DRAFT

Petition No. 1614 The Connecticut Light and Power Company d/b/a Eversource Energy Christian Street Junction to Stevenson Substation Rebuild Project Oxford and Monroe

Staff Report July 12, 2024

Notice

On February 20, 2024, the Connecticut Siting Council (Council) received a 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 Christian Street Junction to Stevenson Substation Rebuild Project (Petition or Project) within existing Eversource electric transmission line right-of-way (ROW) in the Towns of Oxford and Monroe (municipalities).

The Project consists of the replacement of electric transmission line structures, and the replacement of shield wire with optical ground wire (OPGW)¹ on the 1580/1808 Lines along approximately 5.5 miles of existing ROW between approximately 1200 feet south of Christian Street Junction in Oxford and approximately 750 feet south of Stevenson Substation in Monroe; and related electric transmission line and substation improvements.

On February 19, 2024, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed Project to the municipalities and abutting property owners.

On February 21, 2024, the Council sent correspondence to the municipalities stating that the Council has received the Petition and invited the municipalities to contact the Council with any questions or comments by March 21, 2024. No comments were received from either of the municipalities.

Under RCSA §16-50j-40, neither Eversource nor the Council is required to provide notice to the state agencies listed in CGS §16-50j(g) when a petition for a declaratory ruling for modifications to an *existing facility* is submitted to the Council. On February 29, 2024, the Council on Environmental Quality submitted comments on the Project.²

Under CGS §16-50x, the Council retains exclusive jurisdiction over the existing electric transmission line and substation facility sites. Under RCSA §16-50j-2a(29), "site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located. The Council cannot delegate its statutory authority to any other entity and it is not required to abide by comments from state agencies.³

On April 12, 2024, Eversource submitted supplemental information to the Council with corrections to wetlands and watercourse mapping and reporting.

¹ OPGW contains a conductor for lightning protection and fiber optics for communications between substations. It would be installed overhead.

² <u>https://portal.ct.gov/-/media/CSC/3_Petitions-medialibrary/Petitions_MediaLibrary/MediaPetitionNos1601-</u>

^{1700/}PE1614/StateAgencyComments/PE1614 CEQCommentsRecd a.pdf

³ Corcoran v. Connecticut Siting Council, 284 Conn. 455 (2007)

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The Council issued interrogatories to Eversource on June 4, 2024. Eversource submitted responses to the interrogatories on June 20, 2024. On June 26, 2024, Eversource submitted revised electric and magnetic field calculations.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition for a declaratory ruling within 60 days of receipt. During a regular meeting held on April 11, 2024, 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 August 18, 2024, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

Community Outreach

Eversource initiated outreach to the municipalities in October 2023 to provide an initial briefing on the Project. Meetings were held in November 2023 with the Town of Oxford and in December 2023 with the Town of Monroe to review Project details and proposed structure locations. The municipalities did not express concerns regarding the Project. Eversource did not receive further comments from the municipalities.

Eversource initiated outreach to property owners along the Project route in fall 2023. 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. During the construction phase of the Project, Eversource would maintain contact with the municipalities and abutting property owners to inform them of construction activities. Eversource has responded to inquiries from abutting property owners regarding the Project. No additional concerns have been raised.

Existing Facility Site

The existing facility site includes approximately 5.5 miles of existing Eversource ROW that extends through undeveloped forest, open space and residential areas. It also crosses Routes 34, 67 and 188, the Housatonic River, and the Housatonic Railroad.

The ROW was established in 1918. It hosts the 1580, 1808 and 1619 Lines.⁴ Eversource's easements for the existing ROW grant Eversource rights to enter upon the right of way and to erect, repair, maintain, replace, inspect, operate, and remove upon, infrastructure related to the conduction of electricity. The easements also grant rights to trim, cut, and remove vegetation within the ROW.

From south of Christian Street Junction, the Project ROW is approximately 110 feet wide for most of its length. From about 1,700 feet north of Eversource-owned property at Roosevelt Drive and continuing south to Roosevelt Drive in Oxford, the Project ROW is approximately 150 feet wide. The ROW is not managed to its full width.⁵ The width of the managed ROW varies along the route length. No expansion of the ROW is proposed.

Vegetation management was last performed in portions of the Project ROW in 2023.

