

# DRAFT

**Petition No. 1531**  
**The Connecticut Light and Power Company d/b/a Eversource Energy**  
**#1200/#1300 Line Structure Replacement Project**  
**East Windsor and Windsor Locks**

**Staff Report**  
**September 23, 2022**

## **Introduction**

On July 15, 2022, the Connecticut Siting Council (Council) received a petition (Petition) from The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the proposed #1200/#1300 Line Structure Replacement Project (Project) within existing Eversource electric transmission line right-of-way (ROW) between Windsor Locks Substation and Warehouse Point Junction in the Towns of Windsor Locks and East Windsor (Towns).

The Project consists of replacement and reconductoring of electric transmission line structures along the ROW between Windsor Locks Substation in Windsor Locks and Warehouse Point Junction in East Windsor.

On July 13, 2022, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed project to the Towns and abutting property owners. No comments from the Towns or abutters were received.

On July 18, 2022, the Council sent correspondence to the Towns stating that the Council has received the Petition and invited the Towns to contact the Council with any questions or comments by August 14, 2022. No comments were received.

The Council submitted interrogatories to Eversource on August 24, 2022. Eversource submitted responses to the interrogatories on September 14, 2022.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition within 60 days of receipt. On August 18, 2022, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than January 11, 2023, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

The purpose of the proposed Project is to improve system reliability on the #1200 and #1300 Lines by reconductoring a section of each line and replacing one steel double-circuit H-frame structure with two single-circuit monopole structures to accommodate the increased conductor load. Larger capacity conductors are proposed for future capacity needs.

## **Municipal and Abutter Notice**

In May 2022, Eversource initiated outreach to property owners along the Project route. All abutting property owners were notified of the Project and provided information on how to obtain additional information, as well as how to submit comments to the Council. No abutters contacted Eversource or the Council with any comments. During the construction phase of the project, Eversource would maintain contact with property owners to inform them of construction activities and site restoration.

In June 2022, Eversource consulted with representatives of the Towns to brief them on the proposed Project. The Towns did not express any concerns.

### **Existing Project Area**

The existing Project area includes approximately 0.39 mile of existing Eversource ROW that extends across the Connecticut River between Windsor Locks Substation and Warehouse Point Junction. Land use surrounding the Project area is a mix of residential, commercial, municipal, transportation and undeveloped. The ROW is approximately 100 feet wide on the east side of the Connecticut River in East Windsor; 150 feet wide over the Amtrak railroad tracks (located east of the Connecticut River); and 340 feet wide over Windsor Locks Canal on the west side of the Connecticut River.

### **Proposed Project**

The Project relates to two transmission line asset condition maintenance activities approved by the Council that are part of an ongoing Eversource program to comply with the National Electrical Safety Code (NESC) clearance requirements. Structure No. 6207 was replaced as part of Sub-petition No. 1293-EEWSW-01 (Enfield, East Windsor, South Windsor) that was approved on November 20, 2018. It is a tangent H-frame structure. Construction was completed on April 1, 2019. Structure Nos. 6208 and 6209 are to be replaced as part of Sub-petition No. 1293-WLEW-01 (Windsor Locks and East Windsor) that was approved on July 12, 2022. The two existing lattice structures are to be replaced by four monopole structures. Construction has not been completed.

The Project requires taller structures to comply with NESC standards, including, but not limited to, conductor clearance requirements. The NESC is the authoritative code for ensuring the continued practical safeguarding of persons and utility facilities during the installation, operation and maintenance of electric power and communications utility systems, including substations, overhead lines and underground lines.

Structure Nos. 6207, 6208 and 6209 must be replaced as part of the Project due to the modified alignment with existing structures to the west and to support the new 1590-kcmil conductor. The new structures would be dead-end structures. “Dead-end” structures are designed to support the full longitudinal tension loads from the wires and are typically located at ROW angle points.

Existing Structure No. 6207 is 65.5 feet above ground level (agl). Replacement Structure Nos. 6207 and 6207A would be 76 feet agl.<sup>1</sup> Structure height increases were designed to meet conductor clearance requirements with an additional safety buffer.

