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File # 205858

June 7, 2024

VIA ELECTRONIC FILING

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

**Re: Letter of Notification Of PPL Electric Utilities Corporation, Filed Pursuant to 52 Pa. Code Chapter 57 Subchapter G, For Approval To Reconductor Approximately 0.33 Miles Of The Existing Springfield-Gilbert 230 kV Transmission Line Between The Springfield 230-69 kV Substation And The Demarcation Point Where Ownership Of The transmission Line Transfers to Mid-Atlantic Interstate Transmission, LLC (“MAIT”)
Docket No. A-2024-**

Dear Secretary Chiavetta:

Attached for filing is the Letter of Notification of PPL Electric Utilities Corporation in the above-referenced proceeding. As indicated on the Certificate of Service, copies of the Letter of Notification are being served by certified mail, return receipt requested, upon the involved governmental agencies, municipalities and property owners. Construction of the Project will commence upon the Commission’s approval of this filing, with an estimated construction start date of November 2024, with an anticipated in-service date of December 2024.

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

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

Rosemary Chiavetta, Secretary
June 7, 2024
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Respectfully submitted,



Nicholas A. Stobbe

NAS/dmc
Enclosures

cc: Jordan Van Order
Deb Becker
Certificate of Service

CERTIFICATE OF SERVICE

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

VIA CERTIFIED MAIL: RETURN RECEIPT REQUEST

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

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

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

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Ms. Andrea MacDonald, Bureau Director / Deputy State Historic Preservation Officer

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

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: Dr. Matthew Schnupp, Director, Bureau of Wildlife Management

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

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Patrick M. Cicero, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: Steven C. Gray, Senior Supervising Assistant Small Business Advocate

U.S. Army Corps of Engineers
Philadelphia District Corporate
Communication Office
1650 Arch Street
Philadelphia, PA 19103-2004
Attn: Planning Division

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

Bucks County Planning Commission
1260 Almshouse Road
Doylestown, Pennsylvania 18901
Attn: Michael Roedig, Director of Planning
Services

Dated: June 7, 2024

Bucks County Conservation District
1456 Ferry Road, Suite 704
Doylestown, Pennsylvania 18901
Attn: Gretchen Schatschneider, District
Manager

Springfield Township
2320 Township Road
Quakertown, Pennsylvania 18951
Attn: Anthony Matzura, Chairman

PPL Electric Utilities Corporation
Two North Ninth Street
Allentown, Pa 18101-1179



Nicholas A. Stobbe

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Letter Of Notification Of PPL Electric :
Utilities Corporation, Filed Pursuant To 52 :
Pa. Code Chapter 57 Subchapter G, For : Docket No. A-2024-_____
Approval To Reconductor Approximately :
0.33 Miles Of The Existing Springfield- :
Gilbert 230 kV Transmission Line between :
the Springfield 230-69 kV Substation And :
The Demarcation Point Where Ownership :
Of The Transmission Line Transfers To :
Mid-Atlantic Interstate Transmission, LLC :
("MAIT") :

LETTER OF NOTIFICATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric") hereby files this Letter of Notification pursuant to Section 57.72(d)(1)(i), (v) and (vi) of the Pennsylvania Public Utility Commission's ("Commission") regulations, 52 Pa. Code § 57.72(d)(1)(i), (v) and (vi), to reconductor approximately 0.33 miles of the existing PPL Electric owned section of the Springfield-Gilbert 230 kV Transmission Line between the Springfield 230-69 kV Substation ("Springfield Substation") and the demarcation point where ownership of the transmission line transfers to Mid-Atlantic Interstate Transmission, LLC ("MAIT") (a FirstEnergy Corp. company) ("Project").¹

The existing Springfield-Gilbert 230 kV Transmission Line connects the PPL Electric-owned Springfield 230-69 kV Substation in Bucks County, Pennsylvania to the Jersey Central Power & Light ("JCP&L") (a FirstEnergy Corp. company) owned Gilbert 230-115 kV Substation

¹ For a complete list of municipalities and counties crossed by the Project, please refer to Attachment 5 to this Letter of Notification.

in Hunterdon County, New Jersey. The Project is required to resolve a thermal overload violation on PPL Electric's section of the Springfield-Gilbert 230 kV Transmission Line. The Project, as approved by PJM Interconnection LLC ("PJM"), involves replacing the existing 1590 ACSR² conductor with 1590 ACSS³ conductor to increase the line rating.

I. INTRODUCTION

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

2. PPL Electric's address is as follows:

PPL Electric Utilities Corporation
827 Hausman Road
Allentown, Pennsylvania 18104

3. PPL Electric's attorneys are:

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PPL Services Corporation
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Allentown, PA 18101
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nstobbe@postschell.com

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

² "ACSR" stands for "aluminum conductor steel reinforced."

³ "ACSS" stands for "aluminum conductor steel supported."

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 Engineering Description.
- Attachment 3 Description of Right-of-Way.
- Attachment 4 PPL Electric Design Criteria and Safety Practices.
- Attachment 5 Landowners And Agencies List.

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

II. THE PROJECT

A. NEED FOR THE PROJECT

8. PPL Electric has a responsibility to provide transmission assets and maintain them in a manner that is safe, reliable, and resilient to meet the needs of the electric system and the service expectations of its customers. To meet this duty, PPL Electric applies its transmission asset management planning procedure, which includes system performance and condition assessments. These performance and condition assessments identify system needs and prioritize

projects based on several variables such as equipment age, condition, maintenance schedule, and impact on system reliability and performance to ensure a reliable electric grid and reasonable service to its customers.

9. As explained in greater detail below and in **Attachment 1 – Necessity Statement**, this Project is required to resolve a thermal overload violation on PPL Electric’s 0.33 mile section of the Springfield-Gilbert 230 kV Transmission Line. The Project, as approved by PJM, involves replacing the existing 1590 ACSR conductor with 1590 ACSS conductor to increase the line rating for this existing HV transmission line.⁴

10. The Project as proposed addresses these concerns in a cost-efficient manner, as compared to either a replacement alternative or a removal alternative.

11. Due to the relatively young age of the PPL Electric-owned section of the Springfield-Gilbert 230 kV Transmission Line and the nature of the need, there was only one solution (the “Proposed Solution”) that could reasonably address the need efficiently and effectively. All the alternatives were evaluated based on total cost, impacts, and ability to resolve the overload violation. Removal of the transmission line was not a viable solution to address the thermal overloads and completely rebuilding the Transmission Line was not a cost-effective solution given its age and current condition.

1. Existing System

12. The Springfield-Gilbert 230 kV Transmission Line connects the PPL Electric-owned Springfield 230-69 kV Substation in Bucks County, Pennsylvania, to the JCP&L-owned Gilbert 230-115 kV Substation in Hunterdon County, New Jersey.

⁴ Transmission line rating means the maximum load carrying capability of a transmission line.

13. A map of the existing system configuration is provided as Figure 1-1, in **Attachment 1 – Necessity Statement**.

2. Definition of the Problem

14. In November 2020, the New Jersey Board of Public Utilities (“NJBPU”) issued an order formally requesting that PJM open a competitive proposal window to solicit project proposals to identify transmission projects that address New Jersey’s public policy goals for 7,500 MW for offshore wind (“OSW”).

15. In February 2021, the Commission accepted the State Agreement Approach (“SAA”) Study Agreement (FERC Docket ER21-689) between PJM and the NJBPU that authorized PJM to implement the SAA process to conduct an open proposal window for OSW transmission facilities that effectuate New Jersey’s public policy goals and established key dates and milestones.

