

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: June 28, 2019

AT (OFFICE): NHPUC

FROM: Paul Kasper 
Assistant Director – Safety Division

SUBJECT: Docket No. DE 19-028 Public Service New Hampshire d/b/a Eversource Energy
Petition for a License to Construct and Maintain Electric Lines Over and across the Merrimack River in the Towns of Merrimack and Litchfield, New Hampshire, and Over and Across Land Owned by the State in the Town of Litchfield, New Hampshire
Staff Recommendation

TO: Debra Howland, Executive Director
Thomas Frantz, Director, Electric Division
Richard Chagnon, Assistant Director, Electric Division
Paul Dexter, Staff Attorney

CC: Randall Knepper, Director, Safety Division

The Safety Division’s review of the above petition consisted of the following elements:

- Petition contents and history;
- Applicable State Statute;
- Review of the existing crossing(s) not licensed by the PUC;
- Review of land ownership of existing pole structures;
- Review of NESC code requirements as described in Puc 300;
- Review of public need and public impact, including applicability of other State regulations; and
- Conclusions and Recommendations.

1. Petition contents and history

On February 8, 2019, Public Service New Hampshire d/b/a Eversource Energy (ES), filed a petition pursuant to RSA 371:17 for a license to re-construct, maintain and operate the Eversource H123 line, which is a 115 kV transmission line. This is a project to modify or rebuild (6) six structures on its existing H123 transmission line. No conductors, shield wire or neutral wire will be replaced in the project. All wires shall be transferred from existing structures to new structures replaced at the same locations. The existing Merrimack River crossing had been previously licensed by the Commission, under Order No. 12,219, dated March 12, 1976, issued in Docket DE 76-22.

The H123 Line crossing of the State's land parcel in the Town of Litchfield, New Hampshire had not been previously licensed, as this parcel was in private ownership when the H123 Line was originally constructed, and no Commission license was required. The existing H123 line structures and associated transmission components are approximately 52 years old, have been subject to environmental damage and require replacement for the line to continue to function safely and reliably. This structure replacement and repair project is part of a capital reliability project - necessary for the H123 line to continue to meet current as well as future projected electricity demands. See a detailed NHPUC Safety Division map/schematic in the Attachments A and B of this recommendation.

The State of New Hampshire, acting through the Department of Environmental Services, acquired the subject parcel by deed from the Litchfield School District in 1998 (Hillsborough County Registry of Deeds Book 6001, Page 230), and the acquisition was subject to the existing Eversource right of way on the property. The structure replacements of the H123 Line crossing of the State's land will be newly licensed under this petition.

In ES Exhibit #2 Structure # 181 is constructed with 2-65 ft. CL H1 LD steel poles The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the land surface will be maintained at (12 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 9.5 ft. is required by the NESC Table 232-1.

Structure # 182 is constructed with 2-60 ft. CL H1 LD steel poles The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the land surface will be maintained at (13.1 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. The span between str# 181 and str# 182 is 426.25 ft.

Structure # 183 is constructed with 2-60 ft. CL H1 LD steel poles. The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the land surface will be maintained at (13.1 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. The span between str# 182 and str# 183 is 402.12 ft.

Structure # 184 is constructed with 2-60 ft. CL H1 LD steel poles. The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the land surface will be maintained at (19.5 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. The span between str# 183 and str# 184 is 383.50 ft.

In ES Exhibit #2 all four structures associated with the State land crossing are being rebuilt (Structures 181, 182, 183 & 184), only one complete span (between 182 & 183) is within the State land parcel (866.70 ft.). The other two spans (between 181 & 182, and 183 & 184) cross the State land parcel only partially, with aerial conductors only.

In ES Exhibit #3 Structure # 155 is constructed with 3-75 ft. ADS-MOD 3-Poles. The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the river surface will be maintained at (51 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. Only 9.5 ft. is required by the NESC Table 232-1.

Structure # 156 is constructed with 3-75 ft. ADS-MOD 3-Poles. The structure will have conductors for the 115 kv H123 transmission line consisting of (3) 795 kcmil ACSR 36/1 cables and (2) #8 Alumoweld 7 stranding neutral wires. The fiber optic cable will be (1) ADSS-72 Fiber and will be vertically attached 10 ft below the conductors. The fiber

optic cable clearance requirements were met using the NESC heavy conditions (0.5 inch radial ice) and at 32 deg F. This scenario was the governing condition, which yielded the greatest sag and lowest clearance. In its petition, ES provides sufficient detail to show how the required clearance from the fiber optic cable to the river surface will be maintained at (51 feet). Staff verified the computed sags with SAG 10 commercial software using inputs as stated in the petition. The span between str# 155 and str# 156 is 704.83 ft.