#### *Structure Replacement and Reconductoring of #1200 and #1300 Lines*

The #1200 Line extends from Windsor Locks Substation to Barbour Hill Substation in South Windsor. The #1300 Line extends from Windsor Locks Substation to Enfield Substation in Enfield. The #1200 and #1300 lines and conductors are approximately 60 years old.<sup>2</sup>

Project work consists of reconductoring approximately 0.39-mile between Structure Nos. 6207 and 6207A in East Windsor and Structure Nos. 6209 and 6209A in Windsor Locks. Specifically, the work includes the following:

- a) Replace one double-circuit weathering steel 3-pole H-frame structure (Structure No. 6207) with two single-circuit weathering steel monopole structures on foundations;
- b) Replace existing 556 24/7 kcmil aluminum conductor steel reinforced (ACSR) conductors with 1590 54/19 kcmil aluminum conductor steel supported (ACSS) conductors over the Connecticut River on the #1200 Line from new Structure No. 6207 to approved Structure No. 6209 (located within Windsor Locks Substation);

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<sup>1</sup> Each of the two single-circuit replacement structures would consist of two poles: a 61-foot pole to support two phase conductors and a 76-foot pole to support the third phase conductor.

<sup>2</sup> With the exception of Structure No. 6207 that was replaced in 2019.

- c) Replace existing 556 24/7 kcmil ACSR conductors with 1590 54/19 kcmil ACSS conductors over the Connecticut River on the #1300 Line from new Structure No. 6207A to approved Structure No. 6209A;
- d) Replace the existing Alumoweld overhead shield wire with optical ground wire (OPGW) on both the #1200 and #1300 Lines from Warehouse Point Junction in East Windsor (approximately 1/3-mile east of Structure No. 6207) to structures within Windsor Locks Substation; and
- e) Improve and/or install access roads and work pads for the Project.

### *Cost*

The total estimated cost of the project is approximately \$1.117M<sup>3</sup>. The Project does not include Pool Transmission Facilities (PTFs)<sup>4</sup>, and thus, total cost is expected to be allocated as follows:

Eversource Connecticut ratepayers <sup>5</sup>	100.0%	(\$1.117M)
Other Connecticut ratepayers <sup>6</sup>	0.0%	(\$0M)
<u>Other New England ratepayers<sup>7</sup></u>	<u>0.0%</u>	<u>(\$0M)</u>
Cost Total	100%	(\$1.117M)

### **Project Construction and Work Procedures**

No staging/laydown areas would be needed for the Project. Materials would be delivered directly to the structure work site.

Eversource would utilize existing ROW access roads to the extent possible during construction. However, one new access road would be required. Temporary construction matting would be utilized where this new access road crosses a wetland area. A U.S. Army Corps of Engineers permit is required for temporary wetland impacts associated with the crossing.

Eversource would obtain a Department of Transportation Encroachment Permit for three state routes (Rt. 510, Rt. 159, and Interstate 95) within the Project area. It would also obtain a Temporary Permit to Enter from Amtrak.

Construction areas would be isolated by establishing erosion and sedimentation (E&S) controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource Best Management Practices (BMPs). Typical E&S control measures include, but are not limited to, straw blankets, hay bales, silt fencing, gravel anti-tracking pads, soil and slope protection, water bars, check dams, berms, swales, plunge pools, and sediment basins.

The Project would have a total disturbance area of approximately 4,460 square feet or 0.10 acre. Thus, a Department of Energy and Environmental Protection (DEEP) General Permit would not be required.

One matted work pad would be constructed to stage material for final on-site assembly and/or removal of the existing structure, to pull conductors and to provide a safe, level work base for construction equipment. The work pad would be approximately 200 feet by 100 feet.

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<sup>3</sup> This cost does not include any incremental charges for project management, engineering, permitting, etc., which is accounted for in the cost of the greater overall project.

<sup>4</sup> ISO-NE defines PTFs as facilities rated 69-kV or above owned by the participating transmission owners over which ISO-NE has operating authority in accordance with the terms set forth in the Transmission Operating Agreements.

<sup>5</sup> Electrical service customers of Eversource and located within Connecticut.

<sup>6</sup> Electrical service customers located within Connecticut but outside of Eversource's service territory.

<sup>7</sup> Electrical service customers located within New England but outside of Connecticut.

