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File # 204762

June 6, 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 Rebuild The Exiting Double-Circuit Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines Connecting The Harwood 230-69 kV Substation Located in Carbon County, Pennsylvania And The Siegfried 230-138-69kV Substation Located In Northampton County, Pennsylvania
Docket No. A-2024-3047924

Dear Secretary Chiavetta:

On March 26, 2024, PPL Electric Utilities Corporation ("PPL") filed and served on all persons and entities reflected in the Certificate of Service of that filing, a Letter of Notification ("LON") in the above-captioned proceeding. Subsequently, on April 9, 2024, PPL re-served the LON on Hazelton City Authority.

Upon further review of the LON and its associated attachments, and in responding to Data Requests issued by the Pennsylvania Public Utility Commission ("Commission") Bureau of Technical utility Services ("TUS"), PPL was made aware of several inadvertent errors in the LON and its associated attachments.

Specifically, PPL hereby requests that the following materials within the LON and its associated attachments be corrected and amended as follows:[1]

[1] PPL notes that, where corrections and/or amendments have been made, the alterations are reflected in **bold** and <u>underlined</u> text.

Reference	**Reads**	**Should Read**
LON ¶ 14	The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by 178 COR-TEN® lattice structures.	The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by **179** COR-TEN® lattice structures.
LON ¶ 17	The total number of existing towers to be replaced is 232. These towers are designed and being used for double-circuit 230 kV operation.	The total number of existing **structures** to be replaced is **237. The total number of proposed new structures is 232.** These towers are designed and being used for double-circuit 230 kV operation.
LON ¶ 20	Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have 220 220 weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs. These towers had an expected service life of approximately 75 years at the time they were installed.	Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have 220 **221** weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs. These towers had an expected service life of approximately 75 years at the time they were installed.
LON ¶ 26	Finally, in December 2023 and January 2024, PPL Electric contracted RTR Energy Solutions, Inc. ("RTR") to perform a condition assessment of the Harwood-East Palmerton	Finally, in December 2023 and January 2024, PPL Electric contracted RTR Energy Solutions, Inc. ("RTR") to perform a condition assessment of the Harwood-East Palmerton

	and Siegfried-East Palmerton Transmission Lines. The details of the RTR December 2023 and January 2024, Assessment are set forth in Attachment 1 – Necessity Statement. In addition, the average structure classified as "Moderate" is in similar condition to structures classified as "Severe." RTR classifies any structure with over 50% of its joints containing pack-out rust as "Severe." Importantly, 85% of the COR-TEN® lattice towers on Harwood-East Palmerton and 71% of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. The specific numbers supporting these percentages are outlined in Tables 1-3 and 1-4 in Attachment 1– Necessary Statement.	and Siegfried-East Palmerton Transmission Lines. The details of the RTR December 2023 and January 2024, Assessment are set forth in Attachment 1 – Necessity Statement. In addition, the average structure classified as "Moderate" is in similar condition to structures classified as "Severe." RTR classifies any structure with over 50% of its joints containing pack-out rust as "Severe." Importantly, **86%** of the COR-TEN® lattice towers on Harwood-East Palmerton and 71% of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. The specific numbers supporting these percentages are outlined in Tables 1-3 and 1-4 in Attachment 1– Necessary Statement.
LON – Attachment 1 – Necessity Statement – Section 4.1, pp. 5-6	The Harwood and East Palmerton Substations are connected by the double-circuit Harwood-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line. The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by 178 COR-TEN® lattice structures. The Siegfried and East Palmerton Substations are connected by the double-circuit Siegfried-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line.	The Harwood and East Palmerton Substations are connected by the double-circuit Harwood-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line. The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by **179** COR-TEN® lattice structures. The Siegfried and East Palmerton Substations are connected by the double-circuit Siegfried-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line.

	The Siegfried-East Palmerton Transmission Lines are approximately 9.2 miles long and supported by 42 COR-TEN® lattice structures. The total number of COR-TEN® towers to be replaced is 220. These towers are designed and being used for double-circuit 230 kV operation.	The Siegfried-East Palmerton Transmission Lines are approximately 9.2 miles long and supported by 42 COR-TEN® lattice structures. The total number of COR-TEN® towers to be replaced is **221**. These towers are designed and being used for double-circuit 230 kV operation.
LON – Attachment 1 – Necessity Statement – Section 4.2.1, p. 8	Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have 220 weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs.	Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have **221** weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs.
LON – Attachment 1 – Necessity Statement – Section 4.2.1, p. 10	In 2013, all 220 COR-TEN® structures on the Harwood-East Palmerton and Siegfried-East Palmerton lines were inspected to observe the overall condition. Of the 220, 31 (14%) observed were rated Condition C (poor). Condition C indicates that the steel corrosion coating has not stabilized, and pack-out rust conditions are evident in several areas. There were also several larger areas of measurable thinning, with at least one member measuring an average loss of total cross section greater	In 2013, **217** COR-TEN® structures on the Harwood-East Palmerton and Siegfried-East Palmerton lines were inspected to observe the overall condition. Of the **217**, 31 (14%) observed were rated Condition C (poor). Condition C indicates that the steel corrosion coating has not stabilized, and pack-out rust conditions are evident in several areas. There were also several larger areas of measurable thinning, with at least one member measuring an average loss of total cross section greater

	than 10%, but less than 20%. 82 of the 217 (37%) structures inspected were rated Condition D (very poor). Condition D structures' steel corrosion coating has failed, and pack-out rust conditions are evident in large areas.	than 10%, but less than 20%. 82 of the **217 (38%)** structures inspected were rated Condition D (very poor).
LON – Attachment 1 – Necessity Statement – Section 4.2.1, p. 13	The accelerated deterioration of the asset health of the COR-TEN® lattice towers that are the subject of the Project revealed by the 2019 and 2020 inspection programs has been further corroborated by a recent study performed by RTR Energy Solutions, Inc. ("RTR") in December 2023 and January 2024. RTR was contracted to perform condition assessments on the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines. The assessment consisted of all 220 COR-TEN® lattice towers on this line.	The accelerated deterioration of the asset health of the COR-TEN® lattice towers that are the subject of the Project revealed by the 2019 and 2020 inspection programs has been further corroborated by a recent study performed by RTR Energy Solutions, Inc. ("RTR") in December 2023 and January 2024. RTR was contracted to perform condition assessments on the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines. The assessment consisted of all **221** COR-TEN® lattice towers on this line.
LON – Attachment 1 – Necessity Statement – Section 4.2.1, p. 14	Results showed that 85% of the COR-TEN® lattice towers on Harwood-East Palmerton and 71 % of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. A summary of the results of the inspection are represented in Table 1-3 and Table 1-4 below:	Results showed that **86%** of the COR-TEN® lattice towers on Harwood-East Palmerton and 71 % of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. A summary of the results of the inspection are represented in Table 1-3 and Table 1-4 below:

