Before the
Pennsylvania Public Utility Commission

HOSENSACK SUBSTATION BUILDING PETITION

Application Docket No. _____

Submitted by: PPL Electric Utilities Corp.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition Of PPL Electric Utilities Corporation For A Finding That A Second Building To Shelter Control Equipment At The Hosensack 230 - 69 kV Substation To Be Constructed In Lower Milford Township, Lehigh County, Pennsylvania Is Reasonably Necessary For The Convenience Or Welfare Of The Public	:	Docket No. P-2011-_____

PETITION OF PPL ELECTRIC UTILITIES CORPORATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric") hereby petitions the Pennsylvania Public Utility Commission ("Commission"), pursuant to 52 Pa. Code § 5.41 and 53 P.S. § 10619, for a finding that the addition of a second building to shelter control equipment ("Control Equipment Building") at the existing Hosensack 230-69 kV Substation ("Hosensack Substation") in Lower Milford Township, Lehigh County, Pennsylvania is reasonably necessary for the convenience or welfare of the public and, therefore, exempt from any local zoning ordinance ("Zoning Petition").[1] Subject to the approval by the Commission of this Zoning Petition, PPL Electric plans to begin construction in September 2012, in order to meet a required in service date of December 2014. PPL Electric reviewed its proposed Project at the Hosensack

[1] PPL Electric believes its control equipment building is not a "building" but, rather, is part of its substation facilities. Therefore, PPL Electric's control equipment building is exempt from local zoning requirements. *See, e.g., Duquesne Light Co. v. Upper St. Clair Township*, 377 Pa. 323, 334-35, 105 A.2d 287, 292 (1954). This Zoning Petition is being filed as a precaution in the event that the Commission were to determine that the control equipment building is not a facility and, therefore, potentially subject to local zoning ordinances.

Substation, including the second Control Equipment Building, with representatives of Lower Milford Township and Lehigh County, and neither had any objection to the Project.

In support of this Zoning Petition, PPL Electric states as follows:

I. INTRODUCTION AND OVERVIEW

1. This Zoning Petition 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 Two North Ninth Street, Allentown, Pennsylvania 18101.

3. PPL Electric's attorneys are:

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PPL Electric's attorneys are authorized to receive all notices and communications regarding this Zoning Petition.

4. PPL Electric is a "public utility" and an "electric distribution company" as those terms are defined in Sections 102 and 2803 of the Pennsylvania Public Utility Code, 66 Pa. C.S. §§ 102, 2803. PPL Electric furnishes electric distribution, transmission, or provider of last resort electric supply services 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.

5. PPL Electric owns approximately 5,000 miles of transmission lines operating at 69 kilovolts ("kV") or higher, approximately 375 substations with a capacity of 10 megavolt-amperes ("MVA") or more, and approximately 43,000 miles of distribution lines operating at less than 69,000 volts.

II. THE PROJECT

6. PPL Electric is proposing to reinforce its 230 kV and 69 kV electrical systems in Lehigh County, Pennsylvania at the existing Hosensack Substation in Lower Milford Township, Lehigh County, Pennsylvania. One part of the overall Project is the addition of a second Control Equipment Building. The addition of the second Control Equipment Building is the subject of this Zoning Petition.

7. As explained in the paragraphs that follow, PPL Electric is proposing to add a second Control Equipment Building in the Hosensack Substation as part of its Project to reinforce the bulk electrical system ("BES") and to resolve identified transmission reliability criteria violations on 69 kV facilities at the Hosensack Substation in order to ensure that service

to customers in the area will be reliable in the future. The second Control Equipment Building is required to provide space for additional equipment and for equipment being relocated.

8. The overall Project, which includes the addition of a second Control Equipment Building involves, *inter alia*, the replacement of the existing, aging and deteriorated transformers with new, larger transformers so that the Hosensack kV Substation will be able to meet the increasing demand for electricity in the area.

9. The total estimated cost of the proposed project is $7.7 million. Subject to the approval by the Commission of this Zoning Petition, PPL Electric plans to begin construction in September 2012, in order to meet a required in service date of December 2014. The required in service date is when the proposed facilities need to be in service to prevent equipment overloads that have the potential to damage existing facilities and, thereby, cause the interruption of service to customers.

10. The additional and relocated electrical control equipment requires a Control Equipment Building to protect the equipment from the elements so that the equipment, and the entire substation, can function properly. PPL Electric is petitioning the Commission, pursuant to 52 Pa. Code § 5.41 and 53 P.S. § 10619, for a finding that the addition of a second Control Equipment Building at the existing Hosensack Substation is reasonably necessary for the convenience or welfare of the public.

III. NECESSITY

11. The need for the Project, including the addition of the second Control Equipment Building at the Hosensack Substation, was identified through the regional planning process for transmission facilities in which PPL Electric participates.

A. RELIABILITY STANDARDS

12. The nation's interconnected transmission grid provides the backbone for the safe and reliable delivery of large amounts of electricity from generating stations over substantial distances to customers served by local distribution systems. This interconnected transmission system must be planned and designed to be highly reliable so that electric service can be provided during peak loading conditions and when certain elements of the system are not in service due to planned or forced outages.

13. On August 14, 2003, the largest power blackout in North American history affected approximately 50 million people in the states of Ohio, Michigan, Pennsylvania, New York, Vermont, Massachusetts, Connecticut, and New Jersey and the province of Ontario, Canada. Thereafter, investigations determined the cause of the blackout and addressed the reliability of transmission service in the affected areas. These investigations culminated in the passage of the Energy Policy Act of 2005,[2] which added Section 215 to the Federal Power Act.[3] Section 215 required FERC to certify an electric reliability organization ("ERO") to develop mandatory reliability standards, which are subject to FERC review and approval.

14. On February 3, 2006, FERC certified the North American Electric Reliability Corporation ("NERC") as the ERO to develop mandatory reliability standards.[4] Thereafter, NERC developed reliability standards, which define the reliability requirements for planning and operating transmission systems in North America. The NERC Reliability Standards apply to all users, owners, and operators of the nation's interconnected transmission grid, including PPL Electric. The NERC Reliability Standards are monitored and enforced by NERC and the

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[2] 42 U.S.C. §§16511-14.

[3] 16 U.S.C. § 824o(e)(3).

[4] *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh'g & compliance*, 117 FERC ¶ 61,126 (2006), *order on compliance*, 118 FERC ¶ 61,030 (FERC 2007).

regional reliability organizations that function under its auspices. Failure to comply with these FERC-approved NERC Reliability Standards can result in penalties of up to $1 million per day per violation.

B. THE PLANNING PROCESS

15. Transmission system planning, in its broadest sense, is the process that assures that the electrical transmission system can supply electricity to all customer loads.

16. Regional transmission system planning begins with the PJM Interconnection LLC ("PJM") is the FERC-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control and coordinating the movement of wholesale electricity in all or parts of thirteen states and the District of Columbia, including most of Pennsylvania and all of PPL Electric's service territory.

17. In order to ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP") to identify system reinforcements that are required to, among other things, meet the NERC Reliability Standards. The RTEP is a FERC-approved transmission planning process that undertakes a comprehensive analysis to identify existing or forecasted violations of the NERC Reliability Standards on the transmission systems within PJM's service territory.

18. PJM and its transmission system owners have developed planning reliability criteria to supplement the FERC-approved NERC reliability standards. The NERC reliability standards, transmission owner criteria, and PJM reliability planning criteria are used by PJM to analyze the system and to determine the specific transmission projects, as part of the overall reliability solution, needed to ensure reliable electric service. Based upon this analysis, PJM determines the transmission upgrades needed to meet NERC reliability standards and, pursuant

to FERC authority, may direct the building of new transmission projects to ensure grid reliability.

