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**Via Electronic Mail & Hand Delivery**

March 29, 2017

New Hampshire Site Evaluation Committee  
Pamela G. Monroe, Administrator  
21 South Fruit Street, Suite 10  
Concord, NH 03301

**Re: SEC Docket No. 2015-04: Public Service Company of New Hampshire d/b/a  
Eversource Energy for a New 115 kv Transmission Line from Madbury Substation  
to Portsmouth Substation  
Applicant's Amendment to the April 12, 2016 Application**

Dear Ms. Monroe:

Enclosed for filing in the above-captioned docket, please find an original and one hard copy and ten thumb drives of the Applicant's Amendment to the April 12, 2016 Application for a Certificate of Site and Facility to construct and operate a new 115 kV Transmission line between the Madbury and Portsmouth substations.

As anticipated in the original Application, the Applicant has successfully worked with abutters, residents, conservation districts and host communities to contract to acquire the necessary land rights to make certain alterations to the Project design. The enclosed Amendment modifies the Project in four significant ways: (1) siting an additional 2,680 feet of the Project underground across the Frink Farm in the Newington Center Historic District, and in Hannah Lane residential neighborhood; (2) altering the route for the underground design in Newington through Gundalow Landing; (3) relocating the site of an underground-to-overhead transition structure in Newington; and (4) altering segments of the overhead design to accommodate concerns raised by the New Hampshire Department of Transportation, residents and town officials.

The Amendment includes revised narrative sections to address only those elements in the SEC rules that are modified due to the amended Project design; amended pre-filed testimony; and amended permit applications, reports, maps, and engineering drawings where necessary. The Applicant is submitting revised photosimulations to reflect the amended design, as well as one new photosimulation, that reflect the updated design across the Newington Center Historic District, Appendix 32(a). Also, the Applicant submits a revised Outreach Tracker, Appendix 36(a). The Table of Contents in front of the revised narrative sections clearly depicts which additional documents have been revised to reflect the new design.

SRP – Amendment to Application

March 29, 2017

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The Applicants are also substituting one witness, Marc Dodeman. Going forward, William F. Wall of LS Cable America will provide information regarding the permitting and construction of the underwater portion of the Project. Mr. Dodeman and Caldwell Marine, Inc. will no longer be involved in the permitting and construction of this project.

In addition, the Applicant is submitting the following new information: (1) updates to environmental mitigation; (2) updates on the Phase I-B surveys; and (3) the reclassification of a vernal pool.

The Applicants will deliver a copy of this letter and a thumb drive with the Amendment to the four host communities and Counsel for the Public.

Please contact me directly should you have any questions.

Sincerely,



Barry Needleman

BN:amd

Enclosures

cc: Distribution List  
Town of Madbury  
Town of Durham  
Town of Newington  
City of Portsmouth

Field

# Amendment to Application for Certificate of Site and Facility

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# New Hampshire Site Evaluation Committee

Docket No. 2015-04

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Amendment to Application of Public Service Company of New  
Hampshire  
d/b/a Eversource Energy

for **Certificate of Site and Facility**

for the Construction of a New 115 kV Electrical Transmission Line  
from Madbury Substation to Portsmouth Substation

March 29, 2017

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## List of Acronyms

AAL	Annual average load
AC	Alternating current
ADSS	All-dielectric fiber optic cable
AHS	Archaeological and Historical Services, Inc.
AoT	Alteration of Terrain
APE	Areas of Potential Effect
ARM	Aquatic Resource Mitigation
ASCE	American Society of Civil Engineers
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best management practices
CGP	Construction General Permit
CL&P	Connecticut Light & Power
dBA	decibel A-weighted
d/b/a	doing business as
EFH	Essential Fish Habitat
ELF EMF	Extremely low frequency Electric and magnetic fields
EMF	Electric and magnetic fields
E&S controls	Erosion and sedimentation controls
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
G	Gauss
GIS	Geographical Information Systems
GSP	Gross state product
GRANT	Geographically Referenced Analysis & Information Transfer System
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record
HDD	Horizontal directional drilling
HUC	Hydrologic Unit Code
HVED	High voltage, extruded dielectric
HVTL	High voltage transmission lines
Hz	Hertz
ICES	International Committee on Electromagnetic Safety
ICNIRP	International Council on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers

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ISO-NE	Independent System Operator – New England
kV	Kilovolt
mG	milliGauss
MUTCD	Manual on Uniform Traffic Control Devices
MW	Megawatts
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHCWS	New Hampshire Certified Wetland Scientists
NHDES	New Hampshire Department of Environmental Services
NHDHR	New Hampshire Division of Historical Resources
NHDOT	New Hampshire Department of Transportation
NHDRED	New Hampshire Department of Resources and Economic Development
NHF&G	New Hampshire Fish and Game
NHNHB	New Hampshire Natural Heritage Bureau
NHPUC	New Hampshire Public Utilities Commission
NHWAP	New Hampshire Wildlife Action Plan
NMFS	National Marine Fisheries Service
NPCC	Northeast Power Coordinating Council
NPDES	National Pollutant Discharge Elimination System
OH	Overhead
OHRV	Off highway recreation vehicle
OPGW	Optical ground wire
OSHA	Occupational Health and Safety Administration
PAF	Project Area Form
Pan Am	Pan Am Railways / Boston and Maine Railroad
PE	Polyethylene
PNGTS	Portland Natural Gas Transmission System
PPE	Personal protection equipment
PSNH	Public Service Company of New Hampshire d/b/a Eversource Energy
PVC	Polyvinyl chloride
PVP	Potential vernal pool
REMI	Regional Economic Models, Inc.
RFI	Request for Information
RMPP	New Hampshire Rivers Management and Protection Program
ROS	Recreation Opportunity Spectrum
ROW	Right-of-way