16. As identified by PJM’s Reliability Analysis, the conductor within the 0.33 mile PPL Electric-owned section of the Springfield-Gilbert 230 kV Transmission Line was determined to be the limiting component of the overall transmission line, resulting in thermal overload violations.⁵

17. Due to the thermal overload violations, the capacity of PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line must be increased to support the New Jersey OSW initiative. The New Jersey OSW initiative is more fully explained in **Attachment 1 – Necessity Statement**. PPL Electric’s Project proposed in this Letter of Notification represents a small portion of overall transmission project approved by PJM. PPL Electric’s customers will bear no cost responsibility for this Project.

⁵ A thermal overload violation is when the projected power flow on the line exceeds the design parameters and would result in excessive heating and sag of the conductor.

B. THE PROPOSED PROJECT

18. PPL Electric submitted one proposed solution to address the thermal overload violations on the Springfield-Gilbert 230 kV Transmission Line within its proposal titled “PPL Electric Proposal 330, Reconductor Gilbert-Springfield 230 kV Transmission Line from 1590 ACSR to 1590 ACSS”.

19. The Project, as approved by PJM to resolve the thermal overloads identified on the Springfield-Gilbert 230 kV Transmission Line, includes replacing approximately 0.33-miles of 1590 ACSR conductor with 1590 ACSS conductor. Reconductoring the line will increase the capacity of PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line and resolve the identified thermal overloads.

20. On August 16, 2023, PJM and PPL Electric executed a Designated Entity Agreement for PPL Electric to reconductor the Springfield-Gilbert 230 kV line under Baseline number B3737.45. Pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, and as stated in the Designated Entity Agreement, PPL Electric is required to complete the Project by June 1, 2030.

21. The total estimated cost of PPL Electric’s Project, as described above, is approximately \$550,000, and the cost for the Project will be allocated to Public Service Electric & Gas Company (“PSE&G”) (a Public Service Enterprise Group Inc. company) (52.17%), JCP&L(31.98%), Atlantic City Electric (An Exelon Corporation company) (13.64%), and Orange and Rockland Utilities, Inc. (a Consolidated Edison, Inc. company) (2.21%) customers.⁶

⁶ The estimate cost was developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

22. Importantly, the Project will address the thermal overloading issue by replacing the existing conductor, which doesn't have enough capacity to safely conduct the future load, with a conductor that has a higher line rating and load carrying capacity.

III. HEALTH AND SAFETY

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

24. Attachment 4 accompanying this Letter of Notification also explains PPL Electric's standards for Magnetic Field Management. Ground clearances for the proposed Project will be maintained at existing levels, which are at least 3.0 feet higher than those required by the NESC standard in order to reduce the magnetic field exposure.

IV. DESCRIPTION OF THE RIGHT-OF-WAY

25. The Springfield-Gilbert 230 kV Transmission Line shares right of way (“ROW”) with the existing Hosensack-Springfield 230 kV Transmission Line for the approximate 0.33-mile portion of the line proposed to be reconducted.

26. The Project will be on the same structure alignment and on the same PPL Electric fee-owned property as the existing Hosensack-Springfield 230 kV Transmission line.

27. No private parcels are crossed by the approximate 0.33-mile existing alignment.

28. No private parcels are crossed by the approximate 0.33-mile proposed alignment.

29. From the Springfield Substation, the Project will extend east for approximately 0.07-miles and then north for approximately 0.26-miles to Structure 48/31 (point of ownership demarcation). Land use in this area is a mix of agricultural and developed land as shown in **Figure 3-1 – Attachment 3**.

30. As fully described in **Attachment 2 – Engineering Description**, the Project involves the reconductoring of the existing single-circuit transmission line and re-using the existing structures.

V. LAND USE AND ENVIRONMENTAL EVALUATION

31. As explained above, construction of the proposed Project will take place entirely within existing rights-of-way (PPL Electric fee-owned property). Therefore, it is anticipated that the proposed Project will have no incremental impacts on land use in the area.

32. Based on review of 2023 aerial photography, the Project Area consists of approximately 50% forest, 30% agriculture and the remaining 20% comprised of developed land uses including residential, commercial/industrial, and transportation areas.

33. The Project does not cross any public roads, railroads, or underground pipelines. The Project is located adjacent to other PPL Electric electrical utility ROWs near the Springfield Substation.

34. The closest active airport to the Project Area is the Quakertown Airport, which is located approximately 4-miles southwest of the Springfield Substation. PPL Electric does not anticipate any interference with airport operations because the Project is in an area where there are existing electrical facilities and existing structure heights are not increasing. However, PPL Electric will comply with any applicable requirements of the Federal Aviation Administration.

35. PPL Electric collected information on previously recorded cultural resources, including National Register of Historic Places (“NRHP”)-listed properties, archaeological sites, and architectural and historical resources mapped within a 0.5-mile buffer of the Site. Information was collected through a review of the PA State Historic Preservation Office’s (“PA SHPO”) Pennsylvania’s Historic and Archaeological Resource Exchange (“PA-SHARE”). No previously recorded archaeological or aboveground resources are mapped within the review area.

36. No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources (“PDCNR”). “The Lookout”, an outstanding scenic geological feature of Pennsylvania, is adjacent to the Project Area approximately 0.7-miles north of the Springfield Substation. This geological feature consists of a forested diabase bedrock hill surrounded by mixed deciduous forest with a rich herbaceous layer. Given the Project is in an area with existing electrical facilities and no new structures are proposed, no impacts to this feature are anticipated.

37. The Project Area consists of generally flat terrain with no major topography changes. Topography in the area ranges from approximately 600 feet above sea level (“ASL”) to

approximately 650 feet ASL at the northern terminus of the Project. Soils present within the Project Area consist of mainly silt loams with small pockets of gravelly silt loams.

38. Erosion and Sedimentation (“E&S”) control plans will be developed and implemented for the Project to minimize the displacement of soils. Impacts to local soil resources are anticipated to be minimal.

39. The existing transmission line does not span any National Hydrography Dataset waterways. Review of the United States Geological Survey (“USGS”) mapping website also indicated that the Project will not span any named streams. The Project Area is located within the Upper Tohickon Creek watershed (USGS Hydrologic Unit Code (“HUC”) 02040150701).

40. The streams in the Project review Area have a PADEP Chapter 93 Designated Use Stream Classification of Trout Stocking (“TSF”). All streams within the Project review area are also recognized as Migratory Fish (“MF”) waters. An E&S control plan will be developed to address stormwater control within the Project area. PPL Electric will obtain all approvals and permits necessary for the construction of the Project and will comply with any conditions placed on those permits. No direct impact to these stream features is anticipated by the Project activities.

41. For federal and state permitting purposes, the wetlands within the Project have been delineated, surveyed, and illustrated according to regulatory standards. This information is being used to minimize wetland impacts where possible. Additionally, PPL Electric will reduce impacts to wetlands by using timber mating where access roads cannot avoid crossing them.

42. The National Flood Hazard Layer for Bucks County, Pennsylvania was obtained through the Federal Emergency Management Agency (“FEMA”) Flood Map Service Center website and analyzed for 100-year floodplains within the Project Area and surrounding landscape.

Based on review of this data, the Project does not span any FEMA 100-year floodplains, therefore no impacts to floodplain areas are anticipated by the proposed Project activities.

43. Vegetative cover in the Project Area consists of a mix of forest, agricultural use and developed areas. The existing ROW for the transmission line has previously been cleared of woody vegetation and no extensive tree clearing is anticipated as part of this project. If limited vegetation management is required as part of the Project, PPL Electric will apply its “Specifications for Transmission Vegetation Management LA-79827” to minimize potential impacts.

44. Vegetative cover in the Project Area consists of a mix of forest, agricultural use and developed areas. The existing ROW for the transmission line has previously been cleared of woody vegetation and no extensive tree clearing is anticipated as part of this project. If limited vegetation management is required as part of the Project, PPL Electric will apply its “Specifications for Transmission Vegetation Management LA-79827” to minimize potential impacts.