19. PJM conducts these analyses in conjunction with its transmission owners and applies NERC, regional reliability organization, PJM deliverability, and transmission owner criteria to specific conditions on the transmission system. When the analyses show an inability of the transmission system to meet a specific reliability criteria under these conditions, solutions such as construction of one or more new transmission lines or one or more enhancements to existing transmission facilities may be necessary.

20. The NERC reliability standards require PJM to identify the "critical system conditions" against which the system must be evaluated to ensure that it meets the performance criteria specified in the standards. Specifically, the NERC reliability standards require PJM to test events which fall into the following three categories:

a. NERC Category A criteria require that, for all facilities in service, equipment thermal ratings and system voltage levels are within applicable limits and that the system is stable.

b. NERC Category B criteria impose similar requirements with one facility removed from service. This is referred to as the "n minus 1" or "n-1" criteria. These criteria ensure that the system continues to remain reliable upon the instantaneous outage of a transmission element.

c. NERC Category C criteria require the system to be stable and within applicable equipment thermal ratings and system voltage limits for less probable contingency events. Such events include second contingencies, involving the loss of one system element followed by system readjustments, and then the loss of a

second system element. These are referred to as the "n minus 1 minus 1" or "n-1-1" criteria.[5]

21. PJM applies two primary tests that define the required critical system conditions to ensure compliance with NERC reliability criteria: a load deliverability test and a generation deliverability test. The load deliverability test examines defined load zones within the PJM region and considers the ability of the transmission system to deliver adequate power to the load zone during a generation capacity emergency in that load zone. The generator deliverability test evaluates the capability of the transmission system to deliver available generation resources during a distributed generation capacity emergency. The generator deliverability test evaluates the capability of the transmission system to assure that capacity resources in specific electrical areas within PJM can be delivered to the remainder of the PJM system at peak load.

22. These tests link between generation resource adequacy for the region with the transmission adequacy necessary to deliver the generation resources to customer load. For use in the RTEP, both studies simulate the transmission system as it is expected to exist during future time periods (*i.e.*, expected load growth, the addition or retirement of generating plants, and planned transmission construction projects). In addition, PJM confirms transmission owners' tests for compliance with established transmission owner reliability criteria.

23. When a potential NERC violation is identified through PJM's ongoing transmission system analysis, PJM notifies the respective transmission system owner of the violations. The transmission owner, together with PJM, collectively develops specific solutions to resolve these violations. PJM presents the results of its analyses and the proposed solutions to

[5] Category C includes events such as the loss of two circuits on a single tower line, or for a single faulted system element followed by a circuit breaker failing to operate, which is referred to as a stuck breaker. While generation re-dispatch is allowed after the first element in an n-1-1 event, PJM does not dispatch generation in anticipation of loss of tower line events or stuck breaker events and the test of compliance with these criteria, therefore, does not allow generation patterns to be adjusted.

its Transmission Expansion Advisory Committee ("TEAC") to solicit comments and recommendations to resolve the reliability violations. The TEAC is open to participation by: (i) all transmission customers; (ii) any other entity proposing to build transmission facilities to be integrated into the PJM region; (iii) all PJM members; (iv) state commissions and consumer advocates; and (v) any other interested entities or persons. The TEAC reviews potential solutions to the identified NERC violations, including generation-based solutions, demand side management-based solutions, and transmission line solutions. Where the solution requires the construction of new or upgraded transmission facilities, PJM will direct the relevant transmission owner to undertake the required project.

24. PPL Electric undertakes an independent analysis of both its bulk electric system transmission facilities, which include transmission facilities operated at voltages of 100 kV or higher and are under the functional control of PJM, and its non-bulk electric system transmission facilities. Therefore, PPL Electric, as a transmission owner and member of PJM, undertakes system planning for all of its transmission facilities in concert with the PJM and TEAC. In these ways, PPL Electric actively participates in the PJM planning process and, through this participation, PPL Electric provides the results of its independent studies of its local reliability plans to PJM for consideration and inclusion in the TEAC. The PPL Electric planning guidelines are outlined in its Reliability Principles and Practices ("RP&P") document, which was developed to ensure adequate and appropriate levels of electric service consistent with good utility practice.

25. PPL Electric's reliability criteria may be more stringent than those of PJM or NERC. Consequently, PPL Electric may recommend additional reinforcements to PJM for review and confirmation as part of the RTEP. In accordance with these guidelines, the PPL Electric transmission zone is planned so that:

a. Normal operation of the system will not load any facility beyond its normal continuous rating;

b. The loss of any single facility (single or double circuit line, transformer, bus, or generator), or the combination of a line fault and stuck breaker, or a fault with an over-trip and a successful reclosing of the over-tripped terminal, will not cause loadings on remaining facilities to exceed applicable emergency ratings in order to prevent equipment damage and cascading transmission outages; and

c. After the initial facility loss, appropriate switching and/or load shedding procedures will be implemented to prevent damage to equipment should a second failure occur.

26. The PPL Electric planning process begins by developing a computer model of the future transmission system. A specific study year is chosen to define expected facility loadings. The future transmission system model is prepared using the existing transmission system plus any planned modifications to the transmission system that are scheduled to be in service prior to the study year. Load levels used in the transmission system model are based on the latest forecast prepared by the PPL Electric Load Analysis Group. Once PPL Electric's system model is complete, comprehensive power flow simulations are performed to determine the ability of the system to comply with the RP&P document. This is accomplished by simulating an outage of each single-circuit line, double-circuit line, transformer, bus, generator, or circuit breaker. This process identifies those conditions where the future system does not meet the RP&P.

27. Alternatives that can mitigate the reliability criteria violation are then developed and analyzed to ensure that the PPL Electric transmission system meets the reliability criteria

identified within the RP&P. Estimated costs and lead times to implement the reinforcements are prepared. Computer simulations of the system, considering the identified reinforcement alternatives, are completed to identify the best overall reinforcement plan that will meet the future needs of the region in a reliable, economic, and environmentally acceptable manner.

28. To the extent that PPL Electric's RP&P identifies additional future BES reliability violations not previously identified by PJM through its ongoing transmission planning process, these violations and recommended reinforcements are forwarded to PJM for additional analysis and verification. If PJM agrees with the PPL Electric findings and recommended reinforcements, the additional projects are presented at TEAC meetings for stakeholder review and discussion, prior to PJM authorizing PPL Electric to proceed with a reinforcement project. PJM solicits and posts comments by the stakeholders on these proposed RTEP projects.

C. THE SECOND CONTROL EQUIPMENT BUILDING

29. Southern Lehigh County and parts of Bucks and Montgomery Counties are currently served from the Hosensack Substation. Presently, the PPL Electric Hosensack Substation has a Control Equipment Building situated between the 230 kV and 69 kV yards. Connected to the existing PPL Electric 230 kV yard are two 230 kV transmission lines, the Hosensack-Wescosville #3 230 kV Transmission Line and the Hosensack-Buxmont #3 230 kV Transmission Line. The Hosensack 230 kV yard has nine 230 kV circuit breakers and four 230/69 kV 75 MVA transformers.

30. This Project is part of an ongoing effort to increase reliability on the PPL Electric system. A second Control Equipment Building at the Hosensack Substation is needed because the existing Control Equipment Building is full and cannot provide the space that is required for additional and relocated equipment that is explained below. The Hosensack Substation requires space for additional and relocated equipment for four reasons.

31. The first reason for the addition of a second Control Equipment Building is related to the replacement of the transformers at the Hosensack Substation. The largest portion of the overall Project involves the replacement of four 230/69 kV 75 megavolt-amperes (MVA) transformers with three 230/69 kV 170 MVA transformers. The second Hosensack Control Equipment Building is needed as part of a larger Project to replace older transformers and increase the transformation capacity of the Hosensack Substation.

