STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 27, 2016

Kathleen M. Shanley
Manager-Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06141-0270

RE: **PETITION NO. 1226** – Eversource Energy petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction, maintenance and operation of the new 115-kV Towantic Switching Station to be located adjacent to the Towantic Generating Station on Woodruff Hill Road, Oxford, Connecticut and the proposed modifications within existing right-of-way to its existing 1575 and 1585 115-kV electric transmission line extending 6.1 miles from Bunker Hill Substation, located at Clough Road, Waterbury, south through Middlebury to the proposed Towantic Switching station and reconductoring of its existing 1575 115-kV electric transmission line extending one mile from the proposed new switching station south to Structure 1446 (Oxford Tap) located near the Oxford Substation, Commerce Drive, Oxford.

Dear Ms. Shanley:

At a public meeting held on May 26, 2016, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need, with the following conditions:

1. The Petitioner shall file the locations of the laydown and staging areas with the Council for staff approval prior to utilizing such areas in constructing the project;

2. The Petitioner shall file the locations of any new off of the right-of-way access that would need to be constructed;

3. The Petitioner shall file any substation modifications outside of the control houses as Energy Exempt Modifications or a Petition Amendment/Modification for review and approval, as applicable;

4. The Petitioner shall file an implosion connection plan with the Council if applicable;

5. The Petitioner shall file the applicable FAA Forms 7460-1 with the Council;

6. The final FAA determinations for permanent transmission structures and temporary construction equipment shall be provided to the Council;

7. If FAA hazard lighting and/or marking or modifications are required, Eversource shall file a Petition Amendment/Modification for Council review and approval for such modifications;

8. Authorization to change work hours is delegated to Council staff;

9. The structures located within the 100-year flood zone shall be designed to withstand inundation;

10. The Petitioner shall coordinate work to minimize the impact on the Western Hills Golf Course and the Larkin State Park Trail;

11. The Petitioner shall implement protective measures for Natural Diversity Database wildlife in consultation with the Connecticut Department of Energy and Environmental Protection;

12. The Petitioner shall implement Vernal Pool Protection Measures identified in the May 2016 Vernal Pool Assessment Report;

13. The Petitioner shall provide drawings incorporating an all underground transmission connection scheme from Towantic Switching Station to the #1575, #1585, and #1990 overhead lines to the west including, but not limited to, the turning structures and duct banks in the right of way, associated riser structures and other related switching station equipment and any wetland impacts, and an explanation as to why this is or is not being implemented and whether or not this is a feasible engineering design;

14. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

15. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Towns of Waterbury, Oxford and Middlebury;

16. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

17. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

18. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

19. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated April 6, 2016 and additional information dated May 12, 2016 and May 17, 2016.

Enclosed for your information is a copy of the staff report on this project.
Very truly yours,

Robert Stein MMB

Robert Stein
Chairman

RS/MP/lm

Enclosure: Staff Report dated May 26, 2016

c: The Honorable Neil M. O'Leary, Mayor, City of Waterbury
Joseph A. Geary, Chief of Staff, Mayor's Office, City of Waterbury
James A. Sequin, AICP, City Planner, City of Waterbury
The Honorable Edward B. St. John, First Selectman, Town of Middlebury
Curtis S. Bosco, Planning and Zoning Chairman, Town of Middlebury
The Honorable George R. Temple, First Selectman, Town of Oxford
Steven S. Macary, Zoning Enforcement Official, Town of Oxford

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Petition No. 1226
The Connecticut Light and Power Company d/b/a Eversource Energy
Waterbury, Middlebury and Oxford, Connecticut
Staff Report
May 26, 2016

Introduction

On May 14, 2015, the Connecticut Siting Council (Council) approved a modification of the June 23, 1999 Certificate of Environmental Compatibility and Public Need to CPV Towantic, LLC (CPV) for the construction, maintenance and operation of a 785-megawatt dual-fueled combined cycle electric generating station to be located off of Woodruff Hill Road in Oxford. On September 4, 2015 and September 18, 2015, the Council approved both portions of CPV's Development and Management Plan for the power plant project. CPV began construction of the project on or about December 24, 2015. However, in order to connect the plant to the grid, an on-site switching station and transmission connections to the existing transmission lines in the right-of-way to the west of the power plant site would be required. The proposed switching station and connection to the transmission system would be owned and operated by The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource). Eversource was not a co-applicant in CPV's project and therefore, in its decision on the CPV project, the Council required Eversource to file this petition for a declaratory ruling for the electrical interconnection and associated upgrades to the adjacent existing 115 kilovolt (kV) lines required to accommodate the CPV plant.

Accordingly, on April 6, 2016, the Council received a petition (Petition) from Eversource for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction of a new switching station for the approved Towantic Generating Station in Oxford and for the associated modifications to existing 115-kV transmission facilities located within the existing right-of-way in the Towns of Middlebury and Oxford and the City of Waterbury. This proposed project is currently identified in the March 2016 ISO New England Inc. (ISO-NE) Regional System Plan Project List (2016 RSP Project List) with an estimated in-service date of June 2018.