45. Based on review of the Natural Areas Inventory of Bucks County, Pennsylvania, published by The Nature Conservancy in 2011, no Pennsylvania Natural Heritage Program identified natural areas are crossed by the Project.

46. A Pennsylvania Natural Diversity Inventory (“PNDI”) review was completed on March 6, 2024 to assess the potential presence of threatened and endangered species and/or special concern species in the Project area. Specific agencies to review the Project through the PNDI process include the following:

- Pennsylvania Game Commission (“PGC”),
- Pennsylvania Fish and Boat Commission (“PFBC”),

- PDCNR, and
- USFWS

47. The PGC, PFBC, and PDCNR all indicated there would be no known impacts to protected species under their jurisdiction. The USFWS indicated the potential for impacts to bog turtles (*Glyptemys muhlenbergii*) and requested a habitat survey to evaluate all wetlands within 300 feet of the Project area for potential bog turtle habitat.

48. PPL Electric will complete all required surveys, obtain all necessary approvals, and permits for Project construction, and comply with all conditions placed on those permits.

VI. NOTICE

49. Copies of the Letter of Notification will be served upon all state agencies, federal agencies, county agencies, municipalities, and landowners in accordance with 52 Pa. Code § 57.72(d)(3). A list of the same impacted or potentially impacted by this project is provided in **Attachment 5 – Agency and Landowner List**.

50. PPL Electric has provided information regarding the Project to representatives of Springfield Township. Springfield Township has not objected to the proposed Project. Copies of this Letter of Notification will be served on the governmental agencies, municipalities, and other public entities and organizations in accordance with 52 Pa. Code § 57.72(d)(3). A list of these entities and organizations is also provided in **Attachment 5 – Agency and Landowner List**.

VII. LETTER OF NOTIFICATION

51. 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)(i), (v) and (vi).

52. The proposed Project qualifies for use of a Letter of Notification because it will be located entirely on an existing transmission line right-of-way (PPL Electric fee-owned parcel), and the size, character design or configuration of the proposed reconductoring will not substantially alter the right-of-way (PPL Electric fee-owned parcel). In addition, the Project involves the reconductoring of an existing HV transmission line, where the size, character, design or configuration of the proposed HV line will not substantially alter the existing right-of-way. Finally, the Project involves an HV line of 0.33 miles, which is less than the 2 mile threshold applicable to a Letter of Notification.

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

VIII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission approve the proposed Project located in Springfield Township, Bucks County, Pennsylvania, that is explained above and in the Attachments hereto.

Respectfully submitted,

Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
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Allentown, PA 18101
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David B. MacGregor (I.D. # 28804)
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nstobbe@postschell.com

Date: June 7, 2024

Attorneys for PPL Electric Utilities Corporation

**PPL ELECTRIC
ATTACHMENT 1**

SPRINGFIELD-GILBERT 230 KV TRANSMISSION LINE RECONDUCTOR PROJECT

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Figure 1-2: Existing System Map

Figure 1-3: Proposed 230kV One Line Diagram

Figure 1-4: Proposed System Map

1.0 INTRODUCTION

PPL Electric Utilities (“PPL Electric”) is requesting Pennsylvania Public Utility Commission (“PUC” or the “Commission”) approval to reconductor approximately 0.33 miles of the existing PPL Electric owned section of the Springfield-Gilbert 230 kV Transmission Line between the Springfield 230-69 kV Substation (“Springfield Substation”) and the demarcation point where ownership of the transmission line transfers to Mid-Atlantic Interstate Transmission, LLC (“MAIT”) (a FirstEnergy Corp. company) (the “Project”). The existing Springfield-Gilbert 230 kV Transmission Line connects the PPL Electric owned Springfield 230-69 kV Substation in Bucks County, Pennsylvania to the Jersey Central Power & Light (“JCP&L”) (a FirstEnergy Corp. company) owned Gilbert 230-115 kV Substation in Hunterdon County, New Jersey. The Project is required to resolve a thermal overload violation on PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line. The Project, as approved by PJM Interconnection LLC (“PJM”), involves replacing the existing 1590 ACSR¹ conductor with 1590 ACSS² conductor to increase the line rating.

Subject to the Commission’s approval, construction will begin in November 2024 to support an in-service date of December 2024. The total estimated cost of PPL Electric’s Project, as described below, is approximately \$550,000. The cost for the Project will be allocated to Public Service Electric & Gas Company (“PSE&G”) (a Public Service Enterprise Group Inc. company) (52.17%), JCP&L (31.98%), Atlantic City Electric (An Exelon Corporation company) (13.64%), and Orange and Rockland Utilities, Inc. (a Consolidated Edison, Inc. company) (2.21%) customers.³

¹ “ACSR” stands for “aluminum conductor steel reinforced.”

² “ACSS” stands for “aluminum conductor steel supported.”

³ The estimate cost was developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

2.0 TRANSMISSION SYSTEM PLANNING PROCESS

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

Robust Transmission Planning assures that the transmission system can supply electricity to all customer loads in a manner that is safe, reliable, and economical. This System Planning process ensures that both the Bulk Electric System (“BES”)⁴ and non-Bulk Electric System (non-BES)⁵ are planned and constructed so that:

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

PJM is a Federal Energy Regulatory Commission (“FERC”)-approved Regional Transmission Organization (“RTO”) charged with ensuring the reliability of the electric transmission system under its functional control (100 kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including Pennsylvania. To ensure reliable transmission

⁴ Bulk Electric System (BES) – Includes transmission facilities operated at voltages of 100kV or higher.

⁵ Non-Bulk Electrical System (non-BES) – Includes transmission facilities operated at voltages less than 100kV.

service, PJM prepares an annual Regional Transmission Expansion Plan (“RTEP”)⁶ 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.

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

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

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

3.0 THE NEED FOR THE PROJECT

3.1 Existing System

MAIT owns the majority of the existing 230kV Transmission Line that extends from the Hosensack 230 kV Substation (MAIT's 230kV yard) to the Gilbert 230-115 kV Substation (owned by MAIT). In 2013, PPL Electric interconnected the Springfield 230/69 kV Substation by tapping the Hosensack-Gilbert 230 kV Transmission Line and, by doing so, created the Hosensack-Springfield 230 kV and Springfield-Gilbert 230 kV Transmission Line segments. A one-line diagram of the existing 230kV system is

⁶ 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.

provided as **Figure 1-1**. PPL Electric owns the 0.33-mile section of Transmission Line from the Springfield Substation to the demarcation points where the Hosensack-Gilbert 230 kV Transmission Line was split. These 230 kV transmission lines are part of the larger regional 230 kV system that supplies load throughout Eastern Pennsylvania and New Jersey.

A map of the existing system alignment is provided as **Figure 1-2**.

3.2 Project Need

In November 2020, the New Jersey Board of Public Utilities (“NJBPU”) issued an order formally requesting that PJM open a competitive proposal window to solicit project proposals to identify transmission projects that address New Jersey’s public policy goals for 7,500 MW for offshore wind (“OSW”).

In February 2021, the Commission accepted the State Agreement Approach (“SAA”) Study Agreement (FERC Docket ER21-689) between PJM and the NJBPU that authorized PJM to implement the SAA process to conduct an open proposal window for OSW transmission facilities that effectuate New Jersey’s public policy goals, and established key dates and milestones.

As identified by PJM’s Reliability Analysis, the conductor within the PPL Electric owned section of the Springfield-Gilbert 230 kV Transmission Line was determined to be the limiting component of the overall transmission line, resulting in thermal overload violations.⁷ Due to the thermal overload violations, the capacity of PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line must be increased to support the New Jersey OSW initiative.