RPR	Request for Project Review
RTE	Rare, threatened, or endangered
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
SEC	Site Evaluation Committee
SRP	Seacoast Reliability Project
SSFATE	Suspended sediments dispersion model
SSVT	Station service voltage transformers
SWPPP	Stormwater Pollution Prevention Plan
SWQPA	New Hampshire Shoreland Water Quality Protection Act
UAM	Utility Accommodation Manual
UG	Underground
UNH	University of New Hampshire
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VA	Visual assessment
XLPE	Cross-linked polyethylene
WHO	World Health Organization

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## Executive Summary

Public Service Company of New Hampshire d/b/a Eversource Energy (“PSNH” or the “Applicant”) submits this Amendment to its Application to the New Hampshire Site Evaluation Committee (“SEC”), dated April 12, 2016, for a Certificate of Site and Facility (“Certificate”) to construct and operate the Seacoast Reliability Project—a new 115 kilovolt (kV) transmission line between the Madbury and Portsmouth substations (“SRP” or the “Project”).

As described in the initial filing, PSNH has continued to work closely with abutters, host communities and their residents to avoid, minimize, and mitigate potential impacts of the construction and operation of the Project. To respond directly to the feedback received from these stakeholders, PSNH has made significant design changes, including, siting approximately 2,680 additional feet of the Project underground through the Newington Center Historic District and Hannah Lane residential neighborhood, altering the route for the underground design in Newington through Gundalow Landing, relocating the site of a transition structure in Newington, and modifying portions of the overhead design. The Applicant comes before the Committee to submit this Amendment to its Application that reflects the aforementioned changes in the Project.

This submission describes in detail those sections of the April 12, 2016 Application that must be modified as a result of the design changes. PSNH also submits updated appendices and amended pre-filed testimony for each of its supporting witnesses.

Also, in support of its Application, PSNH simultaneously submits additional minor changes to the Application and supplementary information that has been developed since filing the Application. The filing includes the submission of the following new information: (1) updates to mitigation; (2) updates on the Phase I-B survey; and (3) the reclassification of a pond to a vernal pool.

### Project Design

As anticipated in the original filing, the Applicant has continued to work with stakeholders and has made four significant design changes: (1) siting an additional segment of the Project underground across the Frink Farm in the Newington Center Historic District, and the Hannah Lane residential neighborhood; (2) modifying the underground route through Gundalow Landing; (3) relocating the site of an underground-to-overhead transition structure in Newington; and (4) altering the overhead design to accommodate concerns raised by New Hampshire Department of Transportation (“NHDOT”), and residents and officials in the Towns of Durham and Newington.

PSNH has agreed to site an additional 2,680 feet of the Project underground across the Frink Farm, in the Newington Center Historic District, and in the Hannah Lane residential neighborhood. PSNH, through numerous discussions and negotiations with the Town of Newington and its residents, has been able to secure contracts to acquire the necessary land rights to site the Project underground for this segment. In addition to siting the Project underground in this area, PSNH will remove the existing distribution line across the Frink Farm, and across the Hannah Lane residential neighborhood, thereby restoring the Newington Center Historic District to its viewscape as it was in the early 1900s.

To accommodate added concerns from the Town of Newington, PSNH will also modify its location for the underground section along the Gundalow Landing roadway, and will relocate the transition

structure on Town owned property on the eastern side of Little Bay Road after crossing Little Bay. The relocation of the transition structure will significantly reduce its visibility.

PSNH has also made changes to the overhead line design as a result of discussions and meetings with residents and other stakeholders in the Towns of Durham and Newington. First, PSNH has made changes to the overhead design to accommodate comments made by the NHDOT in their progress report submitted to the SEC on November 21, 2016. These changes include minor structure shifts and changes in height and configuration. Specifically, near Madbury Road and Route 4 in Madbury and Durham, PSNH moved the alignment approximately ten feet west, within the originally proposed corridor, to increase spacing from the existing bridge abutments at those crossings. At the Madbury Road crossing, two H-frame structures were modified to be single pole structures. These changes provide additional clearance to the bridges and abutments to allow for future bridge maintenance and construction at the request of NHDOT.

Second, PSNH moved the location where the overhead line transitions from a double circuit structure to a side-by-side configuration, where the 115kV line and 34.5kV line are on separate structures, near Durham Point Road. The transition occurs at Structure 91 instead of Structure 93 as originally proposed. The alteration allows for longer span lengths and the elimination of proposed Structure 92.

Third, near Fox Point Road in Newington, PSNH redesigned the section between Structures 116 and 118 to eliminate Structure 117 located in the middle of the open field.

Fourth, at Route 108, PSNH modified the design of the 34.5kV line to reduce wetland impacts and conform to newly completed distribution line and road construction at the transmission line crossing.

Fifth, PSNH relocated two structures near Gosling Road in Newington to accommodate a new road easement for the Shattuck Way extension.

Finally, PSNH reviewed the required structure height for the underwater to overhead transition riser at Structure 101 to reduce it from approximately 80 feet above ground to approximately 70 feet above ground.

### **Project Cost**

The anticipated Project cost has increased from \$77 million to \$84 million due to the changes in Project Design, which includes additional underground segments. Based on the increased Project costs, the host communities may also see an increase in total property taxes paid by the Project, as discussed in Section 301.09 below.

### **Supplemental Information**

As part of this filing, the Applicants are also including the following information (1) wetland mitigation proposal updates; (2) updates to the Phase I-B Report; (3) and reclassification of a pond to a vernal pool.

