

**DE 06-088**

**PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE**

**Petition for License to Construct and Maintain Electric Lines Over and Across the Public Waters of the Piscataquog River in the City of Manchester, New Hampshire**

**Order *Nisi* Granting License to Construct and Maintain Electric Lines Over and Across Public Waters**

**ORDER NO. 24,661**

**September 1, 2006**

On June 12, 2006, Public Service Company of New Hampshire (PSNH) filed a petition with the New Hampshire Public Utilities Commission (Commission) for a license to construct and maintain two, three-phase aerial electric lines and one neutral wire over and across the Piscataquog River in Manchester. PSNH filed the petition pursuant to RSA 371:17, which requires a utility to obtain a license from the Commission before constructing utility facilities across any public waters.

PSNH states that, in order to meet the reasonable requirements of service to the public, PSNH previously constructed and currently operates and maintains a single 12.47 kV distribution circuit, designated as circuit 18W3, that runs between PSNH's Pinardville Substation in Goffstown and Electric Street in Manchester, and which is an integral part of the local PSNH distribution system. PSNH states that a portion of the 18W3 circuit line currently crosses under the Piscataquog River via submarine cable and rises up on wooden poles on each side of the river. The under-water crossing of this line was previously licensed by the Commission under Order No. 10,758 (October 17, 1972).

PSNH asserts that, within the past two years, the Company has experienced failures of sections of submarine cable of the same age as the 18W3 submarine cable at other locations on

PSNH's distribution system. In order to ensure the continued safety and reliability of the 18W3 circuit, PSNH intends to replace the aging section of the submarine cable at the existing crossing location with a new, overhead crossing. PSNH points out that the 18W3 circuit has already been upgraded on each side of the Piscataquog River to 477 ACSR with a 4/0 ACSR neutral, leaving only the river crossing portion of the circuit to be replaced.

PSNH proposes to replace the existing submarine cable crossing with a new overhead wire crossing. PSNH states the replacement is consistent with good utility practice as it will be less expensive than installation of a new underwater cable, will involve less environmental impact to the river and the riverbank areas, and will provide the same reliability as the underwater cable. PSNH states that it does not plan to remove the existing submarine cable but will instead de-energize the cable and abandon it in place with no further disturbance of the riverbed.

In support of its petition, PSNH submitted a location plan (Exh. 1) and a plan and profile drawing of the crossing (Exh. 2, revised). PSNH states that the construction of the new crossing will consist of structure Nos. 11/259 and 10/259, both three-pole deadend structures. Structure 11, on the west side of the river, will be 50 feet in height, and Structure 10, on the east side of the river, will be 60 feet in height. PSNH indicates that the span between the two structures will be 600 feet. PSNH offers that a total of three phase wires and one neutral wire will span the river.

PSNH states that all three 477 ACSR 18/1 phase conductors and the 4/0 ACSR 6/1 neutral will be sagged using the National Electrical Safety Code (NESC) Heavy Loading (0 degrees F., 4 pounds per square foot wind loading, 1/2 inch radial ice) sag charts upon installation in the field. In addition, PSNH states that all three 477 wires will be sagged using a maximum

tension of 3,000 pounds at NESC Heavy Loading.

PSNH has determined that according to National Electrical Safety Code (NESC) Table 232-1, the design water surface area for the crossing is 62 acres. For water areas of 20 to 200 acres, NESC (Table 232-1) requires that the neutral conductor clearance to the water surface at normal flood level to be 25.5 feet and 28.5 feet for the 34.5 kV phase conductors (477 MCM ACSR 26/7). According to PSNH, the maximum neutral conductor sag will occur at a conductor temperature of 120 degrees Fahrenheit (F). At this conductor temperature, the neutral conductor will remain 29.9 with a clearance to the water surface of 33.4, exceeding the NESC standard by approximately 7.9 feet above the Piscataquog River 100-year flood elevation of 167 feet.

The maximum phase conductor sag for the 34.5 kV conductors will occur at a conductor temperature of 212 degrees F. This condition produces the greatest sag in the phase wires and therefore the minimum clearance to the water surface. At this elevated conductor temperature, the maximum conductor sage will be 31.9 feet with a clearance to the water surface of 40.3 feet. PSNH's design will exceed the minimum requirements of the NESC standard by approximately 11.8 feet.

PSNH has stated that PSNH owns permanent easement rights for the construction, operation, and maintenance of overhead electric lines on the east side of the crossing where Structure 10 will be constructed, and owns similar permanent easement rights on the west side of the crossing where Structure 11 will be constructed.