LON – Attachment 1 – Necessity Statement – Section 4.2.1, Table 1-3, p. 14	Mild: 0 Moderate: 26 Severe: 152 Total: 178	Mild: 0 Moderate: **25** Severe: **154** Total: **179**
LON – Attachment 2 – Engineering Description – Section 2.0, pp. 1-2	These conductor and ground wires are supported by a series of transmission line structures that include 178 COR-TEN® double-circuit steel lattice tower structures, two H-frame structures, and one monopole structure.	These conductor and ground wires are supported by a series of transmission line structures that include **179** COR-TEN® double-circuit steel lattice tower structures, two H-frame structures, and one monopole structure.
LON – Attachment 2 – Engineering Description – Section 2.0, p. 2	The existing Siegfried-East Palmerton Transmission Lines also contain six 1590 kcmil, 45/7 stranding, "Lapwing" ACSR conductor wires, one OHGW, and one OPGW. These conductor and ground wires are supported by a series of transmission line structures that include 42 COR-TEN® double-circuit steel lattice tower structures, and 16 monopole structures, **and two 3-pole structures.**	The existing Siegfried-East Palmerton Transmission Lines also contain six 1590 kcmil, 45/7 stranding, "Lapwing" ACSR conductor wires, one OHGW, and one OPGW. These conductor and ground wires are supported by a series of transmission line structures that include 42 COR-TEN® double-circuit steel lattice tower structures, and **13** monopole structures.
LON – Attachment 2 – Engineering Description – Section 2.0, p. 3	Due to the corrosion and development of pack-out rust on these 220 COR-TEN® lattice tower structures, PPL Electric proposes to replace them with 220 double-circuit steel monopole structures.	Due to the corrosion and development of pack-out rust on these **221** COR-TEN® lattice tower structures, PPL Electric proposes to replace them with **221** double-circuit steel monopole structures.
LON – Attachment 2 – Engineering Description – Section 2.0, p. 4	• **Three existing single-circuit monopoles that guide the wires around the East**	• The six sets of existing monopole structures (12 monopoles) used to go around

	Palmerton tap area (60727N24363 (Structure 175), 60722N24358 (Structure 226), and 60722N24367 (Structure 227). • The six sets of existing monopole structures (12 monopoles) used to go around the PPL Electric parcel will be replaced with three new monopoles (Structure 194, 195, and 196). • The existing single-circuit monopole structure (61343S53379) located on the southern corner of the PPL Electric parcel (identified as Northampton County Parcel ID: H3 18 10A 0516 and shown as Extent 39 of 45 within Attachment 3, Figure 3-1) and used to turn the line south. • **Two sets of three-pole structures (61919S51165) used to direct the wires into the Siegfried Substation will be replaced with two structures (Structures 224A and 224B).**	the PPL Electric parcel will be replaced with three new monopoles (Structure 194, 195, and 196). • The existing single-circuit monopole structure (61343S53379) located on the southern corner of the PPL Electric parcel (identified as Northampton County Parcel ID: H3 18 10A 0516 and shown as Extent 39 of 45 within Attachment 3, Figure 3-1) and used to turn the line south.
LON – Attachment 2 – Engineering Description – Section 2.0 – table 2-1, p. 5	HARWOOD-EAST PALMERTON AND SIEGFRIED-EAST PALMERTON 230 kV No. of Existing Structures: 235 Total: 235	HARWOOD-EAST PALMERTON AND SIEGFRIED-EAST PALMERTON 230 kV No. of Existing Structures: **237** Total: **237**
LON – Attachment 3 – Description of Project Area – Section 1.0, p. 1	As described in Attachment 2, the Project will require **the** replacement of 220 existing	As described in Attachment 2, the Project will require replacement of **221** existing

	COR-TEN® steel lattice **and/or steel monopoles structures, plus** 12 non-COR-TEN® structures, **that** will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties.	COR-TEN® steel lattice towers **and 16** non-COR-TEN® structures **with 232 new steel monopoles, which** will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties.
LON – Attachment 3 – Description of Project Area – Section 1.0, p. 4	As described in Attachment 2, the Project requires replacement of 220 existing COR-TEN® steel lattice and/or steel monopoles structures, plus 12 non-COR-TEN® structures, that will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties.	As described in Attachment 2, the Project requires replacement of **221** existing COR-TEN® steel lattice and/or steel monopoles structures, plus **16** non-COR-TEN® structures, that will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties.

Copies of the aforementioned pages of the LON and its associated attachments, which reflect the corrections noted above, are attached to this letter.

Importantly, these corrections and amendments do not alter any of the remaining facts and averments contained in the LON and its associated attachments. Therefore, the basis for PPL's LON is not affected by the request to correct and amend the LON and certain of its attachments. PPL respectfully requests that the Commission accept these revisions, and approve the LON and associated attachments consistent with the same.

Copies of this letter will be provided as indicated on the Certificate of Service.

Please contact the undersigned if you have any questions about this filing.

Respectfully submitted,

Nicholas A. Stobbe

NAS/dmc
Enclosures

cc: Jordan V. Order
Deb Backer
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 REQUESTED

Pennsylvania Bureau Of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Alison Kaster

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, Ninth Floor
Harrisburg, Pennsylvania 17120
Attn: Jeffrey Spots, 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. Emma Diehl, Division Manager

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: David Gustafson, Director, Bureau of Wildlife Habitat 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 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
Baltimore District Corporate
Communication Office
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Planning Division

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

Luzerne County Conservation District
325 Smiths Pond Road
Shavertown, Pennsylvania 18708
Attn: Josh Longmore, Executive Director

Luzerne County Planning Commission
Penn Place Building
20 North Pennsylvania Avenue
Wilkes-Barre, Pennsylvania 19712
Attn: N. Brian Caverly, Chair

Carbon County Conservation District
5664 Interchange Road
Lehighton, Pennsylvania 18235
Attn: Roger Shoenberger, Chair

Carbon County Planning Commission
2 Hazard Square
Jim Thorpe, Pennsylvania 18229
Attn: Fred Bresswein, Chair

Northampton County Conservation District
14 Gracedale Avenue
Nazareth, Pennsylvania 18064

Northampton County Planning Commission
Lehigh Valley Planning Commission
961 Marcon Boulevard #310,
Allentown, Pennsylvania 18109
Attn: Becky A. Bradley, Executive Director

Hazle Township
P.O. Box 506
Harleigh, Pennsylvania 18225
Attn: Jim Montone, Chair

Banks Township
P.O. Box 231
Treskow, Pennsylvania 18254
Attn: Joseph Clark, Chair

Franklin Township
900 Fairyland Road
Lehighton, Pennsylvania 18235
Attn: Brenda Neeb, Secretary

Lehigh Township
1741 South Lehigh Gorge Drive
Weatherly, Pennsylvania 18255
Attn: Carol Lenahan, Secretary

Lower Towamensing Township
595 Hahns Dairy Road
Palmerton, Pennsylvania 18071
Attn: Christine Wentz, Secretary

Packer Township
2234 Hudson Drive
Weatherly, Pennsylvania 18255
Attn: Stephanie Stolpe, Secretary

Penn Forest Township
2010 State Route 903
Jim Thorpe, Pennsylvania 18229
Attn: Susan Gibiser, Secretary

Towamensing Township
120 Stable Road
Lehighton, Pennsylvania 18235
Attn: Brenda L. Drew, Secretary

Jim Thorpe Borough
101 East Tenth Street
Jim Thorpe, Pennsylvania 18229
Attn: Louise McClafferty, Secretary

Allen Township
4714 Indian Trail Road
Northampton, Pennsylvania 18067
Attn: Dale Hassler, Chair

Lehigh Township
1069 Municipal Road
Walnutport, Pennsylvania 18088
Attn: Michael Jones, Chair