In April 2021, PJM opened a Proposal Window to solicit proposals to address the public policy needs of New Jersey. In response to the PJM competitive transmission solicitation, PJM received 80 proposals from 13 different entities for onshore upgrades, onshore greenfield facilities to extend the grid to the shore, offshore transmission proposals to extend the grid to access OSW lease areas and offshore

⁷ A thermal overload violation is when the projected power flow on the line exceeds the design parameters and would result in excessive heating and sag of the conductor.

backbone transmission to intertie future OSW platforms. PJM evaluated all 80 proposals submitted during the New Jersey OSW SAA competitive window on their technical performance to ensure they satisfy PJM reliability requirements and New Jersey’s public policy requirements to achieve 7,500 MW of offshore wind by 2035. The findings of each body of analysis were provided to the NJBPU for its consideration and as input to its independent evaluation of the proposals and decision on which project, if any, it would select.

On July 18, 2022, PJM presented its findings to the NJBPU and to PJM’s Transmission Expansion Advisory Committee (“TEAC”). The NJBPU then selected four finalist scenarios for the balance of reliability analysis, and PJM provided the results of the final comprehensive reliability analysis to the NJBPU. The NJBPU completed its independent evaluation of the proposals and selected the project, inclusive of all necessary components, that it will sponsor as a public policy project.

On October 26, 2022, the NJBPU issued an order notifying PJM of its selection of the transmission project, inclusive of all components, that it will sponsor to achieve its stated public policy goals of injecting 7,500 MW of offshore wind energy into New Jersey by 2035. The NJBPU has selected the solution identified as the “Larrabee Tri-Collector Solution” or “MAOD-JCP&L Option 1b Solution,” which includes elements of the Jersey Central Power & Light (“JCP&L”) Option 1b proposal, as well as scaled-down elements of Mid-Atlantic Offshore Development’s (“MAOD”) Option 2 proposal, and the necessary Option 1a upgrades to create the SAA Capability1 associated with the SAA scenario evaluating the Larrabee Tri-Collector Solution. PPL Electric’s Project proposed in this Letter of Notification represents a small portion of overall transmission project approved by PJM. PPL Electric’s customers will bear no cost responsibility for this Project.

4.0 PROPOSED SOLUTION

PPL Electric submitted one potential solution to address the thermal overload violations on the Springfield-Gilbert 230 kV Transmission Line within its proposal titled “PPL Electric Proposal 330, Reconductor Gilbert-Springfield 230 kV Transmission Line from 1590 ACSR to 1590 ACSS”. The Project, as approved by PJM to resolve the thermal overloads identified on the Springfield-Gilbert 230 kV Transmission Line, includes replacing approximately 0.33 miles of 1590 ACSR conductor with 1590

ACSS conductor. This will increase the capacity of PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line and resolve the identified thermal overloads.

On August 16, 2023, PJM and PPL Electric executed a Designated Entity Agreement for PPL Electric to reductor the Springfield-Gilbert 230 kV line under Baseline number B3737.45. Pursuant to Schedule 6 of PJM's Amended and Restated Operating Agreement, and as stated in the Designated Entity Agreement, PPL Electric is required to complete the Project by June 1, 2030.

The total estimated cost of PPL Electric’s Project, as described above, is approximately \$550,000, and the cost for the Project will be allocated to Public Service Electric & Gas Company (“PSE&G”) (a Public Service Enterprise Group Inc. company) (52.17%), JCP&L(31.98%), Atlantic City Electric (An Exelon Corporation company) (13.64%), and Orange and Rockland Utilities, Inc. (a Consolidated Edison, Inc. company) (2.21%) customers.⁸

A one-line diagram of the proposed 230kV system is provided as **Figure 1-3**. A map of the proposed 230kV alignment is provided as **Figure 1-4**.

5.0 ALTERNATIVES

In addition to the proposed solution described in Section 4.0, the following alternatives to address the thermal overloads were evaluated:

- 1) Complete rebuild of the Springfield-Gilbert 230 kV Transmission Line; and
- 2) Removal of the Springfield-Gilbert 230 kV Transmission Line.

Due to the relatively young age of the PPL Electric-owned section of the Springfield-Gilbert 230 kV Transmission Line and the nature of the need, there was only one solution (the “Proposed Solution”) that could efficiently address the need. All alternatives were evaluated based on total cost, impacts, and ability to resolve the overload violation. Removal of the transmission line was not a viable solution to

⁸ The estimate cost was developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

address the thermal overloads and completely rebuilding the Transmission Line was not a cost-effective solution, given its age and current condition.

Figure 1-1: Existing 230 kV One Line Diagram

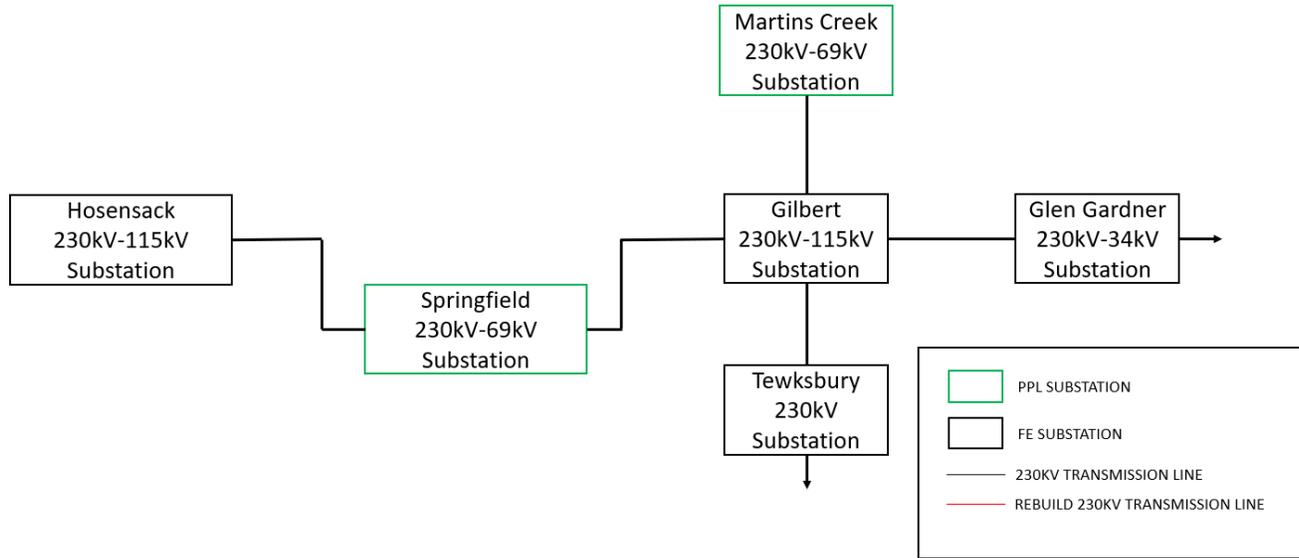
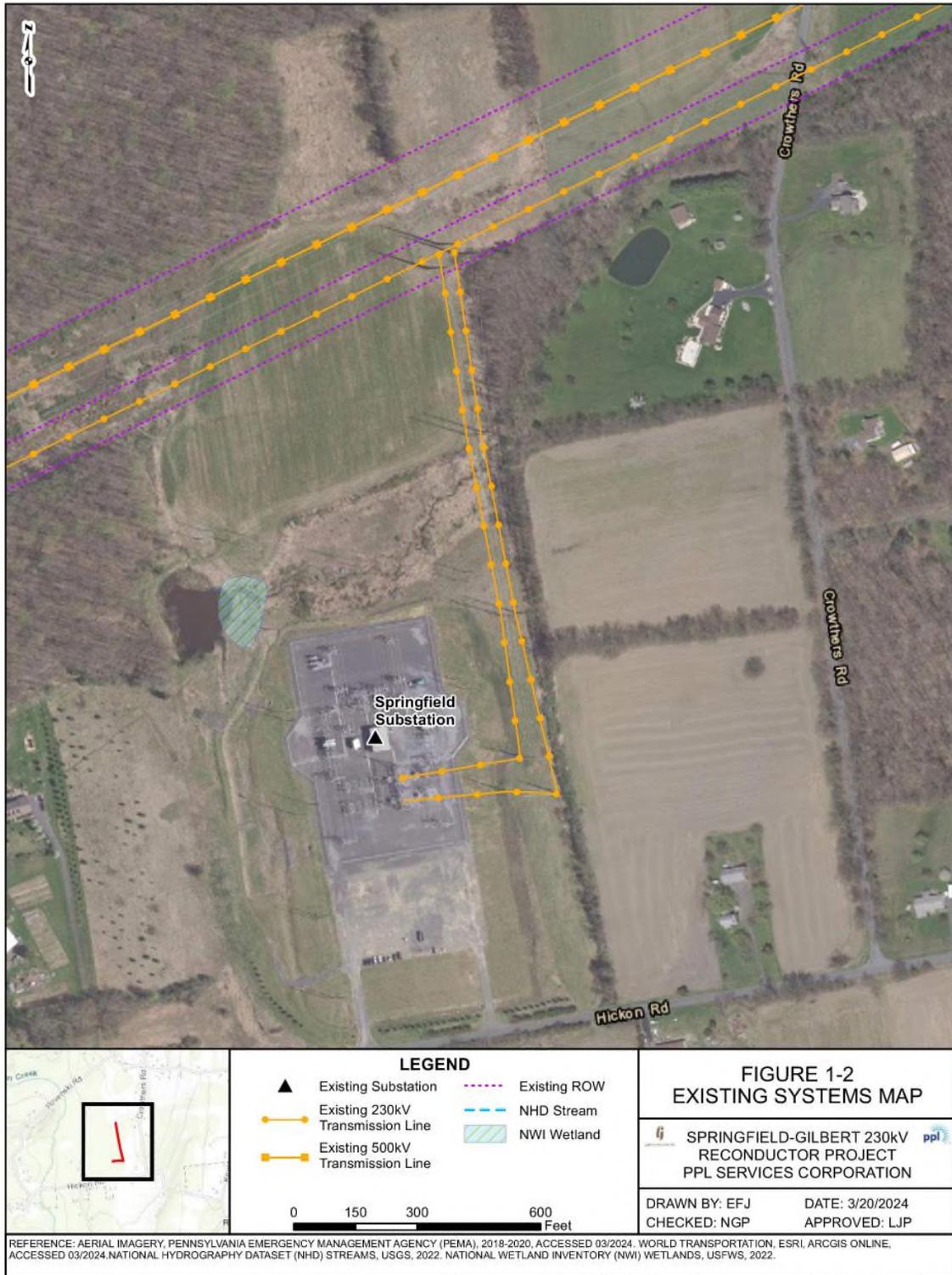


