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File #: 178012

November 12, 2019

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 of the Glen Brook Substation 230 kV Connecting Lines Project in Salem Township, Luzerne County, PA
Docket No. P-2019-3012353**

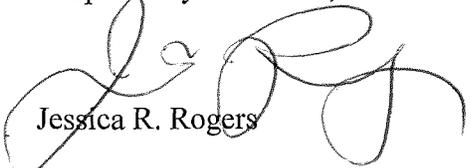
Dear Secretary Chiavetta:

Enclosed for filing are the responses of PPL Electric Utilities Corporation to the Bureau of Technical Utility Services Data Requests as follows:

Set II, Nos. A-16 – A-24; and

Set III Nos. A-26 – A-28 and A-30 – A-33.

Respectfully submitted,


Jessica R. Rogers

JRR/jl
Enclosures

cc: Jordan Van Order (*via E-mail*)

WITNESS: David A. Quier

PPL Electric Utilities Corporation
Response to Data Requests of
Bureau of Technical Utility Services
Dated November 12, 2019
Docket No. A-2019-3012304

A-16

Reference the Letter of Notification, Paragraph 23. Please provide the approximate length of 69 kV transmission line to be rebuilt.

Answer

PPL EU proposes to rebuild approximately 4 miles of the Hunlock – Berwick 69 kV transmission line as part of this project. The actual length of the rebuilt section of 69 kV transmission line is dependent on the location of the new section of 69 kV transmission line that ties into the substation. PPL EU is presently acquiring new rights of way for the 69 kV tie line.

WITNESS: David A. Quier

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A-17

Reference the Letter of Notification, Paragraph 28. Please provide the approximate height of existing nearby transmission line structures on the Montour-Susquehanna and Montour-Susquehanna T10 230 kV transmission lines.

Answer

The two nearest transmission structures on the Montour-Susquehanna and Montour-Susquehanna T10 230 kV transmission lines are approximately 132 and 123 feet tall.

WITNESS: David A. Quier

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A-18

Reference the Letter of Notification, Attachment 1, Page 3. Please explain whether the subject 69 kV facilities are part of the bulk electric system. If not, please explain why PPL Electric is applying NERC standards to these facilities.

Answer

No, the subject 69 kV facilities are not part of the Bulk Electric System. PPL EU Transmission Planning Criteria, filed under FERC form 715, requires that a similar set of contingencies to the NERC TPL standard set of Planning Events be analyzed for the 69 kV system. PPL EU determined it prudent to include in its Transmission Planning Criteria similar steady-state contingency assessments on the 69 kV system as the assessments which are completed for the Bulk Electric System to meet NERC TPL-001-4. The 69 kV system serves as a direct link to transfer power from the Bulk Electric System to the underlying distribution system. The 69 kV system is an important element in ensuring reliable service to system load. Events on the 69 kV system can have load impacts of significant magnitude. For example, as noted in the LON, a circuit breaker failure contingency will lead to loss of power to approximately 46,200 customers. This magnitude of an event is similar to what would be expected if a contingency event occurred on the Bulk Electric System, and it is appropriate to plan for both events in a consistent fashion. PPL Electric's criteria of applying NERC TPL 001-4 standards on the 69 kV transmission system is in accordance with good utility practice.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-19 Reference the Letter of Notification, Attachment 1, Section 4.0. Alternative 1 and Alternative 2 appear to require rebuilding all of the 69 kV lines serving the Berwick area rather than only the Hunlock-Berwick 69 kV Transmission Line. Please explain.

Answer Without building the Glen Brook substation (Alternative 1 and 2) all three 69 kV network paths, Hunlock-Berwick, Berwick-Harwood and Columbia-Berwick need to be reinforced with the higher capacity and low impedance conductor to address the severe voltage issues in the area. The rebuild of the Hunlock-Berwick 69kV line with larger conductor will only solve the thermal overload violations on the line. It will not solve the severe voltage violations in the area. The other two 69 kV lines, Berwick-Harwood and Columbia-Berwick would also need to be rebuilt with larger capacity and low impedance conductor to address voltage violations in the area. As explained in A-30, Alternatives 1 and 2 are not permanent long term solutions to the violations. The preferred solution of building the Glen Brook substation (Alternative 3) provides a long term solution, and only requires a portion of the Hunlock-Berwick line needs to be rebuilt.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-20 Reference TUS Data requests, Response to A-1. Please provide a detailed explanation as to why PPL Electric's 69 kV voltage drop limit is more restrictive than the PJM Baseline limit of 10%.