The proposed structures would have drilled (caisson) foundations. Foundation installation work would require the use of equipment such as drill rigs, pneumatic hammers, augers, dump trucks, concrete trucks, grapple trucks, and light duty trucks. If groundwater is encountered, pumping trucks or other equipment would be utilized. The water would then be discharged in accordance with local, state and federal requirements.

New structure sections, components and hardware would be delivered by flatbed truck to the structure locations for assembly by crane and bucket trucks. After assembly, the area around the caisson foundations would be backfilled with processed gravel.

New conductors and OPGW would be installed after the structures are installed. The required equipment would include cable reels, pulling and tensioning rigs, and bucket trucks. The removal of the existing conductor and static wire would take place during the active installation of the new conductor and OPGW because the existing conductor and shield wire would be used as pulling lines, if possible. Conductor dead-ending and splicing would be accomplished with pressed hardware. The existing structures would be removed after the new conductor and OPGW are installed.

After the new structures/conductors/OPGW are installed, the lines are re-energized and the existing structures are removed, ROW restoration activities would commence. Restoration work would include the removal of construction debris, signage, flagging, temporary fencing, and construction mats and work pads that are designated for removal. Affected areas would be re-graded as practical and stabilized via revegetation or other measures before removing temporary E&S controls. ROW restoration would be performed in accordance with Eversource BMPs and in consultation with affected property owners.

Project-related traffic would be expected to be temporary and highly localized in the vicinity of ROW access points along public roads. Due to the phasing of construction work, project-related traffic is not expected to significantly affect transportation patterns or levels of service on public roads. Traffic management procedures would be developed, if necessary.

### **Environmental Effects and Mitigation Measures**

Work would include limited vegetation removal and tree trimming in select areas in the ROW in East Windsor to accommodate access road installation and improvements, work pad installation, and conductor clearance needs along the ROW.

Vegetation removal/tree trimming would be accomplished using mechanical methods. This would typically involve the use of flat-bed trucks, brush hogs or other types of mowing equipment, skidders, forwarders, bucket trucks for canopy trimming, and chippers.

A total of 3 wetland areas and 2 watercourses occur within or proximate to the Project area. There would not be any permanent wetland impacts associated with the Project. Construction activities would result in approximately 591 square feet of temporary effects to Wetland 3 due to the placement of temporary construction mats needed for access to Structure Nos. 6207 and 6207A. The two watercourses within the Project area are the Connecticut River and the Blue Ditch Stream. Neither watercourse would be impacted by the Project. Construction activities within wetlands and over watercourses would be conducted in accordance with Eversource's BMPs.

No vernal pools are located within the Project area wetlands.

The Project ROW extends across a 100-year Federal Emergency Management Agency-designated flood zone associated with the Connecticut River. Work associated with reconductoring and OPGW would occur above the 100-year flood zones, and no structures are proposed within the 100-year flood zone. There are no 500-year flood zones within the Project area. No impacts to floodplains or floodways are anticipated.

There are no DEEP-designated Aquifer Protection Areas within the Project ROW. The Project is not located within a public water supply watershed. Eversource would conduct work in accordance with its BMPs. Provisions are included for proper storage, secondary containment, and handling of diesel fuel, motor oil, grease and other lubricants, to protect water quality.

A portion of the Project is within DEEP Natural Diversity Database (NDDB) buffer areas. Eversource would implement DEEP recommended species-specific protection measures during construction.

Eversource also consulted with the U.S. Fish & Wildlife Service's Information, Planning and Consultation (IPaC) service regarding federally-listed species that may be present within the project area. The IPaC report identified the northern long-eared bat (NLEB), a federally-listed Threatened Species, and state-listed Endangered Species occurring in Connecticut. There are no known NLEB maternity roost trees within 150 feet of the Project area, and the nearest NLEB hibernaculum is located approximately 6 miles away in the Town of East Granby. Thus, no impacts to the NLEB are expected to result from the Project.

A Phase 1A Cultural Resources Assessment (Phase 1A Assessment) of the Project area determined that the nearest resource listed on the National Register of Historic Places is the Windsor Locks Canal (a/k/a Enfield Canal), and this resource would not be impacted by the Project. The Phase 1A Assessment also determined that the Project work areas have no/low cultural/archaeological sensitivity, and thus, no further examination of these locations would be necessary.

