.

Both the Schoeneck and Victaulic 138/69 kV Tap Lines were previously approved to be designed, constructed, and operated as a double-circuit 138 kV line. However, both the Schoeneck and Victaulic 138/69 kV Tap Lines were to be operated as single-circuit 69

kV tap lines until future load made it appropriate for the installation of the second circuit and/or for the system to be operated at 138 kV.⁷ Currently, there is only one circuit on the Schoeneck and Victaulic 138/69 kV Tap Lines, the Schoeneck #1 138/69 kV Tap and Victaulic #1 138/69 kV Tap respectively.

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

D. DEFINITION OF THE PROBLEM

PPL Electric plans its system, in accordance with its Transmission Owner Reliability Criteria as well as its Transmission System Development Standards, so that the system can sustain probable contingencies and disturbances with minimal customer service interruptions and it can adequately serve each customer's needs with regard to capacity, voltage, and reliability for all load levels throughout the daily load cycle. As explained above, transmission system planning is the process which assures that the PPL Electric's regional system can supply electricity to all customer loads in a reliable and economic manner. Likewise, the distribution planning process assures that the 12 kV distribution system can reliably serve its customers through the lower voltage 12 kV system. In addition, both the transmission and distribution systems are planned so that system reliability can be maintained to prevent large scale, long term, or frequent service interruptions in order to avoid adverse effects and hazards to the public.

PPL Electric's system planning studies concluded that it is necessary to add a second circuit to the Schoeneck and Victaulic 138/69 kV Tap Lines to meet the distribution planning reliability requirements. PPL Electric system planning studies project that

⁷ See Re: *Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, With Respect To The Schoeneck #1 and #2 138/69 kV Transmission Tap Line In Lower Macungie Township, Lehigh County, Pennsylvania*, Docket No. A-2010-2161788, 2010 Pa. PUC LEXIS 1861 (July 20, 2010); *Letter of Notification of Pennsylvania Power & Light Company filed pursuant to 52 Pa. Code, Chapter 57 with respect to the Proposed Victaulic 138/69 kV supply line, to be located, constructed, operated, and maintained in Lower Macungie Township and the Borough of Alburdis, Lehigh County, Pennsylvania*, Docket No. A-110500F141 (September 24, 1991).

during periods of high demand, the loss of the single transformer at Schoeneck 69-12 kV Substation would interrupt approximately 28 MW of load during 2017 winter peak conditions. PPL Electric anticipates approximately 5.8 MW of load would remain interrupted after 7.2 MW of available field transfers are made and a mobile 15 MVA transformer can be transported and energized at Schoeneck 69-12 kV Substation.

According to the PPL Electric Distribution Reliability requirements, 0 MW of load should remain interrupted for single contingency transformer failures after field transfers and the installation of a mobile transformer.

Also, PPL Electric transmission system planning studies project that during periods of high demand, the loss of the single-circuit Mack Macungie #1 138/69 kV Tap would interrupt approximately 36 MW of load during 2016 winter peak conditions. PPL Electric anticipates this load would remain interrupted until transmission line repairs can be made on the existing circuit. The outage would affect approximately 3,630 customers served from the distribution system and two large transmission-connected customers.

In addition, PPL Electric transmission system planning studies project that the loss of the single-circuit Victaulic #1 138/69 kV Tap would interrupt approximately 33 MW of load during 2016 winter peak conditions. The outage of the Victaulic #1 138/69 kV Tap would affect 3,630 customers and one of the large transmission-connected customers. The ability to transfer this load served from the Schoeneck 69-12 kV Substation to other nearby distribution substations is very limited during system peak conditions.

E. PROPOSED SOLUTION

To accommodate the new load growth and industrial development in the area and to provide load restoration flexibility, PPL Electric plans to install a new 69-12 kV transformer at the Schoeneck 69-12 kV Substation, which will then supply two new 12 kV distribution circuits (the Schoeneck 45-03 and 45-04 distribution lines). The new transformer will be supplied from the second circuit to be added to the Schoeneck and

Victaulic 138/69 kV Tap Lines. The new second 138/69 kV circuit will extend approximately 1.6 miles from the Schoeneck 69-12 kV Substation to interconnect with the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap.

