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Petition No. 1433
Eversource Energy
1191 Line Rebuild Project
Watertown, Thomaston, Litchfield and Harwinton
Staff Report
January 22, 2021

Introduction

On September 18, 2020, the Connecticut Siting Council (Council) received a petition (Petition) from The Connecticut Light and Power Company d/b/a Eversource Energy for a declaratory ruling, pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the proposed 1191 Line Rebuild Project within existing Eversource electric transmission line right-of-way (ROW) between the existing Frost Bridge Substation in Watertown and the existing Campville Substation in Harwinton, Connecticut, traversing Watertown, Thomaston, Litchfield and Harwinton, Connecticut. The Project consists of line reconductoring and the replacement of electric transmission line structures along approximately 10 miles of its existing No. 1191 115-kilovolt (kV) single circuit electric transmission line.

On September 23, 2020, the Council sent correspondence to the Towns of Watertown, Thomaston, Litchfield and Harwinton (Towns) stating that the Council has received the Petition and invited the Towns to contact the Council with any questions or comments by October 18, 2020. No comments have been received.

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, and therefore, November 17, 2020 was the deadline for action on this Petition. In response to the Coronavirus pandemic, on September 8, 2020, Governor Lamont issued Executive Order No. 9A that provides for a 90-day extension of statutory and regulatory deadlines for administrative agencies. Thus, the deadline under CGS §4-176(e) is extended to February 15, 2021.

The purpose of the proposed Project is to improve system reliability by replacing transmission structures and conductors that have exceed their service life. The proposed medications to the 1191 Line would be in compliance with 2017 National Electrical Safety Code (NESC).

Municipal and Abutter Notice

In July 2020, Eversource consulted with the Towns regarding the proposed project and provided a briefing on the project. In September 2020, Eversource provided representatives of the Towns and abutting and underlying property owners with written notice of the Petition filing.

During the early spring/summer of 2020, Eversource conducted outreach to property owners located along the ROW by notifying all abutting property owners of the project and providing information on how to obtain additional information, as well as how to submit comments to the Council. No comments have been received to date.

For the construction phase of the project, Eversource will inform property owners abutting the project prior to construction as well as during construction and restoration.

Existing Project Area

The existing project area is along an approximate 10-mile portion of an existing Eversource ROW that contains Line Nos. 1191 and 1854 (operating at 115-kV) for its entirety from Frost Bridge Substation to Campville Substation. Line No. 1854 is a new line on separate structures that went into service on December 16, 2017 (Docket 466). In addition, the 1191 Line shares the existing ROW with Line Nos. 1238 and 352 (operating at 115-kV and 345-kV, respectively) for approximately 2.5 miles from Frost Bridge Substation to Purgatory Junction in Watertown and Line No. 1921 (operating at 115-kV) for approximately 4 miles from Walnut Hill Junction in Thomaston to Campville Substation. The width of the existing ROW within the Project area varies from approximately 250 feet to 400 feet, with the managed portion approximately 400 feet in width between Frost Bridge Substation and Purgatory Junction, 135 feet in width between Purgatory Junction and Northfield Road in Thomaston and 180 feet in width between Northfield Road and Campville Substation. The majority of the structures supporting the adjacent lines within the same corridor are single-circuit weathering steel monopole structures.

Proposed Project

Currently, the 1191 Line is supported on a total of 104 structures, as follows: 96 wood H-frame structures, one three-pole wood structure, one galvanized steel lattice tower, three weathering steel monopole structures[1] and three weathering steel H-Frames. Many of the H-frame structures date back to 1934. The existing 556 kcmil conductor and 2/0 copper conductor on the line segment has exceeded its planned service life and has experienced a loss of strength. Eversource has determined that 97 of the 104 structures require replacement due to their age, lack of structural capacity to support the new conductors or do not meet current NESC standards.