Project Development

The purpose of the proposed Project is to improve system reliability on 1580 and 1808 Lines by replacing shield wire with OPGW to facilitate Eversource's long term build out of its fiber optic network; and replacing

⁴ No Project work is related to the 1619 Line.

⁵ According to the Federal Energy Regulatory Commission, "full right-of-way" means the portion of land for which a utility has documented legal rights to build and maintain transmission facilities. Managing a narrower maintained right-of-way, rather than the full right-of-way, is a relatively common industry practice, though not a best practice.

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electric transmission line structures due to structural loading issues resulting from the upgrade to OPGW and to meet National Electrical Safety Code (NESC) clearance standards.

From Structure 1436 and continuing south to Structure 1398, the 1580/1808 Lines are located on a total of 29 double-circuit lattice structures and 20 single-circuit steel monopoles. Once the Project is complete, all 29 double-circuit lattice structures and all 20 single-circuit steel monopoles would have been replaced.

The Project is identified in the 2024 Eversource Forecast of Loads and Resources Report and in the October 2023 Independent System Operator New England, Inc. (ISO-NE) Regional System Plan Asset Condition List.⁶ There are no generation facilities listed on the ISO-NE interconnection queue associated with the proposed Project.

Cost

The total estimated cost of the Project is approximately \$50.5M. Of the total, approximately \$45.7M would be eligible for regional cost allocation as it is associated with Pool Transmission Facilities (PTF),⁷ and approximately \$4.8M would be considered non-PTF costs. Pending a final determination from ISO-NE, total costs are expected to be allocated⁸ as follows:

Eversource Connecticut ratepayers ⁹	26.0%	(\$13.1M)
Other Connecticut ratepayers ¹⁰	5.7%	(\$2.9M)
Other New England ratepayers ¹¹	68.3%	(\$34.5M)
Cost Total	100%	(\$50.5M)

Proposed Project

The Project is proposed to address identified asset condition deficiencies by replacing aged conductors, replacing shield wire with OPGW, and replacing transmission structures to meet NESC standards. It includes the replacement of 23 double-circuit steel lattice structures with 23 double-circuit monopoles; replacement of six double-circuit steel lattice structures with 12 single-circuit monopoles; replacement of 16 single-circuit steel monopoles with eight double-circuit monopoles; replacement of four single-circuit steel monopoles with four single-circuit monopoles; and installation of four additional double-circuit steel monopoles. Conductor for this route would be replaced because it is about 62 years old with a projected service of life of 60 to 70 years.

The Project requires taller structures to meet 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.

NESC clearance requirements for conductor sway due to wind (blowout) are based on established horizontal clearance requirements during specific wind events to buildings (9.1 feet of clearance to the ROW edge for 115-kV conductors). Transmission lines are designed with the assumption that a building could be erected at any location along the ROW edge. To provide a buffer for construction tolerance, Eversource typically designs transmission corridors to have 11 feet of clearance to the ROW edge during specific wind events.

⁶ Entry #374.

⁷ ISO-NE defines Pool Transmission Facilities 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.

⁸ These allocations are estimates based on 2023 actual loads.

⁹ Electrical service customers of Eversource and located within Connecticut.

¹⁰ Electrical service customers located within Connecticut but outside of Eversource's service territory.

¹¹ Electrical service customers located within New England but outside of Connecticut.

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NESC clearance requirements for conductor uplift and insulator swing were factored into the transmission line design. Conductor uplift is a condition where wire on a structure pulls up on the hardware instead of hanging down vertically. It typically occurs in spans where structures are located at different ground levels or have different heights. The amount of insulator swing on a transmission line depends on conductor tension, temperature, wind velocity, insulator weight, ratio of weight span to wind span, and line angle. These issues can be mitigated by taller structures in certain locations to increase the load tension of the insulators and the span weight load of the conductors.

1580/1808 Lines – South of Christian Street Junction to South of Stevenson Substation

The 1580 and 1808 Lines are 115-kV lines supported by double-circuit lattice structures and single-circuit monopole structures. The 1580 Line was installed in 1923, and the 1808 Line was installed in 1962. The 1580 and 1808 Lines consist of 795 kcmil aluminum conductor steel reinforced (ACSR) conductors installed in 1962.