In addition to addressing the distribution planning requirements, the project will also provide load restoration flexibly on the transmission system during the single contingency event on the existing circuit.

Upon completion, the entire 138/69 kV double-circuit extending from the Schoeneck 69-12 kV Substation to the Wescosville – Breinigsville #1 & #2 138/69 kV Transmission Line will be renamed the Schoeneck #1 & #2 138/69 kV Tap. That is, the renamed Schoeneck #1 & #2 138/69 kV Tap will include the following: approximately 0.4 miles of the Schoeneck 138/69 kV Tap that extends from the Schoeneck 69-12 kV Substation to the existing Victaulic 138/69 kV Tap; (ii) approximately 1.2 miles of the Victaulic 138/69 kV Tap that extends from the Schoeneck 138/69 kV Tap to the Mack Macungie #1 & #2 138/69 kV Tap; and (iii) the approximately 1.5 miles of the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap that extends from the Victaulic 138/69 kV Tap to the Wescosville – Breinigsville #1 & #2 138/69 kV Transmission Line.⁸ The Schoeneck #1 & #2 138/69 kV Tap will continue to operate as a 69 kV double-circuit until future load makes it appropriate for the system to be operated at 138 kV.

In addition, because the Schoeneck and Victaulic 138/69 kV Tap Lines do not meet current lightning protection standards and lack optical overhead ground wires, PPL Electric plans to install new fiber optic and ground wires for lightning protection and for communications between the transmission system facilities. The new fiber optic and

⁸ The Victaulic #1 138/69 kV Tap extending approximately 0.2 miles from a customer-owned substation to the tap point with the Schoeneck #1 138/69 kV Tap will remain in place and continue to serve the customer-owned substation. Similarly, the existing Mack Macungie #1 138/69 kV Tap that extends approximately 160 feet from a customer-owned substation to the point where the new second 138/69 kV circuit interconnects with the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap will remain in place and continue to serve the customer-owned substation, but will be renamed the Mack Macungie Tap.

ground wires will extend approximately 1.6 miles from the Schoeneck 69-12 kV Substation to the existing double-circuit Mack Macungie #1 & #2 138/69 kV Tap.

Although both the Schoeneck and Victaulic 138/69 kV Tap Lines were previously approved to be designed, constructed, and operated for double-circuit 138/69 kV design, it is necessary to install eight new tower structures to accommodate the addition of the second 138/69 kV circuit and the required fiber optic and ground wires. The first new tower structure will replace an existing steel monopole on the Mack Macungie #1 and #2 138/69 kV Tap located near the tap point for the customer-owned substation. The new tower structure is necessary to re-configure the Mack Macungie #1 and #2 138/69 kV Tap to interconnect with the new double-circuit Schoeneck #1 & #2 138/69 kV Tap.

The second new tower structure will replace an existing angle structure on the Schoeneck 69-12 kV Substation property that does not meet PPL Electric's current standards for a double-circuit 138/69 kV angle design. The new angle structure will be a two-pole design that will utilize direct embedded steel monopoles with an estimated height of 100 feet.

The remaining new tower structures include five new monopole structures and one switch pole that will be new structures located on the Schoeneck 69-12 kV Substation property. These new tower structures are required to tie the two circuits from the Schoeneck #1 & #2 138/69 kV Tap into the existing 69-12 kV transformer and the second new 69-12 kV transformer at the Schoeneck 69-12 kV Substation. These new tower structures will be direct embedded steel monopoles with an average height of 85 feet. [

Figure 1-3 provides a one-line diagram of proposed facilities. Figure 1-4 provides a map of the proposed facilities.