The mitigation package is updated to include two proposed permittee-responsible options for mitigation in the towns of Durham and Newington. The Durham proposal is to partially fund a living shoreline solution for ongoing erosion at the Wagon Hill Farm conservation area. The Newington proposal is to use SRP mitigation monies to partially fund the purchase of a conservation easement

by the Newington Conservation Commission on a ten (10) acre parcel including wetlands and hayfields on Knights Brook near the Frink Farm.

The Applicant has completed its Phase I-B investigation, which is summarized in a report that has been submitted to the Division of Historical Resources (“NHDHR”). After review by NHDHR, the Applicant will submit the report directly to the SEC.

Days Pond, a water body in the Flynn Pit in Newington, has been reclassified from a permanent pond to a vernal pool based on further field studies in the spring and summer of 2016.

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**Site 301.03 Contents of Application.**

(b) Each application shall include the information contained in this paragraph, and in (c) through (h) below, as follows:

(7) **Whether the applicant is or will be the owner or lessee of the proposed facility or has or will have some other legal or business relationship to the proposed facility, including a description of that relationship.**

Since filing the Application on April 12, 2016, PSNH has secured contracts to acquire additional property rights to construct the facility in three separate underground locations in the Town of Newington, NH: (1) underground at Gundalow Landing; (2) partially underground on Town owned land known as the Flynn Pit; and (3) underground across the Frink Farm in the Newington Center Historic District and the Hannah Lane residential neighborhood.

After crossing the Bay, the Project will make land fall on property where PSNH has contracted to purchase a new easement. The line will leave the ROW at Gundalow Landing and continue underground in the street and utilize a portion of three private properties until reaching Little Bay Road. PSNH has contracted with the residents in this area to acquire new easement rights for this section.

After crossing under Little Bay Road, the Project will continue underground across property owned by the Town of Newington, for approximately 440 feet where the Project will transition back to overhead on the northeast side of the existing ROW and rejoining the existing ROW in an overhead design. PSNH has contracted with the Town of Newington to acquire new easement rights for this section, in the area commonly referred to as the Flynn Pit.

The Project will then travel overhead in the existing ROW, for 2,820 feet. At the property owned by Helen H. Frink, John D Frink and Sara F. Ryder, as Trustees of the Frink Family Trust of 2004, Helen H. Frink and John D. Frink, individually, and William H. Ryder and Sara F. Ryder, as Trustees of The Ryder Family Revocable Trust (Frink Farm) in the Newington Center Historic District, the line will transition to an underground design. The Project will continue underground within the existing ROW across the Frink Farm property, crossing Nimble Hill Road underground and continuing in existing ROW through and beyond the Hannah Lane residential neighborhood for a total distance of approximately 2,680 feet, where the Project will transition back to an overhead design. A transition structure will be placed near an existing utility pole located on the first residential property east of the Hannah Lane neighborhood. PSNH has contracted to acquire new easement rights for underground construction for this section from the Hannah Lane property owners. The existing overhead distribution line in this ROW will be relocated to the street by upgrading the existing roadside distribution lines.

In addition, the overhead line design changes occur within the existing ROW previously described in the SEC application. No additional rights are required for those modifications.

**(c) Each application shall contain the following information with respect to the site of the proposed energy facility and alternative locations the applicant considers available for the proposed facility:**

- (3) The location, shown on a map, of property lines, residences, industrial buildings, and other structures and improvements within the site, on abutting property with respect to the site, and within 100 feet of the site if such distance extends beyond the boundary of any abutting property;**

Please see revised Environmental Maps – Appendix 2(a).

- (4) Identification of wetlands and surface waters of the state within the site, on abutting property with respect to the site, and within 100 feet of the site if such distance extends beyond the boundary of any abutting property, except if and to the extent such identification is not possible due to lack of access to the relevant property and lack of other sources of the information to be identified;**

Please see revised Expanded Project Maps – Appendix 3(a).

The Application identified wetlands and surface waters. The changes in the Project design do not impact the identification of such waterbodies. However, based on the Applicant's continuing duty to update its Application as information becomes available, PSNH hereby provides additional information relating to one water resource and, as such, modifies its classification of the resource to include a vernal pool. Please see revised SRP Natural Resource Existing Conditions Report included as Appendix 7(a).

Vernal pool surveys were conducted in April and May, the typical window for identifying vernal pool indicators in the coastal plain of New Hampshire. For wetland and stream delineations conducted outside of the vernal pool season, potential vernal pools were identified, with a follow-up survey conducted in the spring of 2014 and 2015 to verify whether vernal pool indicator species were present. Based on the spring surveys, no vernal pools were found to occur within the SRP corridor. One pond in Newington, associated with wetland NW4 contained singing wood frogs in spring 2015. Observations in 2013, 2014 and 2015 had suggested that the deeper portion of this pond is permanently flooded year-round in most years. The permanent hydroperiod did not meet the definition of a vernal pool, and was described as such in the April 12, 2016, SEC application.

In 2016, a year with a dry period in the spring and a severe drought in the summer, the pond dried completely in August. In the spring, the pond supported fairy shrimp, wood frog and blue spotted salamander egg masses. Because of the presence of three vernal pool indicator species and the lack of fish, PSNH now considers the pond a vernal pool for regulatory purposes, but recognizes its dual functionality as both a vernal pool and a permanent pond. The functional value of the pond is only moderate because its vernal

pool functions are limited by its mostly permanent hydrology, and its permanent pond functions are limited because it occasionally dries up. See also Supplemental Information Reclassification of a Permanent Pond to a Vernal Pool, submitted to NHDES on January 11, 2017.

- (5) Identification of natural, historic, cultural, and other resources at or within the site, on abutting property with respect to the site, and within 100 feet of the site if such distance extends beyond the boundary of any abutting property, except if and to the extent such identification is not possible due to lack of access to the relevant property and lack of other sources of the information to be identified;**

Please see Section 301.06(d).