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100 Commerce Dr
Hazleton, Pa 18202-4500

Agape Faith Ministries
2705 Willow St
Coplay, Pa 18037-2012

Alexander, Lawrence Hall
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Jim Thorpe, Pa 18229-1638

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Purchase, Ny 10577-2535

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Abraham, Jamie E & Sara E
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Palmerton, Pa 18071-5834

Ahner, Jared B & Megan M
191 Evergreen Rd
Lehighton, Pa 18235-9264

Altenburg, Slayton W
714 Getz Dawl Rd
Palmerton, Pa 18071-3441

AMPAL Inc.
2115 Little Gap Rd
Palmerton, Pa 18071-5109

Balliet, Gay L
4506 Cherryville Rd
Northampton, Pa 18067-9423

Barry, Marvin J & Christine G
932 Lark St
Lehighton, Pa 18235-8903

Bauchspies, Jeffrey W & Pamela M
193 Old Mill Rd
Lehighton, Pa 18235-9082

Beers, Duane & Ruth, Wilson
400 Maury Rd
Lehighton, Pa 18235-9102

Belardo, Lauren
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Lehighton, Pa 18235-8876

Berger, Larry C
100 Hemp Hill Ln
Palmerton, Pa 18071

Big Creek Grange 1559
215 Fairview St
Lehighton, Pa 18235-2814

Bird, Elmer L & Francine G
4124 Mountain View Dr
Walnutport, Pa 18088-9341

Bonao Home Remodeling Inc.
1041 W 19th St
Hazle Township, Pa 18202-2238

Bonner, Brian & Eileen
450 Bonn Ct
Hazleton, Pa 18201-7870

Bonners Trucking & Excavating Inc
500 Mt Pleasant Ln
Hazle Township, Pa 18202-8235

Borough Of Jim Thorpe
101 E 10th St
Jim Thorpe, Pa 18229-2528

Beltz, Thomas G
199 Airport Rd
Lehighton, Pa 18235-9308

Bieling, Carl Richard & Constance
315 Oak St
Palmerton, Pa 18071-6433

Binder, Daryl & Linda
261 Freedom Dr
Weatherly, Pa 18255-2613

Bliss, Amelia L & Fritchman, Darrick J
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Germansville, Pa 18053-2024

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751 State Route 903
Jim Thorpe, Pa 18229-3538

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Hazle Township, Pa 18202

Bonser, Eric S
110 Windy Acres Ln
Palmerton, Pa 18071-5855

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Northampton, Pa 18067-9144

Boyer Farm Inc.
510 Boyer Farm Rd
Palmerton, Pa 18071-6004

Bray, Laura J
618 Monastery Pl
Northampton, Pa 18067-9522

Burger, Lora
2780 Walnut Dr
Palmerton, Pa 18071-5434

Butler Enterprises Inc.
15 E Broad St
Hazleton, Pa 18201-6520

Carr, Stephen J
4070 Mountain View Dr
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Cihylik, Nicholas W & Judith E
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Northampton, Pa 18067-9424

Clough, Melissa A
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Palmerton, Pa 18071-5465

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Walnutport, Pa 18088-9762

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Commonwealth of Pa (State Game Lands)
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Harrisburg, Pa 17110

Commonwealth of Pa Dept of Conservation
(Bureau of Facility Design & Construction)
Po Box 8451
Harrisburg, Pa 17105-8451

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Costenbader, Phill Jason & Allissa
2175 Hahns Dairy Rd
Palmerton, Pa 18071-5326

Coxe, Nelson L & Lynn D
82 Tower Rd
Weatherly, Pa 18255-2536

Cuchran, Michael S
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Northampton, Pa 18067-9121

Dahlgren, Emily
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Northampton, Pa 18067-9510

Dodwell, Emily
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Costenbader, Jared & Kortney
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Palmerton, Pa 18071-5836

Coxe, Courtney
195 Tower Rd
Weatherly, Pa 18255-2539

Cressley, Monroe B & Betty Ann
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Lehighton, Pa 18235-9359

Culp, Sean & Kendra
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Weatherly, Pa 18255-2538

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Etters, Pa 17319-8984

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Upper Darby, Pa 19082-1007

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Lehighton, Pa 18235-9326

Dunbar, Charles A & Irmgard F
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Palmerton, Pa 18071-6516

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Hazleton, Pa 18201

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Palmerton, Pa 18071

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Walnutport, Pa 18088-9537

Fredericks, Michele
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Lehighton, Pa 18235-9359

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144 Brown Rd
Yatesville, Pa 18640-3723

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Walnutport, Pa 18088-9536

Gehringer, Robert
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Easton, Pa 18042-7408

Gerrity, John & Jeannine
614 Monastery Pl
Northampton, Pa 18067-9533

Goodwin, Thomas & Joan
1631 Seidersville Rd
Bethlehem, Pa 18015-4223

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Danielsville, Pa 18038-9738

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Weatherly, Pa 18255-2914

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Northampton, Pa 18067-9521

Fulks, Roger N
608 Monastery Pl
Northampton, Pa 18067-9533

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Palmerton, Pa 18071-6456

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Hazle Township, Pa 18202

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546 Old Mill Rd
Lehighton, Pa 18235-9080

Green, Dennis R & Theresa I
3730 Long Run Rd
Lehighton, Pa 18235-8875

Gregg, John I & Theresa A
1108 Brenkman Dr
Weatherly, Pa 18255-2522

Hahn, Chris D & Holly A
115 Sunset Terrace Dr
Palmerton, Pa 18071

Hahns Cloverleaf Dairy Inc
1770 Hahns Dairy Rd
Palmerton, Pa 18071-5333

Hawk, Dwight D & Mary J
660 Oak St
Palmerton, Pa 18071-6438

Haydt, Tracy L
1815 Hazelwood Rd
Palmerton, Pa 18071-6166

Hazleton City Water
400 East Arthur Gardner Parkway
Hazleton, Pa 18201

Hilltop Center LLC
3150 Coffeetown Rd
Orefield, Pa 18069-2511

Hoffman, Todd A & Paula M
269 Tower Rd
Weatherly, Pa 18255-2541

Huff, Karinus C
3993 Cedar Dr
Walnutport, Pa 18088-9536

Inocencio, Rod Ivan & Michelle
610 Monastery Pl
Northampton, Pa 18067-9533

Harman, Leandra & Alex
621 Bishops Pl
Northampton, Pa 18067-9510

Haydt, Marc A
385 Forest Inn Rd
Lehighton, Pa 18235-5250

Hazleton City Auth
38 S Church St
Hazleton, Pa 18201

Hill, David F & Susan E
4626 Glasgow St
Center Valley, Pa 18034-8737

Hinkle, Jeffrey J & Claire P
366 Freedom Dr
Weatherly, Pa 18255-2614

Horning, John F & Phyllis A
190 Sunset Ter
Palmerton, Pa 18071-5466

Hydro, Stephen A & Cecelia L
1515 North St
Jim Thorpe, Pa 18229-9451

Iris USA Inc.
13423 W Cactus Rd
Surprise, Az 85379-9231

Ivory, Gladys N
2185 Indian Hill Rd
Lehighton, Pa 18235-9265

Jardine, George & Mensinger, Marie Christina
3997 Cedar Dr
Walnutport, Pa 18088-9536