32. It is necessary to replace the existing four 230-69 kV Transformers at the Hosensack Substation for two reasons. First, the transformers must be replaced due to their age. The transformers at the Hosensack Substation were initially placed in service between 1952 and 1964, 48 to 60 years ago. The average service life of the type of transformers at the Hosensack Substation is only 47 years. The transformers at the Hosensack Substation cannot be relied on to continue to provide reliable service into the future. Second, additional transformation capacity is required. The Project will increase the MVA capacity of the Hosensack Substation from 300 MVA (4 x 75 MVA) to 510 MVA (3 x 170 MVA). Additional transformation capacity is required to meet the increases in the peak load in the area served by the Hosensack Substation. During the summer of 2025, the peak load served by the Hosensack Substation transformers is forecasted to be 304 MVA. This load exceeds the summer normal ratings of the transformers and violates the loading guidelines that are set forth in PPL Electric's RP&P. Operating the transformers at loads in excess of their normal ratings could result in damage to the transformers causing an outage of service to approximately 300,000 customers until repairs could be made. Although the increase in the transformation capacity could be postponed, it is appropriate to install the transformers with increased capacity at this time, since the existing transformers must be replaced due to their age. Because the ages of the transformers at the Hosensack Substation

have exceeded their expected service lives and because they will not have sufficient capacity to continue to provide reliable service to customers in that area into the future, PPL Electric determined that they should be replaced.

33. Replacing the existing four transformers with three transformers necessitates adding two 230 kV breakers in the Hosensack 230 kV yard and two additional 69 kV breakers in the Hosensack 69 kV yard. These four breakers will ensure that, in a breaker failure scenario, two transformers will remain in service. Without the additional breakers, a breaker failure that trips two of the transformers could cause a thermal overload on the remaining in-service transformer. This type of failure is categorized as a NERC Category C contingency. One set of NERC Category C contingencies is defined as a single line-to-ground fault (forced, uncontrolled outage) on the transmission system with delayed clearing such as those due to a stuck breaker or protection system failure. A thermal overload caused by a Category C contingency would violate the reliability standards established by NERC, Reliability*First* Corporation, PJM, and PPL Electric. In this case, an overload on the transformer above the emergency rating could cause the transformer to fail. The four new breakers that are needed to prevent these thermal overload conditions require additional space in the Hosensack Control Equipment Building for their relays and controls because they must be sheltered from the elements in order to function properly.

34. A second reason for the additional Control Equipment Building at the Hosensack Substation is that PPL Electric must install a digital fault recorder ("DFR") and an alarm management system ("AMS") in order to comply with the PRC-002-RFC-01 standard. This standard was approved by the Board of Reliability*First* Corporation on May 14, 2009. The standard requires that substations such as the Hosensack Substation be equipped with disturbance

monitoring and recording equipment, such as a DFR and an AMS. The standard applies to, among other things, all substations where there are three or more flow paths operated at or above 200 kV. It applies to the Hosensack Substation because it currently has four 230 kV flow paths: the Hosensack-Buxmont #3 230 kV line, the Hosensack-Wescosville #3 230 kV line, and the two 230 kV bus connections to the FirstEnergy portion of the Hosensack Substation.[6] Like other electrical control equipment, the DFR and AMS equipment must be protected from the elements to function properly.

35. The third reason for the addition of a Control Equipment Building is to enable PPL Electric to move batteries and related electrical equipment from their present underground location in the basement of the existing Control Equipment Building. The Hosensack batteries and the 125 Volts of Direct Current (VDC) equipment and the 480 Volts of Alternating Current (VAC) equipment are housed in the basement of the existing Control Equipment Building. The current location of the 480 VAC equipment in the Control Equipment Building basement creates concerns for the safety of PPL Electric personnel as a result of poor lighting, restricted work space and limited access.

36. In addition, the underground location creates a high potential for water damage. Water damage to the 480 VAC equipment could cause the loss of transformation at the site. Relocation of the batteries and the 125 VDC and 480 VAC equipment to above ground space in the new Control Equipment Building will eliminate these safety and reliability concerns. This electrical equipment must be protected from the elements in order to function properly.

37. A fourth reason for the new Hosensack Control Equipment Building is the need to have a separate room for the non-PPL Electric fiber-optic communication equipment in the

[6] After the replacement of the transformers, there will still be four 230 kV flow paths.

existing Control Equipment Building. Presently, both optic fiber and high voltage transmission equipment are housed in the same room in the existing Control Equipment Building. The non-PPL Electric fiber-optic communication equipment is maintained by persons who are not trained in safety procedures for electrical equipment operated at high transmission voltages. The presence of persons performing maintenance on the fiber-optics communication equipment who are not trained in safety procedures for equipment operated at high transmission voltages in a room that contains such equipment creates a potential safety hazard.

IV. THE PROPOSED CONTROL EQUIPMENT BUILDING EXPANSION

38. PPL Electric Utilities proposes to build a second control building adjacent to the existing Control Equipment Building. As explained previously, the additional building is needed because the existing Control Equipment Building is full and cannot safely house additional equipment. This new Control Equipment Building will act as an expansion to the existing Control Equipment Building. For security, a separate section of the new building will house the non-PPL owned fiber-optic communication equipment. And, the batteries and 125 VDC and 480 VAC equipment will be installed in the new building to alleviate safety and reliability concerns and to facilitate maintenance work. The new Control Equipment Building will also provide shelter for the DFR and AMS and for the relays and controls for the four additional breakers being installed at Hosensack.

39. The new control equipment described above must be protected from the elements so that the equipment, and the entire substation, can function properly. The new control building will be approximately 40 feet by 80 feet. It will be situated entirely within the existing Hosensack Substation which is surrounded by a chain-link fence in order to prevent unauthorized persons from entering the facility. The security provided by the fence is needed because the high

voltages at which the substation is operated would pose a safety hazard to untrained persons. The building will be constructed on a concrete foundation. The walls of the building will be made of corrugated metal. The control building will not be intended for occupancy; and there will be no supply of water and no sanitary facilities.

40. Subject to the Commission's approval, construction on the additional Control Equipment Building at the Hosensack Substation is scheduled to begin in September 2012 to meet a required in-service date of December 31, 2014. The required in service date is when the proposed facilities need to be placed in service to prevent equipment overloads that have the potential to damage existing facilities and, thereby, cause the interruption of service to customers.

V. THE MUNICIPALITIES PLANNING CODE

41. The Pennsylvania Municipalities Planning Code ("MPC") provides, in relevant part, as follows:

> This article shall not apply to any existing or proposed building, or extension thereof, used or to be used by a public utility corporation, if, upon petition of the corporation, the Pennsylvania Public Utility Commission shall, after public hearing, decide that the present or proposed situation of the building in question is reasonably necessary for the convenience or welfare of the public.

Section 619 of the MPC, Act of July 31, 1968, P.L. 805, *as amended*, 53 P.S. § 10619. Thus, a public utility building may be subject to local zoning requirements for buildings unless, upon petition, the Commission determines that the proposed situation of the building in question is reasonably necessary for the convenience and welfare of the public. 53 P.S. § 10619.

42. As explained above, the expansion of the control equipment building at the Hosensack Substation is reasonably necessary to meet the needs of the public for electricity. The proposed facilities will provide additional capacity for future electric system load growth. The

Hosensack Substation must include certain control equipment in order to operate properly, and said equipment must be protected from the elements. The purpose of the expansion of the control equipment building on the Hosensack Substation Site is to provide that protection.

43. Because the Hosensack Substation is reasonably necessary for the public convenience and welfare and because the Control Equipment Building is necessary to properly operate the Hosensack Substation, the Commission should find that the Control Equipment Building is reasonably necessary and, therefore, exempt from the Lower Milford Township's local zoning ordinance pursuant to Section 619 of the MPC. *Del-AWARE Unlimited, Inc. v. Pa. P.U.C.*, 513 A.2d 593 (Pa. Cmwlth. 1986).