Figure 1-2: Existing System Map



G:_2023\R230817.00 - GIS\MXD\LON\Fig1-2_Existing_Systems_2024_03_20.mxd

Figure 1-3: Proposed 230kV One Line Diagram

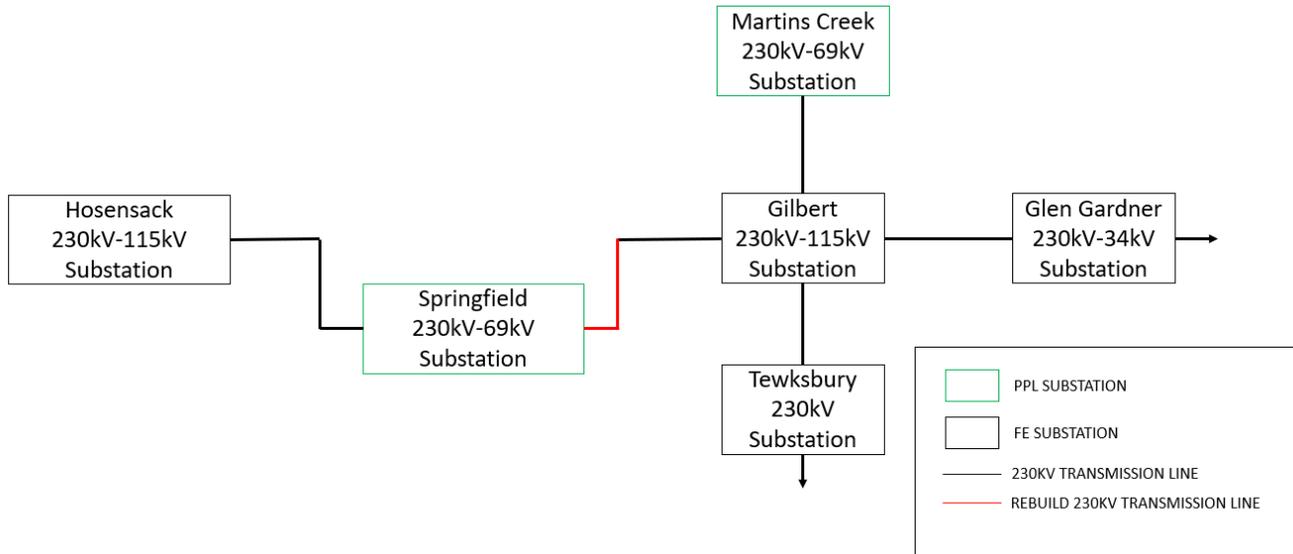
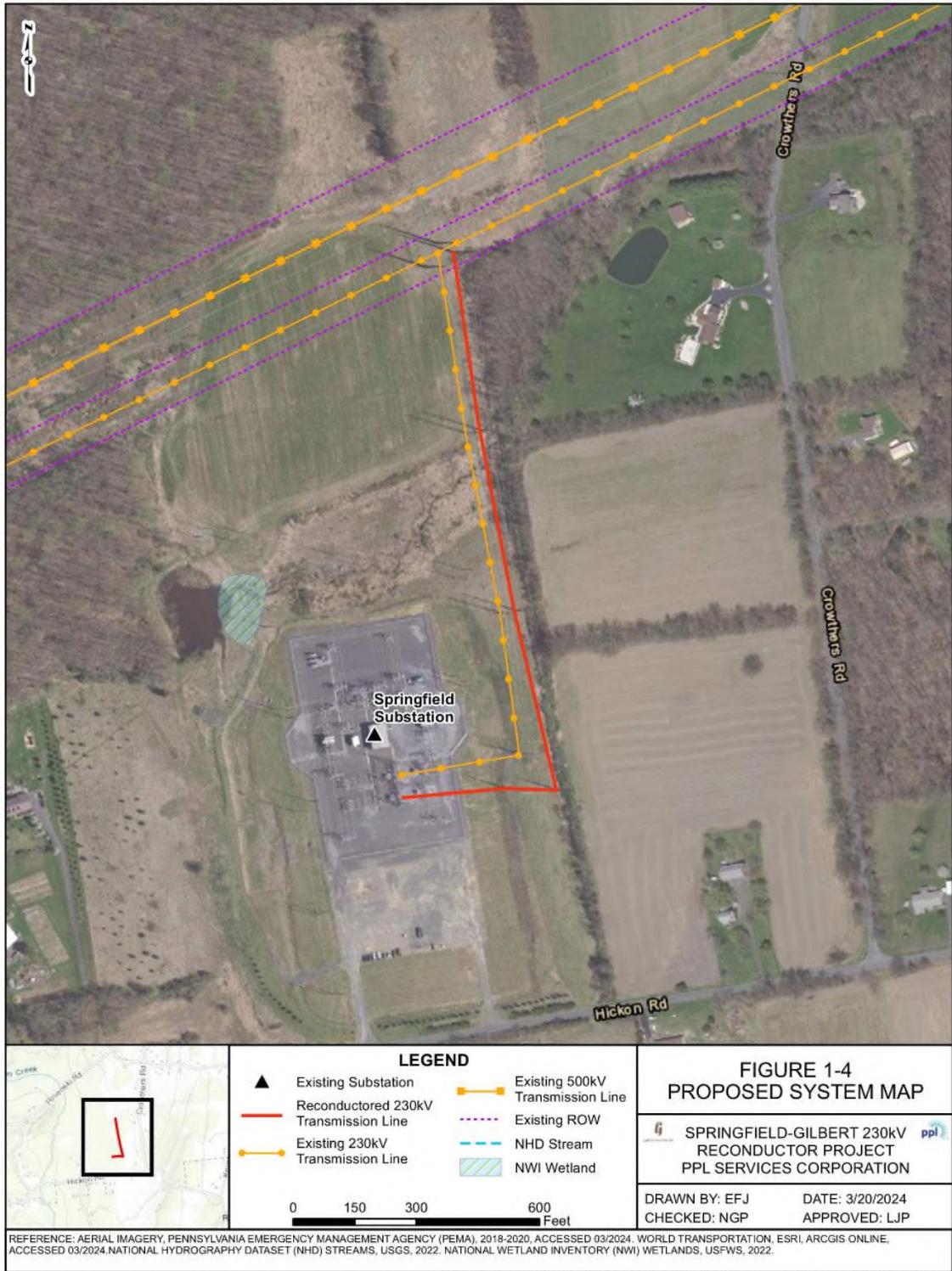