Johnson, Troy E & Sherry L
152 Beltzville Dr
Kunkletown, Pa 18058-7763

Khalil, Maamari
3874 Apple Rd
Northampton, Pa 18067-9121

Kleintop, Jason D
245 Sunrise Terrace Ln
Lehighton, Pa 18235-3821

Koch, Neil E
3557 Howertown Rd
Northampton, Pa 18067-9430

Koneschusky, James R & Sally A
17 Freedom Dr
Weatherly, Pa 18255-2609

Kresge, Larry M & Fulk, Connie F
57 Tower Rd
Weatherly, Pa 18255-2537

J T Municipal Auth
80 Broadway
Jim Thorpe, Pa 18229-2022

Jeb Holdings LLC
602 Monastery Pl
Northampton, Pa 18067- 9533

Jones, David H & Brenda J
4084 Butternut Dr
Walnutport, Pa 18088-9337

Kilpatrick, Timothy M & Lori A
140 Sunset Ter
Palmerton, Pa 18071-5466

Kneas, Justin
80 Green Forest Ln
Lehighton, Pa 18235-9485

Kochik, Colleen Ann & Michael, Thomas
721 Hemlock St
Palmerton, Pa 18071-9614

Koslop, Robert J & David
3731 Church Rd
Mountain Top, Pa 18707-9039

Kromer, Kurt W
421 Evergreen Rd
Lehighton, Pa 18235-9496

Kuhns, Eric M & Kari M
78 Old Mill Rd
Lehighton, Pa 18235-9082

Laky, William M & Michelle L
835 S Dogwood Rd
Walnutport, Pa 18088-9537

Leah One Inc.
1708 Locust St
Philadelphia, Pa 19103-6107

Lehighton Water Co
Maury Rd
Lehighton, Pa 18235

Longenbach, Scott D & Rachel L
3695 Magnolia Dr
Northampton, Pa 18067-9641

Marcucci, Alan A
582 Graystone Dr
Cherryville, Pa 18035-9706

Matula Irrevocable Trust
1031 Honeysuckle Dr
Walnutport, Pa 18088-9762

May, Bradley J & Cynthia A
2868 Interchange Rd
Lehighton, Pa 18235-9356

Kunkle, John H & Theresa A
325 Drift Rd
Palmerton, Pa 18071-6511

Landi, Giovanni
601 Front St
Catasauqua, Pa 18032-2411

Lehighton Water Authority
Municipal Bldg
Lehighton, Pa 18235

Little, William D & Bonita L
617 Bishops Pl
Northampton, Pa 18067-9510

Mack, Mark T
4000 Chapel Ct
Northampton, Pa 18067-9525

Matis, Richard S & Elaine M
4012 Cedar Dr
Walnutport, Pa 18088-9535

Maurer, Zachery M & Jennifer
596 Monastery Pl
Northampton, Pa 18067-9521

McCutcheon, Michael
4038 Cedar Dr
Walnutport, Pa 18088-9535

McFarland, Ty & Ahner, Christina L
175 Maury Rd
Lehighton, Pa 18235-9036

Mehlig, Kenneth & Sandra
63 Mehlig Ln
Weatherly, Pa 18255-2535

Meixsell, Bradley
616 Monastery Pl
Northampton, Pa 18067-9522

Mertz, Todd
455 Maury Rd
Lehighton, Pa 18235-9095

Miller, Thomas L & Peggy Ann
4018 Cedar Dr
Walnutport, Pa 18088-9535

Moats, Lloyd & Loretta
945 Blue Mountain Dr
Walnutport, Pa 18088-9477

Mooney, Ann M & Seth
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Sarasota, Fl 34241-7122

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McHenry, Scott & Sarah G
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Lehighton, Pa 18235-9494

Mehlig, Martin D & Nina
150 Country View Ln
Kunkletown, Pa 18058-7301

Mertz Family Trust
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Meyers, William B & Lois S
1469 Blue Mountain Dr
Danielsville, Pa 18038-9766

MM3 Properties LLC
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Montes, Terrence S & Renee M
72 Sunset Ter
Palmerton, Pa 18071-5464

Morresi, Michael A & Melissa N
805 Chippy Cir
Jim Thorpe, Pa 18229-1638

Muffley, Juliann M & John M
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Muthard, Thomas L
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Neeb, Larry D & Judith E
815 Deer Ln
Lehighton, Pa 18235-6110

Niedermeyer, Christopher J
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Oswald, Wayne Paul & Donna M
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Orban, Jerome M & Kathryn A
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Paukovits, Timothy J & Patti L
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Pennsylvania Commonwealth Game Commission
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Pennsylvania Lines LLC (Taxation Dept)
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Rapee, Marivel
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1600 North St
Jim Thorpe, Pa 18229-1832

Reifinger, Glenn Keith & Muir, Suzanne
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Ritter, David W & Kevin D
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Postupack, James T & Julia A
1495 Chinquapin Rd
Holland, Pa 18966-1737

Preston, Sheila
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Railroad Co
Po Box 218
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Reagan, Rob R & Susan M
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Walnutport, Pa 18088-9337

Redline, Wayne A & June A
1580 North St
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Ripsom, Elizabeth M & George A
33 Porter Rd
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Rizzotto, Patricia A
5768 Indian Trail Rd
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Romig, Todd Randall & Ashley Louise
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Sergent, Jared Gregory & Nicole Renee
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Shelly, Richard H & Susan E
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Shoenberger, Daniel L & Ann L
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Skrapits, John R & Irina A
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Solderitz, Helen F & Emil A
7313 Northgate Dr
Slatington, Pa 18080-2242

Spaide, Harold L & Shirley J
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Wapwallopen, Pa 18660-1716

Scheller, Geoffrey & Sharon L
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Shay, Mark T & Sherry L
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Shetayh, Elias
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Silver, Frederick H
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Solt, Delbert L & Carol A
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Lehighton, Pa 18235-8906

Sportelli, Louis
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Spring Mt Est Inc
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Steiner, Louis & Doris I
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Walnutport, Pa 18088-9586

SWJJ Real Estate LLC
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Weatherly, Pa 18255-3121

Theisen, Adam P
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Palmerton, Pa 18071-5464

Tri Sales Co.
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Chicago, Il 606295-818

Vandersteen, Agreement & John B
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Washburn, James C & Vicki L
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Wentz, Matthew W & Tara L
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Turick, Dennis & Jean Ann
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Walck, James E & Marylou E
4059 Butternut Dr
Walnutport, Pa 18088-9337

Weidenhammer, Amanda J
4027 Butternut Dr
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Wenz, Ronald A & Jill E
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Wescosville, Pa 18106-9441

Wieand, Mary E
130 Oak St
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Yankiewicz, Zackery & Dalton, Jessica
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Walnutport, Pa 18088-9739

Ziegenfuss, Alton D & Naomi G
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Yelles, Douglas A & Donna M
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Ziegenfuss, Daniel James
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Date: June 6, 2024

Nicholas A. Stobbe

PPL Electric Letter of Notification (Corrected)

use to maintain the reliable and efficient operation of the transmission grid. Indeed, these existing transmission lines are included in PJM's transmission planning studies and are assumed to remain in-service and fully operational, asset retirement is not considered a feasible option.