44. On January 11, 2001, the Commission adopted a policy statement to further the Commonwealth's goal of making agency actions consistent with sound land use planning by considering the impact of its decision upon local comprehensive plans and zoning ordinances. See 31 Pa. Bull. 951 (Feb. 17, 2001). Section 69.1101 of the Commission's Policy Statement provides:

> [T]he Commission will consider the impact of its decisions upon local comprehensive plans and zoning ordinances. This will include reviewing applications for:
>
> (1) Certificates of public convenience.
>
> (2) Siting electric transmission lines.
>
> (3) Siting a public utility "building" under section 619 of the Municipalities Planning Code (53 P.S. § 10619).
>
> (4) Other Commission decisions.

52 Pa. Code § 69.1101.

VI. THE LOWER MILFORD TOWNSHIP ZONING ORDINANCE

45. Lower Milford Township has adopted a zoning ordinance, which includes a map on which zoning districts are identified. *See Zoning Ordinance of Lower Milford Township, County of Lehigh*, Ordinance of July 20, 2009 ("Zoning Ordinance").[7] The location where PPL Electric proposes to construct the Hosensack Substation is designated as "Rural Residential - 1."

46. With respect to public utility facilities, the Lower Milford Township zoning ordinance includes an electric substation under "Public Service Facilities", which are defined as follows:

> Telephone, electric and cable television lines, poles, equipment and structures; water or gas pipes, mains, valves or structures; sewer pipes, valves or structures; pumping stations; telephone exchanges and repeater stations; and all other facilities, equipment, and structures necessary for conducting a service by a government of a public utility."

See Zoning Ordinance, art. II, p. 24.

47. The Zoning Ordinance further defines "structure" to include:

> "That which is built or constructed or a portion thereof. For the purposes of this Ordinance, structures include any form or arrangement of building materials, on or in water or land, involving the necessity of providing proper support, bracing, tying, anchoring or other protection against the forces of the elements and having a permanently fixed location. Structures include, but are not limited to buildings, sheds, mobile or manufactured homes, signs, fences or walls over six (6) feet in height, aerials and antennae, porches, platforms, tennis courts, swimming pools, tents, tanks, and towers."

See Zoning Ordinance, art. II, p. 29.

[7] A copy of the complete Zoning Ordinance can be found at the Lower Milford Township website. The URL is as follows: http://lowermilford.net/LMT09ZO. PPL Electric is not attaching a copy of the ordinance with this Petition because it is almost 300 pages long.

48. PPL Electric believes that Lower Milford Township would consider the second Control Equipment Building at the Hosensack Substation to be a structure under its Zoning Ordinance.

49. Under the Zoning Ordinance, in the Rural Residential – 1 Zoning District: A building, structure, or facility owned and used by an electric, telephone, or other public utility or other government regulated industry, but not including communications towers or communications equipment buildings" are permitted as "conditional uses." Conditional uses are not permitted unless they are approved by the Township Board of Supervisors. *See* Zoning Ordinance, art. V, p. 2.

50. Construction of conditional uses alterations is not permitted to commence until a building permit has been issued. *See* Zoning Ordinance, art. XVI, p. 5.

51. The process of obtaining a zoning permit and approval from the Board of Supervisors for the conditional use, including possible appeals from the Board's decision, can be a long and time-consuming process, which could delay completion of the project until long after the date when the project is required to be in service in order to avoid conditions which could damage facilities and cause interruption of service to customers.

52. Further, under the Zoning Ordinance, the Board of Supervisors has the power to add conditions to the approval of the project, in addition to those required under the Ordinance, related to the design of the building, planting and maintenance of sight or sound screens, the minimizing of noise, glare, noxious, offensive or hazardous elements, parking and sanitation.

53. Such conditions, if imposed, could add to the cost of the project or interfere with its operations.

54. The proposed Project, including the Control Equipment Building expansion, was reviewed with representatives of Lower Milford Township and Lehigh County. The Township and the County have no objection to the Project, including the second Control Equipment Building.

55. As indicated in the attached certificate of service, PPL Electric is serving a copy of this Zoning Petition on Lower Milford Township, the Lower Milford Township Planning Commission, Lehigh County, and the Lehigh Valley Planning Commission.

56. Further, in all of its interactions with Lower Milford Township and Lehigh County, PPL Electric will continue to apply its long-standing policy of cooperating with local governments.

57. The addition of a second Control Equipment Building at the Hosensack Substation is necessary in order for PPL Electric to continue to provide adequate and reliable service. The proposed second Control Equipment Building at the Hosensack Substation will protect the additional and relocated electrical equipment from the elements so that the equipment and the Substation as a whole can function properly. The Project at the Hosensack Substation, including the second Control Equipment Building, is needed to improve the reliability of electric service in southern Lehigh County and parts of Bucks and Montgomery Counties.

58. For these reasons, PPL Electric requests that the Commission find that the addition of a second Control Equipment Building is reasonably necessary for the convenience or welfare of the public and is, therefore, exempt from the provisions of the Lower Milford Township Zoning Ordinance.

VII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission find that the addition of a second Control Equipment Building proposed by PPL Electric Utilities Corporation at the Hosensack 230-69 kV Substation is reasonably necessary for the convenience or welfare of the public and, therefore, is exempt from the Zoning Ordinance of the Lower Milford Township.

Respectfully submitted,

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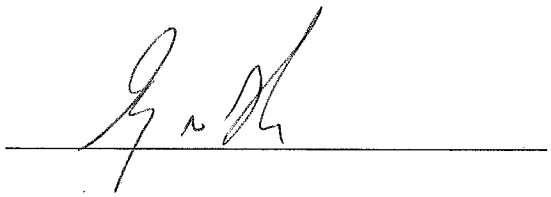
Post & Schell, P.C.

Date: February 21, 2012

VERIFICATION

I, Gregory N. Dudkin, being the Senior Vice President - Operations of 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 that 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: 2/17/12



Attachment
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SECOND HOSENSACK 230-69 kV SUBSTATION CONTROL HOUSE
NECESSITY STATEMENT

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SECOND HOSENSACK 230-69 kV SUBSTATION CONTROL HOUSE NECESSITY STATEMENT

1.0 INTRODUCTION

A second control house at the Hosensack 230-69 kV Substation (Hosensack Substation) is required because the existing control house is full and cannot accommodate additional equipment. PPL Electric Utilities Corporation (PPL Electric) needs to install new or relocate existing electrical equipment for four primary purposes. First, PPL Electric is proposing to reinforce its 230 kV and 69 kV electrical systems in Lehigh County, Pennsylvania by replacing the transformers because the present transformers are older than their expected service lives and are in a deteriorated condition and because additional capacity is needed to meet projected peak loads. The existing transformers cannot be expected to continue to provide adequate and reliable service into the future. The replacement of the transformers will necessitate the installation of additional relays in order to comply with applicable, mandatory reliability criteria.

Second, PPL Electric must install disturbance monitoring and reporting equipment, more specifically, a digital fault recorder (DFR) and a sequence of events recorder, also known as alarm management system (AMS) equipment, at the Hosensack Substation in order to comply with requirements adopted by the Reliability*First* Corporation.

Third, PPL Electric proposes to move batteries and related electrical equipment from the basement of the existing control house to an above-ground location in the proposed second control house in order to reduce the risk of water damage which could result in outages of one or more transformers, which could result in interruptions of service. Moving the batteries and

related electrical equipment will improve the reliability of the Substation. In addition, the basement in the existing control house is cramped and poorly light. When the batteries and related electrical equipment are moved to the proposed second control house, there will be more space and additional lighting, which will facilitate maintenance work and make maintenance work on the batteries more safe.