The Project ROW does not cross any designated local or state-designated scenic roads.

The Project ROW crosses the Connecticut River which is the only publicly accessible recreational resource in the vicinity of the Project. The Project is not expected to interfere with recreational activities associated with the Connecticut River. The Project area is not proximate to any blue-blazed hiking trails.

Due to the increase in structure heights to comply with NESC and accommodate the new conductor load, there would be indirect visual impacts to the surrounding area. The replacement structures would be located as close as possible to the existing structure to be removed and the use of weathering steel replacement structures would match the surrounding wooded landscape.

Eversource will conduct weekly environmental inspections to ensure compliance with BMPs and any permit conditions. Removal of the temporary matting for work pads will allow the Project area to revegetate with low-growing species that are beneficial to pollinators and other wildlife species.

### **Public Safety**

Expanded aerial rights from Amtrak are required to accommodate the alignment of the conductors over the railroad. On August 30, 2021, Eversource submitted a license agreement for a revised 150-foot area over the railroad tracks that is pending approval by Amtrak.

There would be no permanent changes to existing ROW sounds levels after completion of the Project. Noise associated with construction activities is exempt from DEEP Noise Control Regulations. Notwithstanding, any construction-related noise would be short-term and localized in the vicinity of work sites.

Notice to the Federal Aviation Administration would not be required for any of the proposed structures.

Electric fields (EF) are produced whenever voltage is applied to electrical conductors and equipment. Electric fields are typically measured in units of kilovolts/meter (kV/m). As the weight of scientific evidence indicates that exposure to electric fields, beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields are sufficiently addressed by adherence to the NESC, as amended, health concerns regarding Electric and Magnetic Fields (EMF) focus on MF rather than EF. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a guideline of 4.2 kV/m.

The Project route contains an existing transmission line that emits magnetic fields (MF). In the United States, no state or federal exposure standards for 60-Hertz MF based on demonstrated health effects have been established, nor are there any such standards established worldwide. However, the ICNIRP has established a level of 2,000 milliGauss (mG), based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public, and recognized in the Council's *Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*.

Eversource reviewed EMF levels associated with the Project. Pre- and post-construction EMF levels (based on average annual loads for MF) are presented in the table below:

Distance from Proposed Transmission Line	Magnetic Field		Electric Field	
	Existing	Proposed	Existing	Proposed
-300	0.1	0.1	0.02	0.02
-275	0.1	0.1	0.02	0.03
-250	0.1	0.1	0.02	0.03
-225	0.1	0.2	0.03	0.04
-200	0.1	0.2	0.03	0.04
-175	0.2	0.3	0.04	0.04
-150	0.2	0.4	0.04	0.05
-125	0.3	0.6	0.04	0.04
-100	0.5	0.9	0.03	0.03
-75	0.7	1.3	0.03	0.11
-50	1.0	1.9	0.16	0.27
-25	1.3	2.4	0.38	0.45
0	1.3	2.4	0.51	0.51
25	1.0	2.0	0.38	0.46
50	0.6	1.3	0.16	0.30
75	0.3	0.7	0.03	0.12
100	0.2	0.4	0.03	0.04
125	0.2	0.2	0.04	0.04
150	0.1	0.1	0.04	0.05
175	0.1	0.1	0.04	0.05
200	0.1	0.0	0.03	0.04
225	0.1	0.0	0.03	0.04
250	0.1	0.0	0.02	0.03
275	0.0	0.0	0.02	0.03
300	0.0	0.0	0.02	0.02

All EF and MF values would be below the ICNIRP exposure guidelines of 4.2 kV/m and 2,000 mG, respectively.

### Construction Schedule

Construction is expected begin in September 2022 with an anticipated completion by the end of December 2022. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours or evening work (i.e. after 7:00 p.m.) may be necessary due to Connecticut Department of Transportation permitting requirements and restrictions, or delays caused by unforeseen circumstances, inclement weather and/or outage constraints. In the event that this is necessary, Eversource would provide notice to the Council and the Towns.

### **Conclusion**

If approved, staff recommends the following conditions:

- 1) Approval of any project changes be delegated to Council staff; and
- 2) The Council shall be notified in writing at least two weeks prior to the commencement of site construction activities.