Specifically, the proposed project would have the following components:

a) Install the switching station and turning structures;

b) Rebuild the 1575N and 1585N lines from Bunker Hill Substation to Towantic Switching Station; and

c) Reconductor the 1575S line from Towantic Switching Station to Oxford Tap.

Switching Station and Turning Structures

Eversource seeks to install the new Towantic Switching Station (Towantic SS) on the CPV property located off of Woodruff Hill Road. It would be considered a switching station rather than a substation because it would not contain the generator step-up (GSU) transformers. The GSU transformers are part of CPV's approved project and are located outside of the switching station. The proposed fenced Towantic SS would be approximately 1.65 acres in size with maximum dimensions of approximately 287-feet measured in a north-south direction and approximately 274 feet measured in an east-west direction. Towantic SS would have a 7-foot chain link fence with 1 1/4-inch mesh as an anti-climbing measure. The interior of Towantic SS would be crushed stone.

Immediately to the north of Towantic SS will be a CPV stormwater detention pond. To the east will be CPV's gas metering station and auxiliary cooling system fin fan cooler. To the south will be CPV's GSU transformers. To the west is the Eversource transmission line right-of-way. Within the right-of-way, there are currently two parallel sets of 115-kV transmission structures. One set of structures carries the #1575 and #1585 lines on existing double-circuit steel lattice structures. The other set of structures supports the #1990 line on galvanized steel monopole structures.

Towantic SS would include fourteen 115-kV circuit breakers arranged in a breaker-and-a half configuration. Additional components include: 115-kV line terminals; 115-kV generator lead terminals; capacitive-coupled voltage transformers; station service voltage transformers; motor operated disconnect switches; manually operated disconnect switches; wave traps; surge arresters; and a relay and control building with dimensions of 68 feet long by 28 feet wide by 13 feet high. The switching station would also include a station battery, supervisory control and data acquisition equipment, digital fault recorder, and relay and control panels.

The tallest proposed structures within the fenced switching station would be the line terminal structures, which would be approximately 70 feet above grade, with a 10-foot high lightning mast on the top of each of these structures.

Towantic SS would have a primary access drive and a secondary access drive. The primary access drive would utilize CPV's approved paved Plant Access Road that will connect to Woodruff Hill Road immediately to the north of Algonquin Gas Transmission, LLC's access road. The total distance from Woodruff Hill Road to Towantic SS via this route is approximately 1,500 feet. There is also existing gravel access from the Woodruff Hill Road cul-de-sac to the Towantic SS site. This would become the secondary access to Towantic SS and would have a total length of about 620 feet.

Towantic SS would split the three existing 115-kV transmission lines into six via six transmission connections. The six transmission connections to Towantic SS are listed as follows:

a) Overhead connection to transmission line #1990 headed north i.e. #1990N
b) Overhead connection to transmission line #1990 headed south i.e. #1990S
c) Overhead connection to transmission line #1585 headed north i.e. #1585N
d) Underground connection to transmission line #1585 headed south i.e. #1585S
e) Overhead connection to transmission line #1575 headed north i.e. #1575N
f) Underground connection to transmission line #1575 headed south i.e. #1575S

The overhead transmission connections would enter the central and northern portions of Towantic SS. The transmission connections proposed to connect to the southern portion of Towantic SS would be underground because connections to #1585S and #1575S must cross #1990S to reach Towantic SS. Eversource considered an "All Overhead" connection scheme (for all six connections), but the underground solution for the #1585S and #1575S connections was selected by Eversource as a more reliable way to implement crossing, as opposed to an "All Overhead" solution.

Eversource also considered an "All Underground" connection scheme (for all six connections), but found that it is not feasible due to physical space constraints within Towantic SS. Specifically, there would not be adequate space within Towantic SS to accommodate four additional underground riser structures that would be required to install four more underground connections to the transmission lines.

Six new transmission structures would be installed in the existing right-of-way to connect Towantic SS to the transmission lines. Two approximately 90-foot galvanized steel riser poles would be required to make the two underground transmission connections. Four approximately 90-foot galvanized steel monopole structures would be required to make the four overhead connections. These new structures would be comparable in height to the existing 81-foot lattice structures to be replaced. (See next section.) The new structures would also be comparable in height to the existing 100-foot steel monopole structures to remain.

Rebuilding 1575N and 1585N Lines from Bunker Hill Substation to Towantic SS

Eversource seeks to rebuild approximately 6.1 miles of existing double-circuit 115-kV #1575N and #1585N lines from Bunker Hill Substation (located at Clough Road in Waterbury) to the proposed Towantic SS. The #1575N line conductors from Bunker Hill Substation to Baldwin Tap (located off of Baldwin Street in Waterbury) would be upgraded from 556-kcmil Aluminum Conductor Steel Reinforced (ACSR) to 556-kcmil Aluminum Conductor Steel Supported (ACSS). The #1575N conductors from Baldwin Tap to Towantic SS would be upgraded from 556-kcmil ACSR to 1272-kcmil ACSS. The #1585N conductors from Bunker Hill Substation to Baldwin Tap would be upgraded from 4/0 copper to 1272-kcmil ACSS. The #1585N conductors from Baldwin Tap to Towantic SS would be upgraded from 556-kcmil ACSR to 1272-kcmil ACSS. Shield wire would be replaced with optical ground wire (OPGW) and half-inch Alumoweld shield wire.

