Civil Engineers
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July 20, 2023

VIA ELECTRONIC MAIL

Bryan Flynn, Electrical Safety Inspector
New Hampshire Department of Energy
21 South Fruit Street
Concord, NH 03301

Re: Unitil Energy Systems, Inc. 38-Line
Revised Application for License to Construct and Maintain Electric Lines Over and Across the Merrimack River in the City of Concord, New Hampshire

Dear Mr. Flynn:

Enclosed for the filing with the Department please find the electronic submittal of the Unitil Energy Systems Inc.'s (Unitil) Revised Application for License to Construct and Maintain the 38 Electric Lines Over and Across the Merrimack River in the City of Concord, NH, with attached Exhibits.

The following is a summary of review comments with the format of this letter following that of the electronic mail, with responses in *italics.*

For your records, we have filed the application as Dept of Energy CRE 2023-014.
Understood.

Per HB 1258, "petitions" are now "applications" please adjust your documents to reflect that information
"Petitions" have been revised to reflect "applications" as requested.

1. In the 014 application for the 38 Line, item 3, states the crossing is appx. 1900 ft from US 202 and 4 crossing. Our maps show the greatest distance at any point to be only 1300 ft, using application provided GPS coordinates. Please review for accuracy.
   The distance has been reviewed and revised to 1,300 ft as requested.

2. In each application, there is no acknowledgement of NAE-2022-00849 The Department of the Army General Permits for the State of New Hampshire regulation, wherein it states under Work Requiring USACE Authorization:

   " a. Section 10: Work and structures that are located in, over, under or that affect navigable waters of the United States (U.S.) (see 33 CFR 328). The USACE regulates these activities under Section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 322)."

   The Merrimack River is governed as navigable waters in NH from Concord to the Massachusetts border. Therefore, it is our understanding, at minimum there must be a self-verification by Unitil of the permitting requirements, separate from NHDES, and we would like to see that language in the application. If you have reviewed this regulation and find that is not the case for your project, please state that in the application, citing your justification.
   Item 10 in the application has been revised to indicate a USACE Self-Verification Form is required for the proposed crossing.

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3. In exhibit 2 of the 014 application, the Cable Schedule shows an initial heavy loading of 6000 lbs for the 795 conductors and neutral, which is a discrepancy from the Cable Schedule on exhibit 2 of the 013 application, which shows an initial heavy loading of 5000 lbs. This is a minor detail, and I used 5000 lbs in my calculations as it more accurately depicts the minimum sag design in your drawings.
   The maximum design tension under NESC Heavy conditions (Initial) of the 795 phase and neutral conductors of 5,000 lbs. (36 Line) and 6,000 lbs (38 Line) have been reviewed and are accurately listed.
4. Effective 08/20/2022, RSA 371:19, requires DOE post notice of license and appeals to all abutters. We require applicants to provide a complete list of abutters' contact information and mailing address with submission.
   An abutters list has been provided as requested.

Should there be any technical questions regarding this filing, they may be directed to Unitil Principal Electric Engineer Nathan Sherwood, PE, who can be reached at 603.773.6476 or sherwood@unitil.com. All other questions or comments may be directed to the undersigned at 603.491.3362 or jbelanger@tfmroan.com.

Your time and consideration are appreciated in advance.

Sincerely,

TFMoran, Inc.

Jeremy Belanger

Jeremy Belanger, P.E. Senior Project Engineer

CC: Nathan Sherwood, PE, Unitil Energy Systems, Inc.

THE STATE OF NEW HAMPSHIRE
BEFORE THE
DEPARTMENT OF ENERGY

APPLICATION OF UNITIL ENERGY SYSTEMS INC., FOR LICENSE TO CONSTRUCT AND MAINTAIN ELECTRIC LINES OVER AND ACROSS THE MERRIMACK RIVER IN THE CITY OF CONCORD , NEW HAMPSHIRE.