Fourth, PPL Electric proposes to create a physically separate room with a separate entrance to house optic fiber communication equipment. The optic fiber equipment is not owned or maintained by PPL Electric. Instead, it is maintained by personnel who are not trained in safety procedures for high voltage transmission equipment. The optic fiber equipment is presently situated in the existing control house in an area which also contains high voltage transmission equipment. Moving the optic fiber communication equipment to a separate room in the proposed second control house will improve the safety of the substation by reducing the exposure of untrained personnel to hazards from high voltage transmission equipment.

The electrical equipment described above requires a control building to protect it from the elements so that the equipment, and the entire substation, can function properly. A second control house is required because the existing control equipment house is full so there is not sufficient space for the required additional equipment or the creation of a separate room for the optic fiber communication equipment.

The Hosensack Substation is a major 230 kV and 500 kV hub on the bulk electrical system. The 230 kV yard at Hosensack Substation is partly owned and operated by PPL Electric; the other

portion of the 230 kV yard is owned and operated by First Energy. This Petition and the reinforcement explained herein relate only to the portion of the Substation that is owned by PPL Electric.

The total estimated cost of the proposed Project is $7.7 million. PPL Electric plans to begin construction of the control house in September 2012, in order to meet a required in service date of December 31, 2014. The required in-service date is when the proposed facilities need to be placed in service to prevent equipment overloads that have the potential to damage existing facilities and, thereby, cause the interruption of service to customers.

PPL Electric is petitioning the Pennsylvania Public Utility Commission ("PUC" or the "Commission"), pursuant to 52 Pa. Code § 5.41 and 53 P.S. § 10619, for a finding that the building to shelter control equipment at the existing Hosensack 230-69 kV Substation is reasonably necessary for the convenience or welfare of the public and therefore is exempt from local zoning ordinances. This document describes the need for the project.

2.0 RELIABILITY STANDARDS

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 local distribution systems. It is critically important that this interconnected transmission system be planned and designed to be highly reliable so that electric service can be provided under peak loading conditions and when certain elements of the system are out of service due to planned or forced outages.

On August 14, 2003, the largest power blackout in North American history affected an area with a population of approximately 50 million people in the states of Ohio, Michigan, Pennsylvania, New York, Vermont, Massachusetts, Connecticut, and New Jersey and the Canadian province of Ontario. Following this event, various investigations were undertaken to determine the cause of the blackout and to address the reliability of transmission service in the affected areas. These investigations culminated in the passage of the Energy Policy Act of 2005,[1] which added Section 215 to the Federal Power Act.[2] Section 215 of the Federal Power Act required FERC to certify an electric reliability organization ("ERO") to develop mandatory and enforceable reliability standards, which are subject to FERC review and approval.

On February 3, 2006, FERC certified the North American Electric Reliability Corporation ("NERC") as the ERO required to develop mandatory and enforceable reliability standards.[3] Thereafter, NERC developed reliability standards, which define the reliability requirements for planning and operating transmission systems in North America. The NERC Reliability Standards apply to all users, owners, and operators of the nation's interconnected transmission grid, including PPL Electric. The NERC Reliability Standards are monitored and enforced by NERC and the regional reliability organizations that function under its auspices. NERC achieves compliance through monitoring, audits, investigations, financial penalties, and other enforcement actions. These FERC-approved NERC Reliability Standards are mandatory, and failure to comply can result in penalties of up to $1 million per day per violation.

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[1] 42 U.S.C. §§16511-14.

[2] 16 U.S.C. § 824o(e)(3).

[3] *North American Electric Reliability Corp.*, 116 FERC ¶ 61,062, *order on reh'g & compliance*, 117 FERC ¶ 61,126 (2006), *order on compliance*, 118 FERC ¶ 61,030 (FERC 2007).

3.0 SYSTEM PLANNING PROCESS AND GUIDELINES

Transmission system planning, in its broadest sense, is the process that assures that the electrical transmission system can supply electricity to all customer loads. This process assures that the electric transmission systems:

(a) Are able to accommodate the forecasted system flows during the summer peak load conditions;

(b) Are constructed to adequately serve customers' needs with regard to capacity, voltage, and reliability for all load levels throughout the daily load cycle;

(c) Can sustain probable contingencies and disturbances with minimal customer interruptions; and

(d) Conform to the applicable transmission planning reliability principles, practices, and standards of PPL Electric, PJM, and NERC for all normal and emergency operating conditions.

3.1 PJM Transmission Planning Process

PJM Interconnection LLC ("PJM") is the FERC-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control and coordinating the movement of wholesale 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") to identify system reinforcements that are required to, among other things, meet the NERC Reliability Standards. The RTEP is a FERC-approved transmission planning process that

undertakes a comprehensive analysis to identify existing or forecasted violations of the NERC Reliability Standards on the transmission systems within PJM's service territory.[4]

PJM and its transmission system owners have developed planning reliability criteria to supplement the FERC-approved, NERC reliability standards. The NERC reliability standards, transmission owner criteria, and PJM reliability planning criteria are used by PJM to analyze the system and to determine the specific transmission projects, as part of the overall reliability solution, needed to ensure reliable electric service. Based upon this analysis, PJM determines the transmission upgrades needed to meet NERC reliability standards and, pursuant to FERC authority, may direct the building of new transmission projects to ensure grid reliability.

PJM's transmission planning process includes both five-year and fifteen-year planning horizons. The five-year planning process enables PJM to assess and recommend transmission upgrades to meet forecasted load growth and to ensure the safe and reliable interconnection of new generation and merchant transmission projects. The purpose of the fifteen-year process is to identify developing trends that will require longer lead-time solutions and examine the long-term reliability impacts of economic growth, the extent of loop flows within PJM, and assumptions about generation resources. PJM's transmission planning process integrates numerous factors, including:

[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.

(a) Forecasted load growth, demand-response efforts, and distributed generation additions;

(b) Interconnection requests by developers of new generating resources and merchant transmission facilities;

(c) Solutions to mitigate persistent congestion and forward-looking economic constraints and to ensure adequate allocation and funding of long-term financial transmission rights;

(d) Assessments of the potential risk of aging infrastructure;

(e) Long-term firm transmission service requests;

(f) Generation retirements and other deactivations;

(g) Transmission owner initiated improvements; and

(h) Load serving entity capacity plans.

PJM conducts these studies in conjunction with its transmission owners and applies NERC, regional reliability organization, PJM deliverability, and transmission owner criteria to specific conditions on the transmission system. When the studies show an inability of the transmission system to meet a specific reliability standard under these conditions, solutions such as construction of one or more new transmission lines or one or more enhancements to existing transmission facilities may be necessary.

The NERC reliability standards require PJM to identify the "critical system conditions" against which the system must be evaluated to ensure that it meets the performance criteria specified in the standards. Specifically, the NERC reliability standards require PJM to test events which fall into the following three categories:

(a) NERC Category A criteria require that, for all facilities in service, equipment thermal ratings and system voltage levels are within applicable limits and that the system is stable.

(b) NERC Category B criteria impose similar requirements with one facility removed from service. This is referred to as the "n minus 1" or "n-1" criteria. These criteria ensure that the system continues to remain reliable upon the instantaneous outage of a transmission element.

(c) NERC Category C criteria require the system to be stable and within applicable equipment thermal ratings and system voltage limits for less probable contingency events. Such events include second contingencies, involving the loss of one system element followed by system readjustments, and then the loss of a second system element. These are referred to as the "n minus 1 minus 1" or "n-1-1" criteria.[5]

PJM applies two primary tests that define the required critical system conditions to ensure compliance with NERC reliability criteria: a load deliverability test and a generation deliverability test. The load deliverability test examines defined load zones within the PJM region and considers the ability of the transmission system to deliver adequate power to the load zone during a generation capacity emergency in that load zone. The generator deliverability test evaluates the capability of the transmission system to deliver available generation resources during a distributed generation capacity emergency. The generator deliverability test evaluates the capability of the transmission system to assure that capacity resources in specific electrical areas within PJM can be delivered to the remainder of the PJM system at peak load.

