DRAFT

Petition No. 1459
The Connecticut Light and Power Company d/b/a Eversource Energy
Shunock Substation - 25 Pendleton Hill Road, North Stonington, Connecticut

Staff Report
October 1, 2021

Introduction

On July 21, 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 Shunock Substation located at 25 Pendleton Hill Road in North Stonington, Connecticut.

Shunock Substation is located on an approximately 5.9-acre Eversource-owned property located west of Pendleton Hill Road (Route 49). Two 115- kilovolt (kV) transmission lines (1870 Line and 1469 Line) terminate at the substation. The substation contains 115-kV, and 13.8-kV equipment.

On July 21, 2021, in compliance with Regulations of Connecticut State Agencies §16-50j-40, Eversource provided notice of the proposed project to the Town of North Stonington (Town) and abutting property owners. During outreach to the Town, the Town expressed concern about tree/vegetation removal and the proximity of work to wetlands and Spadefoot Toad habitat.

On July 27, 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 August 20, 2021. No comments from the Town were received.

The Council submitted interrogatories to Eversource on August 11, 2021. Eversource submitted responses to the interrogatories on September 1, 2021. Eversource submitted additional information on September 2, 2021.

On September 9, 2021, pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, which requires an administrative agency to take action on a petition within 60 days of receipt, the Council voted to set the date by which to render a decision on the petition as January 17, 2022, the statutorily-mandated 180-day decision deadline for this petition under CGS §4-176(i).

Proposed Project

The project is being proposed to implement a solution determined by ISO New England, Inc. (ISO-NE) in its 2029 Eastern Connecticut Reliability Needs Assessment to address low and high voltage criteria violations in the Mystic to Kent County, Rhode Island transmission line corridor. To mitigate the identified contingencies, Eversource would install a new +50/-25 megavolt ampere of reactive power (MVAR) synchronous condenser. The project is identified in the June 2021 ISO-NE Regional System Plan Project List and in the March 1, 2021 Eversource Ten-Year Forecast of Electric Loads and Resources.

Specifically, Eversource proposes the following modifications to Shunock Substation:

a) Install one +50/-25 MVAR synchronous condenser;
b) Install five manually operated disconnect switches;
c) Install three circuit breakers;
d) Install one 115-kV to 13.8-kV, 50- megavolt ampere transformer;
e) Install three 115-kV capacitor coupled voltage transformers;
f) Install one relay and control enclosure for protection and control equipment (15 feet wide by 40 feet long, by 12 feet in height);
g) Install one enclosure for the synchronous condenser and associated 13.8-kV switchgear equipment (56 feet wide by 50 feet long by 38 feet in height);
h) Install two outdoor heat exchangers;
i) Install two 13.8-kV, 1.5-MVA station service transformers;
j) Install a new below grade raceway between the new equipment and the existing enclosure and synchronous condenser;
k) Install primary and backup relaying, battery systems and protection panels;
l) Expand the substation by approximately 34,168 square feet and install a concrete retaining wall;
m) Relocation and replacement of Structure 7867;
n) Install lightning protection;
o) Install an underground drainage system and an associated infiltration basin; and
p) Install task and security lighting around the synchronous condenser and circuit breaker.

The substation would be expanded to the south and east on Eversource's property. The expansion area would be enclosed by a seven-foot tall chain link fence (1¼ inch mesh) with one-foot of barbed wire on top, consistent with the existing substation fence. To facilitate the expansion, Structure 7867, a wood three pole structure on the 1870 Line, would be relocated approximately 10 feet to the southwest and replaced with a weathering steel three-pole structure that is 10 feet taller than the existing structure.

The total estimated cost of the project is approximately $43.8M. Of the total, $2.0M is associated with distribution facilities and would be recovered by Eversource customers. The remaining costs would be regionalized pending a review by ISO-NE but it is anticipated costs would be allocated as follows: Eversource customers - 22.6%; other Connecticut customers - 5.5%; and other New England customers - 71.9%.

Project Construction and Work Procedures

During construction, Eversource would utilize the existing substation access drive that extends west from Pendleton Hill Road. Eversource would stage materials within the existing substation yard. Equipment, components and hardware would be delivered to the substation using flatbed and light duty utility trucks. New substation components would be either pre-assembled or assembled on-site prior to installation.

