

DRAFT

Petition No. 1484
The Connecticut Light and Power Company d/b/a Eversource Energy
Gales Ferry Substation
301 Whalehead Road, Ledyard

Staff Report
March 18, 2022

Introduction

On February 3, 2022, 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 Gales Ferry Substation located at 301 Whalehead Road in Ledyard, Connecticut.

Gales Ferry Substation is a 69-kV to 13.8-kV substation on an approximately 2.2-acre Eversource-owned property located east of Whalehead Road. Currently, the substation contains two 69-kV to 13.8-kV transformers, two 69-kV transmission circuits and five 13.8-kV distribution circuits.

On February 3, 2022, in compliance with Regulations of Connecticut State Agencies (RCSA) §16-50j-40, Eversource provided notice of the proposed project to the Town of Ledyard (Town) and abutting property owners. No comments from the Town or abutters were received.

On February 4, 2022, 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 March 5, 2022. No comments from the Town were received.

The Council submitted interrogatories to Eversource on February 22, 2022. Eversource submitted responses to the interrogatories on March 15, 2022.

On February 23, 2022, the Council on Environmental Quality submitted comments on the proposed project recommending Eversource coordinate with the Town and/or the Department of Energy and Environmental Protection (DEEP) on a restoration plan for permanent and temporary impacts to wetlands.¹ Under CGS §16-50x, the Council retains exclusive jurisdiction over the existing substation facility. The Council cannot delegate its statutory authority to any other entity and it is not required to abide by comments from state agencies.²

The purpose of the proposed project is to facilitate the conversion of the 100 Line and 400 Line³ from 69-kV to 115-kV, thereby improving transmission system reliability in the greater southeast Connecticut - Rhode Island area.

¹ Under RCSA §16-50j-40, neither the petitioner 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.

² *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

³ Conversion of the 100 Line and the 400 Line to 115-kV lines was approved by the Council on February 22, 2022 in Petition 1475.

In November 2021, Eversource consulted with representatives of the Town and conducted outreach to abutting property owners. Eversource would continue to conduct outreach during construction.

Proposed Project

The project is being proposed to implement part of a solution determined by ISO New England, Inc. (ISO-NE) to address low and high voltage criteria violations in the Mystic to Kent County, Rhode Island transmission line corridor identified by the 2027 Eastern Connecticut Reliability Needs Assessment and the Eastern Connecticut 2029 Solutions Study. Eversource would convert both the 100 Line and 400 Line from 69-kV to 115-kV to mitigate the identified contingencies. To facilitate the upgrade of the two lines, Eversource would convert the Gales Ferry substation from 69-kV to 115-kV. The conversion of the substation would require an expansion of the substation footprint by 4,800 square feet.

The project is identified in the October 2021 ISO-NE Regional System Plan Project List.

To convert the substation from 69-kV to 115-kV, Eversource proposes the following modifications:

- a) Replace two 69-kV to 13.8-kV transformers (1X & 2X) with two new 115-kV to 13.8-kV 63-MVA transformers;
- b) Replace the 115-kV SF6 Breakers (1X1 and 2X1) with two new 115-kV 3000A 40kA-switchers;
- c) Replace the existing bus and truss structure to meet thermal ratings and electrical clearance distances;
- d) Install two new 115-kV transmission terminal structures and associated equipment, one to terminate the 100 Line and the other for the 400 Line;
- e) Install a new 115-kV bus tie breaker and the associated manual disconnect switches for the 100 and 400 Lines
- f) Install a new battery enclosure (approximately 36 feet long by 14 feet wide and 12.5 feet tall) and related equipment;
- g) Install new equipment within the existing control enclosure;
- h) Expand the substation by approximately 4,800 square feet primarily to the east to accommodate the new equipment;
- i) install lightning protection for new or modified equipment;
- j) Install a ground grid where necessary;
- k) Install new station services and a new 13.8-kV metal clad double bus switchgear;
- l) All of the existing equipment would be removed from the substation except for the control enclosure. The equipment to be removed includes one 69-kV bus tie breaker; six 69-kV line CCVTs; six 69-kV line arresters; six 69-kV disconnect switches; two 69-kV circuit breakers; two 69- 13.8-kV Power Transformers; two 13.2-kV station service transformers; one 13.2-kV switchgear; and nine 13.2-kV regulators.

Most of the proposed project is located within the existing, fenced substation footprint, except for the 4,800 square foot expansion area. Most of the expansion area is to the east of the existing substation where the fence would be extended by approximately 30 feet. In addition, a portion of the north fence line and the south fence line would be expanded by approximately 7 feet.

The expansion area would be enclosed by a seven-foot high chain link fence and one foot barbed wire on top, consistent with the existing substation fence. Eversource would install lighting within the expanded substation footprint for safety and security purposes.

The existing substation fence is 20 feet from the properties to the south at 28 Ferry View Drive and 303 Whalehead Road. The expansion of the substation would relocate the fence line so that it is five feet from 28 Ferry View Drive and 22 feet from the southwest corner of the expansion area to 303 Whalehead Road.