These tests establish a link between generation resource adequacy for the region and the transmission adequacy necessary to deliver the generation resources to customer load. For use in the RTEP, both studies simulate the transmission system as it is expected to exist during future time periods (*i.e.*, expected load growth, the addition or retirement of generating plants, and

[5] Category C includes events such as the loss of two circuits on a single tower line, or for a single faulted system element followed by a circuit breaker failing to operate, which is referred to as a stuck breaker. While generation re-dispatch is allowed after the first element in an n-1-1 event, PJM does not dispatch generation in anticipation of loss of tower line events or stuck breaker events and the test of compliance with these criteria, therefore, does not allow generation patterns to be adjusted.

planned transmission construction projects). In addition, PJM confirms transmission owners' tests for compliance with established transmission owner reliability criteria.

When a potential NERC violation is identified through PJM's ongoing transmission system analysis, PJM notifies the respective transmission system owner of the violations. The transmission owner, together with PJM, collectively develops specific solutions to resolve these violations. PJM presents the results of its analyses and the proposed solutions to its Transmission Expansion Advisory Committee ("TEAC") to solicit comments and recommendations to resolve the reliability violations. The TEAC is open to participation by: (i) all transmission customers; (ii) any other entity proposing to build transmission facilities to be integrated into the PJM region; (iii) all PJM members; (iv) state commissions and consumer advocates; and (v) any other interested entities or persons. The TEAC reviews potential solutions to the identified NERC violations, including generation-based solutions, demand side management-based solutions, and transmission line solutions. Where the solution requires the construction of new or upgraded transmission facilities, PJM will direct the relevant transmission owner to undertake the required project.

3.2 The PPL Electric Transmission System Planning Process

PPL Electric undertakes an independent analysis of both its bulk electric system transmission facilities, which include transmission facilities operated at voltages of 100 kV or higher and are under the functional control of PJM and its non-bulk electric system transmission facilities. Therefore, PPL Electric, as a transmission owner and member of PJM, undertakes system planning for all of its transmission facilities in concert with the PJM and TEAC. In this way, PPL Electric actively participates in the PJM planning process and, through this participation,

PPL Electric provides the results of its independent studies of its local reliability plans to PJM for consideration and inclusion in the TEAC. The PPL Electric planning guidelines are outlined in its Reliability Principles and Practices ("Reliability P&P") document, which was developed to ensure adequate and appropriate levels of electric service consistent with good utility practice.

PPL Electric's established reliability criteria may be more stringent than that of PJM or NERC. Consequently, PPL Electric may recommend additional reinforcements to PJM for review and confirmation as part of the RTEP. In accordance with these guidelines, the PPL Electric transmission zone is planned so that:

(a) Normal operation of the system will not load any facility beyond its normal continuous rating;

(b) The loss of any single facility (single or double circuit line, transformer, bus, or generator), or the combination of a line fault and stuck breaker, or a fault with an over-trip and a successful reclosing of the over-tripped terminal, will not cause loadings on remaining facilities to exceed applicable emergency ratings in order to prevent equipment damage and cascading transmission outages; and

(c) After the initial facility loss, appropriate switching and/or load shedding procedures will be implemented to prevent damage to equipment should a second failure occur.

The PPL Electric planning process begins by developing a computer model of the future transmission system. A specific study year is chosen to define expected facility loadings. The future transmission system model is prepared using the existing transmission system plus any planned modifications to the transmission system that are scheduled to be in service prior to the study year. Load levels used in the transmission system model are based on the latest forecast prepared by the PPL Electric Load Analysis Group. Once PPL Electric's system model is complete, comprehensive power flow simulations are performed to determine the ability of the

system to comply with the Reliability P&P document. This is accomplished by simulating an outage of each single-circuit line, double-circuit line, transformer, bus, generator, or circuit breaker. This process identifies those conditions where the future system does not meet the Reliability P&P.

Alternatives that can mitigate the reliability criteria violation are then developed and analyzed to ensure the PPL Electric transmission system meets the reliability criteria identified within the Reliability P&P. Estimated costs and lead times to implement the reinforcements are prepared. Computer simulations of the system, considering the identified reinforcement alternatives, are completed to identify the best overall reinforcement plan that will meet the future needs of the region in a reliable and economic manner.

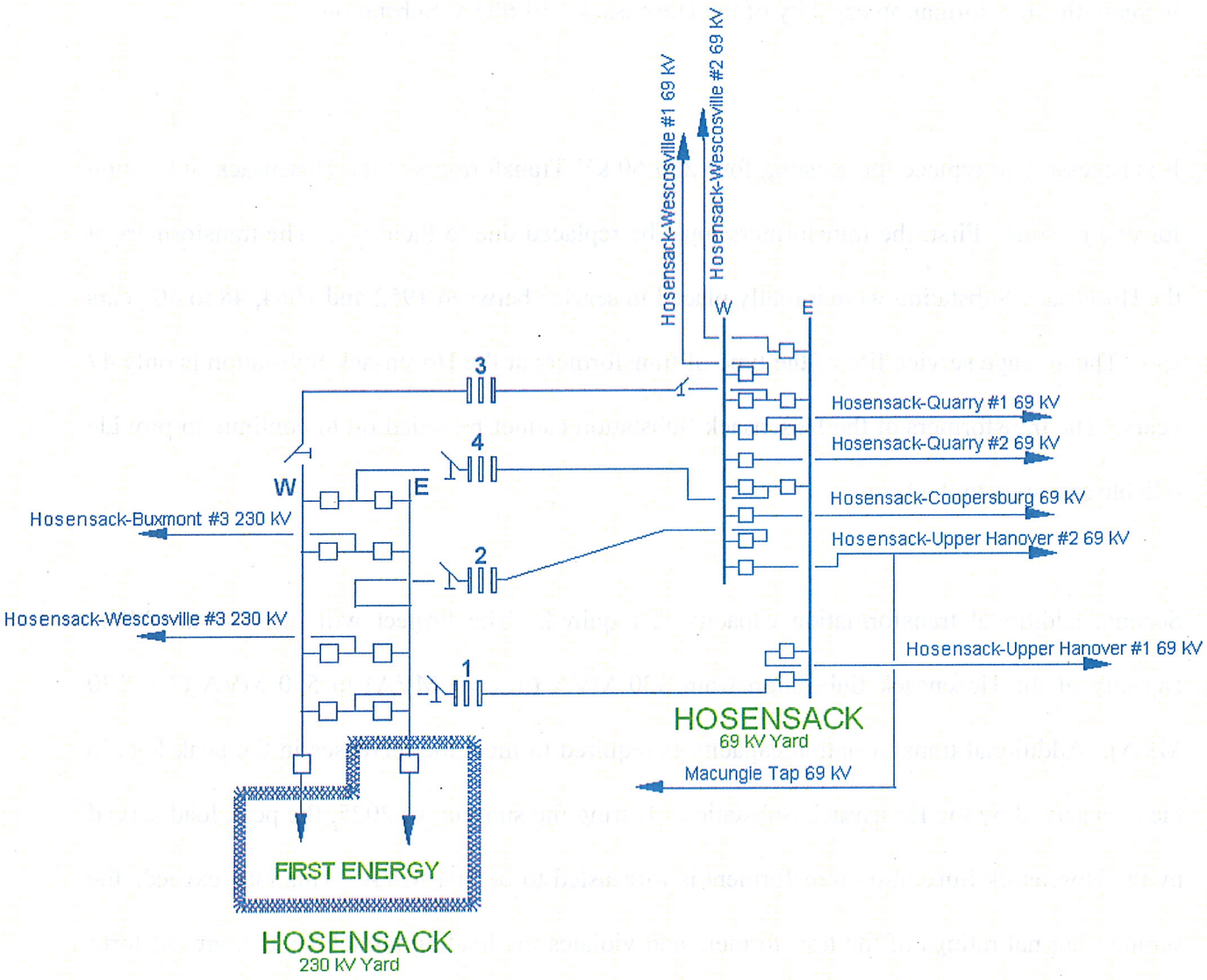
To the extent that PPL Electric's Reliability P&P identifies additional future bulk electric system reliability violations not previously identified by PJM through its ongoing transmission planning process, these violations and recommended reinforcements are forwarded to PJM for additional analysis and verification. If PJM agrees with the PPL Electric findings and recommended reinforcements, the additional projects are presented at TEAC meetings for stakeholder review and discussion, prior to PJM authorizing PPL Electric to proceed with a reinforcement project. PJM solicits and posts comments by the stakeholders on these proposed RTEP projects.