The expansion area would be cleared and graded followed by installation of a 390-foot long, 0.05 foot to 22.5 foot high retaining wall. After component installation, disturbed areas within the substation would be backfilled and graded with crushed stone.

Environmental Effects and Mitigation Measures

Construction of the expansion area would require 0.46 acres of tree and shrub clearing.

Construction would conform to the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's Best Management Practices. Typical erosion and sediment control (E&S control) measures include, but are not limited to, straw blankets, hay bales, compost filter socks, silt fencing and gravel anti-tracking pads. Following completion of construction, seeding and mulching or finished surface treatments would be completed to permanently stabilize the areas disturbed by the work outside of the substation fence. Temporary E&S control measures would remain in place until project work is complete and all disturbed areas have been stabilized.

No wetlands or Federal Emergency Management Agency-designated 100 year/500-year flood zones are within the expansion area. The nearest wetland is approximately 160 feet west of the project area.

The project is not located within a Department of Energy and Environmental Protection (DEEP)-designated Aquifer Protection Area. The project would not affect groundwater or surface water resources.

The Project would disturb greater than one acre of land, and thus, pursuant to CGS Section 22a-430b, a DEEP-issued Stormwater Permit would be required prior to commencement of construction. Eversource filed for a stormwater permit on August 3, 2021. Subject to the stormwater permit approval, Eversource would install an underground drainage system in the expansion area that would discharge to a vegetated stormwater infiltration basin located south of the expansion area.

According to the DEEP Natural Diversity Database, no state-listed species are within the project area. Spadefoot toads are known to occur in the North Stonington area. Eversource assessed the Project area and determined the site does not contain suitable spadefoot toad habitat.

The project is located within a New England Cottontail (NEC) Habitat/Focus Area. Work Activities would be performed in accordance with Eversource's NEC Best Management Practices.

A Phase 1A Cultural Resources Assessment of previously recorded archaeological and historical resources was completed in March 2021. One previously recorded archaeological site is within the existing substation footprint but subsequent field investigations determined it was not eligible for listing on the National Register of Historic Places. Two other previously recorded archaeological sites within 500 feet of the substation would not be impacted by the project. In April 2021, a field review of the expansion area was conducted that determined there were no areas of archaeological significance and no further surveys were recommended. Results of the studies were sent to the Connecticut State Historic Preservation Office.

The Substation expansion area would be visible from Pendleton Hill Road. To reduce visibility of the substation expansion area from the road, Eversource, in consultation with the Town, would develop a visual mitigation plan.

The new equipment is similar in appearance to existing substation equipment. The replacement transmission structure is 80 feet tall, 10 feet taller than the existing structure. The new synchronous condenser enclosure would be 38 feet in height.

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. Noise modeling of the new equipment indicates post-construction noise levels would comply with DEEP Noise Control Regulations at the property lines for a Class C emitter (utilities) to a Class A receptor (residential). Once operational, project sound levels at the property boundaries would be no greater than 52 dBA at the commercial property boundaries and no greater than 46 dBA at the residential property boundaries, below the noise control standard of 51 dBA for residential nighttime.

Electric and magnetic fields (EMF) levels at the boundaries of the substation property would not change as a result of the project.