The Project entails the following:

a. Replacement of 90 existing single-circuit wood H-frame structures with 90 new single circuit weathering steel monopoles;
b. Replacement of two existing single-circuit wood H-frame structures with two, three-pole single-circuit weathering steel monopoles;
c. Replacement of one three-pole wood structure with one new single-circuit weathering steel monopole;
d. Replacement of three existing single-circuit steel H-frame structures with three new single-circuit weathering steel monopoles;
e. Replacement of one existing lattice tower with one new single-circuit weathering steel monopole.
f. Removal of four wood H-frame structures;
g. Replacement of approximately two miles of existing 556-kcmil aluminum conductor steel-reinforced (ACSR) conductor and approximately eight miles of existing 2/0 copper conductor with 1272-kcmil 54/19 aluminum conductor steel supported (ACSS);
h. Replacement of the existing 3/8-inch copperweld shield wires with optical ground wire (OPGW) fiber communication cable;
i. Installation of lightning arrestors on approximately every fifth structure; and
j. Installation of hardware and insulators on all structures and counterpoise, as needed.

All structure replacement work would be performed within the existing ROW. No expansion of the existing ROW or maintained corridor would be required for the Project.

[1] These three existing weathering steel monopoles, Structure Nos. 3080, 3171, 3174, will remain and each structure's height is 152.5 feet, 149 feet and 149 feet, respectively.

The heights of existing structures range from 38 to 65 feet above ground level (agl). The replacement structures would range in height from 46 feet to 121 feet agl. In general, 1 replacement structure would be less than 10 feet; 5 structures would be between 10 and 20 feet taller; 17 structures would be between 20 and 30 feet taller; 46 structures would be between 30 and 40 feet taller; 20 structures would be between 40 and 50 feet taller; and 8 structures would be more than 50 feet taller. The proposed structure height increases range from approximately 10 feet to 68 feet above the corresponding existing structures in order to comply with current NESC clearance requirements.

The replacement structures would be installed approximately 10 to 20 feet from the corresponding existing structure locations.

Based on updates to NESC clearance requirements, Eversource needs to acquire permanent aerial rights to address conductor sway in the event of a blowout. Aerial rights are required between structures 3126 and 3128 and between structures 3151 and 3152 in Watertown and Thomaston. Both of these locations are on U.S. Army Corps of Engineers (USACE) property. Eversource is currently in consultation with USACE.

Project Construction and Work Procedures

Eversource and/or its contractors would utilize property located at 529 Burlington Road in Harwinton for a staging/laydown area. The staging area is approximately 7 acres in size and is located on a larger parcel of property that was historically used as an airport. The laydown area would be used to store construction equipment and host Project office trailers. Components removed during work may be temporarily accumulated and stored at the staging area prior to removal for salvage and/or disposal. The staging areas may also be used for parking, refueling and performing minor maintenance on construction equipment.

Construction access to the ROW would be from existing access roads extending from off-ROW areas or where the ROW intersects with a public road. Specific work areas within the ROW would be accessed via existing roads that extend along the ROW corridor or from new gravel roads that would be constructed for the Project. Some of the existing access roads may need to be graded, widened, and/or reinforced with additional material in order to accommodate the safe passage of construction vehicles and equipment. A minimum travel surface of 16 feet is required for construction vehicles although some road turning locations will be wider. Where access roads traverse streams and wetlands, temporary construction matting would be used to avoid significant disturbance to underlying surfaces and soils.

Construction areas (including access roads to be constructed and/or improved) would be isolated by establishing erosion and sedimentation controls in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource BMPs. Typical erosion and sedimentation controls include, but are not limited to, the use of hay bales and silt fence, straw blankets, rock construction entrances, soil and slope protection, water bars, check dams, berms, swales, plunge pools, and sediment basins. A project-specific Stormwater Pollution Control Plan would be developed for registration under the Department of Energy and Environmental Protection's (DEEP) *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*.

At each transmission line structure location, a work pad would be constructed to stage material for final on-site assembly and to provide a safe, level work base for construction equipment. Work pads for the project would typically range from approximately 110 feet by 135 feet to 125 feet by 145 feet and may be used for both installation of new structures and removal of existing structures. However, due to the existing terrain, a few select pads would require larger footprints, the largest being approximately 135 feet by 255 feet. Pull pads would have dimensions of approximately 60 feet by 80 feet. Most work pads would be graveled, though some would use temporary matting to protect sensitive resource areas such as wetlands or specific habitat areas.