Answer The PPL EU voltage drop limit of 8% is derived from the allowable voltage variation for lighting load provided in PA Code Sec. 57.14(b). Distribution system voltages are dependent on transmission system voltages. The limitation of 8% change in voltage from minimum to maximum during outage events minimizes the likelihood that an event on the transmission system will impact distribution service significantly enough to cause a violation of Sec. 57.14.

Compliance with Sec. 57.14 is the primary reason for the selection of 8% voltage drop limit, however additional considerations support the use of this limit. The use of the 8% voltage drop limit allows for localized regions to be operated differently and accommodate differences in load / generation ratio, reactive resource availability, system strength, and system topology. Transmission Planning cannot study every incremental load level percentage from minimum load to peak load. The 8% voltage drop limit provides a buffer to ensure that reactive device dispatch at varying load levels do not introduce violations of the PJM 10% voltage drop criteria or the requirements of PA Code Sec. 57.14.

Notwithstanding the forgoing reasons for the 8% voltage drop limit, the voltage reliability violations in the Berwick area far exceed a 10% voltage drop for most of the substations in the area for both the Columbia 69 kV breaker failure and the Columbia 230 kV breaker failure.

WITNESS: David A. Quier

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A-21 Reference TUS Data Requests, Response to A-1. The allowable voltage drop on the 69 kV systems neighboring PPL Electric appears to vary from 7% to 10%. Please explain why PPL Electric's voltage drop limit is a more restrictive 8%.

Answer As discussed in PPL EU's answer to A-20, there are a variety of local variables that go into a utility's determination of acceptable voltage drop levels. While PPL EU cannot speak directly for other utilities, it is likely that the other power utilities across the PJM footprint base their standards on localized concerns similar to PPL EU. Additionally, PPL EU disagrees with the characterization that its voltage drop limit is "more restrictive" than the neighboring 69 kV system. Rather PPL EU's limit is within the range of the referenced neighboring 69 kV system.

WITNESS: David A. Quier

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A-22

Reference TUS Data Requests, Response to A-4. Please explain when the alleged thermal violation was identified.

Answer

Both the thermal and voltage violations were identified during the 2016 PJM RTEP analyses.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-23

Reference TUS Data Requests, Response to A-4. Please explain whether the additional 4,600 MW of generation is specific to the area in which the alleged violation occurs or whether it is across the entire PPL Electric transmission footprint.

Answer

The additional 4,600 MW of generation is a reference to the incremental total across the entire PPL EU transmission footprint.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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Docket No. A-2019-3012304

A-24

Reference TUS Data Requests, Response to A-4. Please explain whether the new generator(s) responsible for the thermal violation are responsible for any portion of the costs associated with the required upgrades. If not, please provide a detailed explanation as to why.

Answer

No, generators are not responsible for sharing the cost associated with this project as these violations were not identified by PJM during the generation interconnection study of these generators. The violation is not caused by any single new generator, rather it is the cumulative impact of all new generation, generation retirements, and changes in PJM-wide load forecasts which have changed the power flow pattern on the Bulk Electric System. As a result, more power is flowing through the networked 69 kV transmission lines when the bulk transmission path is interrupted. This increased flow on the 69kV system is the cause of the violations.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-26

Reference the Letter of Notification, Paragraph 22. Please state the total number of 230 kV transmission line taps to be constructed and provide the approximate length of each tap.

Answer

Two new parallel 230 kV transmission line taps will be constructed. The two new transmission taps will extend from the existing Montour-Susquehanna and Montour-Susquehanna T10 230 kV transmission lines to the new Glen Brook Substation. Attachment A-26 depicts the two new 230 kV double circuit transmission taps.