Eversource would replace 49 existing double-circuit (#1575N & #1585N) steel lattice transmission structures with 49 new double-circuit galvanized steel monopoles with davit arms within the western portion of Evesource's right-of-way. Eversource has determined that it is not necessary to separate the #1575 and #1585 lines onto single-circuit structures. This is based on a review of these circuits and a determination that they comply with the system reliability standards set forth by the North American Electric Reliability Corporation (NERC), the Northeast Power Coordinating Council (NPCC) and ISO-NE.

Four additional new galvanized monopole structures would be added along the #1575/#1585 lines, as well as two new structures at Baldwin Tap. The four new transmission structures are needed to reduce span lengths between the structures to comply with the most current Eversource and National Electric Safety Code clearance standards to the edge of the right-of-way for wind displaced conductors. The new structures at Baldwin Tap are necessary to facilitate construction sequencing associated with scheduled line outage availability.

Galvanized steel monopoles match the structures of the #1990 Line Structure Replacement Project (i.e. Council Petition No. 1058) and were the preferred design by the City of Waterbury and abutting property owners.

The existing double-circuit lattice structure heights range from 75 to 135 feet. The proposed structure heights would increase slightly and range from 90 to 126 feet. The need for increased structure heights is due to the following factors:

a) Larger and heavier conductors are required to accommodate the required electrical ratings;
b) Increased operating conductor temperatures, as dictated by new design guidelines (i.e. optimizing conductor performance) result in an increase in sag;

c) Revised National Electric Safety Code clearance requirements and updated Eversource design standards for the design/construction of new lines (e.g. clearances to ground, parking lot lights, etc.); and
d) Maintaining similar structure locations (e.g. larger sags for some spans resulted in increase in required structure height to maintain clerances).

Existing structures at Baldwin Tap are in the range of 82 to 103 feet tall. The two proposed structures at Baldwin Tap would be approximately 85 feet tall, which is in the lower end of that range.

The work to rebuild the transmission facilities would require the relocation of an approximately 1.1-mile long segment of an existing 13.8-kV distribution line currently within the transmission right-of-way on distribution poles. This segment of distribution line, which is located between #1575N/#1585N line structure 1486 and 1496 between Bunker Hill Substation and Baldwin Tap, would be relocated from the center of the right-of-way to the western edge of the right-of-way in order to provide adequate clearances for the rebuilt #1575N/#1585N line structures. Approximately 37 poles would be relocated. All work would remain in upland areas. The height of the poles is on the order of 30 feet tall.

Reconductoring 1575S Line from Towantic Switching Station to Oxford Tap

Eversource would reconductor the #1575S line from Towantic SS to structure 1446 at Oxford Tap near the Oxford Substation for a distance of approximately 1.0 mile. The #1575S line conductors would be upgraded from 556-kcmil ACSR to 556-kcmil ACSS and attached to the existing steel lattice structures.

Existing shield wires would be replaced with OPGW and half-inch diameter Alumoweld shield wire. New insulators and attached hardware would also be installed along this segment of the line.

A new steel monopole would be installed directly adjacent to an existing wood pole at Oxford Tap to facilitate the installation of the conductors between Towantic SS and the Oxford Tap. The pole height would be approximately 75 feet, which is similar to existing structures.

Construction Methods

Construction staging and laydown areas are in the process of being determined. Eversource expects that some upland areas in the right-of-way may be used for temporary staging and laydown. In addition, Eversource's selected contractor would negotiate separate agreements with private property owners as needed for additional staging and laydown areas. Staff suggests that Eversource file the locations of the staging and laydown areas with the Council for staff approval prior to utilizing such areas.

With respect to tree clearing, there would be no expansion of the existing cleared right-of-way. However, some vegetation removal would be required. For the majority of this work, Eversource would utilize approved methods similar to those that are currently employed in the right-of-way for routine vegetation management and structure maintenance, including removal of danger trees and/or non-compatible species. Select vegetation removal may be required to facilitate the construction of any new access road to proposed structure locations and for the construction of work pads and pull pads and/or to clear overgrowth of vegetation at the base of existing structures. Eversource would minimize vegetation removal activities to the extent practicable.

Tree clearing for the proposed Towantic SS would be approximately 1.7 acres to accommodate its footprint and consistent with the clearing for the approved power plant project.

Erosion and sedimentation control measures (E&S controls) would be installed in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's *Construction & Maintenance Environmental Requirements Best Practices Manual for Connecticut* (Eversource BMPs). Typical E&S controls include, but are not limited to, the use of hay bales and silt fence, check dams, berms, swales, and sediment basins. Following the completion of construction, seeding and mulching would occur to permanently stabilize previously disturbed areas. Temporary E&S controls would remain in place until construction is complete and all disturbed areas are stabilized.