TO THE DEPARTMENT OF ENERGY:

Until Energy Systems, Inc. (Unitil), a corporation duly organized and existing under the laws of the State of New Hampshire and engaged in the distribution of electric energy in said State (hereinafter called the Applicant), respectfully represents that:

1. In order to meet the requirements for reasonable service to the public, it is necessary for the Applicant to install new steel structures on east and west sides of the Merrimack River (the River) for the replacement of the existing 34,500-Volt (nominal phase-to-phase voltage) electric circuit known as the 38 Line[1], located in the City of Concord, NH. The existing line is in need of replacement due to age and condition. The Applicant is requesting replacement of the existing line within the existing Utility Right-of-Way (ROW) in order to minimize additional impacts to the public water crossing, which the line traverses. The proposed electrical improvements are intended to allow for timelier and more economical maintenance and repairs of the line, as well as increased line reliability to the City of Concord, NH area residents and businesses.
2. The modification of the 38 Line over the River in Concord, NH as shown on the attached Plan and Profile Drawings (EXHIBIT 2) have been designed and will be constructed in accordance with the 2023 National Electrical Safety Code (NESC). A USGS Locus Map (EXHIBIT 1) indicating the location of the reconductored crossings has been included as part of this Application.
3. The reconductored crossing of the River is located approximately 1,300-ft (straight line distance) southeast of the US Route 202 and 4 bridge crossing, and approximately 1,290-feet (straight line distance) northwest of Hazen Drive (See EXHIBIT 1).
4. The location of the replacement structures will create An eight-hundred and sixty-five (865) foot crossing span over the River. The proposed H-frame (Structures #26 and #27) utility pole crossing structures will be located within the existing Utility ROW in accordance with the existing Easement Rights (See EXHIBIT 1).
5. The reconductored crossing will consist of a single three (3) phase open-wire circuit in a horizontal configuration, two (2) overhead shield wire (OHSW) and one (1) neutral conductor spanning the River. The OHSW will consist of two (2) 7 No. 6 Alumoweld conductors. The phase conductors will be three (3) 795 KCMIL “ARBUTUS” AAC (37 strand), neutral conductor will also be 795 KCMIL “ARBUTUS” AAC (37 strand), with 8-foot, 4-inch horizontal spacing between phase and neutral conductors. There will be 9-feet, 11-inches (Structure #26) and 9-feet, 11-inches (Structure #27) between the OHSW and phase/neutral conductors at the structures (See EXHIBIT 2).

[1] The existing 38 Line crossing is previously licensed by the Public Utilities Commission (PUC) under Docket # D-E6154 Order # 1047 (See Exhibit 3).

6. The reconductored crossing will be owned and maintained by the Applicant, conducted in accordance with the existing Easement Rights.

7. All conductors have been included on EXHIBIT 2 to show the maximum sag conditions in reference to the River water surface elevations.

8. The Applicant will construct, maintain, and operate the clearance of the wire crossing over the River at a height no less than is required by 2023 National Electrical Safety Code (NESC, Table 232-1) which is 20.5-feet over waters suitable for sailboating with a surface area less than 20 acres. The actual minimum height over the public waters is depicted on the attached Exhibit 2 and exceeds the respective minimum requirements.

9. The 500-year flood level was established based upon the Federal Emergency Management Agency (FEMA) flood zone maps (Map Panel 33013C0534E) for the crossing area (Zone AE, effective date: April 19, 2010). This elevation is based on the National Geodetic Vertical Datum of 1988 (NAVD 1988). For the purposes of calculating clearance, the 500-year flood elevation was used, as it was readily available. This is higher than the 10-year flood elevation required by NESC and provides a conservative clearance requirement (See EXHIBIT 2).

10. A New Hampshire Department of Environmental Services (NHDES) Wetlands Statutory Permit-By-Notification (SPN) (2023-00521) and NHDES Shoreland Permit-By-Notification (PBN) (2023-00511) have been granted for temporary and permanent wetland and shoreland impacts associated with the reconductoring. In addition to the aforementioned NHDES Permits, a United States Army Corps of Engineers (USACE) Self-Verification Form will be filed for the proposed crossing. The proposed utility pole structures will be located within the existing Utility ROW, with rights established within the existing Easement Documents.

11. It is not anticipated that abutters on either side of the Rivers will be affected, as the proposed is a reconductoring of an existing crossing for which the utility pole structures and overhead electric services are permissible by existing Easement Rights.

12. The Applicant submits that the license applied for herein may 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 water surface and affected shorelines will be maintained at all times. The use and enjoyment by the public of the River will not be diminished in any material respect as a result of the reconstructed crossing.

WHEREFORE, the Applicant respectfully requests that the Department:

1. Find that the license applied for herein may be exercised without substantially affecting public rights in the public waters which are the subject of this Application;

2. Grant the Applicant a license to maintain electric lines over and across the public waters as identified and described in this Application; and

3. Issue an order Nisi and orders for its publication.

Dated at Exeter, New Hampshire this 21 day of July 2023.

Respectfully submitted,

BY UNITIL ENERGY SYSTEMS, INC.

Nathan Sherwood

Nathan Sherwood, P.E.
Principal Electric Engineer

Unitil

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