- (6) Evidence that the applicant has a current right, an option, or other legal basis to acquire the right, to construct, operate, and maintain the facility on, over, or under the site, in the form of:**

Please refer to the pre-filed testimony of Kenneth Bowes for additional evidence that the Applicant has the legal basis, under option agreements, to acquire the necessary property rights to construct, operate and maintain the Project underground in Gundalow Landing, at the Flynn Pit, underground across the Frink Farm, and the Hannah Lane residential neighborhood.

- (d) Each application shall include information about other required applications and permits as follows:**

- (3) A copy of the completed application form for each such agency; and**

Supplemental information has been provided for the following permit applications included in the original filing:

Appendix 13(a): Joint NHDES/USACE Wetlands Permit Application

Appendix 14(a): NHDES Section 401 Water Quality Certification Request

Appendix 15(a): NHDES Shoreland Permit Application (Cover Letter Only)

Appendix 16(a): NHDES Alteration of Terrain Permit Application

Appendix 17(a): NH Department of Transportation Applications

Appendix 18(a): Request for the Site Evaluation Committee to Grant Approvals for Overhead Municipal Road Crossings and to Excavate in Municipal Roads

(g) If the application is for an electric transmission line or an electric generating facility with an associated electric transmission or distribution line, the application shall include the following information:

(2) A map showing the entire electric transmission or distribution line project, including the height and location of each pole or tower, the distance between each pole or tower, and the location of each substation, switchyard, converter station, and other ancillary facilities associated with the project;

Please see revised Engineering Design Drawings, Appendix 5(a), which display the entire electric transmission line, including the height and location of each pole or structure, the distance between each pole or tower, and location of each substation and ancillary facilities. These Engineering Design Drawings have been updated to show overhead line design changes and the new underground sections through Gundalow Landing, Flynn Pit, Frink Farm and Hannah Lane.

(3) Corridor width for:

a. New route; or

**6. Little Bay Crossing to Little Bay Road: Submarine and Underground Cable**

This section revises Section (g)(3)(a) Part 6 of the April 12, 2016 SEC Application based upon the new design of the Project.

The change to this section of the Project begins at the manhole where the underwater cable terminates on the easterly shore of Little Bay. The Project has been modified so that it traverses in a new section of ROW for approximately 0.34 miles in length to the transition structure east of Little Bay Road.

Tree removal will be required on three private properties along Gundalow Landing where the Project has been relocated. This work has been discussed with the property owners and will not exceed the new easement width of approximately 25 feet. The Project will utilize the adjacent roadway to supplement the necessary construction access for the area. This results in an overall reduction of tree removal in this area.

Additional tree clearing will be required on the eastern side of Little Bay Road for a new section of ROW where the Project has been relocated. This clearing has been coordinated with the property owner (Town of Newington) and will not exceed the new easement width of 50 feet for the underground portion and 100 feet near the transition structure where the overhead line meets the existing corridor.

**7. East Side of Little Bay Road to Spaulding Turnpike: Structure 102 to 128**



This section revises Section (g)(3)(a) Part 7 of the April 12, 2016 SEC Application based upon the new design of the Project.

**a. Transition Structure 102 on East Side of Little Bay Road to Transition Structure 109**

This overhead section is now 0.53 miles long and the ROW is 100 feet wide. The ROW width for this section remains the same as described in the April 12, 2016 Application. See Environmental Maps in Appendix 2(a).

**b. Transition Structure 109 to Transition Structure 113 on East Side of Nimble Hill Road**

This section was originally an overhead design. The Project is proposing an underground section that is approximately 0.51 miles long with the ROW approximately 100 feet wide. During construction, the ROW width for this section remains the same as described in the April 12, 2016 Application. See Environmental Maps in Appendix 2(a).<sup>1</sup>

**c. Transition Structure 113 to Spaulding Turnpike: Structure 113 to 128**

This overhead section is 1.18 miles long and the ROW is 100 feet wide. The maintained cleared width is approximately 60 feet. The ROW will be cleared approximately 20 feet on both edges from the current cleared width of 60 feet to the full 100 foot width. See Environmental Maps in Appendix 2(a).

**(5) Distance along new route;**

The distance along the new transmission route remains 12.1 miles. From the Madbury Substation to structure 140, the Project will still be constructed primarily within an existing PSNH electric distribution corridor. There will be a new underground segment of 2,680 feet in the Newington Center Historic District, and a relocated segment of 1,800 feet underground at Gundalow Landing in Newington. The 2,100 foot underground segment at UNH remains unchanged.

**(9) Type of construction described in detail;**

Based on the design modifications, Section 301.03(g)(9) does not change, except for modifications to subpart 10 of this section, "Installation of Underground Cable." Subpart 10 is modified to add the following details regarding the installation of underground cable in agricultural areas:

In agricultural areas where the line is located underground, the top layers of soil will be maintained and separated during construction. After the completion of the underground duct bank the native soils will be used as backfill above the duct bank

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<sup>1</sup> Post-construction PSNH will maintain a ROW width of 50 feet across the Frink Farm property.

with sufficient depth to allow the agricultural use to be maintained. The soil management and backfill will be completed under the direction of a certified soil scientist to ensure the agricultural use is maintained. During construction, should the Project encounter any contaminants, PSNH will comply with NHDES and USEPA requirements and internal company policies.

**(10) Construction schedule, including start date and scheduled completion date;**

PSNH does anticipate changes to the construction schedule based on detailed project engineering and construction information as well as the design modifications included in the Amendment.

The construction of the Project is scheduled to begin after all the necessary approvals and permits have been acquired. The construction schedule is dependent upon the SEC certification. The current construction forecasted start is in the fall of 2017 with an expected completion date in late 2018.

