

DRAFT

Petition No. 1454

**The Connecticut Light and Power Company d/b/a Eversource Energy
Mansfield Substation, 140 North Eagleville Road, Mansfield, Connecticut
Staff Report
July 23, 2021**

Introduction

On May 28, 2021, 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 §4-176 and §16-50k, for the proposed modifications to Mansfield Substation located at 140 North Eagleville Road in Mansfield, Connecticut.

Mansfield Substation is located on Eversource's property north of North Eagleville Road and currently contains two 69-kilovolt (kV) transmission lines that terminate at the substation; two 69-kV/13.8-kV transformers; one 69-kV/27.6-kV transformer; two 27.6-kV distribution circuits; and six 13.8-kV distribution circuits.

On May 27, 2021, in compliance with Regulations of Connecticut State Agencies §16-50j-40, Eversource provided notice of the proposed project to the Town of Mansfield (Town) and abutting property owners.

On June 1, 2021, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the Town to contact the Council with any questions or comments by June 27, 2021. No comments from the Town were received.

The Council submitted interrogatories to Eversource on June 23, 2021. Eversource submitted responses to the interrogatories on July 6, 2021.

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, July 27, 2021 was the deadline for action on this Petition. In response to the Coronavirus pandemic, Governor Lamont issued Executive Order No. 7, as subsequently extended, 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 October 25, 2021.

Proposed Project

The project is being proposed to address reliability, aging infrastructure, transformer overloads, voltage, and distribution load serving issues in the Mansfield, Storrs, Stafford, Union, Willington, Ashford, and Rockville areas. There are currently only two 27.6-kV lines serving 10,900 customers within Mansfield, Storrs, Stafford, Union, Willington, Ashford, and Rockville. The project would increase reliability by eliminating the 27.6-kV system and replacing it with a more reliable 23-kV system, with five 23-kV lines. The existing 69-kV/27.6-kV 30 megavolt-ampere (MVA) bulk distribution transformer at Mansfield Substation is 67 years old. It would be replaced with a new 69-kV/23-kV, 62.5 MVA transformer, and a new (additional) 69-kV/23-kV, 62.5 MVA transformer would be added to the substation. The transformer addition would eliminate any overloads and increase reliability in the event that one of the two transformers is out of service.

The existing configuration is susceptible to a single transmission contingency causing an interruption of electric service to up to 7,470 customers due to lack of an alternate supply. The proposed project would address this risk by adding both a line circuit breaker on the line and a bus-tie circuit breaker in series with the existing bus-tie circuit breaker. The installation of the line circuit breaker would help prevent tripping Mansfield Substation equipment due to line faults, and the installation of the bus-tie circuit breaker would prevent a stuck breaker event from affecting all customers served by the substation. The line breaker addition would also prevent interruption of the University of Connecticut (UConn) 5P transmission substation during a permanent fault condition or planned maintenance at Mansfield Substation. Thus, the proposed modifications to Mansfield Substation would mitigate the identified contingencies and improve reliability of the transmission and distribution system. The project is identified in the March 1, 2021 Eversource Ten-Year Forecast of Electric Loads and Resources.

Specifically, Eversource proposes the following modifications to Mansfield Substation:

- a) Remove distribution equipment including, but not limited to, breakers, disconnect switches, potential transformers, and bus;
- b) Replace one 69-kV line motor-operated disconnect (MOD) switch with two 115-kV manual group operated disconnect switches;
- c) Replace two existing transformer MODs with two new 115-kV MODs;
- d) Install one 115/69¹ to 23-kV 62.5 MVA transformer to replace the existing 69-kV to 27.6-kV 30 MVA transformer and install concrete firewalls on the north and south side of the replacement transformer;
- e) Install one 115/69 to 23-kV 62.5 MVA transformer and install a concrete firewall on the east side of the new transformer;
- f) Install an Imbiber bead oil containment system for the new/replacement transformers;
- g) Install two 115-kV circuit breakers²;
- h) Install four 115-kV circuit switchers and associated steel support structures;
- i) Install 23-kV distribution metal clad switchgear approximately 75 feet long by 24 feet wide by 12 feet high;
- j) Install a new approximately 40 feet long by 25 feet wide by 14 feet high relay and control enclosure (control house);
- k) Install underground conduits and cable, foundations, lightning masts, lightning arrestors, steel bus supports, bus connections and structures, and distribution feeders;
- l) Install 69-kV temporary mobile transformer and circuit switcher for backup support during outages;
- m) Install a temporary 500-kW gasoline-fueled generator within the fenced substation to assist with testing and commissioning; and
- n) Install a single-circuit 115-kV underground line consisting of three ethylene propylene rubber (EPR) cables (or one EPR cable per phase) within polyvinyl chloride (PVC) conduits in an approximately 250-foot long duct bank within the eastern portion of the substation.

The northern portion of the fenced substation would be expanded by a new, approximately 7,665 square foot (sf) trapezoidal area (extending 51 feet to the north) to accommodate the additional transformer and other equipment. The southern portion of the fenced substation would be expanded by a new, approximately 3,420 sf trapezoidal area (extending approximately 40 feet to the south) to accommodate the control house.

¹ Eversource has no plans to upgrade the 69-kV transmission lines to 115-kV at this time.

² The circuit breakers and switches initially would be operating at 69-kV to 23-kV.

The expanded areas would be surrounded by a 7-foot tall fence with 1-foot of barbed wire on top. This new fence is similar in height to the existing substation fence. Two “L” shaped concrete retaining walls would be installed on the west side of the fenced substation. One retaining wall would be approximately 30 feet long and range from about 6 inches high to 2.5 feet high above ground level (agl) due to the grade, and it would be installed at the southwestern corner of the substation. The second retaining wall would be approximately 44 feet long and range from about 6 inches agl to 5 feet agl due to grade, and it would be installed at the northwestern corner of the (expanded) substation.

The proposed fence would be installed on top of the retaining walls in these two corners of the substation. Due to the additional height associated with the retaining wall, the top of the proposed 7-foot fence would reach a maximum height of about 11.5 feet agl (or about 12.5 feet agl with the barbed wire) in the northwestern corner of the expanded substation. A 4-foot high safety guard rail would be installed on top of the retaining walls and outside of the proposed fence.

The total estimated cost of the project is approximately \$39.89M. The entire cost would be allocated to Eversource customers because Mansfield Substation is not a Pool Transmission Facility (PTF)³.

Project Construction and Work Procedures

Eversource would utilize staging/laydown areas on UCONN property that abuts the substation. Such staging/laydown areas would be located on the southern and southeastern sides of the substation and would total approximately 39,430 sf in size. Eversource would access these staging/laydown areas from North Eagleville Road. These staging/laydown areas would be used for construction trailers, storing construction materials, equipment, tools, fuel, and supplies. A temporary fence would be installed on the southern and southeastern sides of the existing substation fence to define these areas and secure the construction equipment.

An additional laydown area would be located near UCONN’s Transfer Station and Water Pollution Control Facility at 25 LeDoyt Road, Storrs/Mansfield, approximately 0.18 mile north of the substation. This laydown area would be split into two sections: one on each side of an existing driveway. The total size of this laydown area would be 17,590 sf. This area would be used for vehicle parking and surface material storage.

Appropriate erosion and sedimentation (E&S) controls would be installed and maintained at laydown/staging areas until completion of construction in accordance with Project permitting and Eversource Best Management Practices (BMPs).

Eversource would continue to utilize existing substation access off of North Eagleville Road.

Grading would be required for the proposed expanded area on the south side of the substation. Fill would be added on the southern end of the substation, and earthwork and site grading would be performed to level the expansion area to the existing substation subgrade elevation.