Figure 1-4: Proposed System Map



**PPL ELECTRIC
ATTACHMENT 2**

SPRINGFIELD-GILBERT 230 kV TRANSMISSION LINE RECONDUCTOR PROJECT

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1.0 INTRODUCTION

As explained in **Attachment 1 – Necessity Statement**, PPL Electric Utilities (“PPL Electric”) is requesting Pennsylvania Public Utility Commission (“PUC” or the “Commission”) approval to reconductor approximately 0.33 miles of the existing PPL Electric owned section of the Springfield-Gilbert 230 kV Transmission Line between the Springfield 230-69 kV Substation (“Springfield Substation”) and the demarcation point where ownership of the transmission line transfers to Mid-Atlantic Interstate Transmission, LLC (“MAIT”) (a FirstEnergy Corp. company) (the “Project”). The Springfield-Gilbert 230 kV Transmission Line connects the PPL Electric-owned Springfield 230-69 kV Substation in Bucks County, Pennsylvania to the Jersey Central Power & Light (“JCP&L”) (a FirstEnergy Corp. company) owned Gilbert 230-115 kV Substation in Hunterdon County, New Jersey. The Project is required to resolve a thermal overload violation on PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line. The Project, as approved by PJM Interconnection LLC (“PJM”), involves replacing the existing 1590 ACSR¹ conductor with 1590 ACSS² conductor to increase the line rating.

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

2.0 DESCRIPTION OF THE EXISTING AND PROPOSED LINES AND STRUCTURES

A 0.33-mile-long section of the single-circuit Springfield-Gilbert 230 kV Transmission Line will be reconducted to increase the line capacity. The existing Springfield-Gilbert 230 kV Transmission Line contains one single-circuit 1590 kcmil³, 45/7 stranding, “Lapwing” (“ACSR”) conductor wire. The arrangement also includes one overhead ground wire (“OHGW”) which will not be replaced. These conductor and ground wires are supported by a series of transmission line structures that include 5 double-circuit steel monopole structures. The 0.33-mile-long section of the single-circuit Springfield-Gilbert 230 kV Transmission Line is currently

¹ “ACSR” stands for “aluminum conductor steel reinforced.”

² “ACSS” stands for “aluminum conductor steel supported.”

³ A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm².

located on and will remain entirely within the PPL Electric fee-owned property. A detailed map of the Project alignment is provided as **Figure 3-1** in **Attachment 3**.

The existing double-circuit steel monopole structures range in height between approximately 100 and 140 feet with an average structure height of approximately 121 feet. **Table 2-1** provides a summary of the number and heights of the existing structures.

Table 2-1: Existing and New Transmission Line Structures

Transmission Line	No. of Existing Structures	Existing Structure Height Range (feet)	Proposed No. of New Structures*	Proposed Structure Height Range (feet)	Applicable Framing/ Specifications
Springfield-Gilbert 230 kV	5	100'-140'	0	N/A	6-42-080 6-42-088
Total	5		0		

Figure 2-1 depicts the typical suspension structures and **Figure 2-2** depicts the typical tension structures installed on the Springfield-Gilbert 230 kV Transmission Line. The existing transmission line system fits entirely within the existing right of way (“ROW”).

For the approximate 0.33-mile section of transmission line that will be reconducted, the 1590 ACSR conductor will be replaced with 1590 kcmil, 54/19 stranding, “Falcon” ACSS conductor. PPL Electric will be reusing the existing structures, and no additional poles are proposed. The minimum conductor-to-ground clearance will be 31 feet which occurs at the emergency maximum thermal conductor temperature of 200°C (392°F). The design minimum conductor clearances and conductor thermal ratings for the reconstructed lines are noted in **Tables 2-2** and **2-3**. The proposed reconducted line will also remain in the existing ROW.

Table 2-2: Design for Minimum Conductor Clearance for 1590 kcmil 54/19 Stranding Falcon ACSS

Condition	Transmission Double-Circuit Design Clearance-to-Ground
Heavy Ice (1” ice at 0°C ambient temperature)	34’
Predicted Extreme Thermal Load (200°C conductor temperature)	31’
Predicted Blowout (6psf, 16°C ambient temperature)	33’

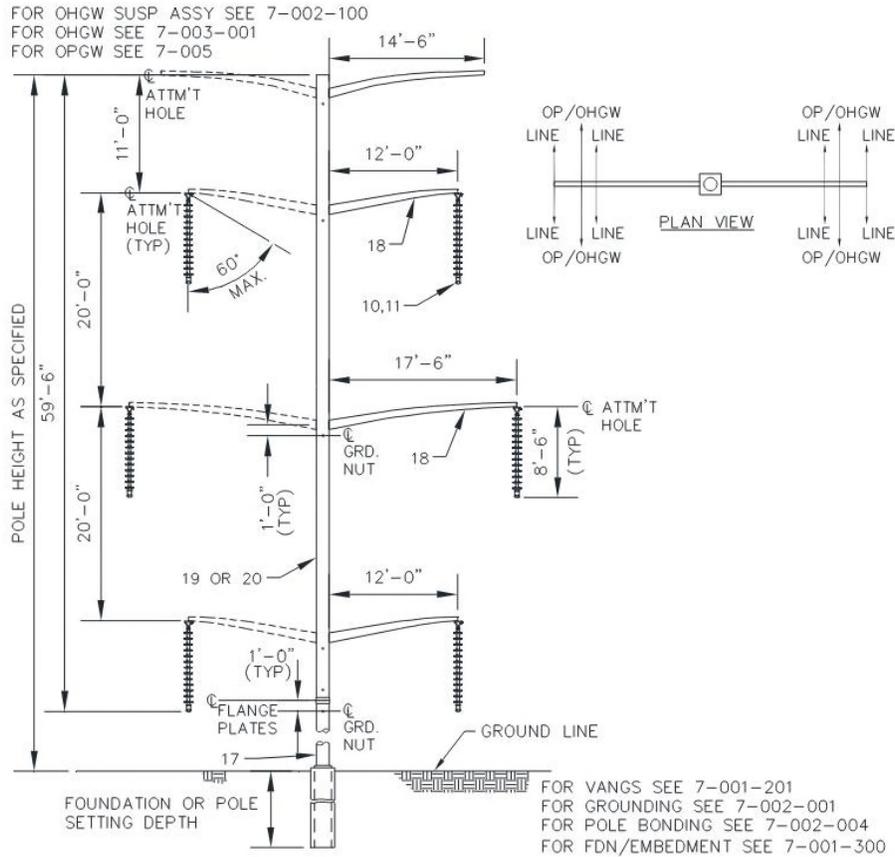
**Table 2-3: Conductor Thermal Rating 1590 kcmil 54/19 Stranding Falcon ACSS –
200°C Normal Maximum Conductor Temperature (250°C Emergency)**