12. The Project as proposed addresses these concerns in a cost-efficient manner, as compared to either a replacement alternative or a remediation and later replacement alternative. In particular, the Project as proposed avoids the substantial uncertainties surrounding potential remediation of the existing COR-TEN® steel lattice towers, avoids redundant inspection and/or additional remediation of these structures, and is the lowest cost alternative. Therefore, and for the reasons more fully explained below, the Commission should approve the Project as proposed.

1. Existing System

13. The Harwood and East Palmerton Substations are connected by the double-circuit Harwood-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line.

14. The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by 179 COR-TEN® lattice structures.

15. The Siegfried and East Palmerton Substations are connected by the double-circuit Siegfried-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line.

16. The Siegfried-East Palmerton Transmission Lines are approximately 9.2 miles long and supported by 42 COR-TEN® lattice structures.

17. The total number of existing structures to be replaced is 237. The total number of proposed new structures is 232. These towers are designed and being used for double-circuit 230 kV operation.

18. The double-circuit Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines are in PPL Electric's Central and Lehigh Regions and are part of a larger 230 kV transmission network that connects generation in this region to load throughout PPL Electric

and the rest of PJM Interconnection, LLC's ("PJM") footprint. This 230 kV network includes the Susquehanna-Harwood 230 kV Transmission Lines, which all support bulk power flow and feed various 230-69 kV substations in these regions.

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

2. Definition of the Problem

20. Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have 221 weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs. These towers had an expected service life of approximately 75 years at the time they were installed.

21. However, in 2013, PPL Electric hired a third-party contractor to perform an assessment of its 230 kV transmission lines under a steel structure capital maintenance program. The assessment identified that 126 of 131 surveyed structures (96%) had one or more structure legs rated Condition C (poor) or Condition D (very poor). Of those 126 structures, 25 had one or more structure legs that were identified as "priority," requiring immediate attention. In order to extend the life of the asset and ensure no failures at the ground line, the 25 structures identified as "priority" received maintenance repairs in 2014, which included post leg, diagonal and base shoe repairs. Protective coating was applied to the remaining 101 COR-TEN® structures that rated Condition C or D but were not identified as "priority." However, these remaining structures face constant asset health concerns due to the presence of pack-out rust.

22. The asset health concerns discovered by the 2013 assessment were heightened by the discovery of pack-out rust in the section joints of the subject COR-TEN® lattice towers. As

initiated a second more robust evaluation of the COR-TEN® lattice towers to determine the full extent of the deterioration on the transmission system. The details of this analysis are more fully detailed in Attachment 1 – Necessity Statement.

25. The results of the 2020 inspection program again confirmed the severity of deterioration identified during the 2019 inspection program, as follows:

- Over 90% of the joints showed visible pack-out rust in the connections, which is anticipated to worsen over time.
- The protective patina needed to protect the steel from corrosion did not properly develop at numerous members resulting in section-loss across the entire structure.
- Pack-out rust damage was typically more prevalent on lower sections of the tower except for some specific attachment points where severe pack-out rust was observed on higher sections.
- Structural damage was found on several members from pack-out rust that ruptured bolts and split/deformed members.

26. Finally, in December 2023 and January 2024, PPL Electric contracted RTR Energy Solutions, Inc. ("RTR") to perform a condition assessment of the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines. The details of the RTR December 2023 and January 2024, Assessment are set forth in Attachment 1 – Necessity Statement. In addition, the average structure classified as "Moderate" is in similar condition to structures classified as "Severe." RTR classifies any structure with over 50% of its joints containing pack-out rust as "Severe." Importantly, 86% of the COR-TEN® lattice towers on Harwood-East Palmerton and 71% of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. The specific numbers supporting these percentages are outlined in Tables 1-3 and 1-4 in Attachment 1– Necessary Statement.

PPL Electric Attachment 1

(Corrected)

Region and (2) between the Transmission Owners and PJM. The TOA facilitates the planning and operation of the Transmission Grid within the PJM region and establishes the rights and responsibilities of each party to the TOA. Section 4.6 of the TOA requires that transmission systems "[b]e kept in place and maintained in good operating condition in accordance with Good Utility Practice and principles, guidelines and standards of the applicable Regional Reliability Council and NERC." This Project is required to fulfill PPL Electric's obligations under the TOA.

At the October 2020 PJM TEAC meeting,[7] PPL Electric presented its plan to address COR-TEN® needs on the 230 kV system. As part of this plan, PPL Electric also shared the need with PJM stakeholders to address COR-TEN® towers on the Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines (need # PPL-2020-0013). The need # PPL-2020-0013 will be addressed by the Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Line rebuild under supplemental project s2374, which will be completed at an estimated cost of $184.6 million. As presented at the PJM TEAC meeting,[8] PPL Electric determined that remediation of the towers was not cost effective over the life of the asset and removal of the circuits was infeasible due to a 280 MW load drop.

4.0 THE NEED FOR THE PROJECT

4.1 Existing System

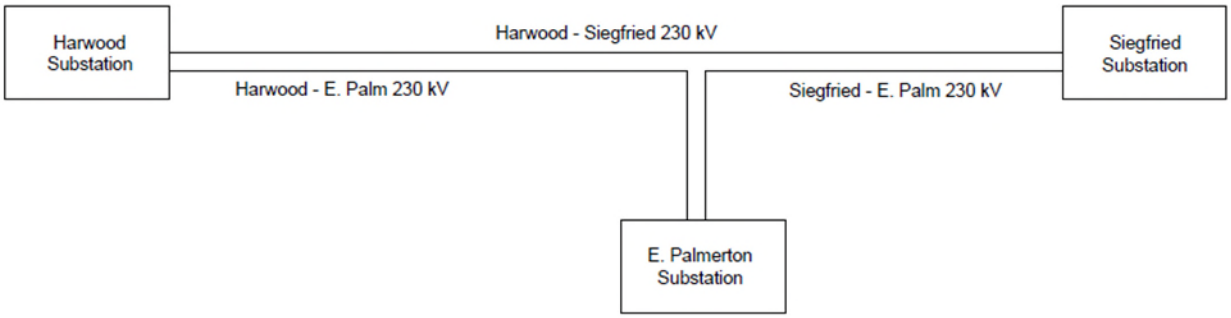
The Harwood and East Palmerton Substations are connected by the double-circuit Harwood-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line. The Harwood-East Palmerton Transmission Lines are approximately 31.0 miles long and supported by 179 COR-TEN® lattice structures. The Siegfried and East Palmerton Substations are connected by the double-circuit Siegfried-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line. The Siegfried-East Palmerton Transmission Lines are approximately 9.2 miles long and supported by 42 COR-TEN®

[7] Refer to slides 27 and 28 at https://www.pjm.com/~/media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx

[8] Refer to slides 27 and 28 at https://www.pjm.com/~/media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx

lattice structures. The total number of COR-TEN® towers to be replaced is 221. These towers are designed and being used for double-circuit 230 kV operation.

The one-line diagram of the existing system configuration is provided below.



Existing system configuration of Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines.

The double-circuit Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines are in PPL Electric's Central and Lehigh Regions and are part of a larger 230 kV transmission network that connects generation in this region to load throughout PPL Electric and the rest of PJM's footprint. This 230 kV network includes the Susquehanna-Harwood 230 kV Transmission Lines, which all support bulk power flow and feed various 230-69 kV substations in these regions. As noted below, if the Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines fail, it is expected the service of approximately 18,185 customers would be impacted and approximately 65 mega-watts ("MW") of load dropped. For the next contingency, the loss of the double circuit Susquehanna-Harwood 1 & 2 230 kV Transmission Lines will drop approximately 215 MW of load.