The following table provides an approximate overview of the proposed schedule:

**Table 1. Proposed Construction Schedule**

Activity	Scheduled Start / Finish Date
Submit SEC Applications & Corps Permit	2 <sup>nd</sup> Quarter 2016
SEC Approval & Corps Permits Complete*	3 <sup>rd</sup> Quarter 2017
Relocation of Existing Utility Infrastructure	4 <sup>th</sup> Quarter 2017 / 1 <sup>st</sup> Quarter 2018
Transmission Line Construction	4 <sup>th</sup> Quarter 2017 / 4 <sup>th</sup> Quarter 2018
Madbury / Portsmouth Substation Upgrades	4 <sup>th</sup> Quarter 2017 / 4 <sup>th</sup> Quarter 2018
Transmission Underground Civil installation**	2 <sup>nd</sup> Quarter 2018 / 3 <sup>rd</sup> Quarter 2018
Transmission Underground Cable installation	2 <sup>nd</sup> Quarter 2018 / 4 <sup>th</sup> Quarter 2018
Transmission Submarine Cable Preparation & Installation and testing at Great Bay**	3 <sup>rd</sup> Quarter 2018 / 4 <sup>th</sup> Quarter 2018
Energize New F107 Transmission Line	4 <sup>th</sup> Quarter 2018

\* Dates are subject to change based on the SEC procedural schedule.

\*\* Specific activities may require 24 hour per day construction due to scheduling constraints

**(h) Each application for a certificate for an energy facility shall include the following:**

**(1) A detailed description of the type and size of each major part of the proposed facility;**

Based on the design modifications, certain descriptions of the Overhead Transmission Line must be revised, which are outlined below. In addition, there are now three land-based sections of the new 115 kV line that will be constructed underground with three solid dielectric insulated cables installed in individual PE conduits.

The following Parts of Section 301.03(h)(1) of the SEC Application are revised based on the new Project design:

**1. Madbury Substation to NH Route 4: Structures 1 to 10**

This section of the Project will be located on PSNH fee owned property, on a newly acquired easement, or for two structures, on NHDOT ROW. The new transmission line will be located approximately 50 feet west of the existing distribution circuit. The structures along this portion of the Project will be direct embedded monopole tubular self-weathering steel structures. The running angle and dead end structures will require the installation of guy wires or reinforced concrete drilled pier foundations to support the applied loads. The proposed new line will support the three 115 kV phases in a vertical or delta phasing configuration with only structures 1 and 2 in this section including the 34.5 kV underbuild. The new 115 kV overhead line conductors will be carried on steel davit arms with suspension insulators, or directly attached to the poles or structure cross arms on suspension insulators. The 34.5 kV underbuild will be in a horizontal phasing configuration attached by suspension insulators and/or post insulators. Shield wires and neutral conductors will be attached directly to the structures at the poles or on steel davit arms. Structure heights will vary between approximately 55 feet and 98 feet above grade. Typical span lengths in this section will average approximately 310 feet. See Appendix 5(a) for Engineering Design Drawings.

**8. Timber Brook Lane to Durham Point Road: Structures 64 to 94**

As part of the amendment, Part 8 of Section 301.03(h)(1) of the SEC Application titled “Timber Brook Lane to Durham Point Road: Structures 64 to 94”, now only applies to Structures 64 to 91. All details as described in Section 8 remain as described in the original application. See Appendix 5(a) for Engineering Design Drawings.

**9. Durham Point Road Crossing: Structures 94 to 96**

Based on the revised Project design, the description of the Overhead Portion of the Project in Part 9 of Section 301.03(h)(1) of the SEC Application titled “Durham Point Road Crossing: Structures 94 to 96”, now also applies from Structures 91 to 96. All details as described in Section 9 remain as described in the original application. See Appendix 5(a) for Engineering Design Drawings.

**11. Little Bay Crossing: Submarine Cable**

As part of this amendment, Part 12 of Section 301.03(h)(1) of the SEC Application titled “Little Bay Crossing: Submarine Cable,” shall be substituted with the following description:

This section of the proposed Project will be installed as a submarine cable. The cables will be installed in the existing, charted cable corridor across Little Bay. The existing cable corridor is approximately 1,000 feet in width. The transition from overhead to submarine cable on the western shore will occur on a monopole self-supported weathering steel structure. The pole will be

approximately 70 feet in height and will have the cable terminations and surge arresters located on davit arms in a delta configuration. The submarine cable will proceed underground from the transition structure approximately 360 feet to the edge of Little Bay. From there the submarine cable will cross the bay a distance of approximately 5,470 feet and terminate in a manhole on the eastern shore of Little Bay

The proposed submarine cable design will consist of three individual solid dielectric insulated cables directly buried in the soft sediments across the bay. The cables will include a lead sheath to prevent water ingress and will also have an outer metallic armoring (copper wires) to provide mechanical strength during cable installation and retrieval activities. A fiber optic cable will be bundled with two of the three conductors to allow for a communication path. The nominal depth of burial for each cable is 42 inches in the shallow mud flats on the western shore and up to eight (8) feet in the deeper portions of the bay. Each cable will be separated by a distance of approximately 30 feet to prevent inadvertent mechanical damage during subsequent cable installation activities. See Appendix 5 for Engineering Design Drawings.