4.0 DEFINITION OF THE PROBLEM

4.1 Existing Transmission System - Lehigh County

Southern Lehigh County and parts of Bucks and Montgomery Counties are currently served from the Hosensack 230-69 kV Substation. Presently, the PPL Electric Hosensack 230-69 kV Substation has a control house situated between the 230 kV and 69 kV yards. Connected to the existing PPL Electric 230 kV yard are two 230 kV transmission lines, the Hosensack-Wescosville #3 230 kV Transmission Line and the Hosensack-Buxmont #3 230 kV Transmission Line. The Hosensack 230 kV yard has nine 230 kV circuit breakers and four 230/69 kV 75 megavolt-amperes (MVA) transformers: the Hosensack T1 transformer, the Hosensack T2 transformer, the Hosensack T3 transformer, and the Hosensack T4 transformer. The Hosensack T1 transformer is connected through two 230 kV breakers to the East and West 230 kV buses and through one 69 kV breaker to the East 69 kV bus. The Hosensack T2 transformer is connected directly to the East 230 kV bus and through one 69 kV breaker to the West 69 kV bus. The Hosensack T3 transformer is connected directly to the West 230 kV bus and through two 69 kV breakers to the East and West 69 kV buses. The Hosensack T4 transformer is connected through two 230 kV breakers to the East and West 230 kV buses and through two 69 kV breakers to the East and West 69 kV buses. A one-line diagram of the existing Hosensack 230-69 kV Substation is set forth in Figure 1.

Figure 1
Existing Hosensack 230-69 kV Substation – One-Line Diagram



4.2 Need for the Project

This Project is part of an ongoing effort to increase reliability on the PPL Electric system. The largest portion of the overall Project involves the replacement of four 230/69 kV 75 megavolt-amperes (MVA) transformers with three 230/69 kV 170 MVA transformers. The second

Hosensack control house is needed as part of a larger Project to replace older transformers and increase the transformation capacity of the Hosensack 230-69 kV Substation.

It is necessary to replace the existing four 230-60 kV Transformers at the Hosensack Substation for two reasons. First, the transformers must be replaced due to their age. The transformers at the Hosensack Substation were initially placed in service between 1952 and 1964, 48 to 60 years ago. The average service life of the type of transformers at the Hosensack Substation is only 47 years. The transformers at the Hosensack Substation cannot be relied on to continue to provide reliable service into the future.

Second, additional transformation capacity is required. The Project will increase the MVA capacity of the Hosensack Substation from 300 MVA (4 x 75 MVA) to 510 MVA (3 x 170 MVA). Additional transformation capacity is required to meet the increases in the peak load in the area served by the Hosensack Substation. During the summer of 2025, the peak load served by the Hosensack Substation transformers is forecasted to be 304 MVA. This load exceeds the summer normal ratings of the transformers and violates the loading guidelines that are set forth in PPL Electric's RP&P. Operating the transformers at loads in excess of their normal ratings could result in damage to the transformers causing an outage of service to approximately 300,000 customers until repairs could be made. Although the increase in the transformation capacity could be postponed, it is appropriate to install the transformers with increased capacity at this time, since the existing transformers must be replaced due to their age.

Because the ages of the transformers at the Hosensack Substation have exceeded their expected service lives and because they no longer have sufficient capacity to continue to provide reliable service to customers in that area into the future, PPL Electric determined that they should be replaced.

Replacing the existing four transformers with three transformers necessitates adding two 230 kV breakers in the Hosensack 230 kV yard and two additional 69 kV breakers in the Hosensack 69 kV yard. These four breakers will ensure that, for a breaker failure scenario, two transformers will remain in service. Without the additional breakers, a breaker failure that trips two of the transformers could cause a thermal overload on the remaining in-service transformer. This type of failure is categorized as a NERC Category C contingency. One set of NERC Category C contingencies is defined as a single line-to-ground fault (forced, uncontrolled outage) on the transmission system with delayed clearing such as those due to a stuck breaker or protection system failure. A thermal overload caused by a Category C contingency would violate the reliability standards established by NERC, Reliability*First* Corporation, PJM, and PPL Electric. In this case, an overload on the transformer above the emergency rating could cause the transformer to fail. The four new breakers that are needed to prevent these thermal overload conditions require additional space in the Hosensack control house for their relays and controls because they must be sheltered from the elements in order to function properly.

A second reason for the second control house at the Hosensack Substation is that PPL Electric must install a DFR and an AMS, in order to comply with the PRC-002-RFC-01 standard. This standard was approved by the Board of Reliability*First* Corporation on May 14, 2009. The

standard requires that substations such as the Hosensack Substation be equipped with disturbance monitoring and recording equipment. The standard applies to, among other things, all substations where there are three or more flow paths operated at or above 200 kV. It applies to the Hosensack Substation because it currently has four 230 kV flow paths: the Hosensack-Buxmont #3 230 kV line, the Hosensack-Wescosville #3 230 kV line, and the two 230 kV bus connections to the FirstEnergy portion of the Hosensack Substation.[6] The DFR and AMS equipment must be protected from the elements to function properly.

The third reason for the addition of a control house is to enable PPL Electric to move batteries and related electrical equipment from their present underground location in the basement of the existing control house. The Hosensack batteries and 125 Volts of Direct Current (VDC) and 480 Volts of Alternating Current (VAC) equipment are housed in the basement of the existing control house. The current location of the 480 VAC equipment in the control house basement creates concerns for the safety of PPL Electric personnel as a result of poor lighting, restricted work space and limited access. In addition, the underground location creates a high potential for water damage. Water damage to the 480 VAC equipment could cause the loss of transformation at the site. Relocation of the batteries and the 125 VDC and 480 VAC equipment to above ground space in the new control house will eliminate these safety and reliability concerns. This electrical equipment must be protected from the elements to function properly.

