

**DOCKET NO. 466** - The Connecticut Light & Power Company d/b/a Eversource Energy application for a Certificate of Environmental Compatibility and Public Need for the Frost Bridge to Campville 115-kilovolt (kV) electric transmission line project that traverses the municipalities of Watertown, Thomaston, Litchfield, and Harwinton, which consists of (a) construction, maintenance and operation of a new 115-kV overhead electric transmission line entirely within existing Eversource right-of-way and associated facilities extending approximately 10.4 miles between Eversource's existing Frost Bridge Substation in the Town of Watertown and existing Campville Substation in the Town of Harwinton; (b) related modifications to Frost Bridge Substation and Campville Substation; and (c) reconfiguration of a 0.4 mile segment of two existing 115-kV electric transmission lines across the Naugatuck River in the Towns of Litchfield and Harwinton within the same existing right-of-way as the new 115-kV electric transmission line.

Connecticut

Siting

Council

April 14, 2016

## **Opinion**

### **Introduction**

On December 23, 2015, The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the Frost Bridge to Campville 115-kilovolt (kV) electric transmission line project that traverses the municipalities of Watertown, Thomaston, Litchfield, and Harwinton. The project consists of (a) construction, maintenance and operation of a new 115-kV predominantly overhead electric transmission line entirely within existing Eversource right-of-way and associated facilities extending approximately 10.4 miles between Eversource's existing Frost Bridge Substation in the Town of Watertown and existing Campville Substation in the Town of Harwinton; (b) related modifications to Frost Bridge Substation and Campville Substation; and (c) reconfiguration of a 0.4 mile segment of two existing 115-kV electric transmission lines on common structures across the Naugatuck River in the Towns of Litchfield and Harwinton within the same existing right-of-way as the new 115-kV electric transmission line (Project).

### **Public Need**

The purpose of the Project is to bring the electric supply system in northwest Connecticut into compliance with applicable national and regional reliability standards and criteria by eliminating potential thermal overloads and voltage violations identified in studies conducted by the Independent System Operator in New England (ISO-NE). ISO-NE is responsible for the reliable and economical operation of New England's electric power system, which includes managing the comprehensive, long-term planning of the regional power system to identify the region's electricity needs and plans for meeting those needs.

As part of a Working Group formed by ISO-NE in 2011 to study grid reliability in the Greater Hartford and Central Connecticut (GHCC) area, analyses of transmission load capability within and between four Connecticut sub-areas, one of which was the Northwest Connecticut sub-area, were conducted. In May 2014, ISO-NE published the results of the needs assessment study, identifying the NWCT sub-area as an area that has insufficient generation and/or transmission to serve its electric load. The GHCC studies revealed criteria violations in the NWCT sub-area load pocket, determining the existing electric system is insufficient to reliably serve peak load customer demands under contingency events. The study identified failures in reliability for various transmission elements and facilities, leading to thermal overloads and voltages falling below acceptable limits. The worst-case condition was identified as the loss of two or more electric import paths into the NWCT sub-area.

In response to the identified weaknesses in the existing electric transmission system in Northwest Connecticut, in 2015, ISO-NE published the GHCC Solutions Report to address these issues. To eliminate the potential electric transmission system contingencies, the report identified the addition of a 115-kV line between Frost Bridge and Campville substations, the separation of the 115-kV lines between Frost Bridge and Campville and from Campville to Thomaston and the addition of a 115-kV breaker at Campville Substation as preferred solutions for the NWCT sub-area.

On April 16, 2015, after review of the solutions report by the ISO-NE Reliability Committee, ISO-NE issued a technical approval of the preferred solutions of the report including transmission improvements to the NWCT sub-area. The proposed Project would bring a new source of power from the Frost Bridge Substation, outside of the load pocket, to the Campville Substation, within the load pocket. This additional import source would allow for the re-distribution and supply of power into the NWCT sub-area if other electrical system elements fail.