The asset health concerns on the Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines are important as they are a critical component of PPL Electric's Bulk Transmission System and are required to serve local load to several critical customer facilities. If these transmission lines were to fail due to COR-TEN® issues, the following reliability issues would occur:

4.2 Project Need

This Project is needed to address asset health concerns that are being accelerated by the presence of pack-out rust on the COR-TEN® lattice towers. There are approximately 1,284 COR-TEN® lattice structures across PPL Electric's Transmission System that will need to be addressed to resolve asset health concerns like those identified below.[9]

The lattice towers on the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines were installed in the early 1970s and had a life expectancy of 75 years. The discovery of pack-out rust accumulation on COR-TEN® lattice towers has accelerated the rate at which these towers are expected to reach end-of-life. The towers are continuing to deteriorate due to the pack-out rust, and in some cases, the towers have deteriorated beyond the point of safe operation, which cannot be reasonably or cost-effectively remediated. Operating at 230 kV, the transmission lines are part of the Bulk Electric System, and as such, PPL Electric is required by NERC to maintain the assets in a way that will ensure the reliability and stability of that system.

4.2.1 Asset History

Originally constructed in the early 1970s, the existing Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines have 221 weathering-steel COR-TEN® lattice structures spanning approximately 40.2 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs and costs.

Asset health concerns for COR-TEN® lattice towers were heightened when pack-out rust in the section joints of the towers was first discovered. In particular, the protective surface coating of weathering steel that provides resistance to atmospheric corrosion, known as the patina, does not form properly on the structure joints and members due to trapped moisture. The trapped moisture prevents completion of the required wetting and drying cycle needed to form the patina. Over time,

[9] PPL Electric anticipates that addressing the currently anticipated COR-TEN® projects associated with the 230 kV system (approx. 1112 of the identified structures) will cost approximately $562 million in total. However, these estimates are preliminary in nature and subject to change. PPL Electric is also currently evaluating one other transmission line asset that includes 172 COR-TEN® lattice structures, but it has not yet developed a cost estimate for the remediation or replacement of these structures.

joints or members above the base of the structure were included in this assessment. The assessment identified that 126 of the total 131 COR-TEN® structures (96%) observed had one or more structure legs rated Condition C (poor) or Condition D (extremely poor). Of those 126 structures, 25 had one or more structure legs that were identified as "priority", requiring immediate attention. In order to extend the life of the asset and ensure no failures at the ground line, the 25 structures identified as "priority" received maintenance repairs in 2014, which included post leg, diagonal, and base shoe repairs.

In 2013, 217 COR-TEN® structures on the Harwood-East Palmerton and Siegfried-East Palmerton lines were inspected to observe the overall condition. Of the 217, 31 (14%) observed were rated Condition C (poor). Condition C indicates that the steel corrosion coating has not stabilized, and pack-out rust conditions are evident in several areas. There were also several larger areas of measurable thinning, with at least one member measuring an average loss of total cross section greater than 10%, but less than 20%. 82 of the 217 (38%) structures inspected were rated Condition D (very poor). Condition D structures' steel corrosion coating has failed, and pack-out rust conditions are evident in large areas. These structures are also experiencing significant thinning, exceeding the loss of steel limits of 20% or greater loss of section. In these structures, there are areas where steel is completely rusted through. Protective coating was applied to all COR-TEN® structures that rated Condition C or D but were not identified as "priority." The coatings were expected to provide a 10-year life extension, mitigating the accumulation of rust and corrosion on the tower. The 10-year life of the coatings has been exceeded, and the coatings are deteriorating and are no longer an effective protective barrier. Even with the application of the protective coating on some structures, the COR-TEN® structures still face constant asset health concerns due to the presence of pack-out rust.

To better understand the heightened asset health concerns associated with COR-TEN® steel, PPL Electric contracted with independent, non-affiliated inspection companies to conduct evaluations of COR-TEN® lattice towers to determine the overall condition of these towers on the PPL Electric Transmission System in 2019. The 2019 evaluations included inspection of 15 randomly selected COR-TEN® lattice towers across the PPL Electric Transmission System by three separate

TABLE 1-2: Harwood-East Palmerton & Siegfried-East Palmerton Structure Rating Summary

Overall Structure Rating			
Class	**Condition**	Structure Count	Percent
A	**Good**	0	0.0%
B	**Fair**	0	0.0%
C	**Poor**	8	26.7%
D	**Severe**	21	70.0%
F	**Priority**	1	3.3%

The results of the 2020 inspection program confirmed the severity of deterioration identified during the 2019 inspection program as follows:

- Over 90% of the joints showed visible pack-out rust in the connections, which is anticipated to worsen over time;
- The patina needed to protect the steel from corrosion did not properly develop in numerous members resulting in section-loss across the entire structure;
- Pack-out rust damage was typically more prevalent on lower sections of the tower except for some specific attachment points where severe pack-out rust was observed on higher sections; and
- Structural damage was found on several members from pack-out rust that ruptured bolts and split/deformed members.

The accelerated deterioration of the asset health of the COR-TEN® lattice towers that are the subject of the Project revealed by the 2019 and 2020 inspection programs has been further corroborated by a recent study performed by RTR Energy Solutions, Inc. ("RTR") in December 2023 and January 2024. RTR was contracted to perform condition assessments on the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines. The assessment consisted of all 221 COR-TEN® lattice towers on this line. The scope of the assessment included a visual inspection of each selected structure from the ground. Each joint of the structure was reviewed to

determine if pack-out rust was present. The structure condition was noted as either Mild, Moderate or Severe using the following classification:

- **Mild** Condition Rating: <25% of total joints contain pack-out rust.
- **Moderate** Condition Rating: >25% & <50% of total joints contain pack-out rust.
- **Severe** Condition Rating: >50% of total joints contain pack-out rust.

Results showed that 86% of the COR-TEN® lattice towers on Harwood-East Palmerton and 71% of the COR-TEN® lattice towers on Siegfried-East Palmerton 230 kV lines were classified as severe. None of the COR-TEN® lattice towers on either line were classified as mild. A summary of the results of the inspection are represented in **Table 1-3** and **Table 1-4** below:

The RTR assessment included several additional steel structures on the Harwood-East Palmerton and Siegfried-East Palmerton 230 kV lines that are not COR-TEN® lattice towers. Joint pack-out rust is not present in these structures; therefore, they have been left out of the count in **Table 1-3** and **Table 1-4** below.

TABLE 1-3: COR-TEN® Condition Rating Summary – Harwood-East Palmerton

Condition	Structure Count
Mild	0
Moderate	25
Severe	154
Total	179

TABLE 1-4: COR-TEN® Condition Rating Summary – Siegfried-East Palmerton

Condition	Structure Count
Mild	0
Moderate	12
Severe	30
Total	42

PPL Electric Attachment 2

(Corrected)

1.0 INTRODUCTION

As explained in **Attachment 1**, PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "the Commission") approval to rebuild the existing double-circuit Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines connecting the Harwood 230-69 kV Substation ("Harwood Substation") located in Luzerne County, the East Palmerton 230-69 kV Substation ("East Palmerton Substation") located in Carbon County, and the Siegfried 230-138-69 kV Substation ("Siegfried Substation") located in Northampton County, Pennsylvania ("Project").