The water clearances are taken from the projected 100 year flood levels. This is more conservative than the 10 year flood levels allowed by the NESC (note 12 to Table 232-i). ES uses floodwater elevations for the Merrimack River in Hillsborough County that are identified on FEMA flood map #33011C0511D. The 100-year flood elevation for the river in this location is approximately 113.3 feet, and is based on the North American Vertical Datum of 1929 (NAVD88). The Safety Division verified the 113.3-foot flood level from the FEMA flood map.

2. New Hampshire statute referenced in petition

371:17 Licenses for New Poles. – Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a pipeline, cable, or conduit, or a line of poles or towers and wires and fixtures thereon, over, under or across any of the public waters of this state, or over, under or across any of the land owned by this state, it shall petition the commission for a license to construct and maintain the same. For the purposes of this section, "public waters" are defined to be all ponds of more than 10 acres, tidewater bodies, and such streams or portions thereof as the commission may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall petition the commission for a license in the same manner prescribed for a public utility.

Source. 1921, 82:1. PL 244:8. RL 294:16. 1951, 203:48 par.17. 1953, 52:1, eff. March 30, 1953. 2013, 82:1, eff. June 19, 2013.

3. Review of existing license(s) and permissions previously granted by the PUC for this location of the Merrimack River

This public water crossing license application is part of the reliability replacement project on the H123 (115 kV) Transmission Line for ES and had been previously licensed by the Commission under Order No. 12,219, dated March 12, 1976, issued in Docket DE 76-22.

The Merrimack River, From the Bedford/ Merrimack Town line to the New Hampshire/ Massachusetts state line is listed under the category "Public Rivers And Streams" in the Official List of Public Waters (OLPW). under the category

“List of freshwater Public Rivers and Streams. The entire list of public waters can be accessed through the following web link:

<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/olpw.pdf>

A New Hampshire Department of Environmental Services (NHDES) Shoreland Permit by Notification application is required for construction activities in the vicinity of the Merrimack River. The permit by notification was approved by NHDES on November 26, 2018 (NHDES File #2018-03547).

The U.S. Army Corps of Engineers (ACOE) regulates the subject portion of the Merrimack River as a federal-designated navigable water. Eversource previously consulted with the ACOE and was advised by the ACOE that, when wire and cable clearances will increase over those presently in place, no ACOE permit modifications are required. The rebuild of Structures 155 and 156 for the Merrimack River crossing will entail raising the H123 Line within the existing Eversource right of way corridor, so a permit modification by the ACOE will not be required.

A NHDES Standard Wetlands Permit is required for construction activities which involve the alteration of nontidal wetlands, nontidal surface waters, and banks adjacent to nontidal surface waters in excess of 20,000 square feet in the aggregate, and is applicable to both the Merrimack River crossing and the State land crossing. A permit application was submitted on November 15, 2018 and accepted by NHDES on November 16, 2018 (see NHDES File# 2018-03478). In addition, a copy of the ND HES Wetlands Permit application was sent to the ACOE for review on November 15, 2018.

ES asserts in the petition that the existing crossing will be exercised without substantially affecting the rights of the public in the public waters of the Merrimack River. Minimum safe line clearances above the river surface and affected shorelines will be maintained at all times. The use and enjoyment of the river by the public will not be diminished in any material respect as a result of the overhead line crossing.

Review of land ownership of proposed pole structures

In its petition, ES specifies that the re-construction of these land crossing are on the State of New Hampshire owned land in the Town of Goffstown, New Hampshire

Review of NESC code requirements as described in Puc 300

N.H. Code of Administrative Rules Puc 306 requires:

each utility shall construct, install, operate and maintain its plant, structures and equipment and lines, as follows:

In accordance with good utility practice;

After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and

To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.

For purposes of this section, “good utility practice” means in accordance with the standards established by:

The National Electrical Safety Code C2-2012....

ES states that the current crossings have been designed and will be re-constructed, maintained and operated in accordance with 2012 National Electrical Safety Code C2-2012.

Safety Division Staff reviewed the specifications related to the design and re-construction of this crossing project as provided in the petition, the attachments, and all supplemental support documents, and found them to be in conformance with the applicable sections of NESC code C2-2012 and Puc 300.

Review of public need and public impact

In order to meet the reasonable requirements of electric service to the public, ES proposes to re-construct and maintain a three-phase 115 kV transmission line, designated as the H123 line and a fiber optic cable over and across the Merrimack River and over and across Land owned by the State in the Towns of Merrimack and Litchfield New Hampshire. This transmission line is an integral part of ES’s electric transmission system in this area.