Condition	Ambient Temperature (°C)	Wind Speed (Ft./sec)	Ampacity (Amps)
Summer Normal	35	0	2344
Winter Normal	10	0	2506
Summer Emergency	35	2.533	2710
Winter Emergency	10	2.533	2810

Figure 2-1: Typical 230 kV Double Circuit Single Pole Upswept Arms Suspension Structure

	6-42-080 Double Circuit-Single Pole Structure Upswept Arms 230kV Suspension Type 2DPTSTU or 2DPTSTB	Revision: 02 Effective Date: 12/31/2019 Sheet 1 of 3

6-42-080



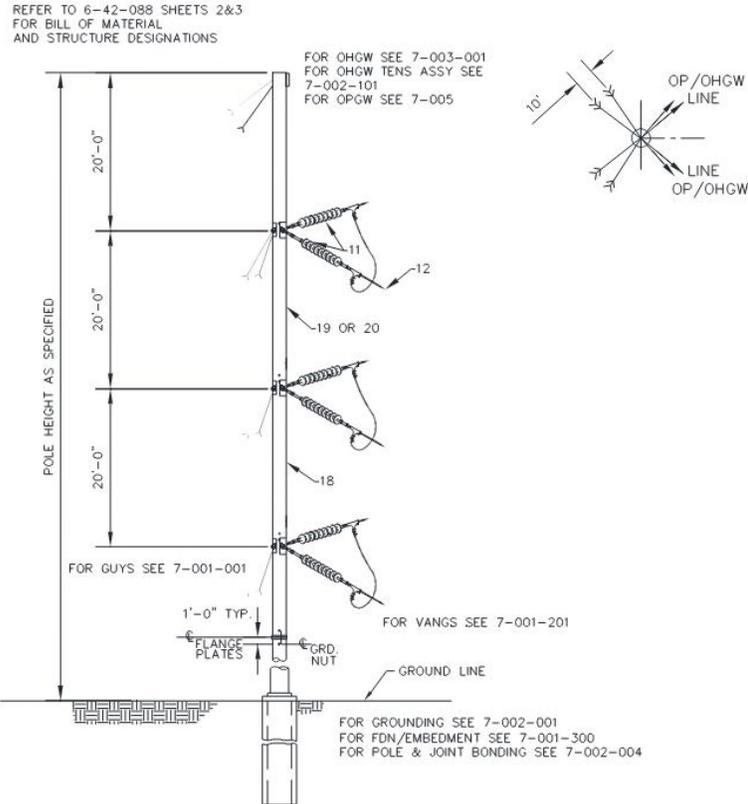
REV	Date	Sponsor	Reviewer	Transmission Construction Standards PPL Electric Utilities Corporation
0	11/26/2002	ALT	NAZ	Approved: <i>Joseph Lookup</i> Manager T&S Standards
1	4/10/2018	BU	MSD	
02	12/31/2019	BU	JDR	

Approved: E168594 Lookup, Joseph B

Figure 2-2: Typical 230 kV Double or Single Circuit Steel Pole Tension Break Angles >75° Structure

	6-42-088 Double or Single Circuit-Steel Pole Structure 230kV Tension Break Angles >75° Type 2SPATTU, 2SPATTB	Revision: 02 Effective Date: 12/31/2019 Sheet 1 of 3
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6-42-088



REV	Date	Sponsor	Reviewer	Transmission Construction Standards PPL Electric Utilities Corporation
0	11/26/2002	ALT	NAZ	Approved: <i>Joseph Lookup</i> Manager T&S Standards
1	4/10/2018	BU	MSD	
02	12/31/2019	BU	JDR	

Approved: E168594 Lookup, Joseph B

**PPL ELECTRIC
ATTACHMENT 3**

SPRINGFIELD-GILBERT 230 kV TRANSMISSION LINE RECONDUCTOR PROJECT

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Figure 3-1: Aerial Map of the Project

1.0 **INTRODUCTION**

PPL Electric Utilities (“PPL Electric”) is requesting Pennsylvania Public Utility Commission (“PUC” or the “Commission”) approval to reconductor approximately 0.33 miles of the existing PPL Electric owned section of the Springfield-Gilbert 230 kV Transmission Line between the Springfield 230-69 kV Substation (“Springfield Substation”) and the demarcation point where ownership of the transmission line transfers to Mid-Atlantic Interstate Transmission, LLC (“MAIT”) (a FirstEnergy Corp. company) (the “Project”). The Springfield-Gilbert 230 kV Transmission Line connects the PPL Electric-owned Springfield 230-69 kV Substation in Bucks County, Pennsylvania to the Jersey Central Power & Light (“JCP&L”) (a FirstEnergy Corp. company) owned Gilbert 230-115 kV Substation in Hunterdon County, New Jersey. The Project is required to resolve a thermal overload violation on PPL Electric’s section of the Springfield-Gilbert 230 kV Transmission Line. The Project, as approved by PJM Interconnection LLC (“PJM”), involves replacing the existing 1590 ACSR¹ conductor with 1590 ACSS² conductor to increase the line rating.

The Springfield-Gilbert 230 kV Transmission Line shares the same corridor with the existing Hosensack-Springfield 230 kV Transmission Line for the approximate 0.33-mile portion of the Springfield-Gilbert 230 kV Transmission Line proposed to be reconducted. The Project will be on the same structure alignment and on the same PPL Electric-fee-owned property as the existing transmission line. No private parcels are crossed by the 0.33-mile alignment. Existing access roads or temporary roads will be utilized during the reconducting of the transmission line. Detailed maps of the proposed Project are provided in **Figure 3-1**.

From the Springfield Substation, the Project will extend east for approximately 0.07 miles and then north for approximately 0.26 miles to Structure 48/31 (point of ownership demarcation). Land use in this area is a mix of agricultural and developed land as shown in **Figure 3-1**. As fully described in Attachment 2 – Engineering Description, the Project involves the reconducting of the existing single-circuit transmission line and re-using the existing structures.

¹ “ACSR” stands for “aluminum conductor steel reinforced.”

² “ACSS” stands for “aluminum conductor steel supported.”

2.0 LAND USE

PPL Electric evaluated the existing land uses on the PPL Electric owned property, and within 0.25 miles of the transmission line (“Project Area”). This broader Project Area was reviewed to provide a sense of the landscape in which the Project is located. Based on review of 2023 aerial photography, the Project Area consists of approximately 50% forest, 30% agriculture and the remaining 20% comprised of developed land uses including residential, commercial/industrial, and transportation areas.

The Project does not cross any public roads, railroads, or underground pipelines. The Project is located adjacent to other PPL Electric electrical utility ROWs near the Springfield Substation.

The closest active airport to the Project Area is the Quakertown Airport, which is located approximately 4-miles southwest of the Springfield Substation. PPL Electric does not anticipate any interference with airport operations because the Project is in an area where there are existing electrical facilities and existing structure heights are not increasing. However, PPL Electric will comply with any applicable requirements of the Federal Aviation Administration.

Conserved Lands

The proposed Project will not affect any national parks, state parks, local parks, recreational areas, natural landmarks, or conserved lands. One private conservation easement is located on property directly adjacent to and north of the PPL fee owned property. The Project is not located on and will not cross the property with the private conservation easement, therefore no impact to the easement is anticipated.