During the Working Group's planning for a solution to the GHCC insufficiencies, Eversource considered and rejected a "no action" alternate on the grounds that doing nothing to eliminate existing and potential violations of national and regional reliability standards would be inconsistent with its obligation to provide reliable electric service. Eversource also considered several non-transmission alternatives to the proposed Project, namely: central generation, energy efficiency and energy storage. However, none of the non-transmission alternatives were cost effective or able to provide enough power to resolve the identified reliability criteria violations.

### **Project Alternatives**

In planning the specific route of its proposed 115-kV transmission circuit, Eversource wanted to find the shortest feasible route with the fewest potential environmental and social impacts. In addition to the proposed Project, Eversource reviewed two other alternative 115-kV overhead solutions as well as underground variations for the proposed Project. The alternatives and variations were found not to be cost effective and had a greater environmental and community impact than the proposed Project.

### **Project Description**

The proposed Project entails the installation of a new 115-kV electric transmission line, designated as Line No. 1304, and related improvements as listed below:

- a) modifications of the Frost Bridge Substation in Watertown;
- b) installation of a 0.1 mile 115-kV underground transmission cable exit at the Frost Bridge Substation;
- c) installation of a 10.3 mile long 115-kV overhead transmission line within existing Eversource right-of-way in Watertown, Thomaston, Harwinton and Litchfield to the Campville Substation in Harwinton and reconfiguration of existing electric transmission line support structures that span the Naugatuck River at the Litchfield and Harwinton town line; and
- d) modifications to the Campville Substation.

### ***Substations***

Modifications to both the existing Frost Bridge Substation and the existing Campville Substation would occur on property owned by Eversource. Modifications at the Frost Bridge Substation would include new equipment and structures within the existing fence line as well as new transmission structures adjacent to the substation fence. An underground transmission circuit would be installed at the Frost Bridge Substation property to connect the new overhead 115-kV line to the substation. Overhead takeoffs directly from Frost Bridge Substation were not feasible without costly modifications to the substation. Modification at the Campville Substation consists of an expansion of the substation by 0.4 acres to the east to accommodate new

equipment that will support the new 115-kV overhead transmission line. Consistent with the Council's concern regarding physical security, the Council recommends installation of a fence with less than two-inch mesh.

### ***Transmission Line***

The proposed 10.3 mile overhead transmission line would be constructed in existing Eversource right-of-way, portions of which are already cleared to support existing electric transmission infrastructure. The 2.5 mile section of right-of-way from Frost Bridge Road to Purgatory Junction (just west of Route 6), is entirely cleared and the new transmission line would be located on new monopole transmission structures located in between existing transmission lines/structures. For areas north of the Purgatory Junction, the width of the existing cleared area of the right-of-way varies as there are one or two existing transmission lines present, depending on location. Eversource would widen the cleared area of the existing right-of-way, typically 40-45 feet, to accommodate the new transmission line on monopole structures with a delta conductor configuration.

In addition to installing the new transmission line within existing Eversource right-of-way, Eversource would improve the existing transmission system by eliminating a common lattice support structure shared by two separate existing transmission lines where they cross the Naugatuck River at the Litchfield-Harwinton town line. New monopole transmission structures, one for each line on each side of the river crossing would be installed to eliminate the potential loss of both transmission lines if one of the existing lattice structures failed. The existing right-of-way in this area would be widened by 70 feet to accommodate the new structures for both the existing and proposed transmission lines.

### **Environmental**

The Project area is mainly rural in character, with scattered residential areas, an industrial area, parks, agricultural fields, extensive forested areas, and numerous water resources, including wetlands. The existing substations, right-of-way and overhead transmission lines have been a familiar part of this landscape for decades.

Work at the Frost Bridge Substation and the expansion of the Campville Substation would have little environmental effect. Some wooded areas would be cleared and graded to accommodate the new electric facilities, but both substations are well established, with the developed areas mostly surrounded by undeveloped portions of adjacent Eversource property. Although the Frost Bridge Substation is not near any sensitive visual receptors, the area where it abuts Frost Bridge Road has overgrown landscaping and areas of unhealthy trees and shrubs. The Council will require Eversource to consider landscaping at Frost Bridge Substation in the D&M Plan.