Figure 1-1. Functional One-Line Diagram of Existing Transmission Facilities

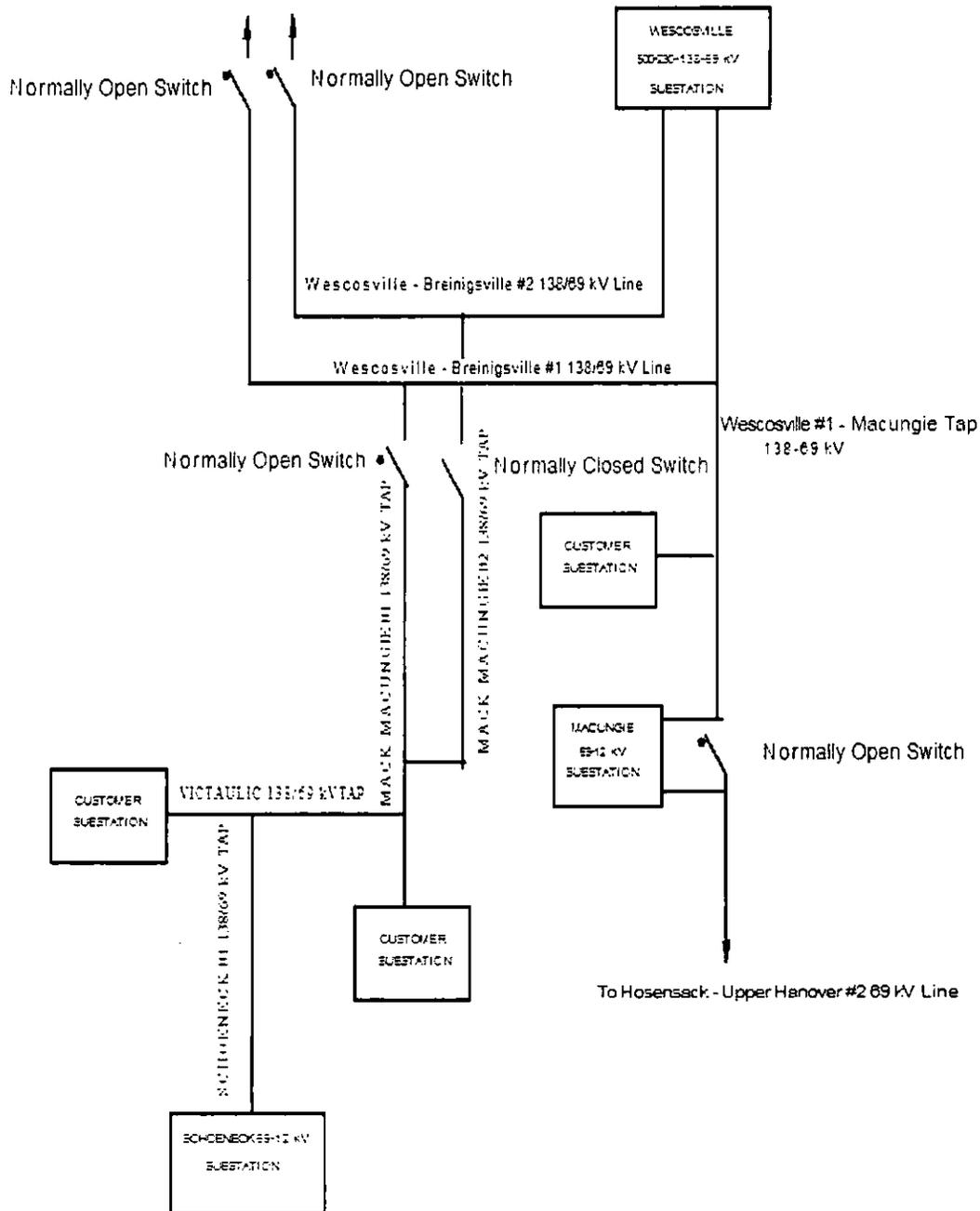
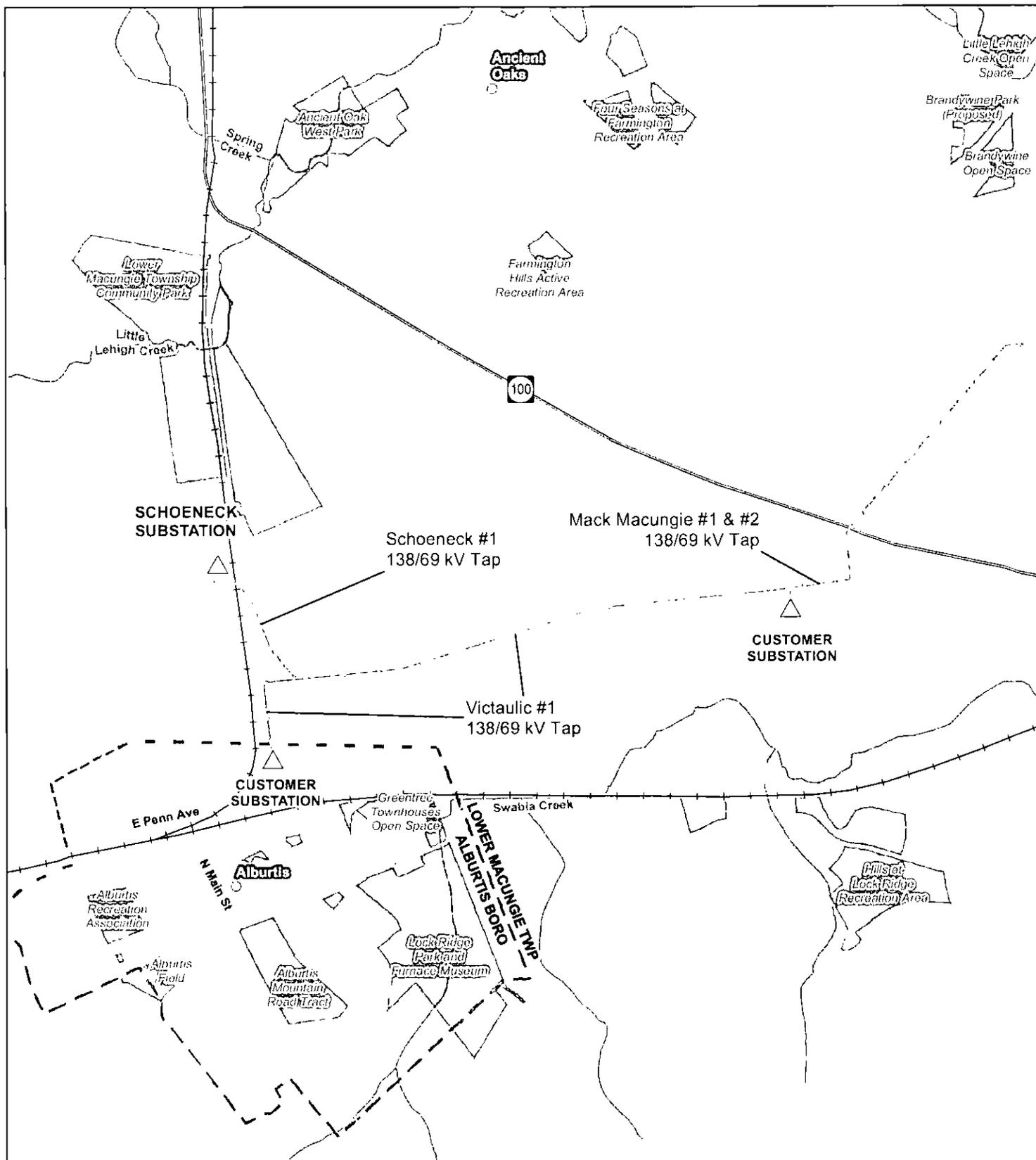