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

Connection between the Harwood Substation and East Palmerton Substation involves a 31.0-mile-long section of the double-circuit Harwood-East Palmerton Transmission Lines. The Harwood-East Palmerton Transmission Lines include the Harwood-East Palmerton 230 kV line and the Harwood-Siegfried 230 kV line. The first line extends to the East Palmerton Substation, whereas the second line passes the tap area into East Palmerton and extends to the Siegfried Substation. A one-line illustration of the system arrangement is provided in **Figure 2-1** and an aerial map of the transmission line system near East Palmerton Substation is provided in **Figure 2-2**. The existing Harwood-East Palmerton Transmission Lines contain six 1590 kcmil[1], 45/7 stranding, "Lapwing" ACSR[2] conductor wires, one overhead ground wires ("OHGW"), and one optical ground wire ("OPGW"). These conductor and ground wires are supported by a series of transmission line

[1] 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.
[2] ACSR stands for aluminum conductor steel reinforced.

structures that include 179 COR-TEN® double-circuit steel lattice tower structures, two H-frame structures, and one monopole structure.

Connection between the Siegfried Substation and East Palmerton Substation involves a 9.2-mile-long section of the double-circuit Siegfried-East Palmerton Transmission Lines. The Siegfried-East Palmerton Transmission Lines include the Harwood-Siegfried 230 kV line and the Siegfried-East Palmerton 230 kV line. The existing Siegfried-East Palmerton Transmission Lines also contain six 1590 kcmil, 45/7 stranding, "Lapwing" ACSR conductor wires, one OHGW, and one OPGW. These conductor and ground wires are supported by a series of transmission line structures that include 42 COR-TEN® double-circuit steel lattice tower structures, and 13 monopole structures.

Figure 2-1: One-line Diagram

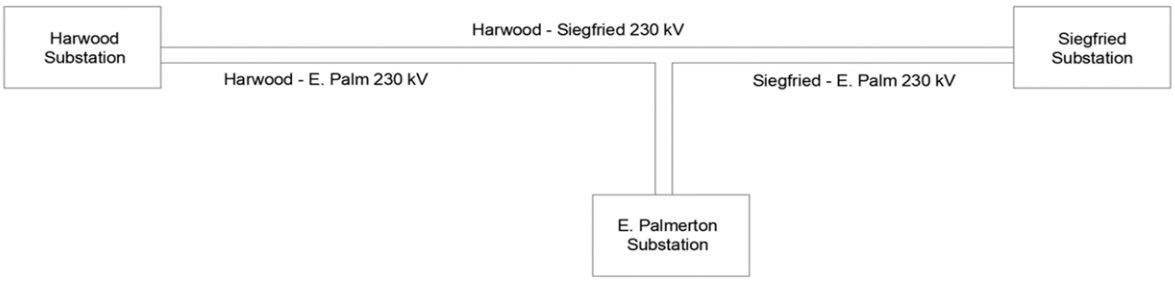
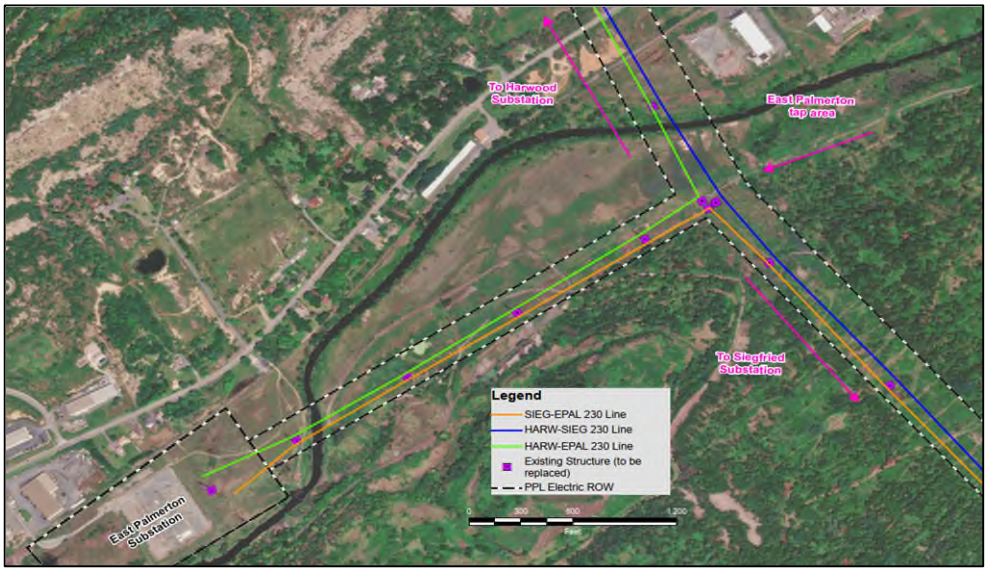


Figure 2-2: Aerial Illustration of East Palmerton Tap Area



Due to the corrosion and development of pack-out rust[3] on these 221 COR-TEN® lattice tower structures, PPL Electric proposes to replace them with 221 double-circuit steel monopole structures. For the Harwood-East Palmerton line, the COR-TEN® lattice structures to be replaced extend consecutively between existing Tower 47497N28440 (Structure 1) located near the Harwood Substation and Tower 60723N24438 (Structure 174) located north of the tap line into the East Palmerton Substation. Tower 47497N28440 will be replaced with two single-circuit monopoles (Structures 1A and 1B) and due to the ability to optimize Tower 48858N27937 (Structure 21) will be removed but not be replaced.

In addition to replacing the COR-TEN® lattice tower structures, the Harwood-East Palmerton section of the Project also involves the following structure replacements:

- The existing single-circuit monopole structure (47451N28454 (Structure 1C)) that is presently used to direct the wires into the Harwood Substation.
- The two existing single-circuit COR-TEN® H-frame structures (55350N27366 & 55349N27364 (Structure 99B) and 55652N27234 & 55653N27236 (Structure 100B)) that presently support the conductor over the Lehigh River.

For the Siegfried-East Palmerton transmission line, the COR-TEN® lattice tower structures to be replaced extend consecutively between existing Tower 60743N24314 (Structure 176) located south of the East Palmerton tap area and Tower 61376S53510 (Structure 191) located north of a 90-degree turn to the west. This sharp turn extends around a parcel owned by PPL Electric (identified as Northampton County Parcel ID: H3 18 10A 0516 and shown as Extent 39 of 45 within Attachment 3, Figure 3-1) where a series of six sets of single-circuit monopoles are used to guide the line around the parcel boundary. The COR-TEN® lattice tower structures to be replaced continue at Tower 61360S53283 (Structure 199), where the line turns sharply to the south, and extends consecutively to Tower 61932S51221 (Structure 223) located near the Siegfried Substation.

[3] "Pack-out rust" is a form a localized corrosion typical of steel components that develop a crevice into an open atmospheric environment, which results in rust packing between conjoined steel components. As described in Attachment 1, pack-out rust accelerates the deterioration of asset health and can result in shearing off bolts, loss of structural integrity, members disconnecting from lattice towers, and tower failure.