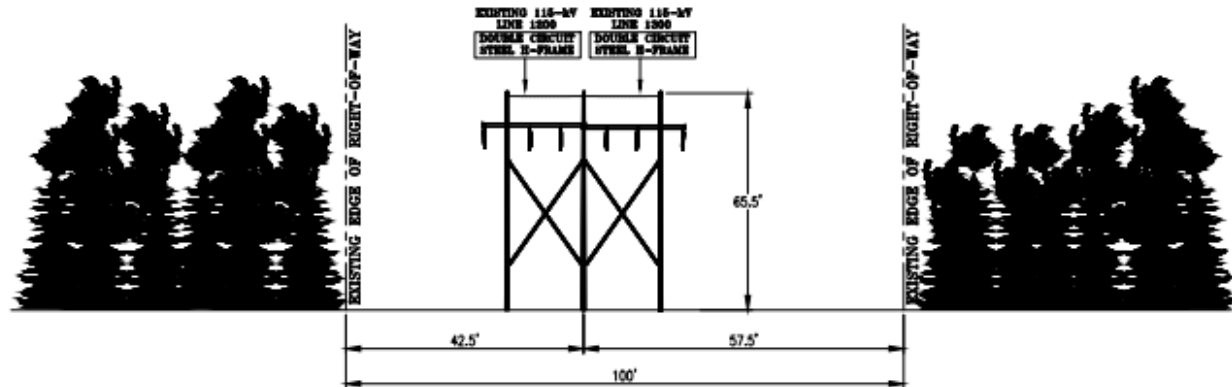
## Project Location

**Figure 1: Project Overview Map**

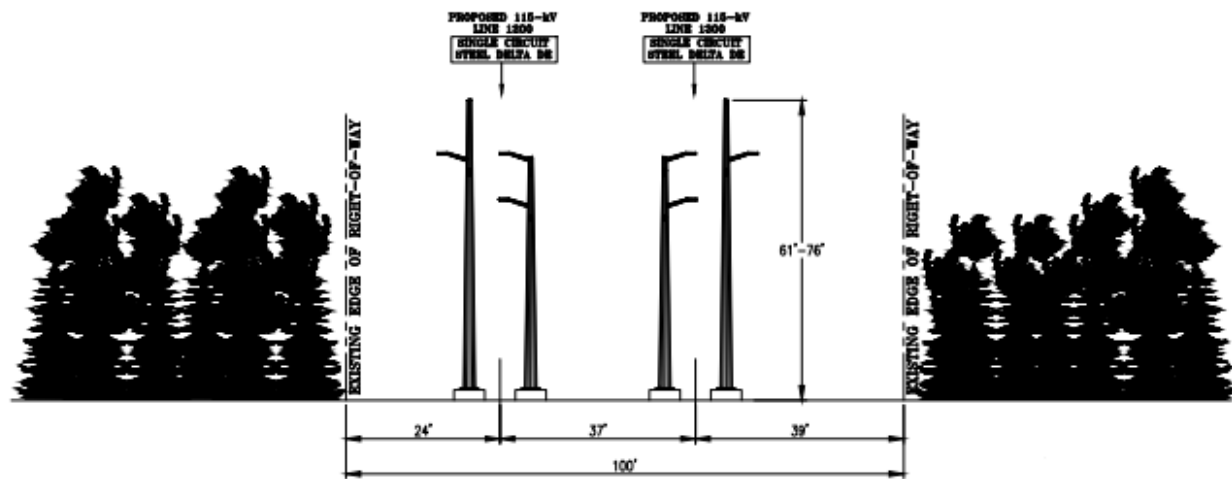




### Project ROW Profiles



**EXISTING R.O.W. CONFIGURATION  
DOUBLE CIRCUIT STEEL H-FRAME  
LOOKING FROM 6207 TO 6208  
IN THE TOWN OF WINDSOR LOCKS & EAST WINDSOR, CT  
0.11 MILES BETWEEN STR 6207 TO 6208**



**PROPOSED R.O.W. CONFIGURATION  
DOUBLE CIRCUIT STEEL MONOPOLE  
LOOKING FROM 6207/6707A TO 6208/6208A  
IN THE TOWN OF WINDSOR LOCKS & EAST WINDSOR, CT  
0.11 MILES BETWEEN STR 6207/6707A TO 6208/6208A**