Figure 1-2. Map of Existing Transmission Facilities



Schoeneck #2 138/69 kV
Tap Installation
Figure 1-2: Map of
Existing Facilities

- Populated Place
- △ Substation
- Railroad
- Stream
- Waterbody
- ▭ Local Park
- ▭ Municipality Boundary
- Existing Transmission
- 138kV



0 0.5 Miles

ppl Louis Berger

PHL Electric Utilities

Projected Coordinate System: PA State Plane, South,
Datum: North American Datum of 1983 (NAD83),
Projection: Lambert Conformal Conic,
Linear Units: Feet,
Ellipsoid: Geoidetic Reference System 80

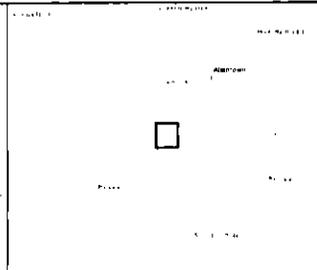


Figure 1-3. Functional One-Line Diagram of Proposed Transmission Facilities

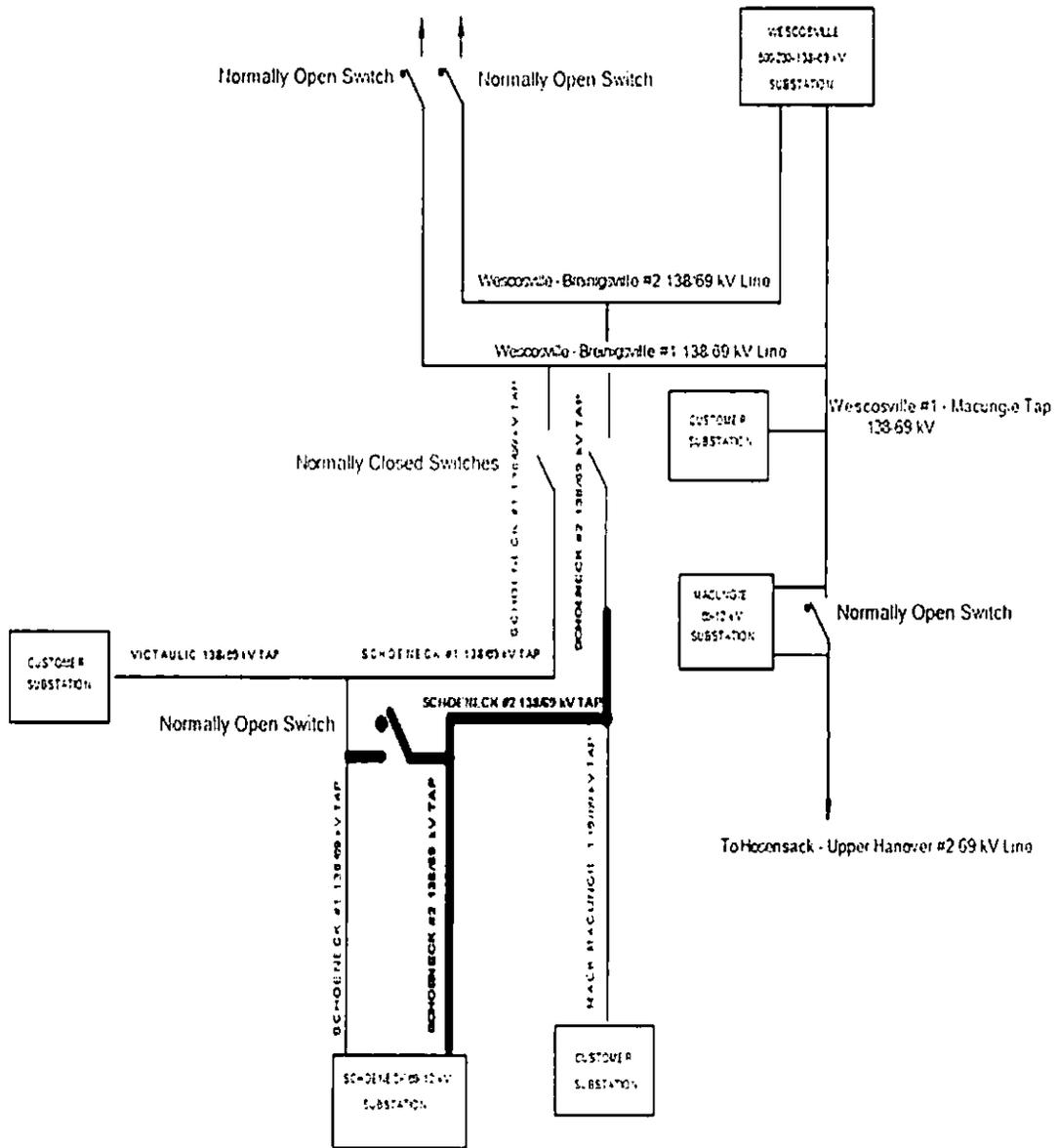
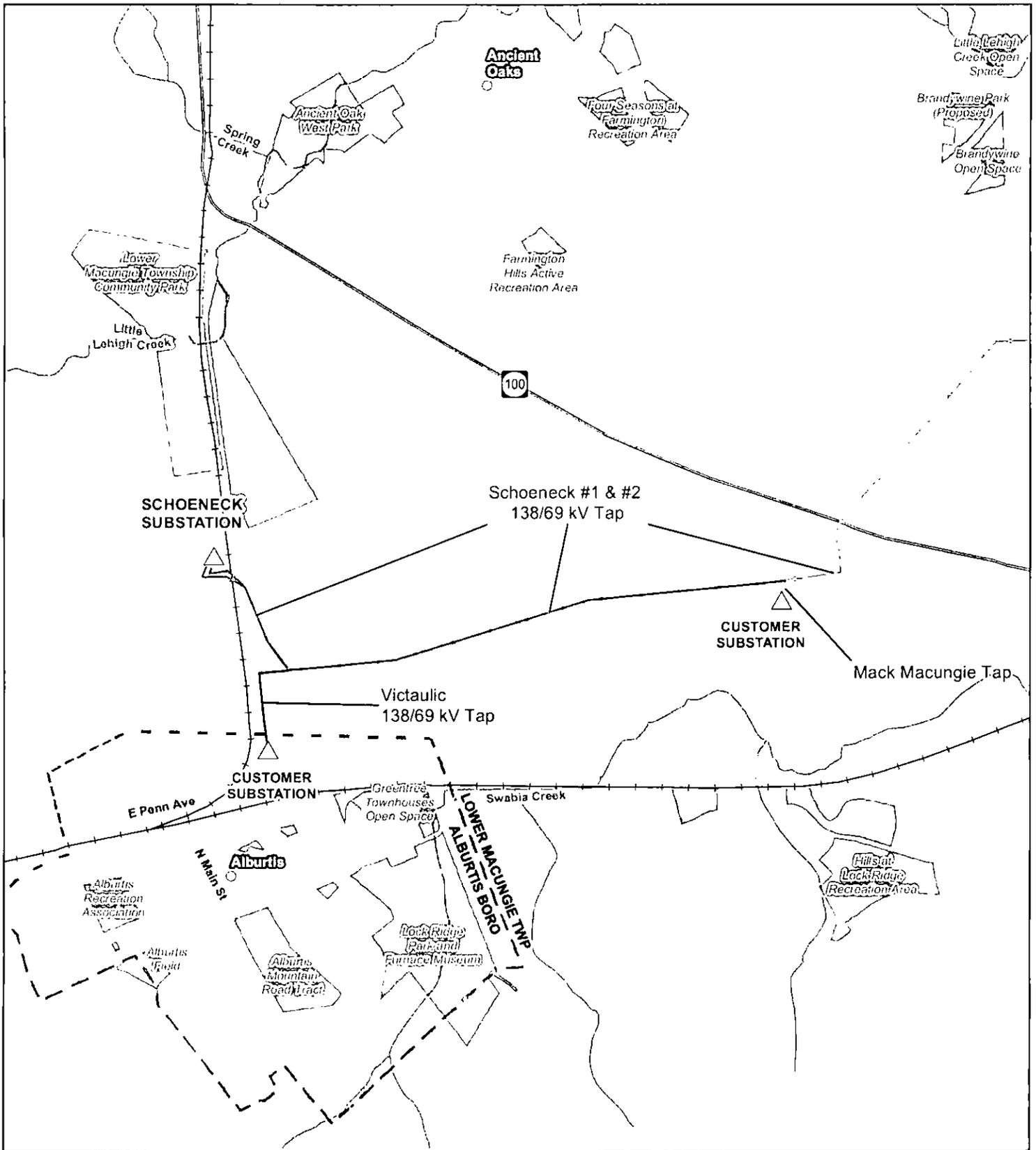