In addition to replacing the COR-TEN® lattice tower structures, the Siegfried-East Palmerton section of the project also involves the following structure replacements:

- The six sets of existing monopole structures (12 monopoles) used to go around the PPL Electric parcel will be replaced with three new monopoles (Structure 194, 195, and 196).[4]
- The existing single-circuit monopole structure (61343S53379) located on the southern corner of the PPL Electric parcel (identified as Northampton County Parcel ID: H3 18 10A 0516 and shown as Extent 39 of 45 within Attachment 3, Figure 3-1) and used to turn the line south.

In addition to the structure replacements listed above, the following non-COR-TEN® structures will not be replaced but will be upgraded.[5]

- The six existing single-circuit monopoles used to guide the wires into the Siegfried Substation.

At the East Palmerton tap area, the five COR-TEN® structures extending into the East Palmerton Substation (Structures 228 to 231A) are common to both sections and will be replaced when the Siegfried-East Palmerton section is rebuilt. Tower 60390N24310 (Structure 231A) will be replaced by two single-circuit monopole structures (Structures 231A and 231B) and upgraded with new conductor and ground wires.

A detailed map of the Project alignment is provided as **Figure 3-1 in Attachment 3**.

For both sections, the existing COR-TEN® lattice tower structures range in height from between approximately 55 and 165 feet with an average structure height of approximately 135 feet. The proposed monopole structures for the Harwood-East Palmerton and Siegfried-East Palmerton Transmission Lines will range in height from between approximately 60 and 170 feet, with an average structure height of approximately 135 feet. **Table 2-1** provides a summary of the number and heights of the existing and proposed structures.

Figures 2-3 through **2-7** depict typical structure types that will be used for the Project and include the following:

[4] The structure numbering accounts for three of the existing structures that are not being replaced in kind.
[5] The existing conductor and ground wires supported by these towers will be replaced as part of the Project.

- Approximately 109 new double-circuit long span suspension structures (**Figure 2-3)**.
- Approximately 55 new double-circuit long span angle tension structures **(Figure 2-4**).
- Approximately 54 new double-circuit long span angle tension structures **(Figure 2-5**).
- Approximately 12 new single-circuit 0° to 90° angle tension structures **(Figure 2-6)**.
- Approximately 2 new single-circuit 0° to 90° H-frame angle tension structures **(Figure 2-7)**.

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
HARWOOD-EAST PALMERTON AND SIEGFRIED-EAST PALMERTON 230 kV	237	55'-165'	232	60'-170'	7-009-043 7-009-061 7-009-062 7-009-064 7-009-013
Total	**237**		**232**		

*Proposed number of new structures based on preliminary engineering. The final number of new structures may vary.

The proposed monopole structures for the Project will be constructed in generally the same location as the existing COR-TEN® lattice towers. The transmission lines cannot be fully deenergized during the construction process, thereby requiring the new monopoles to be offset typically 35 feet ahead or behind and horizontally offset approximately 15 feet from the COR-TEN® structure locations as a safety precaution. PPL Electric has designed the proposed transmission line system so that it fits entirely within the existing right of way ("ROW").

The proposed Harwood-East Palmerton, Harwood-Siegfried and Siegfried-East Palmerton Transmission Lines will consist of six 1590 kcmil, 54/19 stranding, "Falcon" ACSR conductors. The existing OHGW and OPGW will be removed and be replaced with two 0.791-inch-diameter 144 fiber OPGW. The design minimum conductor-to-ground clearance will be 25.5 feet which occurs at the emergency maximum thermal conductor temperature of 125°C (257°F). The design minimum conductor clearances and conductor thermal ratings for the reconstructed lines are noted in **Tables 2-2 and 2-3**.

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

PPL Electric Attachment 3

(Corrected)

1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "the Commission") approval to rebuild the existing double-circuit Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines connecting the Harwood 230-69 kV Substation ("Harwood Substation"), located in Luzerne County, the East Palmerton 230-69 kV Substation ("East Palmerton Substation") located in Carbon County, and the Siegfried 230-138-69 kV Substation ("Siegfried Substation") located in Northampton County, Pennsylvania ("Project").

The rebuilt transmission line will be on the same structure alignment as the existing transmission lines. However, as described in Attachment 2, the centerline will be offset from the existing centerline to maintain safe clearances during construction. The Project will remain on the same PPL Electric fee-owned properties and in the same right of way ("ROW") as the existing transmission line. The existing ROW is generally between 150 and 300 feet wide, with the exception of one section over the Lehigh River that is 500 feet wide. As described in Attachment 2, the Project will require replacement of 221 existing COR-TEN® steel lattice towers and 16 non-COR-TEN® structures with 232 new steel monopoles, which will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties. A network of existing access roads or temporary roads will be utilized during construction of the transmission lines. Detailed maps of the proposed rebuilt double-circuit Harwood-East Palmerton and Siegfried-East Palmerton 230 kV Transmission Lines and associated structures are provided in **Figure 3-1**.

From the Harwood Substation, the double circuit line travels in a southeasterly direction across predominantly forested lands before reaching the East Palmerton Substation. As the transmission line approaches the East Palmerton substation the line is tapped, and the double-circuit tap line extends southwesterly to East Palmerton Substation. After the tap point, the double circuit line continues in a southeasterly direction to the Siegfried Substation. See **Figure 3-1** for the existing layout. The ROW for the Project is further described below:

- From Structure 1 at the Harwood Substation, the Project will extend southeast approximately 4.05 miles to Structure 27 (Sheets 1 to 5, Structures 1 to 27 in **Figure 3-1**).

located entirely on PPL Electric fee-owned property or on ROW maintained by PPL Electric. Land use in this segment is predominantly land reclamation, and the ROW crosses Aquashicola Creek.

- From Structure 175, the Project turns southeast for approximately 7.6 miles to Structure 224B near the Siegfried Substation (Sheets 35 to 44, Structures 176 to 224 in **Figure 3-1**). The forty-one COR-TEN® structures along this segment will be replaced with ten long span suspension structures (7-009-061), fifteen long span angle suspension structures (7-009-062), sixteen long span angle tension structures (7-009-064). Structure 182 will not be replaced due to the opportunity to optimize span lengths. Six sets of two-pole structures and two 3-pole structures (Structures 224A and 224B) will also be replaced as part of the Project. Optimization around the two-pole structures will result in the installation of three monopoles (Structures 194, 195, and 196) to account for the removal of the twelve existing monopoles. These structures are located entirely on PPL Electric fee-owned property or on ROW maintained by PPL Electric. Land use in this segment is forested, residential, and agricultural, and crosses State Game Land #168, the Appalachian Trail, Bertsch Creek, and Indian Creek.

As described in Attachment 2, the Project requires replacement of 221 existing COR-TEN® steel lattice and/or steel monopoles structures, plus 16 non-COR-TEN® structures, that will be constructed entirely within the existing ROW or on PPL Electric's Harwood Substation, East Palmerton Substation and Siegfried Substation properties.

2.0 LAND USE

PPL Electric evaluated the existing land uses on the PPL Electric owned properties, within the existing ROW, and the adjacent land within approximately 0.25 miles of the ROW ("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 the 2020 National Land Cover Data ("NLCD"), land use in the Project Area is approximately 90% forested with the remaining 10% comprised of urbans lands and cropland. The urban lands and croplands were typically located where the transmission lines crossed major roads.