The expansion to the south is necessary avoid encroaching on the 100 year flood zone to the east as well as reducing permanent wetland impacts.

The substation expansion would require a temporary 115- to 69-kV mobile transformer to address a single contingency line loss risk during the duration of the outages required for construction of the Substation modifications. The temporary transformer would be installed on Eversource property north of the existing substation. It would be connected to the existing substation via above ground and below ground temporary cables. A temporary wood pole would be installed east of the temporary transformer. A seven-foot high chain link fence with one foot barbed wire on top would enclose the temporary transformer area (approximately 4,000 square feet).

The total estimated cost of the project is approximately \$36M. Of this total, approximately \$13.1M is associated with Pool Transmission Facilities (PTFs)⁴ and approximately \$22.9M is associated with Non-PTFs. Costs associated with PTFs are eligible for regionalization. Pending a final determination from ISO-NE, total costs are expected to be allocated⁵ as follows:

Eversource Connecticut ratepayers ⁶	70.6%	(\$25.41M)
Other Connecticut ratepayers ⁷	2.1%	(\$ 757k)
<u>Other New England ratepayers⁸</u>	<u>27.3%</u>	<u>(\$9.82M)</u>
Cost Total	100%	(\$36M)

Project Construction and Work Procedures

During construction, Eversource would utilize the existing substation access drive extending from Whalehead Road. Eversource would stage materials on the substation property. 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 substation expansion area would be cleared and graded. After component installation, disturbed areas would be backfilled and graded with crushed stone.

An approximate 495-foot long retaining wall would be constructed along the limits of the substation expansion area (95 feet on north side, 125 feet on south side, 175 feet on west side). The retaining wall would vary height from 4 to 14 feet. The new compound security fence would be installed on top of the retaining wall. The use of a retaining wall would eliminate the need for additional filling and wetland impact that would be required if graded, rip rap slopes were used.

⁴ ISO-NE defines PTFs 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.

⁵ These allocations are estimates based on 2021 actual loads.

⁶ Electrical service customers of Eversource and located within Connecticut.

⁷ Electrical service customers located within Connecticut but outside of Eversource's service territory.

⁸ Electrical service customers located within New England but outside of Connecticut.

Environmental Effects and Mitigation Measures

Construction of the expansion area would require the removal of approximately 4,667 square feet of trees and vegetation beyond the existing compound fence. Approximately 21 trees with a diameter of six inches at breast height would be removed for the Project.

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.

A wetland is located to the north and east of the existing substation. The expansion of the substation would result in 4,745 square feet of permanent wetlands effects, primarily to the east of the existing substation fence line. Approximately 6,660 square feet of temporary wetland impact would occur using construction matting to the north and east of the substation expansion area. Temporary matting in the wetland within the adjacent ROW was approved by the Council in Petition 1475 (38,562 square feet) for structure replacements and work on the 1410, 100, 400 and 1280 Lines. This temporary matting would remain in place during the Project to support the temporary transformer and to provide construction space.

The existing wetland in the Project area would not provide high-quality wildlife habitat as it is dominated by Phragmites, an invasive species. The Project is eligible for certification through the Army Corps of Engineers/DEEP Self-Verification Notification Form process in regard to wetland impact. Part of the self-verification process includes a provision to use clean temporary matting to prevent the spread of invasive species.

The Project would partially affect a Federal Emergency Management Agency-designated 100-year flood zone associated with Pine Swamp through the installation of approximately 22,798 square feet of temporary matting to facilitate construction. The temporary matting would be secured to prevent movement during a flooding event. No permanent fill would be imported into the flood zone. The substation expansion area itself is not within the 100-year flood zone. The existing substation has not experienced any flooding. Flooding of the new substation area is not expected.

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

According to the DEEP Natural Diversity Database, no state-listed species are within the project area.

A Phase 1A Cultural Resources Assessment of previously recorded archaeological and historical resources was completed during April 2021. A subsequent Phase 1B field survey of substation expansion area was completed in November 2021 that determined no cultural resources would be impacted by the Project. The State Historic Preservation Office issued a letter on November 9, 2021 concurring with the survey results and no further action is recommended. Notification of the Project was sent to the Tribal Historic Preservation Offices of the Mohegan Tribe of Native Americans of Connecticut and the Mashantucket Pequot Tribal Nation for review.

The overall visual impact of the project would be minimal as the site has been used as a substation since 1967. The new equipment within the substation is similar in appearance to existing substation equipment that will be replaced. The tallest structures within the new substation fence line are two terminal structures which will be approximately 67.8 feet in height. Existing transmission structures within the ROW abutting the north side of the substation are of similar height. Open views of the substation would occur from Whalehead Road due to the presence of the maintained ROW as well as the location of the substation access drive which prevents the location of screening vegetation.