Seventy-seven structures would have direct-embed foundations and twenty structures would have drilled shaft foundations. Foundation work would require the use of equipment such as mechanical excavators, pneumatic hammers, augers, drill rigs, dump trucks, concrete trucks, grapple trucks, and light-duty trucks. Excavated soils would be stored or spread in upland areas within the ROW, to the extent practicable. Materials that cannot be utilized as backfill would be disposed of in accordance with applicable regulations. If groundwater is encountered, pumping (i.e. vacuum) trucks or other equipment would be utilized. The water would then be discharged in accordance with the DEEP's General Permit, Eversource's BMPs and applicable regulations.

New structure sections and associated hardware would be delivered by flatbed truck to each work pad for assembly by crane and bucket trucks. Supplemental grounding (i.e. counterpoise) would be installed as necessary using a quad plow-cable trencher or equivalent.

New conductors and optical ground wire would be installed after the structures are installed. The required equipment would include conductor reels, conductor pulling and tensioning rigs, guard trucks/structures, and bucket trucks. Helicopters may also be used to install the pulling lines for the conductors and OPGW.

After the removal of the existing structures and the energizing of the lines, restoration of the ROW would commence and would include removal of debris, signage, temporary fencing, and construction mats/pull pads/work pads. Disturbed areas would be restored as practical and stabilized using re-vegetation or other measures prior to the removal of temporary erosion and sediment controls. Such ROW restoration would be performed in accordance with Eversource's *2016 Best Management Practices Manual for Massachusetts and Connecticut* (Eversource BMPs) and in consultation with affected property owners.

Upon completion of the Project, access roads and work/pull pads located in uplands would be left in place to facilitate future transmission line maintenance, unless the underlying property owner requests their removal or as specified on the plans.

Project-related traffic movements would be controlled by the construction contractor that would be responsible for posting and maintaining construction warning signs along public roads near work sites and for coordinating the use of flaggers or police personnel to direct traffic, as required.

Construction is expected to begin in early 2021. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. On occasion, Sunday work hours are anticipated from 9:00 a.m. to 6:00 p.m. The Towns and abutters will be provided notice of the proposed Sunday work hours. In addition, during winter, snow plowing/de-icing activities may begin as needed prior to 7 AM to ensure a safe environment for construction personnel.

Environmental Considerations

Some limited tree removal, side trimming and vegetation removal are required for the project in order to accommodate the work and to provide required safety clearances from the structures and conductors.

A total of 84 wetland areas and 55 watercourses/waterbodies occur along the ROW. Temporary impacts to 26 of these resource areas related to the use of temporary construction matting for work pads and/or access would total approximately 2.8 acres.

New foundations for 4 replacement structures would result in a permanent wetland impact of 320 square feet. In order to minimize disturbance to wetlands, existing wood pole structures would be cut six-inches above grade and left in place to minimize disturbance to the surrounding wetland areas. Project work to replace Structure No. 3102 would require relocating the structure 50 feet to the southeast to an upland area and ten feet outside the limit of a wetland. Construction activities within wetlands and over watercourses would be conducted in accordance with Eversource's BMPs.

A total of 18 vernal pools were identified and delineated along the Project ROW. All work areas are outside of mapped vernal pool limits except for existing Structure No. 3095 which is located within a vernal pool. Eversource would install approximately 117 square feet of temporary matting within the vernal pool to access and remove this structure. A new replacement Structure No. 3095 would be located in an upland area 75 feet northwest of the existing structure to avoid potential future disturbance to the vernal pool and adjacent wetlands.

Eversource would conduct work within and adjacent to vernal pools in accordance with Eversource's BMPs as well as a Project specific Vernal Pool Protective Measures. The protective measures to be used, where feasible, include, but are not limited to, avoidance and minimization of construction activities, restricting tree clearing, avoidance of removal of shrub vegetation within 25 feet of a vernal pool, use of temporary matting, and the installation of specific erosion and sedimentation control measures. Such measures may include, but not be limited to; syncopated silt fencing and/or straw wattles, and aligning erosion and sedimentation controls to avoid bifurcating vernal pool habitat.