3.0 CULTURAL RESOURCES

PPL Electric collected information on previously recorded cultural resources, including National Register of Historic Places (“NRHP”)-listed properties, archaeological sites, and architectural and historical resources mapped within a 0.5-mile buffer of the Site. Information was collected through a review of the PA State Historic Preservation Office’s (“PA SHPO”) Pennsylvania’s Historic and Archaeological Resource Exchange (“PA-SHARE”). No previously recorded archaeological or aboveground resources are mapped within the review area.

4.0 NATURAL FEATURES

Unique Natural Features

No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources (“PDCNR”). “The Lookout”, an outstanding scenic geological feature of Pennsylvania, is adjacent to the Project Area approximately 0.7-miles north of the Springfield Substation. This geological feature consists of a forested diabase bedrock hill surrounded by mixed deciduous forest with a rich herbaceous layer. Given the Project is in an area with existing electrical facilities and no new structures are proposed, no impacts to this feature are anticipated.

Soils

The Project Area consists of generally flat terrain with no major topography changes. Topography in the area ranges from approximately 600 feet above sea level (“ASL”) to approximately 650 feet ASL at the northern terminus of the Project. Soils present within the Project Area consist of mainly silt loams with small pockets of gravelly silt loams.

Erosion and Sedimentation (“E&S”) control plans will be developed and implemented for the Project to minimize the displacement of soils. Impacts to local soil resources are anticipated to be minimal.

Waterways

The existing transmission line does not span any National Hydrography Dataset waterways. Review of the United States Geological Survey (“USGS”) mapping website also indicated that the Project will not span any named streams. The Project Area is located within the Upper Tohickon Creek watershed (USGS Hydrologic Unit Code (“HUC”) 02040150701).

The streams in the Project review Area have a PADEP Chapter 93 Designated Use Stream Classification of Trout Stocking (“TSF”). All streams within the Project review area are also recognized as Migratory Fish (“MF”) waters. An E&S control plan will be developed to address stormwater control within the Project area. PPL Electric will obtain all approvals and permits necessary for the construction of the Project and will comply with any conditions placed on those permits. No direct impact to these stream features is anticipated by the Project activities.

Wetlands

For federal and state permitting purposes, the wetlands within the Project have been delineated, surveyed, and illustrated according to regulatory standards. This information is being used to minimize wetland impacts where required. Additionally, PPL Electric will reduce impacts to wetlands by using timber mating where access roads cannot avoid crossing them.

100-year Floodplains

The National Flood Hazard Layer for Bucks County, Pennsylvania was obtained through the Federal Emergency Management Agency (“FEMA”) Flood Map Service Center website and analyzed for 100-year floodplains within the Project Area and surrounding landscape. Based on review of this data, the Project does not span any FEMA 100-year floodplains, therefore no impacts to floodplain areas are anticipated by the proposed Project activities.

Vegetation

Vegetative cover in the Project Area consists of a mix of forest, agricultural use, and developed areas. The existing ROW for the transmission line has previously been cleared of woody vegetation and no extensive tree clearing is anticipated as part of this project. If limited vegetation management is required as part of the Project, PPL Electric will apply its “Specifications for Transmission Vegetation Management LA-79827” to minimize potential impacts.

5.0 THREATENED AND ENDANGERED SPECIES

Natural Areas Inventory

Based on review of the *Natural Areas Inventory of Bucks County, Pennsylvania*, published by The Nature Conservancy in 2011, no Pennsylvania Natural Heritage Program identified natural areas are crossed by the Project.

Threatened and Endangered Species

A Pennsylvania Natural Diversity Inventory (“PNDI”) review was completed on March 6, 2024, to assess the potential presence of threatened and endangered species and/or special concern species in the Project area. Specific agencies to review the Project through the PNDI process include the following:

- Pennsylvania Game Commission (“PGC”),
- Pennsylvania Fish and Boat Commission (“PFBC”),
- PDCNR, and
- USFWS.

The PGC, PFBC, and PDCNR all indicated there would be no known impacts to protected species under their jurisdiction. The USFWS indicated the potential for impacts to bog turtles (*Glyptemys muhlenbergii*) and requested a habitat survey to evaluate all wetlands within 300 feet of the Project area for potential bog turtle habitat. PPL Electric will complete all required surveys, obtain all necessary approvals, and permits for Project construction, and comply with all conditions placed on those permits.

Figure 3-1: Aerial Map of the Project



LEGEND	
▲ Existing Substation	Existing 500kV Transmission Line
— Existing 230kV Transmission Line To Be Redonctured	Existing ROW
— Existing 230kV Transmission Line	NHD Stream
	NWI Wetland
	Parcel Boundary
0 150 300	600 Feet

**FIGURE 3-1
AERIAL MAP**

SPRINGFIELD-GILBERT 230kV RECONDUCTOR PROJECT
PPL SERVICES CORPORATION

DRAWN BY: EFJ	DATE: 3/20/2024
CHECKED: NGP	APPROVED: LJP

REFERENCE: AERIAL IMAGERY, PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY (PEMA), 2018-2020, ACCESSED 03/2024. WORLD TRANSPORTATION, ESRI, ARCGIS ONLINE, ACCESSED 03/2024. NATIONAL HYDROGRAPHY DATASET (NHD) STREAMS, USGS, 2022. NATIONAL WETLAND INVENTORY (NWI) WETLANDS, USFWS, 2022. PARCEL DATA, BUCKS COUNTY GIS DEPARTMENT, 2024.

**PPL ELECTRIC
ATTACHMENT 4**

SPRINGFIELD-GILBERT 230 KV TRANSMISSION LINE RECONDUCTOR PROJECT

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1.0 DESIGN CONSIDERATIONS

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

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

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

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

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

PPL Electric’s rigorous design standards are further incorporated into the parameters utilized to account for ice and wind loadings on the wires and structure. Structure loading and line designs

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

TABLE 4-1: 69 kV Vertical Clearance to Ground

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

TABLE 4-2: 138 kV Vertical Clearance to Ground

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

TABLE 4-3: 230 kV Vertical Clearance to Ground

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

TABLE 4-4: 500 kV Vertical Clearance to Ground

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

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

2.0 PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES

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

3.0 PERSONNEL SAFETY RULES

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

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

energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury.

- Before applying grounds, a voltage test is performed to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability.
- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.

4.0 MAGNETIC FIELD MANAGEMENT PLAN

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

The Magnetic Field Management Program will be applied to this Project and designed with clearances that are at least three feet higher than NESC standards.

SPRINGFIELD-GILBERT 230 KV TRANSMISSION LINE RECONDUCTOR PROJECT

STATE AGENCIES

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

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

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

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Ms. Andrea MacDonald, Bureau Director / Deputy State Historic Preservation Officer

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

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: Dr. Matthew Schnupp, Director, Bureau of Wildlife Management

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

Pennsylvania Office of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Patrick M. Cicero, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: Steven C. Gray, Senior Supervising Assistant Small Business Advocate

FEDERAL AGENCIES

U.S. Army Corps of Engineers
Philadelphia District Corporate Communication Office
1650 Arch Street
Philadelphia, PA 19103-2004
Attn: Planning Division

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

COUNTY AGENCIES

Bucks County Planning Commission
1260 Almshouse Road
Doylestown, Pennsylvania 18901
Attn: Michael Roedig, Director of Planning Services

Bucks County Conservation District
1456 Ferry Road, Suite 704
Doylestown, Pennsylvania 18901
Attn: Gretchen Schatschneider, District Manager

MUNICIPALITIES

Springfield Township
2320 Township Road
Quakertown, Pennsylvania 18951
Attn: Anthony Matzura, Chairman

LANDOWNERS

PPL ELECTRIC UTILITIES CORPORATION TWO NORTH NINTH STREET ALLENTOWN, PA 18101-1179	
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VERIFICATION

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

Date: 06/06/2024


Joseph B. Lookup (Jun 6, 2024 14:51 EDT)

Joseph B. Lookup