Vegetation clearing for the project would be performed using mechanical methods and typically require the use of flatbed trucks, brush hogs or the equivalent, skidders, forwarders, bucket trucks for canopy trimming, feller branches for mechanical tree cutting, wood chippers, log trucks, and chip vans. Eversource would conduct vegetation removal activities in accordance with Eversource BMPs

³ Per page 22 of the 2019 ISO-NE Regional System Plan, PTFs are 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.

Environmental Effects and Mitigation Measures

The expanded areas of the substation would require the removal of about 6,000 sf of trees and vegetation on Eversource's property.

To accommodate the laydown/staging areas located off of North Eagleville Road, Eversource would remove approximately 9 dogwoods, 8 white pines, and 2 eastern red cedar trees. Eversource is working with UCONN to develop a replanting plan. The replanting plan is expected to be finalized by November 2021. The laydown area at 25 LeDoyt Road would not require tree clearing.

Wetland areas are located approximately 18 feet west of the existing substation and approximately 14 feet east of the (northern) expanded substation footprint. No direct wetland impacts would result from the proposed project. No clearing of wetland vegetation is expected. Eversource would place temporary construction matting on the wetlands to facilitate construction. This would result in approximately 2,400 sf of temporary wetland impacts. Restoration of such areas is not expected to be necessary. Notwithstanding, Eversource would monitor the area after removal of the matting and restore wetland vegetation with a New England wetland seed mix if necessary.

The project would conform to the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's Best Management Practices. Typical E&S control measures would include, but not be limited to, silt fence where ground conditions allow; otherwise, seed-free hay bales or straw wattles would be used for the project. A Stormwater Pollution Control Plan (SWPCP) would be developed for registration under a Department of Energy and Environmental Protection (DEEP) Stormwater Permit.

The temporary generator would have fuel containment mats to protect against fluid leakage. The new and replacement transformers include imbibitor bead oil containment systems.

The project is not located within a DEEP-designated Aquifer Protection Area. The project would not affect groundwater or surface water resources.

By letter dated April 8, 2021, DEEP notes that the project would not be expected to adversely impact state-listed species.

A cultural (i.e. archeological and historical) resources review was completed on April 8, 2021 by Heritage Consultants, LLC. No adverse impacts to cultural resources are anticipated to result from the proposed project.

Eversource would install additional lighting within the substation footprint for safety and security purposes. Specifically, LED task lighting would be installed on locations including, but not limited to, the existing 69-kV bay structure columns. Such task lighting would only be switched on during emergencies and/or work performed at night. LED safety lighting would be installed on the control house and on the switchgear. Such safety lighting would operate dusk to dawn. All proposed LED lighting would be pointed down.

All new equipment would be shorter than the tallest existing structure on Eversource's property. The proposed 69-kV control house would be located on the south side of the substation, parallel with North Eagleville Road, and it would not result in a significant change in views of the facility.

The proposed substation modifications/expansion are located outside of the 100-year and 500-year Federal Emergency Management Agency-designated flood zones.

Noise levels associated with construction would be temporary and typical of construction activities. Noise associated with construction activities is exempt from DEEP Noise Control Regulations. Post-construction noise levels would continue to comply with DEEP Noise Control Regulations.

Electric and magnetic field levels at boundaries of the substation property would not change as a result of the project.

Construction Schedule

If approved, construction would begin in September 2021 and be completed by the end of June 2024. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours may be necessary due to unforeseen delays such as inclement weather, or outage constraints. Additionally, evening work hours (after 7:00 p.m.) may be necessary from Monday through Saturday to complete necessary testing and commissioning (i.e. quiet work activities) within the substation during a scheduled outage.

Staff Recommendation

If approved, staff recommends the following condition:

1. Approval of any project changes be delegated to Council staff; and
2. A copy of the final planting plan for the staging/laydown areas off of North Eagleville Road be submitted to the Council.



Figure 1. Site location with staging/laydown areas off North Eagleville Road.

Figure 2. Laydown area located at 25 LeDoyt Road, Storrs/Mansfield