Project work consists of the following:

- a) Replace 23 double-circuit lattice structures with 23 double-circuit galvanized steel monopole structures;
- b) Replace 6 double-circuit lattice structures with 12 single-circuit galvanized steel monopole structures;
- c) Replace 16 single-circuit steel monopole structures with 8 double-circuit galvanized steel monopole structures;
- d) Replace 4 single-circuit steel monopole structures with 4 single-circuit galvanized steel monopole structures;
- e) Install 4 double-circuit galvanized steel monopole structures;
- f) Replace approximately 5.5 miles of 795 ACSR conductor with 1590-kcmil aluminum conductor steelsupported (ACSS) conductor on both lines; and
- g) Replace approximately 5.5 miles of copper weld shield wire with OPGW on both lines.

In addition to the structure replacements and OPGW installation, Project work includes installation of counterpoise and transfer of the existing lightning arrestors to the new structures, as needed.¹²

Project Construction

Eversource would establish two temporary staging/laydown areas for the Project at Division Street, Derby and Bic Drive, Milford. These staging/laydown areas would be approximately 3.45 and 1.7 acres, respectively, and would not be located within the Project ROW.

Eversource would utilize existing ROW access roads to the extent possible during construction. Where existing access roads are not present, new roads would be established. Multiple access roads are required so that equipment can access various construction zones along the ROW without relying on one point of access for long ROW segments. Construction matting would be utilized to install temporary access roads to protect sensitive areas (e.g. wetlands) to reach certain structure locations.

Construction areas would be isolated by establishing erosion and sedimentation (E&S) controls in accordance with the March 2024 *Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's April 2022 Best Management Practices Manual for Massachusetts and Connecticut (BMPs).¹³ Typical E&S control measures include, but are not limited to, biodegradable blankets, silt fencing, gravel anti-tracking pads, soil and slope protection, water bars, check dams, berms, swales, and plunge pools. Eversource BMPs prohibit the use of non-biodegradable plastic netting in E&S controls, and Eversource could utilize net-less E&S controls.

¹² Petition 1566, Eversource Responses to Spaulding Interrogatory Nos. 65 and 66 - Counterpoise is typically installed at structure locations under the outside phase conductors at a depth of 18 inches.

¹³ <u>2022 Eversource Best Management Practices MA_CT</u>

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The Project is eligible for certification through the U.S. Army Corps of Engineers (USACE) Self-Verification Notification process in regard to wetland impact. The self-verification notification forms would be submitted to the USACE - New England District prior to the start of Project construction.

At each transmission line structure location, a work pad would be constructed, if necessary, to stage material for final on-site assembly and/or removal of structures, to pull conductors and to provide a safe, level work base for construction equipment. Work pad dimensions would vary based on site specific conditions such as terrain, proximity to the existing and replacement structures, and the type of construction activities.

Work pads for structure replacements would vary in size depending on conditions. Pull pads, necessary to accommodate machinery needed for pulling conductors and/or OPGW, would typically be 120 feet by 80 feet. Most of the work pads would be composed of gravel. Temporary work pads would be used in sensitive areas such as wetlands, watercourses, and lawns.

The proposed structure foundations would be either drilled caisson foundations or have direct-embed foundations. Foundation installation work would require the use of equipment such as drill rigs, pneumatic hammers, augers, dump trucks, concrete trucks, and other trucks. If groundwater is encountered, pumping trucks or other equipment would be utilized. The water would be managed in accordance with Eversource BMPs. New structure sections, components and hardware would be delivered by flatbed truck to the structure locations for assembly using a crane, bucket trucks and excavator.

After the new structures are installed, OPGW and new conductor would be installed using conductor reels, pulling and tensioning rigs, guard trucks or structures, and bucket trucks. During crossings of the Housatonic River, new conductor and OPGW would be installed by maintaining appropriate tension and utilizing construction means and methods such as a series of pulleys and ropes to avoid contact with water beneath the span.

After the new structures/conductors/OPGW are installed 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 that are designated for removal or mitigation. 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.

Except for concrete trucks, no construction equipment or vehicle washing would be allowed in the ROW. In accordance with Eversource's BMPs, concrete truck wash-out would occur only in upland areas of the ROW (a minimum of 50 feet from wetlands) to avoid or minimize the potential for impacts to water resources. All wash-out areas would include measures to control and contain wash-water and collect the cement wash-off for off-site disposal.