The majority of the project area contains existing access roads that were constructed and/or approved as part of the recently completed Petition No. 1058 project. These existing access roads would be utilized to the extent possible to provide access for the project to individual structures along the right-of-way. In a few locations, the existing access roads have degraded and would need to be improved. Such improvements/upgrades would include, but not be limited to: grading, widening up to 20 feet and having the travelled portion at least 16 feet wide, and the placement of compacted gravel material in upland areas. The project would utilize construction mats and bridging materials to create stable work surfaces in wetland areas, while limiting effects to these resources.

In some areas, access off of the right-of-way would be needed where there are no access agreements in place. In certain locations, temporary access was allowed by private landowners for the Petition No. 1058 project, but these agreements have since expired. Eversource is working with these property owners to obtain renewed access rights at these previously utilized access points. Where off of the right-of-way access is proposed in new locations, Eversource is working with these additional property owners to obtain access rights for these new access points. However, no significant vegetation removal would be required for off the right-of-way access areas. Staff suggests that Eversource file with the Council the locations of any new off of the right-of-way access that would need to be constructed.

In locations within the right-of-way where existing access roads and access to structure locations are not already established, new access would be required to reach the existing and new structure locations and to provide access for line work. Generally, new access roads needed for the project would be gravel and constructed to acceptable grades, typically 10 percent maximum, and up to 20 feet wide, with the travelled portion of the roads at least 16 feet wide to accommodate a range of vehicles, equipment, materials, and work processes during construction.

To the extent feasible, new access roads would be placed in upland locations. In areas where access must be through wetland areas, vernal pools or floodplains, construction mats would be utilized to minimize effects. Mats would be inspected prior to use to review condition and to verify that they are clean. Where appropriate, bridging methods and gap methods would be used to maintain hydrology and wildlife passage.

Where practical, some access roads in upland areas may be created using temporary construction mats to further limit effects. Eversource would work with land owners to minimize environmental effects in some difficult to access locations. Steel plates may be used to preserve existing pavements, to the extent practicable.

Typical work pads at existing and proposed transmission structures would be approximately 100 feet by 100 feet, to provide the necessary level work surface for the construction of new structures and removal of existing structures that would be replaced. Typical work pads for the installation of new distribution structures would be approximately 50 feet by 50 feet. Eversource does not anticipate the need for construction pads to remove the existing distribution structures. In a few locations, larger pull pads (on the order of 100 feet by 300 feet) would be located in upland areas to allow for conductoring work/staging. All work pads located in upland areas would be comprised of gravel, timber mats, or equivalent. To confine work to right-of-way areas and to avoid effects to sensitive areas, some structure and pull pad dimensions have been reconfigured slightly. In areas where work pads must be located in wetlands, construction mats would be used to limit temporary disturbance to these features.

With regard to construction sequencing, pre-construction activities would include the following:

a) Survey and staking of the line corridor, right-of-way boundaries and future structure locations;
b) Flagging wetlands and watercourse boundaries and cultural resource areas of potential concern where avoidance or special procedures may be required; and
c) Establishing staging and laydown areas.

Right-of-way construction activities would include the following:

a) Vegetation removal;
b) Access road installation and/or improvements and work pad installation;
c) Installation of erosion and sedimentation controls;
d) Relocation of the distribution line in the rebuild portion of the work to new wood poles at the edge of the right-of-way;
e) Excavating and installing structure foundations;
f) Erecting transmission structures for Towantic SS, the rebuild portion of the work and at Oxford Tap;
g) Replacing conductors associated with the reconductoring work;
h) Installing new conductors and OPGW on the new structures associated with rebuilding work; and
i) Remove existing transmission structures associated with the rebuild and turning structure installation work.

Towantic SS construction activities would include the following:

a) Installing switching station equipment, including the underground and overhead line taps for the loop in-and-out of the new station;
b) In addition, replacement of some substation equipment at remote substations would be necessary to accommodate protection and control modifications for the project. All work at these existing substations would be performed within the control houses and/or within the substation fence line*; and
c) Upon completion of the work, any remaining construction debris or materials would be removed and disposed or recycled.

*Council staff recommends that any substation upgrades outside of the control houses be filed as Energy Exempt Modifications or a Petition Amendment/Modification, as applicable.

After completion of the work, construction access roads in uplands would be left in place to facilitate future transmission line maintenance. The secondary access road to the switching station, which would result in a limited permanent effect to a wetland area, would remain in place post-construction. Construction pads and access road in uplands would be left in place, unless directed to be removed by the landowner. Access roads, construction pads, and pull pads that may be located within a manicured or otherwise improved residential

area would typically be removed unless the landowner requests that they remain in place. Construction mats and temporary bridging would be removed after the project is complete. Any areas of disturbance would be promptly stabilized in order to minimize the potential for soil erosion or the flow of sediment into resource areas and would be inspected until stabilization is complete and erosion and sedimentation controls are removed.