A fourth reason for the new Hosensack control house is the need to have a separate room for the non-PPL Electric fiber-optic communication equipment in the existing control house. Presently,

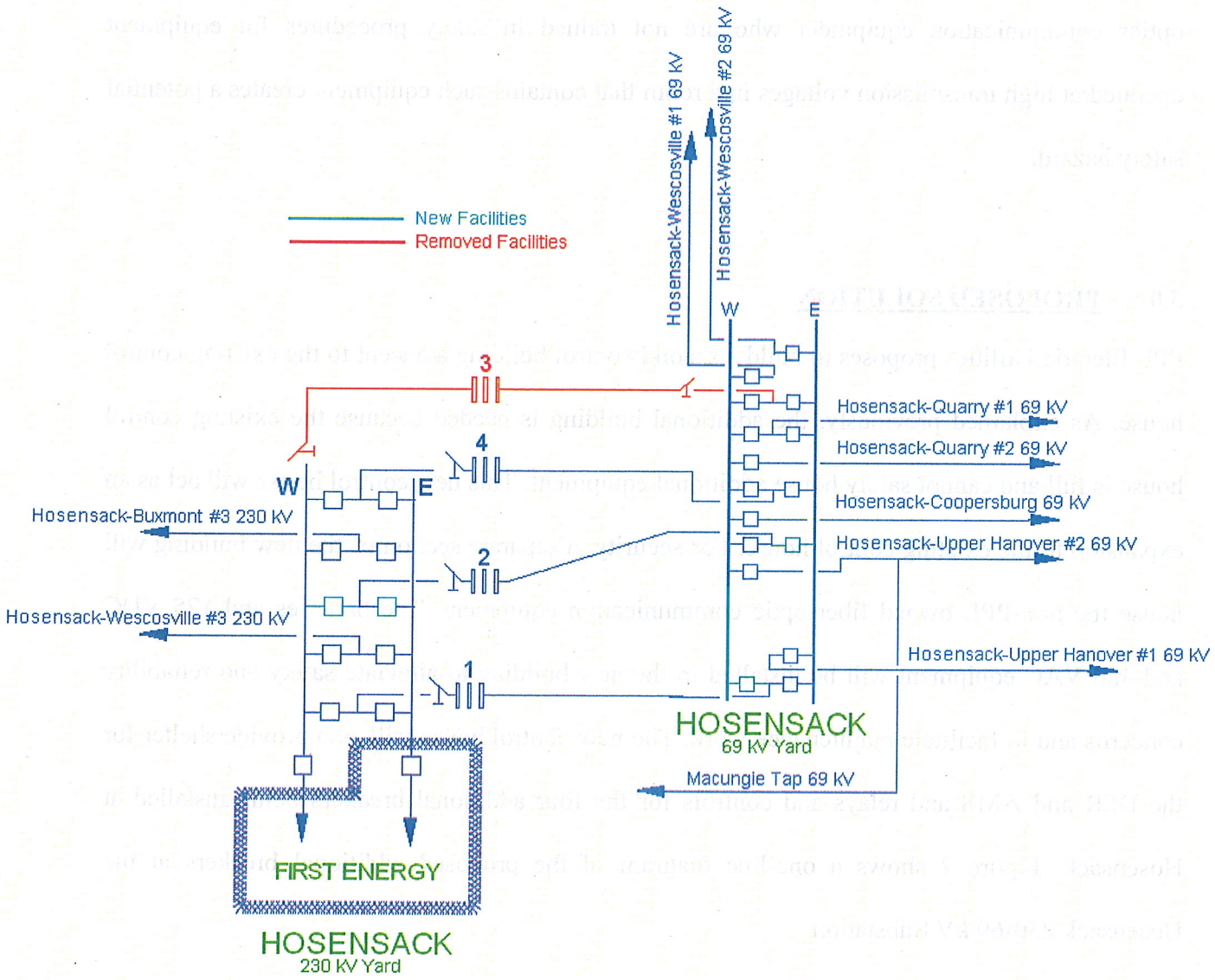
[6] After the replacement of the transformers, there will still be four 230 kV flow paths.

both optic fiber and high voltage transmission equipment are housed in the same room in the existing control house. The non-PPL Electric fiber-optic communication equipment is maintained by persons who are not trained in safety procedures for electrical equipment operated at high transmission voltages. The presence of persons performing maintenance on the fiber-optics communication equipment who are not trained in safety procedures for equipment operated at high transmission voltages in a room that contains such equipment creates a potential safety hazard.

5.0 PROPOSED SOLUTION

PPL Electric Utilities proposes to build a second control building adjacent to the existing control house. As explained previously, the additional building is needed because the existing control house is full and cannot safely house additional equipment. This new control house will act as an expansion to the existing control house. For security, a separate section of the new building will house the non-PPL owned fiber-optic communication equipment. The batteries and 125 VDC and 480 VAC equipment will be installed in the new building to alleviate safety and reliability concerns and to facilitate maintenance work. The new control house will also provide shelter for the DFR and AMS and relays and controls for the four additional breakers being installed at Hosensack. Figure 2 shows a one-line diagram of the proposed additional breakers at the Hosensack 230-69 kV Substation.

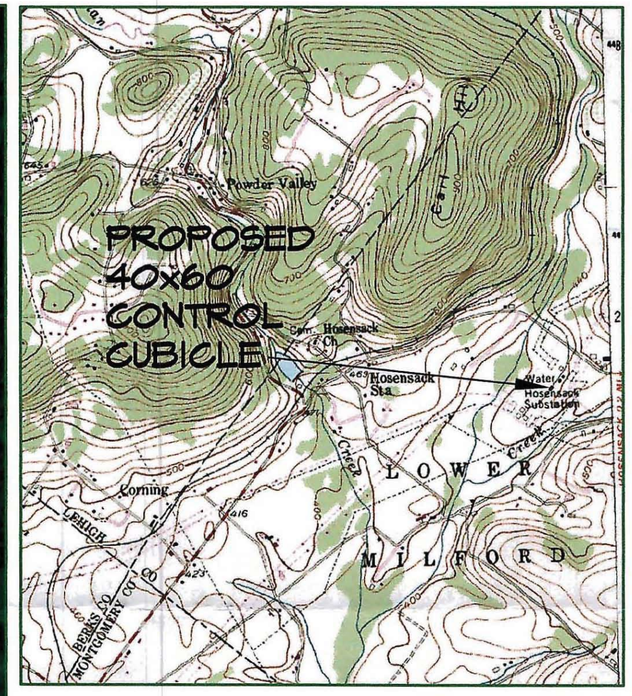
Figure 2
Future Hosensack 230-69 kV Substation– One-Line Diagram



The new control equipment described above must be protected from the elements so that the equipment, and the entire substation, can function properly. The new control building will be approximately 40 feet by 80 feet. It will be situated entirely within the existing Hosensack 230-

69 kV Substation which is surrounded by a chain-link fence in order to prevent unauthorized persons from entering the facility. The security provided by the fence is needed because the high voltages at which the substation is operated would pose a safety hazard to untrained persons. The building will be constructed on a concrete foundation. The walls of the building will be made of corrugated metal. The control building will not be intended for occupancy; and there will be no supply of water and no sanitary facilities.

The additional control house at the Hosensack 230-69 kV Substation is scheduled to begin in September 2012 to meet a required in-service date of December 31, 2014. The required in-service date is when the proposed facilities need to be placed in service to prevent equipment overloads that have the potential to damage existing facilities and, thereby, cause the interruption of service to customers.



EAST GREENVILLE USGS
SCALE 1:2000

LEGEND

FENCE

EXHIBIT A

AERIAL EXHIBIT
SHEET 1 OF 1

HOSENSACK 230-69kV SUBSTATION
PROPOSED CONTROL CUBICLE
LOWER MILFORD TOWNSHIP
LEHIGH COUNTY, PA.

SCALE: 1" = 300'

300 150 0 150 300 600

PREPARED BY:
PPL ELECTRIC UTILITIES CORP.

PPL ELECTRIC UTILITIES

REFERENCE TITLE	NUMBER	NO.	DATE	ACCT.	REVISION	BY	REVIEWED	APPROVED	CAD ID	PPL DRAWING NO.	SHEET NO. / REV.
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ACCT- 10016432
SCALE- 1"=300'
BY- RWM
REVIEWED KBK

CEII Confidential

APPROVED Kenneth B Kuhns DATE 12/9/12

PPL ELECTRIC UTILITIES

HOSENSACK 230-69kV SUBSTATION
PUC EXHIBIT A
PROPOSED CONTROL CUBICLE
LOWER MILFORD TWP. LEHIGH CO.,PA.

PPL EU FORM 4874 (08/10)

PC CAD