### ***Vegetation***

Transmission-line construction and maintenance requirements are established by international, federal, and regional power authorities so as to assure reliability. In general, such requirements dictate the removal of all tall-growing tree species from the ROW that could be a hazard to the transmission lines, while low-growing tree species and taller shrub species may remain in the areas outside of the conductor zones, which is the area directly below the lines to 15 feet from the most outward conductors.

Clearing of mature vegetation for the new transmission line would mostly occur north from Purgatory Junction in Watertown, through Thomaston and Litchfield, to the Campville Substation in Harwinton. Approximately 42.2 acres of forested upland and 6.7 acres of forested wetlands would be cleared within this section of the right-of-way. The remainder of the right-of-way, Frost Bridge Road to Purgatory Junction,

would include the clearing of shrub vegetation to accommodate construction work pads and related access areas. Following construction and restoration activities, the right-of-way would be monitored and controlled on a four-year vegetation management cycle. Invasive species would be discouraged from establishing in the new right-of-way area through repeated cutting or targeted removal.

The Council recognizes the proposed additional clearing in the right-of-way would alter established vegetation and associated wildlife habitats, but considers that these effects would be small, localized expansions of existing cleared areas. Conversion of more land area within the right-of-way from woodland to shrubland habitat would benefit certain wildlife species that are declining in the State and region. Old field and shrubland habitats are declining because former post-agricultural lands are either being developed or allowed to revert to second-growth woodland.

### ***Wetlands and Watercourses***

The Project route crosses 58 watercourses/waterbodies and would affect 48 wetlands and 21 vernal pools. Although Eversource intends to minimize the disturbance to these resources to the greatest extent practical, there would be impacts from construction including the restoration and widening of existing access roads traversing the right-of-way, installation of work pads, and clearing of forest within wetlands or along watercourses. The Project would temporarily affect 27 wetlands and 21 vernal pools. Three of the identified vernal pools are decoy pools that were formed from impoundment through existing access road use. Construction impacts in these areas would be minimized through the use of use of temporary construction matting or gravel on geotextile fabric. In some instances, permanent wetland impacts would occur where it is not possible to relocate an existing access road, or a transmission structure. The preliminary design for the project includes the partial filling in three different wetlands and the partial filling of one vernal pool. The Council is aware decoy pools may result in harm to amphibian fauna because they may not hold water long enough to allow amphibians to develop. The Council will order Eversource to include a measure to allow the natural removal of decoy pools by providing appropriate road drainage features.

### ***Wildlife***

Based on review of the Natural Diversity Database for state endangered, threatened or special concern species and ongoing consultations with DEEP, five state listed species were identified as potentially occurring in the Project area: wood turtle, smooth green snake, spotted turtle, northern spring salamander, and the frosted elfin butterfly. During construction, Eversource would implement DEEP-approved protection strategies for each of these species.

### ***Historic and Cultural Resources***

The Project would not affect any previously identified historic sites, archeological sites, or properties listed on the National Register of Historic Places. Eversource would conduct further subsurface archeological field investigations during final project design. If significant archeological deposits are found, Eversource would relocate temporary and permanent Project infrastructure to the greatest extent possible.

The Project would traverse several hiking and multiuse trails. Eversource would coordinate with DEEP and other managers of the affected trails to ensure public notification of construction activities and temporary closure of trails.

### ***Visibility***

The visual impact of the Project on State, Federal and Town public recreation facilities and properties would be minimal given the presence of the existing managed right-of-way adjacent to and within these areas. Most

visibility from recreational resources would be where hiking trails intersect with the existing right-of-way. Additionally, the visibility impact of the new transmission line from adjacent areas would be incremental as it is being installed within an existing right-of-way that already contains transmission line structures. To minimize the visual effect of new transmission structures and in compliance with the *FERC Guidelines for the Protection of Natural, Historic, Scenic and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities*, Eversource would install the structures in line with existing structures to the greatest extent practical. The Council recognizes Eversource's effort to minimize visibility and encourages Eversource to investigate decreasing the height of the proposed transmission line structures to the greatest extent possible as part of the D&M Plan for the Project.