## **12. Little Bay Crossing to Flynn Pit: Underground Cable**

As part of this amendment, Part 12 of Section 301.03(h)(1) of the SEC Application titled “Little Bay Crossing to Little Bay Road: Underground Cable,” shall be substituted with the following description:

This segment of the Project will be installed as an underground cable in a buried duct bank consisting of Polyethylene (“PE”) conduits. This segment will begin at a new concrete manhole located in the corridor on the eastern side of Little Bay in Newington and will proceed approximately 360 feet easterly to Gundalow Landing in Newington. The underground segment will continue approximately 1,000 feet along Gundalow Landing within the public ROW and within new easements across private and Town of Newington property to three self-supported steel transition structures located approximately 440 feet off Little Bay Road. The total length of the underground segment is approximately 1,800 feet. The transition structures will be approximately 65 feet in height and will have the cable terminations and surge arresters located on davit arms in a horizontal configuration. See Environmental Maps in Appendix 2(a), Map 21.

The proposed underground transmission line will consist of three solid dielectric insulated cables installed in individual PE conduits. The nominal trench for the duct bank will be five (5) feet wide by five (5) to eight (8) feet deep. The duct bank will consist of four 8-inch diameter PE conduits, two 4-inch diameter PVC conduits for fiber-optic communication to protect the transmission lines and two 2-inch diameter PVC conduit for a ground cable. The conduits will be buried with a minimum of 30 inches of cover.

See Appendix 5(a) for Engineering Design Drawings.

**13. Flynn Pit to Fox Point Road: Structures 102 to 115**

As part of this Amendment, Part 13 of Section 301.03(h)(1) of the SEC Application titled “Little Bay Road to Fox Point Road: Structures 102 to 115,” shall be substituted with the following description:

**a. Flynn Pit to Frink Farm and the Newington Center Historic District: Structures 102 to 109**

This section of the Project will be constructed within existing PSNH electric utility easements and will consist only of the new 115 kV overhead transmission line. The new transmission centerline will be located in the center of an approximately 100 foot wide corridor. The structures along this portion of the Project will be direct embedded monopole, tubular self-weathering steel with some multi-pole horizontal configuration structures. Span lengths will average approximately 470 feet. The existing 34.5kV line will be removed in this section of the corridor. Some of the new 115 kV overhead line conductors will be in a delta phasing configuration on steel davit arms with suspension insulators. Others structures will utilize multi-pole horizontal configurations with the conductor attached directly to the pole or on a horizontal crossarm with suspension insulators. Shield wires will be attached directly to the structures at the poles or on steel davit arms. Structure heights will vary between approximately 65 feet and 80 feet above grade. See Appendix 5(a) for Engineering Design Drawings.

**b. Newington Historic District to East Side of Nimble Hill Road and Hannah Lane Neighborhood (Structure 113): Underground Cable**

This segment of the Project will be installed as an underground cable in a buried duct bank consisting of PE and PVC conduits. The underground segment will be constructed within existing ROW crossing under Nimble Hill Road to three self-supported steel transition structures located approximately 1,200 feet off Nimble Hill Road. The total length of the underground segment is approximately 2,680 feet. The transition structures will be approximately 65 feet in height and will have the cable terminations and surge arresters located on davit arms in a horizontal configuration. The existing 34.5kV line will be removed in this section of the corridor.

The proposed underground transmission line will consist of three solid dielectric insulated cables installed in individual PE conduits. The nominal trench for the duct bank will be five (5) feet wide by five (5) to eight (8) feet deep. The duct bank will consist of four 8-inch diameter PE conduits, two 4-inch diameter PVC conduits for fiber-

optic communication to protect the transmission lines and one 2-inch diameter PVC conduit for a ground cable. The ductbank will be installed with a minimum 4 feet deep cover of native backfill material over the duct bank and other engineered material for the agricultural area, starting approximately 400 feet east of the transition structure location to the west side of Nimble Hill Road.

See Appendix 5(a) for Engineering Design Drawings.

**c. East Side of Nimble Hill Road to Fox Point Road: Structures 113 to 115**

This section of the Project will be constructed within existing PSNH electric utility easements and will consist only of the new 115 kV overhead transmission line. The new transmission centerline will be located in the center of an approximately 100 foot wide corridor. The structures along this portion of the Project will be direct embedded monopole, tubular self-weathering steel structures. The running angle and dead end structures will require the installation of guy wires or reinforced concrete drilled pier foundations to support the applied loads. Span lengths will average approximately 413 feet. The existing 34.5kV line will be removed in this section of the corridor. Some of the new 115 kV overhead line conductors will be in a delta phasing configuration on steel davit arms with suspension insulators. Shield wires will be attached directly to the structures at the poles or on steel davit arms. Structure heights will vary between approximately 80 feet and 84 feet above grade. See Appendix 5(a) for Engineering Design Drawings.

**(2) Identification of the applicant's preferred choice and other alternatives it considers available for the site and configuration of each major part of the proposed facility and the reasons for the preferred choice;**

**e. The Middle Route Alternative**

**1. Route Variations**

***Design Optimization Within the Preferred Route***

As anticipated in the Application filed on April 12, 2016, PSNH continued to work diligently to optimize its design of the Project and to limit potential impacts to the environment, aesthetics, and historical and cultural resources. As a result of extended discussions with the host communities, PSNH has made several design changes to further optimize the Project within the preferred route.

First, the section of underground cable along Gundalow Landing heading easterly from Little Bay to Little Bay Road was to be placed within the road ROW. At the request of the Town, the Applicant worked to move the design further off of Gundalow Landing road and onto private property owned by

residents along Gundalow Landing. PSNH worked with private landowners to secure contracts to acquire the necessary underground rights to construct the Project outside of the Gundalow Landing roadway.

The Town of Newington also requested that the transition structure, which is required to transition the line from underground to overhead after crossing Little Bay Road, be relocated off the existing ROW and onto Town owned property to limit its visibility. PSNH worked with the Town to secure a contract to acquire the necessary land rights to make this modification in the area commonly referred to as the Flynn Pit. The transition structure will now be located approximately 460 feet off Little Bay Road on property where PSNH has contracted to acquire an easement, which will provide additional screening of the structure.