PSNH has stated that the use and enjoyment by the public of these waters will not be diminished in any material respect as a result of the proposed aerial line crossings. PSNH further

attests that the construction of the aerial electric lines will meet or exceed the requirements of the National Electrical Safety Code, ANSI C2-2002.

Staff submitted data requests to PSNH on July 24, 2006. PSNH replied on August 9, 2006. In its reply, PSNH stated that it had determined that replacing the existing submarine cable with overhead construction would be about \$440,000 less expensive than installing a new submarine cable. PSNH indicated that the anticipated life of overhead construction is estimated to be in excess of 50 years while the anticipated life of a submarine cable was around 40 years. In addition, PSNH stated that there were construction constraints, such as steep and unstable slopes on each side of the river, erosion during construction and possible boring constraints that would complicate the installation of a submarine cable. PSNH determined that abandoning the existing submarine cable in place, and installing an overhead line, would also have fewer adverse environmental effects on the river, fish and wetland than removing the cable or installing a new submarine cable.

Staff reviewed the petition and the supplemental information provided in response to Data Requests and recommended that the Commission grant the Petition. Staff pointed out that PSNH had fully explained the rationale for replacing the current submarine cable with an overhead line, and that the construction detail was consistent with sound electric engineering practice and the NESC. Staff concluded that the proposed project, if implemented as filed, will result in PSNH providing safe and reliable service to the public based on sound engineering standards as specified in the NESC.

RSA 371:17 provides in part that whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a line of

poles or towers and wires and fixtures thereon over or across any of the public waters of New Hampshire, it shall petition the Commission for a license to construct and maintain the same. "Public waters," as defined in RSA 371:17, means "all ponds of more than ten acres, tidewater bodies, and such streams or portions thereof as the Commission may prescribe." Based on the information presented, the Commission regards the part of the Piscataquog River under the proposed aerial electric lines as "public waters" under RSA 371:17.

Based on the information presented by PSNH and Staff's recommendation, we find such crossing necessary for PSNH to meet the reasonable requirements of reliable service to the public within PSNH's authorized franchise area and the requested license may be exercised without substantially affecting the public rights in the waters of the Piscataquog River. We find that the crossing is in the public good and we will approve the petition on a *Nisi* basis in order to provide any interested party the opportunity to submit comments on said petition or to request a hearing.

**Based upon the foregoing, it is hereby**

**ORDERED NISI**, that subject to the effective date below, PSNH is authorized, pursuant to RSA 371:17 et seq., to construct, maintain and operate the aerial electric lines over and across the Piscataquog River in the City of Manchester, New Hampshire depicted on plans and drawings submitted June 12, 2006, (Exhibits No. 1 and No. 2), and on file with this Commission; and it is,

**FURTHER ORDERED**, that that PSNH operate this new crossing in conformance with the NESC; and it is

**FURTHER ORDERED**, that PSNH shall provide a copy of this order to the (i) City Clerk of Manchester, (ii) New Hampshire Attorney General and the owners of the land bordering on said public waters at the location of the river crossing, pursuant to RSA 371:19, and (iii) pursuant to RSA 422-B:13, New Hampshire Department of Transportation and the Office of Secretary, U.S. Department of Commerce, by first class mail, no later than September 11, 2006, and to be documented by affidavit filed with this office on or before September 22, 2006; and it is

**FURTHER ORDERED**, that PSNH shall cause a copy of this Order *Nisi* to be published once in a statewide newspaper of general circulation or of circulation in those portions of the state where operations are conducted, such publication to be no later than September 11, 2006 and to be documented by affidavit filed with this office on or before September 22, 2006; and it is

**FURTHER ORDERED**, that all persons interested in responding to this petition be notified that they may submit their comments or file a written request for a hearing which states the reason and basis for a hearing no later than September 15, 2006 for the Commission's consideration; and it is

**FURTHER ORDERED**, that any party interested in responding to such comments or request for hearing shall do so no later than September 19, 2006; and it is

**FURTHER ORDERED**, that this Order *Nisi* shall be effective September 22, 2006, unless PSNH fails to satisfy the publication obligation set forth above or the Commission provides otherwise in a supplemental order issued prior to the effective date.

By order of the Public Utilities Commission of New Hampshire this first day of  
September, 2006.

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Thomas B. Getz  
Chairman

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Graham J. Morrison  
Commissioner

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Clifton C. Below  
Commissioner

Attested by:

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Debra A. Howland  
Executive Director & Secretary