ES asserts in the petition that the proposed licenses for these crossings may be exercised without substantially affecting the rights of the public in the State lands in the Town of Litchfield and without substantially affecting the rights of the public in the public waters of the Merrimack River. Minimum safe line clearances above the river surface and affected shorelines will be maintained at all times. The use and of which is the subject of this petition. Minimum safe line clearances above the land surfaces will be maintained at all times. The use and enjoyment by the public of these lands will not be diminished in any material respect as a result of the modification and replacement of the existing overhead line crossings.

This project does not require use and occupancy agreements be in place prior to construction of this crossing from the New Hampshire Department of Transportation.

Safety Division Staff concludes the impact to the public will be de minimis and not measurable. The crossings do not appear to affect the rights of the public in the State lands because minimum safe line clearances above the land surface will be maintained at all times.

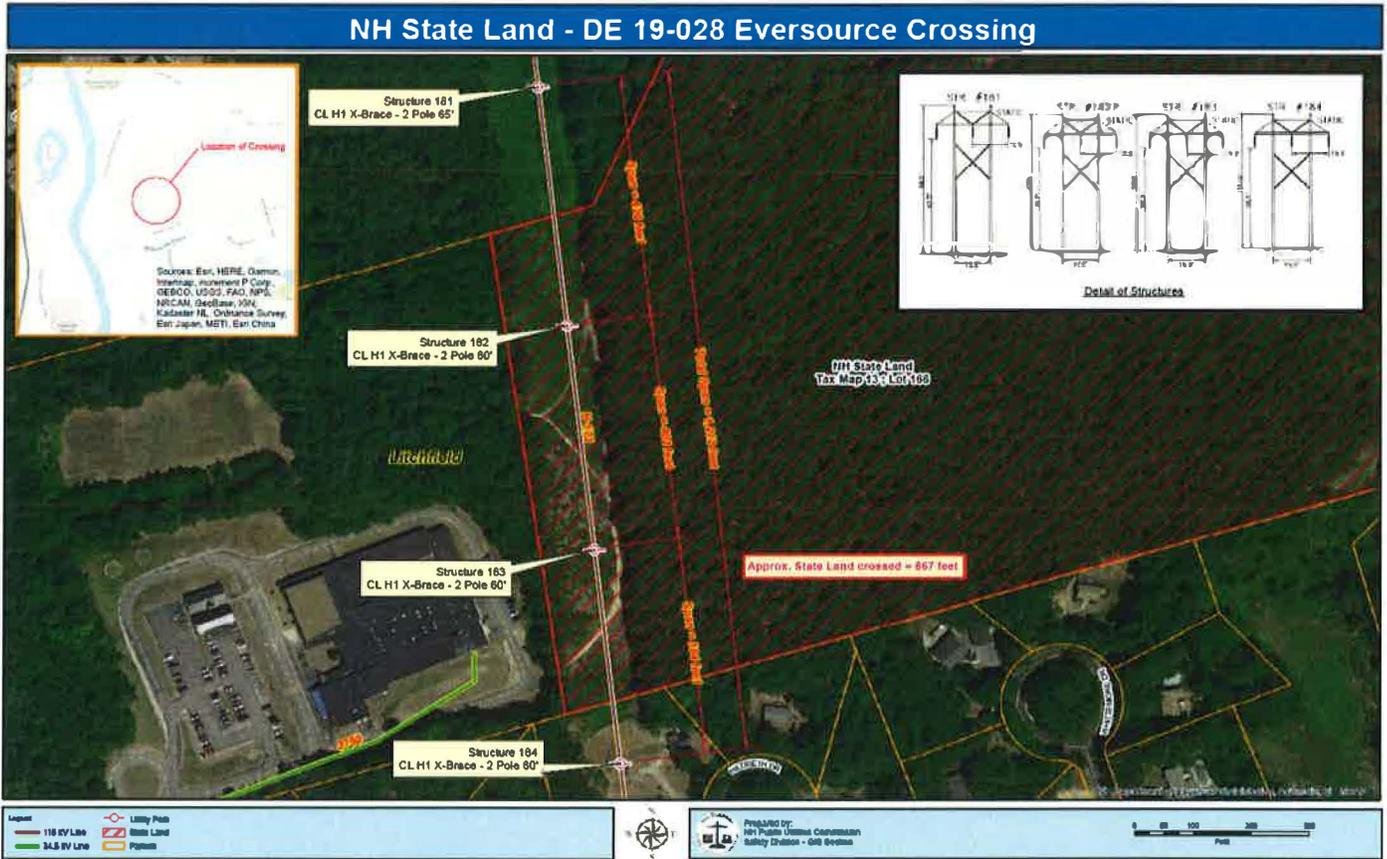
Staff Recommendation:

Based on the results of its review of the petition, its attachments, and all other supporting documents filed to this docket, the Safety Division Staff recommends that the Commission:

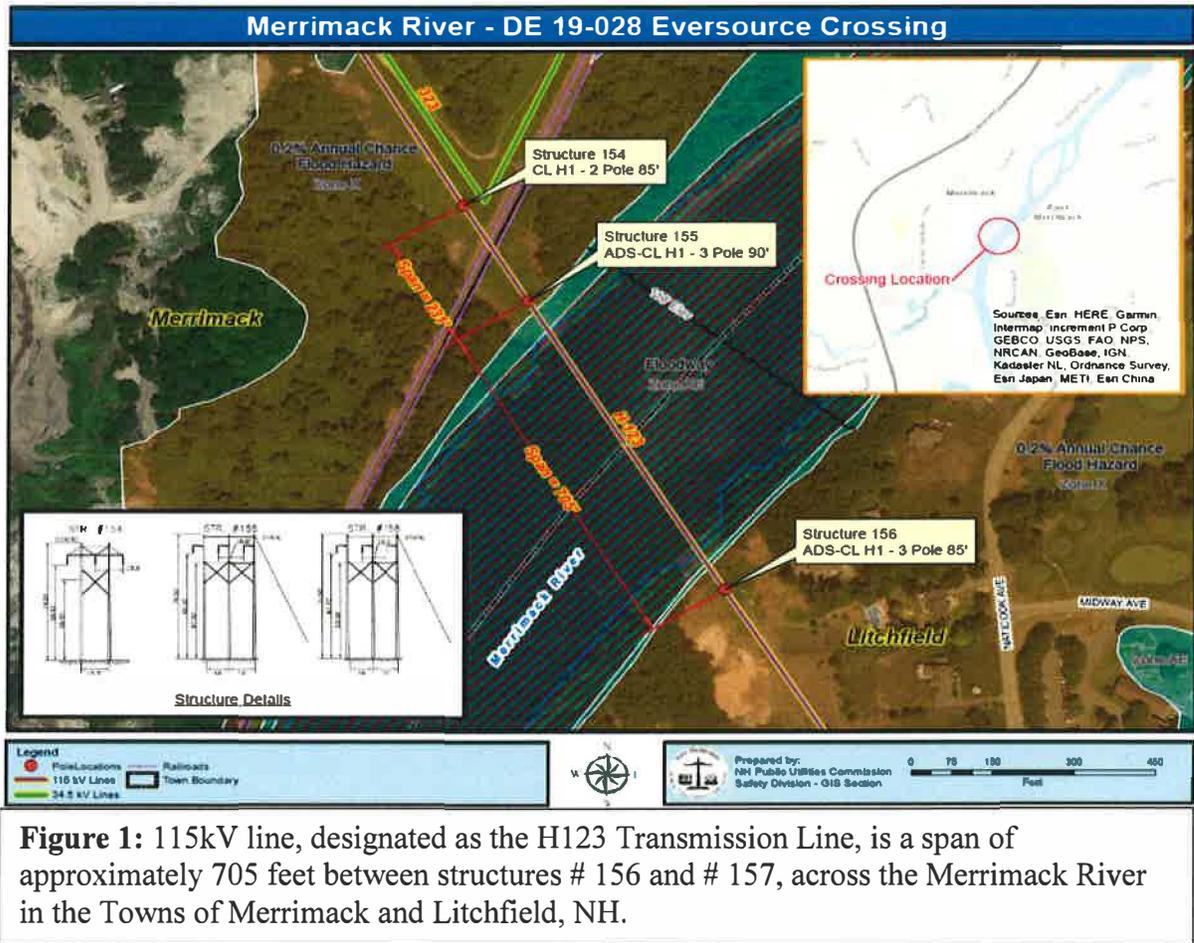
- 1) Find that the licenses ES requests in this docket may be exercised without substantially affecting the public rights in State lands which are the subject of the petition;
- 2) Grant ES a license to construct, operate and maintain electric lines, including neutral over and across the State lands in the Town of Litchfield New Hampshire, as specified in the petition; and
- 3) Find that the license ES requests in this docket may be exercised without substantially affecting the public rights in the public waters which are the subject of the petition;
- 4) Grant ES a license to construct, operate and maintain electric line, including neutral over and across the public waters of the Merrimack River, in Merrimack, New Hampshire, as specified in the petition;
- 5) Issue an Order Nisi and orders for its publication.

Staff Attachments

Attachment A



Public Land that is State owned is shown above as red hash marks identified in the petition and engineering drawings as State of New Hampshire. The parcel is located in the Towns of Merrimack and Litchfield. The project will require the Commission to grant a public land crossing license related to this parcel. The license will be for the 115 kV H123 transmission line from Structure # 181 to Structure # 184 crossing approximately 867 feet of State owned land in the Town of Litchfield, NH



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