Eversource anticipates beginning construction during summer 2016 to bring the project into service by summer 2018. This is consistent with the projected in-service date identified in the 2016 RSP Project List and CPV's projected in-service date for the power plant. Eversource's normal working hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday working hours may be required to maintain the critical path of the project. Staff recommends that approval of any changes in work hours be delegated to staff.

Environmental Effects and Mitigation Measures

Nearby Land Uses

Land uses abutting the right-of-way corridor are comprised of municipal properties, including open space and a golf course, residential areas, transportation corridors, commercial and industrial development, utility properties, undeveloped wooded areas, and wetland, watercourses, and bodies of water. The proposed Towantic SS would be located in an existing designated industrial park, adjacent to the approved Towantic Generating Station, and would be compatible with the surrounding land use.

Recreational Resources

Approximately 250 feet of the Larkin State Park Trail (LSPT) crosses the right-of-way in the Town of Oxford. The trail is designed for horseback riding, but is also used by walkers, joggers, and bikers. During construction, Eversource would work closely with the Connecticut Department of Energy and Environmental Protection (DEEP) to determine appropriate trail closures and/or signage to ensure public safety and minimize effects to trail users. Only reconductoring work would occur at this location, and potential impacts would be minimized by performing the reconductoring work for structure 1447 manually, without the use of vehicles.

The Western Hills Golf Course (WHGC), a municipal course owned by the City of Waterbury, is located along the project route. Eversource would work with the City of Waterbury officials to schedule construction activities to minimize the project effects on the golf course. One new transmission structure is proposed on the WHGC property (but still within the limits of the right-of-way). However, the structure was located outside of the fairway area. Staff suggests including a condition that Eversource coordinate work to minimize impacts on the WHGC and the LSPT.

Archaeological, Historic and Cultural Resources

Heritage Consultants, LLC (Heritage) conducted an archaeological sensitivity analysis. Heritage also reviewed the entire project area within the right-of-way for known cultural resources. Two known archaeological resources were identified outside of the right-of-way for the project and would not be impacted, as all work in proximity to these resource areas would be within the right-of-way corridor.

The locations of structures 1497 and 1450 within the right-of-way were identified as being located within areas of intact soils which could have potential for archaeological resources, but Heritage determined that, if appropriate best management practices were implemented such as construction matting for access in order to limit/avoid ground disturbance, and work in specifics areas were confined to the right-of-way, no effects on archaeological resources would be likely. As such, no additional mitigation beyond Eversource BMPs is proposed at this time.

Correspondence relative to the project was submitted to SHPO by Eversource by letter dated December 28, 2015. The response has not yet been received, but Eversource would adhere to any guidance provided by SHPO relative to the project. With respect to historic resources, no properties or features on the National Register of Historic Places (NRHP) are located in the vicinity of the project.

Natural Diversity Database Wildlife

Eversource's review of DEEP's Natural Diversity Database (NDDB) identified two State-listed Species of Special Concern (SSSC) in the vicinity of the proposed project area. According to a data sharing agreement with DEEP, Eversource is unable to publicly identify the protected species. However, Eversource has consulted with DEEP's Wildlife Division to discuss survey protocols within this corridor for the identified SSSCs and to determine potential protection measures that might be implemented to minimize potential impacts to these species.

On November 2, 2015, Eversource provided DEEP with the results of its State-listed species surveys in order to seek concurrence/input from DEEP regarding appropriate protective measures to minimize the potential for impacts to these species. Eversource would work with DEEP to develop project-specific protection measures for work within this critical habitat area and would adhere to any additional DEEP recommended protection measures relative to these species.

If approved, prior to the start of construction, Eversource would consult again with DEEP NDDB staff to verify that no additional listed species have been identified in the project area. Environmental monitors would be assigned to the project and would undertake regular environmental/compliance inspections. Part of the environmental monitor's role would be to provide oversight of the protective measures for the confirmed State-listed animal species and promote contractor awareness as to the potential for these species to occur.

Potential additional measures may include one or more of the following in areas of known habitat for the species:

a) During the active period for both species (April 1 through October 31), the environmental monitor would perform pre-construction sweeps, including before vegetation removal, of proposed work areas within habitat areas and remove any of the State-listed species encountered from the proposed work area;
b) Removal of low-growth vegetation in mapped habitat areas would be minimized to the extent practicable. The removal of low-growth vegetation and tree stumps adjacent to stream banks for identified suitable riparian habitat would be avoided and minimized to the greatest extent practicable;
c) To the extent practicable, mowing activities would be limited to designated work areas and performed between November 1 and April 1, when the species are not active. If mowing is performed during the active season, vegetation would be mowed to a height of no lower than seven inches. Flail type mowers shall not be used for mowing in the active season;
d) Any confirmed sightings of these species would be reported to NDDB;
e) Construction vehicles and equipment required to access designated habitat areas would be parked on roadways and areas outside of the designated habitat when not in use, to the extent feasible;

f) Erosion and sedimentation controls would be constructed and maintained to avoid/minimize sediment deposition effects to wetlands. Where passage through the construction area is required to reach resource areas (e.g. forests, streams, vernal pool, etc.);
g) A contractor awareness program would be developed and implemented such that all contractors working in the right-of-way would be able to identify the species and be aware of proper handling and care techniques in the event that the species are encountered during the work period and an environmental monitor is not present.