PSNH received and considered feedback from the Town and from PSNH's historical resources and aesthetics consultants regarding the location and height of the transmission line structures in the Newington Center Historic District. As a result of the feedback and concerns raised by the Town and its residents, PSNH has altered the Project design to site the Project underground across the Frink Farm within the Newington Center Historic District and through the adjoining neighborhood on Hannah Lane. PSNH worked with the underlying property owners to secure contracts to acquire the necessary rights for undergrounding the Project in these areas. As originally described in the Application, PSNH will remove the existing 34.5 kV distribution line that currently traverses the Newington Center Historic District, (restoring the historic district to its natural viewscape) and from the Hannah Lane residential neighborhood.

Also as discussed above, PSNH received additional feedback from residents and officials in both the Town of Durham and Newington regarding structure heights, locations, and span lengths. PSNH also received feedback from the NHDOT. As a result of these ongoing discussions, PSNH has modified its design in areas, where practicable, to further reduce potential impacts and accommodate landowner and other local and state concerns.

**(5) The information described in Sections 301.04 through 301.09;**

Please see below for any changes to Sections 301.04 through 301.09.

**(7) Information describing how the proposed facility will be consistent with the public interest, including the specific criteria set forth in Site 301.16(a)-(j); and**

As described in the original Application, the Project will serve the public interest in New Hampshire by ensuring a reliable and adequate power supply to the Seacoast Region. SRP will serve the public interest by increasing the reliability of the power supply in the region, providing an increase to the local and State tax base, and by creating job opportunities during the construction phase of the Project.

In addition, the revised Project design further takes into consideration the views and concerns of abutters and host communities and its residents. By working productively with these stakeholders, the Project has successfully further avoided, minimized, and mitigated potential impacts of the construction of the Project on the environment, historic sites, aesthetics, and private property. PSNH is committed to continuing to work with these stakeholders as the process continues.

**(8) Pre-Filed Testimony and exhibits supporting the application.**

As part of the Amendment, PSNH is submitting Amended / Supplemental Pre-Filed testimony for each of its supporting witnesses, including:

1. William Quinlan, addressing: Background information on Applicant and Project development, Project Alternatives, Project Need, and other areas not specifically addressed or supported by other witnesses.
2. Robert Andrew, addressing: Impact on system stability and reliability
3. Aaron Cullen, addressing: Financial capabilities of PSNH
4. Kenneth Bowes, addressing: Project alternatives and public health and safety (sound)
5. David Plante, addressing: Technical and Managerial capabilities of PSNH
6. William Wall, addressing: Technical and Managerial capabilities of PSNH (submarine cable installation)
7. Lynn Farrington, addressing: Technical and Managerial capabilities of PSNH (traffic management)
8. David Raphael, addressing: The Project's visual impacts (i.e. aesthetics)
9. Cherilyn Widell, addressing: Aboveground historic resources
10. Victoria Bunker, addressing: Archeological resources
11. Sarah Allen, addressing: The Project's impacts water quality and the natural environment
12. Ann Pembroke, addressing: The Project's impacts on the marine environment
13. William Bailey, addressing: Public health and safety (EMF)
14. Robert Varney, addressing: Orderly regional development and tourism
15. James Chalmers, addressing: Local Property Values
16. Lisa Shapiro, addressing: Local Economy, local employment, and tax revenues

**Site 301.04 Financial, Technical and Managerial Capability.**

Each application shall include a detailed description of the applicant's financial, technical, and managerial capability to construct and operate the proposed energy facility.



(a) **Financial information shall include:**

- (3) **A description of the applicant's financing plan for the proposed facility, including the amounts and sources of funds required for the construction and operation of the proposed facility;**

Based on the amended design, the Project is estimated to cost approximately \$84 million. PSNH's financing plan will not change as previously described in its April 12, 2016 Application.

- (5) **Current and pro forma statements of assets and liabilities of the applicant;**

Please see the attached revised pro forma statement, Appendix 30(a) based on the amended Project design and cost of the Project.

### Site 301.05 Effects on Aesthetics.

- (a) **Each application shall include a visual impact assessment of the proposed energy facility, prepared in a manner consistent with generally accepted professional standards by a professional trained or having experience in visual impact assessment procedures, regarding the effects of, and plans for avoiding, minimizing, or mitigating potential adverse effects of, the proposed facility on aesthetics.**

- (b) **The visual impact assessment shall contain the following components:**

Please see the addendum prepared by LandWorks in response to the design changes that is included as Appendix 32(a) of this Amendment.

- (1) **A description and map depicting the locations of the proposed facility and all associated buildings, structures, roads, and other ancillary components, and all areas to be cleared and graded, that would be visible from any scenic resources, based on both bare ground conditions using topographic screening only and with consideration of screening by vegetation or other factors;**

Please see Appendix 32(a).

- (2) **A description of how the applicant identified and evaluated the scenic quality of the landscape and potential visual impacts;**

The amended design does not alter how the applicant identified and evaluated the scenic quality of the landscape and potential visual impacts. LandWorks has, however, conducted additional field studies of the affected areas, a review of amended design documents, and desktop analysis including 3D modeling to understand the potential visual impacts from the design changes described in this Amendment. Please also see Appendix 32(a).

- (3) **A narrative and graphic description, including maps and photographs, of the physiographic, historical and cultural features of the landscape surrounding the proposed facility to provide the context for evaluating any visual impacts;**

See the addendum prepared by LandWorks in response to the design changes that is included as Appendix 32(a). See also from the Appendix 32 Visual Assessment, Section 3 in particular page 32-43, of the April 12, 2016 Application.