Figure 1-4. Map of Proposed Transmission Facilities



- Populated Place
- △ Substation
- Mack Macungie Tap
- Schoeneck #1 & #2 138/69 kV Tap
- Victaulic 138/69 kV Tap
- Railroad
- Stream
- Waterbody
- ▭ Local Park
- ▭ Municipality Boundary
- Existing Transmission
138kV

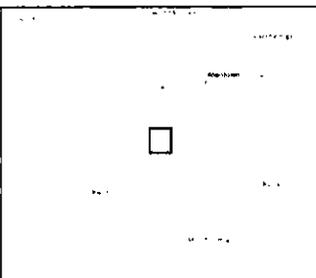
Schoeneck #2 138/69 kV
Tap Installation
Figure 1-4: Map of
Proposed Facilities



0 0.5
 Miles



PPL Project Utilities
 Projected Coordinate System: PA State Plane, South
 Datum: North American Datum of 1983 (NAD83)
 Projection: Lambert Conformal Conic
 Linear Unit: Feet
 Ellipsoid: Gendic Reference System 80



ATTACHMENT 2
DEPICTIONS OF THE TYPE OF MONOPOLES USED FOR
SCHOENECK #2 138/69 KV TAP INSTALLATION

Figure 2-1. Typical Double-Circuit 138/69 kV 2-Tap Pole Structure



Figure 2-2. Typical Double-Circuit 138/69 kV Single Pole Deadend



Figure 2-3. Typical Double-Circuit 138/69 kV Angle Suspension with Struts

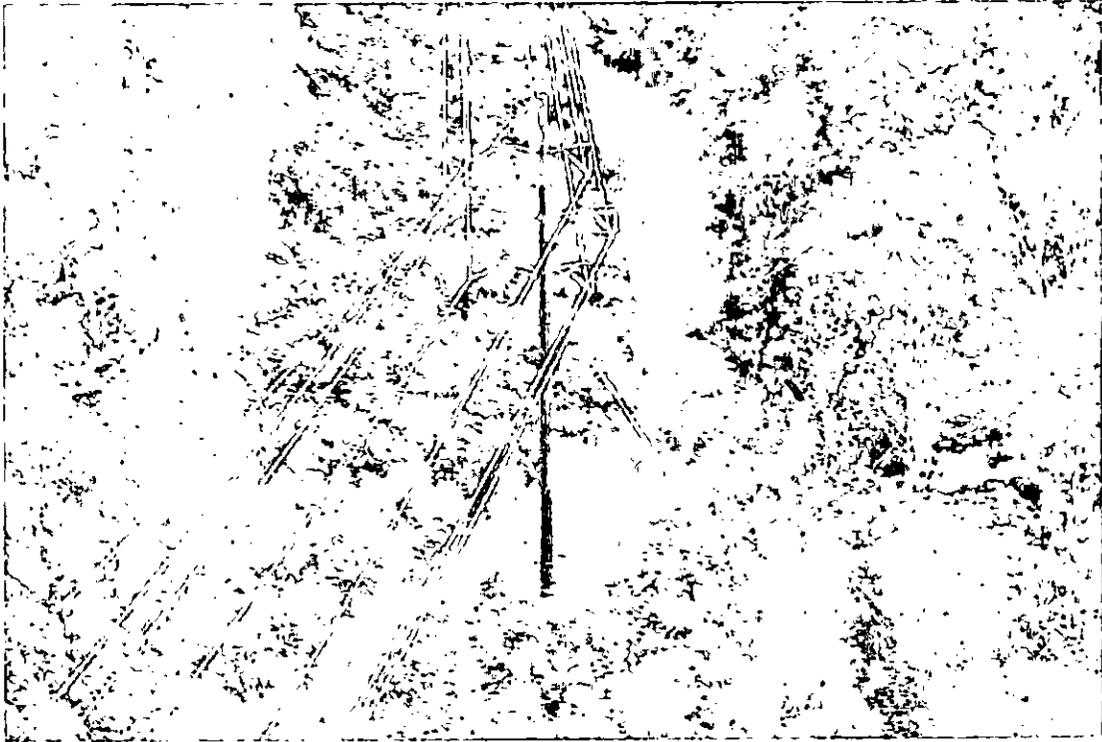


Figure 2-4. Typical Double-Circuit 138/69 kV Light Duty Tangent Suspension



Figure 2-5. Typical Double-Circuit 138/69 kV Two-Pole Angle



ATTACHMENT 3
SCHOENECK #2 138/69 KV TAP INSTALLATION
PPL DESIGN CRITERIA AND SAFETY PRACTICES

The National Electrical Safety Code (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 Utilities Corporation (PPL Electric) has developed design specifications and safety rules which meet or surpass all requirements specified by the NESC.