Existing Structure ~132'

Existing Structure ~123'

Existing Structure ~146'

CANOUSE, MARY
55N3 00A06A000

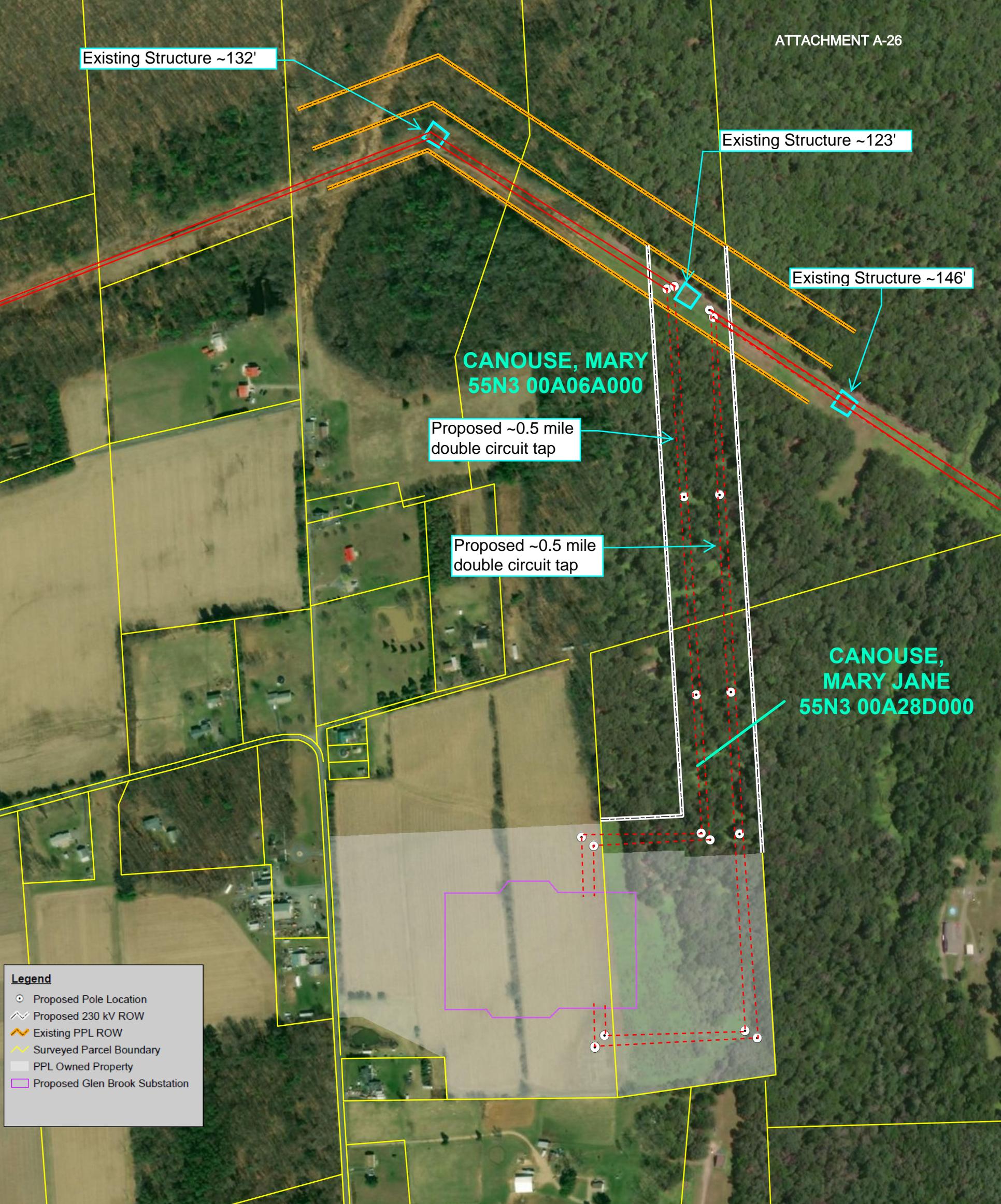
Proposed ~0.5 mile
double circuit tap

Proposed ~0.5 mile
double circuit tap

CANOUSE,
MARY JANE
55N3 00A28D000

Legend

- Proposed Pole Location
- ∩ Proposed 230 kV ROW
- ∩ Existing PPL ROW
- ∩ Surveyed Parcel Boundary
- PPL Owned Property
- Proposed Glen Brook Substation



WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-27

Reference the Letter of Notification, Paragraph 31. Please quantify the anticipated increase in reliability in terms of customer average interruption duration index, system average interruption duration index, and system average interruption frequency index.