Construction Schedule

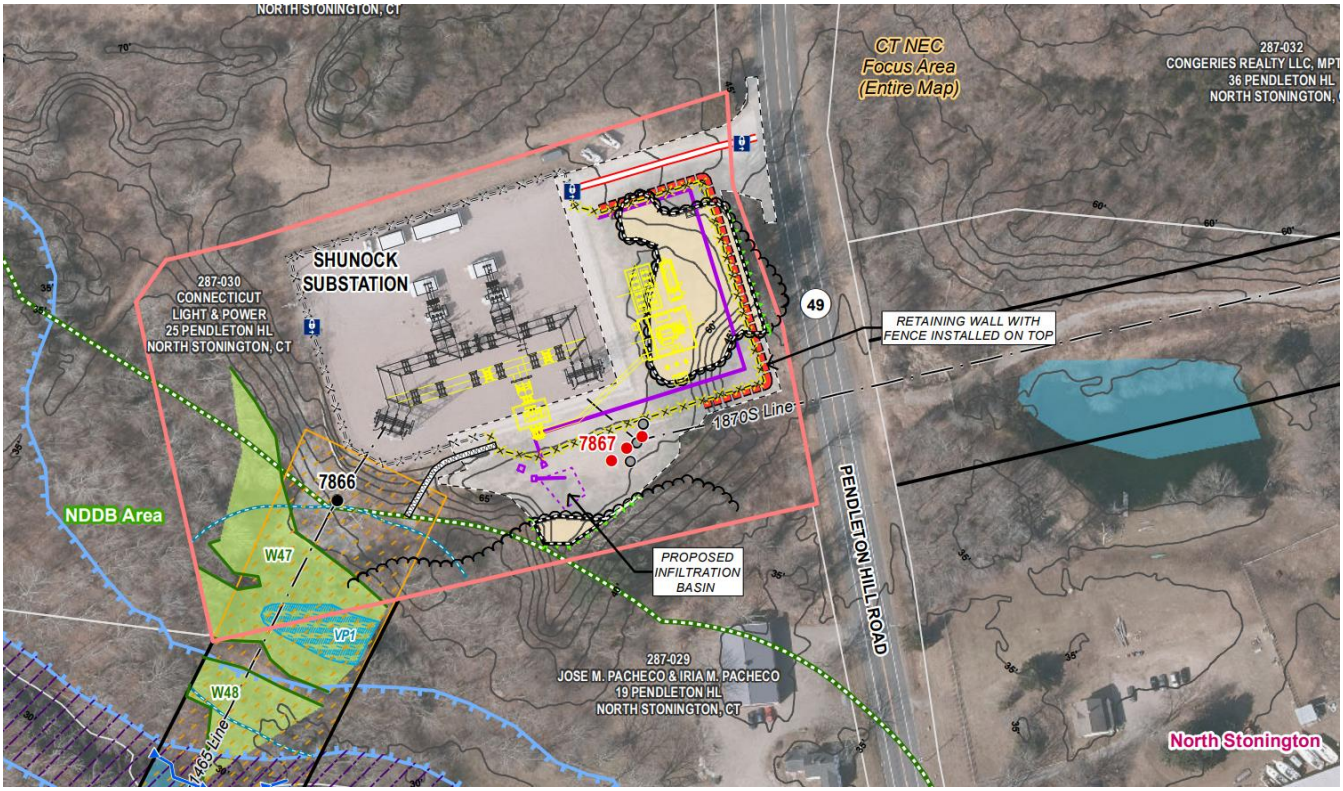
If approved, construction would begin in November 2021 and would be completed by June 2023. Substation expansion is projected to begin in December 2021 and conclude in March 2022 and includes construction of the retaining wall and relocation of Structure 7867. Construction for the ring bus is expected to begin in March 2022 and continue through December 2022. Installation of the condenser equipment and enclosure would begin in May 2022 and continue through March 2023. Testing and commissioning will be completed in April 2023. Site restoration would be completed by June 2023.

Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday and/or evening work hours (after 7:00 p.m.) may be necessary to maintain the construction schedule or to perform work during scheduled outages.

Staff Recommendation

If approved, staff recommends the following conditions:

1. Approval of any project changes be delegated to Council staff; and
2. Submit a copy of the final visual mitigation plan.



Legend

- Proposed Structure
- Existing Structure to be Removed
- Existing Structure
- Overhead Eversource Line
- Tree Line (trunk line)
- Proposed Tree Line
- Tree Clearing
- Gate
- Existing Fence
- Fence for Substation Expansion
- Existing Substation Equipment
- Proposed Substation Equipment Additions/Upgrades
- Access Road to be Improved
- Proposed Retaining Wall
- Proposed Underdrain/Drainage System
- Proposed Infiltration Basin
- Limit of Disturbance for Substation Expansion
- Delineated Wetland Boundary Outline
- Field Delineated Wetland
- Approximate Wetland (not delineated)
- Open Water
- Confirmed Vernal Pool Extent
- 100' Vernal Pool Envelope
- Delineated Intermittent Watercourse
- Delineated Perennial Watercourse
- Existing Riprap Swale
- Natural Diversity Database Area (6/2021)
- NE Cottontail Focus Area
- Suitable Spadefoot Habitat/Limit of Survey
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Parcel Boundary
- Eversource Owned Property
- 5' Contour Line

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