Engineering Design Criteria and Parameters

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 were developed to ensure public safety and welfare.

PPL transmission line design standards meet or surpass the NESC standards. For example, the relative order of grades of construction for conductors and supporting structures is B, C, and N; Grade B being the highest. According to the NESC standards, construction Grades B, C, or N may be used for transmission lines (except at crossings of railroad tracks and limited access highways where Grade B construction is specified). However, PPL designs all of its transmission lines for Grade B construction. The use of Grade B design and construction specifies enhancements such as larger-minimum crossarm dimensions, larger-minimum conductor size, and increased safety factors.

Another example is the design parameters utilized to account for ice and wind loadings on the overhead ground wire (OHGW) and power conductors. The NESC standard ice and wind design magnitudes for the PPL territory are 0.5 inch thickness of radial ice combined with four pounds per square foot horizontal wind pressure (equivalent to 40-mile per hour wind velocity). The conductor sags and tensions used in line designs are the result of various ice and wind combinations, depending on the elevation at the line location and line design voltage. The conductor sags and tensions used in the design of all PPL transmission lines are at least 0.5-inch ice combined with eight pounds wind pressure (equivalent to 57 miles per hour wind velocity). This means that PPL lines are designed to operate safely and reliably during inclement weather even more severe than assumed by the NESC. In addition, PPL transmission lines are designed with more clearance to the ground than required by the NESC. The tables below compare PPL and NESC ground clearances for lines of various voltages.

138 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	21 Ft.	30 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	21 Ft.	30 Ft.
Spaces accessible to pedestrians only	17 Ft.	30 Ft.
Railroad tracks	31 Ft.	35 Ft.

230 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	23 Ft.	32 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	23 Ft.	32 Ft.
Spaces accessible to pedestrians only	19 Ft.	32 Ft.
Railroad tracks	31 Ft.	36 Ft.

500 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	28 Ft.	53 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	28 Ft.	53 Ft.
Spaces accessible to pedestrians only	24 Ft.	53 Ft.
Railroad tracks	38 Ft.	53 Ft.

A relay protection system is used to protect the public safety and welfare as well as 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.

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 and structure climbing patrols. A number of helicopter patrols are performed on all lines annually. 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.

Foot and structure climbing patrol programs for a transmission line begin approximately three to five years after the line is energized, unless a helicopter patrol reports a need for earlier action. The frequency of foot patrols varies from once every year to once every several years depending on line type and age.

An assigned foot patroller checks right-of-way conditions, including access roads, bridges, pole washouts, tower footers, vegetation height and clearance to conductors, pole and tower deterioration and, with the use of binoculars, insulators, and condition of hardware. Identified problems are included in a report that is forwarded to the appropriate department for corrective action.

A scheduled line outage is required to perform an overhead patrol because of "hands-on" inspection of hardware. Overhead patrols are conducted on a schedule determined by line age, operating record, and observed general condition. The necessary repairs are also done during the inspection outage.

Personnel Safety Rules

The following are a few of the PPL Electric safety rules that demonstrate the Company's concern for employee 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 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 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. The conductor size and attachment clamps of temporary safety grounds must be capable of conducting anticipated fault currents. Rubber gloves, rubber sleeves, and additional rubber protective equipment are used as required when applying or removing temporary safety grounds to or from the lines or apparatus to be grounded. An approved nonconductive working stick of sufficient length to allow workers to maintain the following required minimum clearances is used to test that the line has been de-energized and to apply temporary safety grounds:

<u>Voltage-kV</u>	<u>Minimum Clearance</u>
138	3'-7"
230	5'-3"
500	11'-3"

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. When ground pins are used to establish proper ground points, they are driven to a depth of not less than four feet as near vertical as possible.

- 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.

VERIFICATION

I, STEPHANIE R. RAYMOND, 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: 4/21/16



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