Project-related traffic would be expected to be temporary and highly localized in the vicinity of ROW access points and at the staging area. 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. Construction warning signs along public roads would be installed near work sites and flaggers or police personnel would be used to direct traffic, if necessary.

Environmental Effects and Mitigation Measures

No tree clearing is required for this Project. Vegetation removal would be accomplished using mechanical methods such as flat-bed trucks, mowers, brush hogs, skidders, forwarders, bucket trucks, and chippers; or by hand. Eversource would utilize low-impact methods to remove brush vegetation in sensitive areas such as wetlands, watercourses, or state-listed species habitat areas. Vegetation removal activities would be performed in accordance with Eversource BMPs.

A total of 31 wetland areas and 18 watercourses are located along the ROW or in adjacent off-ROW areas.¹⁴ Named perennial watercourses include Little River, Sevenmile Brook, Eightmile Brook, and Housatonic River. The Project would result in approximately 705 square feet (sf) of permanent wetland impacts associated with the installation of a proposed hard bottom (stone ford) crossing of Wetland 9 (640 sf) and installation of proposed replacement Structure 19321 in Wetland 17-1 (65 sf). The Project would result in approximately 20 sf of permanent watercourse impacts associated with a permanent culvert crossing of intermittent stream S4.

Temporary wetland impacts related to Project construction matting would total 1.82 acres. Construction activities within wetlands and watercourses would be conducted in accordance with Eversource BMPs.

Vernal pool surveys were performed in late 2020 and spring 2023. One decoy pool was identified within wetland W22, but it was determined that this pool did not support characteristics necessary for successful vernal pool species breeding.

E&S controls would be inspected weekly by a qualified inspector. The Project would comply with the USACE self-verification procedures and Eversource's BMPs. In addition, the qualified inspector would be on-site to monitor environmental resource protections as established in Eversource's BMP's and within the final DEEP Natural Diversity Database (NDDB) Determination letter. An Environmental Monitor would conduct weekly inspections of resource areas for the duration of Project construction.

Invasive species mitigation measures would be conducted in accordance with Eversource's BMPs. Measures include the cleaning of temporary mats to prevent the introduction of invasive species into wetlands, the cleaning of vehicles, equipment, materials, gear, footwear or clothing of all visible soil and plant material on site known to contain invasives or as near as practical to the invasive area, prior to leaving the Project site.

The Project ROW extends across 100-year Federal Emergency Management Agency (FEMA) designated flood zones associated with the Little River,¹⁵ Eightmile Brook and Housatonic River in Oxford. Existing Structure 1434 would be replaced within the 100-year flood zone of the Little River because it cannot be moved outside of this flood zone. No other proposed structures would be installed within FEMA flood zones. Proposed temporary fill would be limited to placement of a matted access road within the 100-year flood zone of Eightmile Brook and matted access roads and work pads within the 100-year flood zones of Little River. Temporary mats, construction materials and equipment would be properly secured and removed from the flood zone immediately upon completion of construction. The proposed activities would not adversely impact the flood storage capacity of the FEMA flood zones.

The Project is not within a Public Drinking Water Supply Watershed. There are no DEEP-designated Aquifer Protection Areas within the Project ROW. Notwithstanding, to protect subsurface water quality, Eversource would conduct work in accordance with its BMPs which include provisions for the proper storage, secondary containment, and handling of diesel fuel, motor oil, grease, and other lubricants.

¹⁴ On April 12, 2024, Eversource submitted revised drawings with 7 additional identified wetlands and 5 additional identified watercourses, for a total of 31 and 18, respectively.

¹⁵ There are also 500-year flood zones associated with the Little River.

A DEEP NDDB Determination was issued for the Project on February 22, 2024. Three state-listed species may occur near the Project area. Eversource would implement DEEP recommended species-specific protection measures during construction and would include training and monitoring work areas for compliance with such measures.

Eversource also consulted with the U.S. Fish & Wildlife Service's (USFWS) 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 and state-listed Endangered Species. There are no known NLEB maternity roost trees within 150 feet of the Project area, and the nearest known NLEB hibernaculum is located approximately 14 miles to the southeast in North Branford. The USFWS has determined that the Project would have no effect on the NLEB.