Staff recommends including a condition that wildlife protective measures be implemented in consultation with DEEP.

Wetlands

Eversouce has sought to minimize wetland impacts due to structure and work pad placements for the rebuilding and reconductoring portion of the project in the right-of-way. Total temporary wetland impacts for the project would be approximately 1.3 acres. Total permanent wetland impacts would be approximately 0.04 acres. Notwithstanding, Council staff is concerned about the wetland impact in the right-of-way (immediately adjacent to Towantic SS) where Eversource would install structures and underground ducts to perform the transmission connections to Towantic SS. Specifically, the steel riser pole identified as New Structure #1 would be located in wetlands, and a portion of its associated three-foot wide underground concrete duct bank (for a distance of up to five feet) would be located within wetlands. Upon inquiring about this issue, Eversource notes that some degree of wetland impact is unavoidable with respect to the transmission connections for the following reasons:

a) Placing New Structure #1 outside of wetlands would require moving it further north along the alignment until it is above New Structure #6, which would be impossible; and
b) Any transverse (east-west) movements for either New Structure #1 or New Structure #3 is not possible because such a shift would cause the existing lattice tower to the south to be structurally overloaded due to the large line angle that would be placed on the lines. In addition, movement to the east would interfere with the secondary access road slope and the #1990 line alignment.

Vernal Pool Analysis

GZA conducted an on-site vernal pool assessment and breeding amphibian survey of wetland areas along the #1575/#1585 transmission lines for the proposed project. The survey was conducted on March 31, 2016. During the survey, GZA reviewed five potential vernal pools. Of the five pools reviewed, three were confirmed to be vernal pools and two were determined to have no likelihood of viable vernal pool habitat. The pool assessment results are listed below:

Vernal Pool No.[1]	Sheet(s)[2]	Physical Features Present	Biological Component Present	Hydrology Present	Determination Vernal Pool (Yes/No)	Notes
L	25	Yes	Yes	Yes	Yes	Pool along intermittent stream, large and deep
J	23	Yes	No	No	No	Depressed portion of larger wetland, small area, shallow, shallow water (1") in deepest area. Larger pool complex present off site to west.
FF	10 & 11	Yes	Yes	Yes	Yes	Long ditch across ROW, moderate quality pool
GG	9	Yes	Yes	Yes	Yes	High quality pool
PP	1	Yes	No	No	No	Isolated Depression, does not appear to have proper hydrology, no breeding amphibians found.

[1] GZA 2015/2016 designation; [2] See attached drawings

Vernal Pool L

Vernal Pool L is a large, long and linear area of pooled water along an intermittent stream. The intermittent stream appears to have a constriction beneath the bike trail right-of-way which causes water to pool along the northern side of the trail creating the open water area. The pool is approximately 80-feet wide, centered on the intermittent stream. The water depth varies, with most of the pool in the range of 24 to 30 inches deep. The pool has shrubby edge areas vegetated by highbush blueberry, silky dogwood and winterbury.

Wood Frog and Yellow Spotted Salamander egg masses were found at Vernal Pool L. Spring Peepers and Caddis fly larvae were present. Vernal Pool L is a Tier I vernal pool per Best Development Practices – Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States, Calhoun and Klemens 2002 (2002 BDP).

Structure 1447 is located within the area of pool and the associated wetland. However, this is the reconductoring portion of the project, so the structure would not be replaced. As a precaution, Eversource would access the structure manually and not use vehicles.

Vernal Pool FF

Vernal Pool FF is a long, linear, narrow ditch approximately 5 to 10 feet wide within a larger wetland system that crosses the transmission right-of-way and parallels the right-of-way along the western side, towards Route 188 and near structure 1480. The water depth is mostly in the 6-inch to 12-inch range, with deeper areas in the 18-inch to 24-inch range at intermittent locations. The edges of the ditch are vegetated by various gramanoids, forbs and shrubs.

Wood Frog egg masses were found at Vernal Pool FF. Vernal Pool FF is a Tier I vernal pool per 2002 BDP.

There are no existing or proposed transmission structures within Vernal Pool FF. However, Eversource would use construction matting to span the vernal pool (for approximately 175 feet) and its associated wetland to provide access for the replacement of structure 1480, located approximately 185 feet to the northeast.

Vernal Pool GG

The eastern side of the Vernal Pool GG is a narrow, deep, ditch with stone-lined walls. This area is 12 to 30 inches in depth, shaded and lacking emergent vegetation. The western side of the pool is an open, herbaceous wetland dominated by sedges and some shrub cover, with open water that is about 6 to 24 inches deep.

Wood Frog and Yellow Spotted Salamander egg masses were found at Vernal Pool GG. Vernal Pool GG is a Tier I vernal pool per 2002 BDP.