Landscaping could only be installed in the southwest corner of the expanded substation. There is not enough room to install landscaping along the south edge of the substation due to limited space (5 feet).

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. Although the new equipment emits noise, noise levels, post-construction noise levels would comply with DEEP Noise Control Regulations (Class C [Utilities] emitter to Class A receptor [residential] 61 dBA day/51 dBA night)⁹.

Electric and magnetic fields (EMF) levels at boundaries of the substation property would not significantly increase as a result of the Project. Changes to EMF levels are primarily a result of a slight change in the location of the substation terminal structures for the 100 Line and the 400 Line within the adjacent ROW.

Construction Schedule

If approved, construction would begin in the second quarter of 2022 with completion by June 2023. Normal work hours would be Monday through Saturday from 7:00 AM to 7:00 PM. Sunday and/or evening work hours (after 7:00 PM) may be necessary to maintain the construction schedule or to perform work during scheduled outages.

Conclusion

If approved, staff recommends the following condition:

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

⁹ Department of Environmental Protection, Noise Control Regulations [Layout 1 \(ct.gov\)](#)

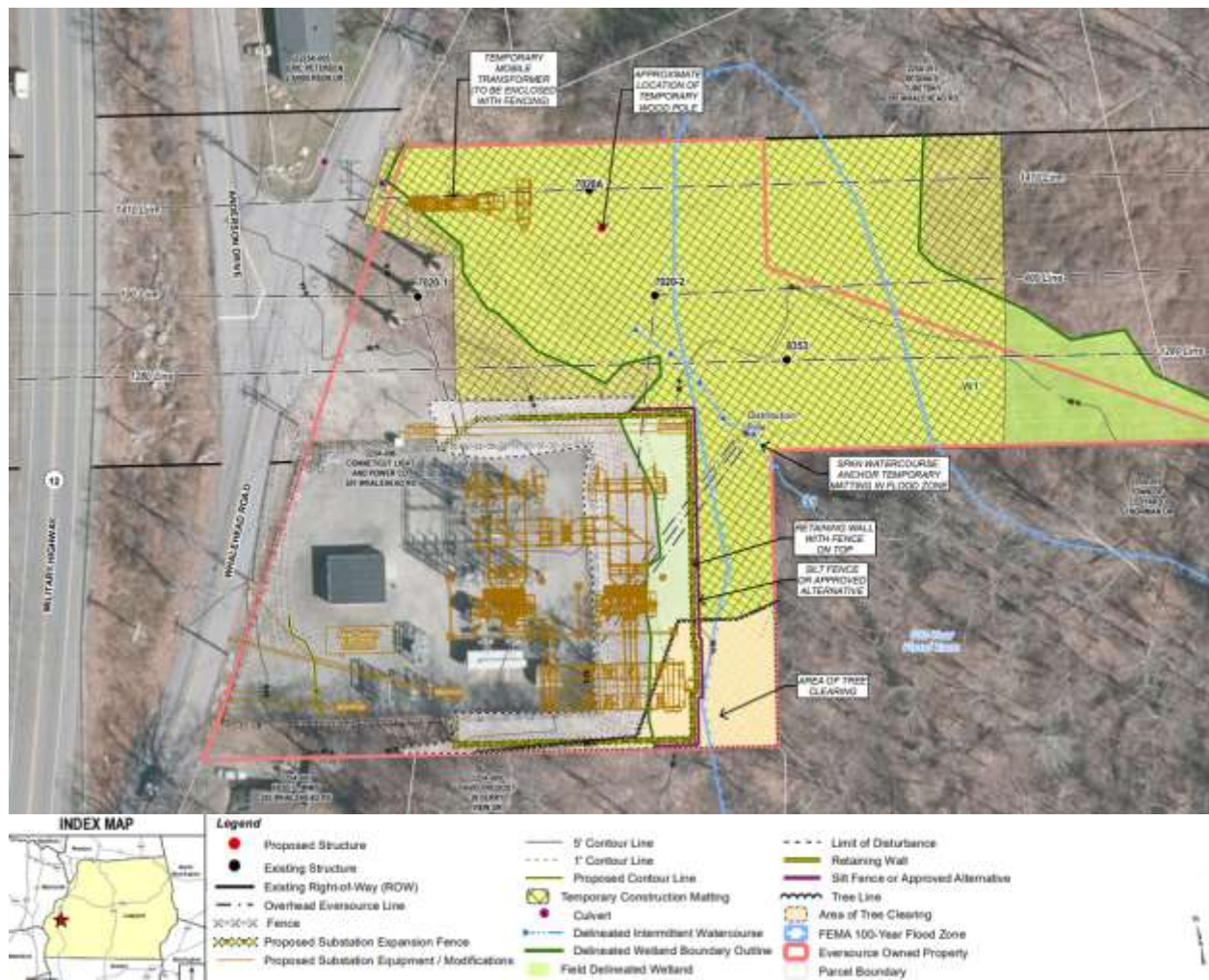


Figure 1. Aerial View of proposed substation layout.