Portions of the Project ROW traverse New England Cottontail (NEC) focus areas, established by DEEP, USFWS and other conservation groups to preserve NEC habitat. Eversource would implement its NEC BMPs to manage and enhance NEC habitat. Post-construction, gravel pads within the NEC focus areas would be covered with soil or processed stone and reseeded with a native seed mix. Inspections of the restored areas would be conducted to ensure the seeded areas have been established.

A Phase1A Cultural Resources Assessment (Phase 1A) identified one structure on the National Register of Historic Places (NRHP) within 500 feet of the site. The Phase 1A also identified five structures within the State Register of Historic Places (SRHP) within 500 feet of the site. Due to topography, intervening vegetation and the positions of the proposed structures relative to the documented historic places, the Phase 1A noted that the Project was not expected to adversely impact the viewshed of these NRHP and SRHP resources.

The Phase 1A identified certain locations within the ROW as having moderate to high potential for archaeological sensitivity, and thus, a Phase 1B Cultural Resources Survey (Phase 1B) was performed. The Phase 1B results resulted in reclassification of these areas as having no/low archaeological sensitivity, and no further archaeological investigation was recommended. The State Historic Preservation Office (SHPO) reviewed the Phase 1A and Phase 1B and indicated that no historic properties would be affected by the Project.

The nearest publicly-accessible recreational resource is the Town of Monroe Boat Launch on Lake Zoar. Recreational use of this public area would not be adversely affected by the proposed Project.

The Paugussett Trail, a Connecticut Blue-blazed trail, is located south of Stevenson Substation and within the Town of Monroe. An existing Eversource access road overlaps a portion of the trail. Eversource would notify the Connecticut Forest and Park Association of project activities and implement requested protection measures during the time that Eversource uses the existing access road that overlaps this public hiking trail. Recreational use of this trail would not be adversely impacted by the Project.

Disturbed areas would be stabilized using temporary E&S controls such as straw mulch, compost filters, and biodegradable erosion control blankets until final stabilization has been achieved.

The Project would require increasing the height of most of the replacement structures to meet NESC clearance requirements within the existing ROW. Existing structures to be replaced on the lines range from 80 to 113 feet above ground level. The replacement structures on the lines would range from 72 feet to 121.5 feet above ground level. This includes approximately 16 locations where structures would decrease in height from 1.5 feet to 34 feet, and approximately 25 locations where structures would increase in height from 1 foot to 40.5 feet to meet NESC clearance requirements. Thus, the average height change is approximately +5 feet. The one replacement structure that would increase in height by 40 feet or more is located adjacent to Oxford Road in Oxford (increase of 40.5 feet). The four additional structures would range from 96.5 feet to 117 feet above ground level.

Due to the increase in structure heights to comply with NESC clearance criteria, there would be indirect visual impacts to the surrounding area. The use of galvanized steel replacement structures would be consistent with the existing structures on the adjacent 1619 Line.

Public Health and Safety

There would be no permanent changes to existing ROW sound 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.

Eversource received determinations from the Federal Aviation Administration (FAA) for the proposed structures, and the proposed structures would not require lighting. Notwithstanding, as of June 20, 2024, FAA is reviewing the span across the Housatonic River at Stevenson Dam to determine if marker balls are necessary. FAA may also revisit the determinations for the two structures supporting the river crossing span and require lighting on these 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 magnetic fields (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 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*.

MF at or beyond the edges of the ROW are expected to decrease. The highest calculated MF level is 30.6 mG at the eastern edge of the ROW, well below the ICNIRP and ICES recommended exposure standards.

Construction Schedule

Construction is expected to begin in the third quarter of 2024. 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 unforeseen circumstances, delays caused by inclement weather and/or outage constraints.

Conclusion

If approved, staff recommends the following conditions:

- 1. Approval of any project changes be delegated to Council staff;
- 2. Submit a copy of the DEEP Stormwater Permit and Final DEEP NDDB determination prior to commencement of construction;
- 3. Submit the final FAA determinations and associated marker ball and/or lighting plans, as necessary, for the Housatonic River crossing prior to commencement of construction;
- 4. Incorporate pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible;

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- 5. Use net-less E&S controls to prevent wildlife entanglement; and
- 6. An environmental monitor shall oversee construction activities in sensitive resource areas that are identified in the project maps.

Project Location



Project ROW Profiles