One property owner, the Thomaston Fish and Game Club, requested that Eversource utilize H-frame structures for 11 structures located on or near their property to minimize the visual impact. However, since H-frames are slightly lower (14 to 18 feet) than the proposed monopole design, the lower height would require more clearing to provide adequate conductor clearance from adjacent vegetation. This clearing would widen the visual profile of the right-of-way and require clearing in a sensitive forested vernal pool that has the only known marbled salamander population in Thomaston. Given these substantial effects for a modest structure height reduction and the additional cost of \$700,000 for the H-frame installation, the Council finds the proposed monopole design with a delta conductor configuration preferable.

### **Electric and Magnetic Fields**

Included in the review of the Project's environmental impact was a review of electric and magnetic fields (EMF). The Project route traverses a corridor already occupied by transmission lines that emit EMF. In accordance with the Council's *Electric and Magnetic Fields Best Management Practices for the Construction of Electric Transmission Lines in Connecticut*, Eversource reviewed current literature to determine if there were new developments or guidelines related to EMF exposure. No changes were identified. Additionally, Eversource developed a Field Management Design Plan to investigate cost effective ways to minimize EMF levels resulting from the new transmission line. Eversource ultimately selected a monopole design from Frost Bridge Road to Purgatory Junction and monopoles with a delta conductor configuration from Purgatory Junction to Campville Substation. The delta conductor configuration in particular arranges the conductors so that EMF is mitigated through cancellation from other sources, in this case the other transmission line in the right-of-way. Upon review of the EMF data provided in the Application, the Council finds the EMF levels associated with the project to be well below recommended EMF exposure standards from research groups.

### **Conclusion**

The Council finds that there is a public need for the proposed Project as it is necessary for the reliability of the electric power supply of the state and conforms to a long-range plan for expansion of the electric power grid of the electric systems serving the state and interconnected utility systems and will serve the interests of electric system economy and reliability.

The Council has examined the policies of the state concerning the natural environment, ecological balance, public health and safety, air and water purity, and fish, aquaculture and wildlife, together with all other environmental concerns, including EMF, and balanced the interests in accordance with Conn. Gen. Stat. § 16-50p(a)(3)(B) and Conn. Gen. Stat. § 16-50p(a)(3)(C). The environmental effects that are the subject of Conn. Gen. Stat. § 16-50p (a)(3)(B) can be sufficiently mitigated and do not overcome the public need for the facility. Furthermore, the Council finds that the location of the new transmission line will not pose an undue hazard to persons or property along the area traversed by the transmission line pursuant to Conn. Gen. Stat. § 16-50p (a)(3)(E).

The Council will require Eversource to submit two Development and Management (D&M) Plans for the Project, one for work at both substations, and one for the overhead transmission line. The D&M Plans will include, among other items, provisions for municipal comment and review; detailed site plans identifying structure and equipment locations as well as temporary and permanent facilities and roadways; wetland mitigation methods for temporary and permanent effects, species protection plan upon consultation with DEEP, an erosion and sediment control plan consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*; a Spill Prevention, Control, and Countermeasures Plan; provisions for re-vegetation and maintenance of the right-of-way, provisions for inspection and monitoring of the proposed right-of-way and substation construction, and pre-construction and post-construction measurements of EMF. In order to verify consistency with the Council's Decision and Order, the Council will require the Certificate Holder to document compliance with environmental requirements and prepare periodic status reports.

With the conditions listed above, the Council will issue a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a new 115-kV transmission circuit between the Frost Bridge Substation in Watertown and Campville Substation in Harwinton and related substation and line improvements.