No construction would occur within Vernal Pool GG. However, existing access approximately 52 feet to the northwest of Vernal Pool GG would be utilized to reach and replace structure 1483, located over 360 feet to the northeast.

Vernal Pool Protective Measures

In order to protect vernal pools and adjacent habitats, Eversource proposes the following protective measures:

a) During construction, Eversource would follow established best management practices to avoid disturbance to vernal pools and limit potential effects to areas around vernal pools;
b) Erosion and sedimentation controls (E&S controls) would be constructed and maintained to avoid/minimize sediment deposition effects to vernal pools and wetlands. Where passage through the construction area is required to reach resource areas (forests, streams, vernal pool, etc.). E&S controls would be installed in a manner that does not inhibit movement through the construction area. Where appropriate, exclusionary silt fencing would be installed to prevent the State-listed species from accessing areas where they may be trapped. All silt fencing and perimeter methods would be removed after work is completed and exposed soils are stable so that reptile and amphibian movements are not restricted. Other measures may include, but not be limited to: syncopated silt fencing and/or straw wattles in the immediate vicinity of vernal pools, and aligning erosion and sedimentation controls to avoid bifurcating vernal pool habitat. The proposed project would avoid utilizing plastic netting, which may be found in a variety of erosion control products (e.g. erosion control blankets, straw wattles, and reinforced silt fence). Controls would be removed promptly after final stabilization has occurred;
c) Appropriate E&S controls would be designed and implemented in a manner that allows unencumbered amphibian access to vernal pools and migratory pathways and minimizes the potential for sediment deposition in wetlands, vernal pools, or breeding areas;
d) The removal of low-growing vegetation around vernal pools would be minimized by utilizing construction mats where access is needed for the rebuild portion of the work. If limited low growing woody vegetation needs to be removed to provide a stable surface for construction mat installation, the cut vegetation would be left in place to provide cover and promote the development of coarse woody debris and detritus and to minimize soil disturbance;
e) Temporary crossing of the vernal pool within Wetland FF would be done at a narrow point of the pool; therefore, a single construction mat would be installed to completely span the vernal pool. The construction mats would be removed immediately after work is completed in this area;
f) Work associated with structures 1479 through 1483 (on Sheets 9, 10 and 11) which occurs within or near two of the three vernal pools in the project area (FF and GG) would be conducted outside of the breeding season for vernal pool species which is March through July;

g) The only work conducted within or near vernal pools during the breeding season would be the reconductoring of structure 1447 which is located within Wetland L. This is unavoidable because the work would need to be completed during the scheduled line outage period of February 27, 2017 through June 15, 2017. However, this would be performed manually with no vehicles allowed in the resource area.

Staff suggests including a condition that the above Vernal Pool Protection Measures be implemented.

Flood Zones

Towantic SS would be located outside of the 100-year and 500-year flood zones. Eversource has sought to avoid impacts to floodway and flood plain areas to the maximum extent practicable. Specifically, three proposed transmission structures would be located within the 100-year flood zone: structures 1473, 1478C and 1479. Two structures would be constructed within the 500-year flood zone, but outside of the 100-year flood zone. These structures are nos. 1480 and 1486A. Staff recommends including a condition that the structures located in the 100-year flood zone be designed to withstand inundation.

Water Supply Resources

The project is not located within an aquifer protection area and would not impact active public water supply reservoirs. The project would cross a public water supply watershed, located south of I-84 and north of Wooster Road, in the vicinity of Shattuck Brook, which is listed an inactive or emergency supply for the Connecticut Water Company's Naugatuck Central System Meshaddock Brook Diversion surface water reservoir. The project would not be expected to affect this water resource and would utilize appropriate controls for the control of construction dewatering and stormwater discharges from project work areas.

Visual Impacts

The visual impact of Towantic SS is not expected to be significant because of its location on the property of a power plant and the existing transmission line right-of-way to the west. While privacy slats are not proposed, the mesh size of 1 ¼ inches would be a slightly more closed design than the larger, more open typical 2 inch mesh. This would slightly reduce the visual impact of the switching station equipment and also be an anti-climbing measure for security purposes.

New transmission structures would be comparable in height to existing structures and/or would have modest height increases. The worst-case height increases would be in the rebuilding portion of the project with the existing structure heights ranging from 75 to 135 feet and the new structures in range of 90 to 126 feet. To maintain aesthetics, Eversource's new structures would have a galvanized steel finish to match or approximately match the finish/color of existing adjacent structures that would remain. There are no weathering steel structures in the vicinity of the project.