Answer

In addition to addressing the primary need of eliminating thermal and voltage violations in the area, the Project will increase reliability performance in terms of customer average interruption duration index (CAIDI), system average interruption duration index (SAIDI), and system average interruption frequency index (SAIFI) will be 33.3, 0.99 and 0.0031, respectively.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-28

Reference TUS Data Requests, Response to A-9. Please explain whether these facilities fall under PJM's planning process.

Answer

Yes, all the facilities fall under PJM's planning process.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-30

Reference TUS Data Requests, Response to A-13. Please explain how the proposed project provides a long-term solution where the suggested alternatives do not.

Answer

The thermal violations identified on the 69 kV system are caused by power from the high voltage (230 kV) transmission system passing through the networked 69 kV system during transmission outage events. This occurs because the subject 69 kV system runs in parallel with the 230 kV transmission system. Reconducting the networked 69 kV system, as described in the alternatives, is inherently a shorter term solution because the 230 kV power system transfer is dependent on future generation expansion and dispatch patterns that are out of PPL EU's control. Therefore, the magnitude of flow on the 69 kV system during 230 kV contingencies will not increase over time as a function of local load (a variable that changes more slowly and predictably), but rather as a function of transmission level power system transfers that can change unpredictably through time.

Simply operating the existing 69 kV system with normally open points to address the network through flow concern as described above would result in a 69 kV power system that would be subject to voltage collapse for N-1 contingency events because all the present sources are necessary to support the area's reliability with the existing system topology. The proposed project introduces a new source near the center of the 69 kV system so that the 69 kV system may be operated normally open without introducing voltage collapse concerns in the area. Once the 69 kV system is normally open it will no longer pick up through flows for contingencies on the 230 kV system no matter what generation expansion or dispatch changes on the high voltage system occur through time. As such, the proposed solution is a long-term solution to the identified violations.

WITNESS: David A. Quier

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Docket No. A-2019-3012304

A-31 Reference the Petition, Paragraph 35. Please include a copy of the Salem Township Zoning Map which depicts the approximate location of the proposed Glen Brook Substation.

Answer See Attachment A-31.

2016 ZONING MAP
 Salem Township
 Luzerne County, Pennsylvania
 Revised by Barry Isett & Associates, Inc., 2016

Scale: 1" = 1000'
 0 1000 2000 Feet

Duly Approved and Enacted as part of the Salem Township Zoning Ordinance on this day of _____, 2016.

Chairman, Board of Supervisors _____
 Attest: _____
 Township Secretary _____



THIS MAP HAS BEEN PREPARED AND REVISED PER INFORMATION FROM THE FOLLOWING:

Official Zoning Map of Salem Township, dated September 22, 1976, prepared by Robert Fritsch, and revised by R.B. Seybert in March 1993, November 2004 and August 2005. Varly Associates in July 1994 and September 1994. Pennco Associates in 2011 and 2014. Revised by Barry Isett and Associates in July 2016.

Additional Sources: Luzerne County Digital Tax Parcels and FEMA flood zones

Note: Unless defined otherwise on this zoning map, the B-3 zones along State Route 11 are intended to reflect a depth of 300 feet from the right of way line and shall be interpreted as such for the administration and enforcement of the Salem Township Zoning Ordinance and any Amendments thereto. When the right of way line from State Route 11, at a measured depth of 300 feet or less, intersects with a road, street or railroad line running generally parallel to State Route 11, the B-3 zones shall terminate at the point of such intersection.



STATE ROADS - NAMES AND ROUTE NUMBERS		
ROUTE NUMBER	ROAD NAME	ROUTE NUMBER
1	STATE ROUTE 11	1
2	STATE ROUTE 22	2
3	STATE ROUTE 33	3
4	STATE ROUTE 44	4
5	STATE ROUTE 55	5
6	STATE ROUTE 66	6
7	STATE ROUTE 77	7
8	STATE ROUTE 88	8
9	STATE ROUTE 99	9
10	STATE ROUTE 100	10

Legend

- Parcels (thin black line)
- Townships (dashed line)
- Flood Zone:
 - A (blue wavy line)
 - AE (green wavy line)
 - AE, FLOODWAY (blue wavy line with 'F')
- Buildings (black rectangle)
- Ponds (blue area)
- County Boundary (thick black line)

Zoning Districts 2016

- A-1 Agricultural (brown)
- B-2 General Business (blue)
- B-3 Highway Business (light blue)
- C-1 Conservation (green)
- I-1 Light Industrial (orange)
- I-2 Heavy Industrial (dark orange)
- I-3 Special Industrial (yellow)
- R-1 Single Family Dwelling Residential (light green)
- R-2 Two Family Dwelling Residential (dark green)
- R-3 MultiFamily Residential (dark blue)

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-32 Reference the Petition, Paragraph 38. Please explain, specifically, which of the Salem Township Zoning Ordinances PPL Electric requires an exemption from.