No structures are located within either the 100- or 500-year flood zones. One pull pad is within a 500-year flood zone. Temporary matting would be used for this pull pad.

The proposed project is not located within a DEEP-designated Aquifer Protection Area, public water supply watershed lands, or any public supply reservoirs or public water supply wells.

Eversource consulted with DEEP regarding species that may be listed on the Natural Diversity Database (NDDB) within the Project area. Eversource received a determination letter from CT DEEP on July 6, 2020. Eversource will adhere to the additional recommendations and protection strategies that were identified to minimize any potential Project impacts to state-listed species.

A portion of the ROW is within NDDB buffered areas and in a New England Cottontail (NEC) focus area. In these areas, Eversource would cover the gravel work pads (12 total) with topsoil and seed the areas with native warm season grasses upon competition of construction. In addition, the size of the gravel work pads located in NEC focus areas would be reduced where feasible to minimize potential effects to NEC habitat in accordance with Eversource's 2020 NEC Best Management Practices.

Eversource 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 areas. The IPaC report indicated that one federally-listed Threatened Species and state-listed endangered species may occur in proximity to the proposed project area - the Northern long-eared bat (NLEB). There are no known NLEB maternity roost trees within 150 feet of the project area, and the nearest NLEB hibernaculum is approximately 2 miles to the west in Litchfield. Therefore, no impacts to the NLEB are anticipated.

Recreational resources near or within the Project ROW include the State-owned Mattatuck State Forest and Black Rock State Park, and federal lands (Black Rock Dam, Thomaston Dam and Northfield Brook Recreational Area) managed by the USACE, Veterans Memorial Park, Thomaston Fish and Game Club, and Naugatuck River Greenway. Eversource would coordinate with the owners or managers of these public

recreational areas to develop and implement measures to maintain public safety during Project construction, while also avoiding or minimizing short-term impacts to these recreational resources.

A Phase 1A Cultural Resource Assessment found no National or State Register of Historic Places properties/districts within 500 feet of the project work areas and therefore, no such resources would be impacted. Based on a review of historic maps, aerial photographs, and soil profiles, 13 work areas were identified as possessing a potential for moderate to high archaeological sensitivity. A subsequent Phase 1B Cultural Resource Assessment field evaluation found no evidence of archaeological significance at these locations and no further action was recommended.

There would be no permanent changes to existing ROW sound levels after completion of the Project. Construction-related noise is exempt per DEEP noise regulations. Notwithstanding, any construction-related noise would be short-term and localized in the vicinity of work sites.

The Project ROW does not cross a locally or state designated scenic roadway. However, one locally designated scenic road, Hayden Road in Harwinton, is located near the Eversource ROW. The ROW extends in a roughly north/south direction from Hayden Road and Wildcat Hill Road intersection, located approximately 180 feet west of the ROW crossing of Wildcat Hill Road and Campville Substation.

Project would not result in adverse visual effects as the 1191 Line shares an existing ROW with other transmission lines and traverses a relatively undeveloped area. Although the replacement structures would be taller than the existing structures, the structures would have a streamlined appearance and would be equal to or less than the heights of other structures within the ROW.

Magnetic Fields

The Project route already 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 world-wide. However, the International Commission on Non-Ionizing Radiation Protection (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 MF levels associated with the Project. Pre and post construction MF levels are presented in the table below.

Calculated Magnetic Fields (Average Annual Loads)

Section		Left Edge of ROW	Max in ROW	Right Edge of ROW
Frost Bridge Substation to Purgatory Junction	Existing	17.9	117.4	19.3
	Proposed	19.8	116.2	20.1
Purgatory Junction to Walnut Junction	Existing	16.6	76.2	7.7
	Proposed	34.8	57.2	6.9
Walnut Junction to Campville Substation	Existing	20.7	87.5	10.0
	Proposed	40.6	64.0	9.1

All MF values would be well below the ICNIRP exposure guideline of 2,000 mG.

Recommended Condition

If approved, staff recommends including the following condition:

1. Approval of any project changes be delegated to Council staff.

Project Location