Federal Aviation Administration

Given the proximity to Waterbury-Oxford Airport to the west, in order to comply with applicable Federal Aviation Administration regulations, Eversource would file a Notice of Proposed Construction or Alteration (FAA Form 7460-1) for the new, permanently installed monopoles for structures 1495 south to the turning structures at the new Towantic SS. Generally, FAA notification is necessary for new structures placed within four miles of an airport. Additionally, the construction contractor would also need to file a separate notice due to placing temporary obstructions such as cranes inside the notification zone. The FAA may provide recommendations regarding the work or comments on lighting of the structures based on the notification. Eversource would also coordinate with the manager of the airport during construction. Staff recommends including the following conditions:

a) Eversource shall file the applicable FAA Forms 7460-1 with the Council;
b) The final FAA determinations for permanent transmission structures and temporary construction equipment shall be provided to the Council; and
c) If FAA hazard lighting and/or marking or other modifications are required, Eversource shall file a Petition Amendment/Modification for Council review and approval for such modifications.

A switching station does not burn fuel or generate electricity. As such, operation of Towantic SS would not result in combustion-related air emissions and/or exhaust plume emissions.

Magnetic Fields

The proposed equipment inside the switching station including but not limited to buswork and circuit breakers would result in magnetic field levels below background levels at the boundaries of CPV's property. As for the transmission line rebuilding and reconductoring portions of the project, between Towantic and Baldwin Junction, the highest existing magnetic field level at the edge of the right-of-way is 6.2 milligauss (mG) on the western edge of the right-of-way The post-construction magnetic field levels would increase at this location to 40.8 mG. On the eastern edge of the right-of-way between Towantic and Baldwin Junction, the pre-construction magnetic field level is 5.3 mG. Post-construction magnetic field levels at this location would increase to 85.6 mG. Between Oxford Substation and the proposed switching station, the highest pre-construction magnetic field level would be 6.2 mG at the western edge of the right-of-way. This would increase to 41.6 mG post-construction. The eastern edge of this right-of-way would be 2.3 mG pre-construction and 44.7 mG post-construction. All of these projected post-construction magnetic field levels are far below the International Commission on Non-ionizing Radiation Protection acceptable exposure level of 2,000 mG for the general public as recognized in the Council's "Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut."

Noise

Construction-related noise is exempt per DEEP noise regulations. Notwithstanding, any construction-related impacts to existing noise levels would be short-term and localized in the vicinity of work sites. Once operational, the only source of noise at the switching station would be impulse noise from the operation of the circuit breakers. The breakers would only operate to mitigate the consequences of an unlikely short circuit event or maintenance outages, which are also infrequent events. Noise levels along the property lines of the switching station would be expected to meet applicable DEEP noise regulations.

No blasting or mechanical chipping is anticipated to construct Towantic SS. In cases where ledge, rock and/or boulders/cobbles are encountered, drilling/coring would be by a rock auger or core barrel fitted with carbide teeth. In the case of ledge, Eversource would drill into the ledge until "refusal" or until sufficient depth is reached to support the structure.

If Eversource uses implosion connector technology to secure the conductors to the insulators, then Eversource would brief municipal officials and provide widespread notifications to residents and businesses in advance of the implosions. Eversource would implement the management practices for implosions as approved by the Council for Docket No. 370A-MR for the Manchester Substation to Meekville Junction Circuit Separation Project. Staff suggests including a condition that an implosion connection plan be filed with the Council.

Municipal and abutter notice

Eversource began consultations with the Towns of Middlebury and Oxford and the City of Waterbury, collectively referred to as the Municipalities (Municipalities), in August 2015. Formal notice of the Petition was provided to the Municipalities and abutting property owners on or about April 4, 2016. The Council has not received any comments from abutters or the Municipalities to date.

Conclusion

Staff recommends including the following conditions:

a) The Petitioner shall file the locations of the laydown and staging areas with the Council for staff approval prior to utilizing such areas in constructing the project;
b) The Petitioner shall file the locations of any new off of the right-of-way access that would need to be constructed;
c) The Petitioner shall file any substation modifications outside of the control houses as Energy Exempt Modifications or a Petition Amendment/Modification for review and approval, as applicable;
d) The Petitioner shall file an implosion connection plan with the Council if applicable;
e) The Petitioner shall file the applicable FAA Forms 7460-1 with the Council;
f) The final FAA determinations for permanent transmission structures and temporary construction equipment shall be provided to the Council;
g) If FAA hazard lighting and/or marking or modifications are required, Eversource shall file a Petition Amendment/Modification for Council review and approval for such modifications;
h) Authorization to change work hours is delegated to Council staff;
i) The structures located within the 100-year flood zone shall be designed to withstand inundation;
j) The Petitioner shall coordinate work to minimize the impact on the Western Hills Golf Course and the Larkin State Park Trail;
k) The Petitioner shall implement protective measures for Natural Diversity Database wildlife in consultation with the Connecticut Department of Energy and Environmental Protection;
l) The Petitioner shall implement Vernal Pool Protection Measures identified in the May 2016 Vernal Pool Assessment Report; and
m) The Petitioner shall provide drawings incorporating an all underground transmission connection scheme from Towantic Switching Station to the #1575, #1585, and #1990 overhead lines to the west including, but not limited to, the turning structures and duct banks in the right of way, associated riser structures and other related switching station equipment and any wetland impacts, and an explanation as to why this is or is not being implemented and whether or not this is a feasible engineering design.