Answer PPL EU is requesting that it be exempt from the entire Salem Township Zoning Ordinance. As a preliminary matter, PPL EU believes that a Commission Order exempting it from the application of the Salem Township Zoning Ordinance is consistent with the provision of the Zoning Ordinance itself. Specifically, Section 313 of the Zoning Ordinance provides:

The provisions and regulations of this Ordinance 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 a public hearing, decide the present or proposed situation of the building in question is reasonably necessary for the convenience or welfare of the public and in accordance with Section 619 of the Pennsylvania Municipalities Planning Code, Act 247, as amended.

Consistent with the Zoning Ordinance, PPL EU has sought an appropriate finding from the Commission regarding the nature of its substation.

In addition to Section 313, there are other portions of the Zoning Ordinance which could impact the construction of the substation if PPL EU is not exempt. The substation site for the Glenbrook Substation is zoned as A-1 Agricultural District. Public utilities facilities are a permitted use in A-1 zoning districts. *See* Salem Township Zoning Ordinance § 501.1. Public utilities facilities are defined in Article 2 as:

[E]lectric...lines, equipment and structures; water or gas pipes, mains, valves or structures, pumping stations; telephone exchanges and all other facilities, equipment and structures necessary for conducting a service by public utility.

(emphasis added). *See* Salem Township Zoning Ordinance Art. 2. Structures are defined broadly to include “any man-made object, the use of which requires an ascertainable stationary location on land, whether or not it is affixed to the land.” *See id.* Public utilities facilities as defined in Article 2 are subject to further zoning requirements established in Section 802.24. *See* Salem Township Zoning Ordinance § 802.24.

Specifically, Section 802.24 places restrictions on public utility facilities which will hinder PPL EU's future operation of the substation. Section 802.24 includes restrictions and requirements on access, security, buffers, lighting, and impact to neighboring residential properties. These additional requirements are inconsistent with PPL EU's design and security standards. Salem Township lacks the expertise to regulate public utility activities which are more appropriately dealt with by the PUC. Nevertheless, PPL EU has engaged the Township prior to filing this LON and intends to continue to be responsive to its concerns.

WITNESS: David A. Quier

PPL Electric Utilities Corporation
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A-33 Reference the Petition, Paragraph 38. Please provide a detailed explanation as to why PPL Electric needs an exemption from these conditions and restrictions.

Answer PPL EU seeks an exemption in part because the Salem Township's own Zoning Ordinance encourages utilities to seek such a finding from the Public Utility Commission. Undoubtedly, such a finding provides clarity and certainty to the Township in approaching the project. Setting aside the Township's provision encouraging PPL EU to seek an exemption, PPL EU seeks this exemption to ensure that there will be no delay in moving forward with the project once PUC approval is obtained, and in order to ensure that there are not additional conditions placed upon the project by the Township or changes to the project that would require PPL EU to seek a modification from the PUC. Such an outcome could add additional unanticipated cost to the project, in addition to unnecessary delay.

Additionally, Section 802.24 places restrictions on public utility facilities which will hinder PPL EU's future operation of the substation. Section 802.24 includes restrictions and requirements on access, security, buffers, lighting, and impact to neighboring residential properties. These additional requirements are inconsistent with PPL EU's design and security standards. Salem Township lacks the expertise to regulate public utility activities which are more appropriately dealt with by the PUC.

PPL EU believes that its project generally complies with the land use in the area where the project will be located and does not believe that its project is inconsistent with the Salem Township Zoning Ordinance. It has provided information on this project to local representatives, who have not raised any concerns. The exemption ensures that the Company can go forward with the project as described in its filing, and as discussed with the township previously, without delay or alteration.

VERIFICATION

I, DAVID A. QUIER being the DIRECTOR OF ASSET MANAGEMENT at PPL Electric Utilities Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 11/12/2019

A handwritten signature in black ink, appearing to read "D. Quier", is written over a horizontal line.