**(4) A computer-based visibility analysis to determine the area of potential visual impact, which, for proposed:**

**d. Electric transmission lines longer than 1 mile if located within any rural area shall extend to:**

- 2. A radius of 10 miles if the line would be located in a new transmission corridor or in an existing transmission corridor if either or both the width of the corridor or the height of the towers, poles, or other supporting structures would be increased;**

A revised viewshed map for the additional underground section across the Newington Center Historic District and Hannah Lane residential neighborhood was not developed for the Amendment. Changes to the area of potential visibility for this regional scale analysis are insignificant at the selected scale and would be unrecognizable.

**(5) An identification of all scenic resources within the area of potential visual impact and a description of those scenic resources from which the proposed facility would be visible;**

See Appendix 32 Visual Assessment of the April 12, 2016 Application, in particular Table 2 beginning on page 45 for a full list of the scenic resources in the 10-mile area. Based on the design changes, the list of scenic resources within the 10-mile area remains unchanged.

The only scenic resources with an overall sensitivity rating of moderate-high or high that will be specifically affected by the design change in this amendment include Little Bay Road in Newington and to a much lesser extent Stratham Hill Fire Tower in Stratham.

- (6) **A characterization of the potential visual impacts of the proposed facility, and of any visible plume that would emanate from the proposed facility, on identified scenic resources as high, medium, or low, based on consideration of the following factors:**

- h. **The presence of intervening topography between the scenic resource and elements of the proposed facility;**

See the addendum prepared by LandWorks in response to the design changes that is included as Appendix 32(a).

- (7) **Photosimulations from representative key observation points, from other scenic resources for which the potential visual impacts are characterized as "high" pursuant to (6) above, and, to the extent feasible, from a sample of private property observation points within the area of potential visual impact, to illustrate the potential change in the landscape that would result from construction of the proposed facility and associated infrastructure, including land clearing and grading and road construction, and from any visible plume that would emanate from the proposed facility;**

For those locations where a design change was visible, the corresponding photosimulations in the original application (Appendix 32) were amended to illustrate this change. These include Exhibit 5: Little Bay, Exhibit 8: Durham Main Street/UNH Dairy Bar, Exhibit 12: Little Bay Road, Exhibit 13: Stratham Hill Park, Exhibit 18: Old Post Road, and Exhibit 20: Frink Farm at Nimble Hill Road & Hannah Lane. Each revised photosimulation is provided as part of Appendix 32 (a) in the Amendment.

Please also see an additional photosimulation, Exhibit 20(a): Frink Farm at Nimble Hill Road & Hannah Lane.

- (10) **A description of the measures planned to avoid, minimize, or mitigate potential adverse effects of the proposed facility, and of any visible plume that would emanate from the proposed facility, and the alternative measures considered but rejected by the applicant.**

The design modifications reduce or have minimal impact to the potential visual effect of the Project, and as a result, create a net gain in visual quality over the previously proposed Project design. The undergrounding of the section in Newington represents a substantial avoidance and minimization measure as compared to the overhead route. When a project is located underground, it eliminates all but the transition structures from view. Additionally, the locations of the newly proposed transition structures at either end of the underground section are such that they would not be overly obtrusive and they will be accommodated by existing woodlands at the western transition point and at the edge of a wooded portion of the ROW at the east. The design changes to the overhead configuration in Durham and Newington result in fewer structures and have minimal overall structure and conductor height changes keeping the Project elements near to or below the treeline of the existing right of way, further reducing the overall visual presence of the Project.

(c) **Summary**

Based on the foregoing discussion, as supported by the Pre-Filed and Amended Pre-Filed Testimony of David Raphael and the addendum attached as Appendix 32(a) to this application, the design change will not alter our conclusions from the previous design, which is the Project does not result an unreasonable adverse effect on aesthetics.

## Site 301.06 Effects on Historic Sites.

Each application shall include the following information regarding the identification of historic sites and plans for avoiding, minimizing, or mitigating potential adverse effects of, the proposed energy facility on historic sites:

(b) **Identification of all historic sites and areas of potential archaeological sensitivity located within the area of potential effects, as defined in 36 C.F.R. §800.16(d);**

Please see Section 301.06(d) for an updates on the Phase I-B survey.

(d) **Description of the measures planned to avoid, minimize, or mitigate potential adverse effects on historic sites and archaeological resources, and the alternative measures considered but rejected by the applicant; and**

(1) **Historic Sites**

Changes to the Project design have further minimized or eliminated the effects of the Project on two properties: the Newington Center Historic District (“Historic District” or “District”) and the Pickering-Rowe House. With the new underground design, the transmission line will be sited underground at the western boundary of the Historic District and will run underground for its entire length. The transition structure to the west will be located in a wooded area at the very edge of the boundary of the Frink Farm parcel. It will be visible within the District only by looking down the transmission right-of-way (i.e., west along the existing right-of-way away from the district) and from the abutting public roadway (Nimble Hill Road). The transition structure to the east will be located in a wooded area approximately 1,200 feet east of the district. Furthermore, as part of the Project, PSNH will remove the existing 34.5 kV distribution line that currently crosses the Newington Center Historic District and travels across the Frink Farm. This, in combination with the new underground design, virtually eliminates potential visual impacts to the Historic District, and it means that the Project will not have an adverse effect on the District. Therefore, no additional mitigation measures are necessary relative to this resource.

Because of the new underground design at the Frink Farm/Newington Historic District, the transmission line will also not be visible in significant views from the Pickering-Rowe House. The one overhead transmission structure that was to be located in the view from the Pickering-Rowe House toward the Newington Center Historic District is no longer part of the design. This will eliminate any effects to the historic house and no additional mitigation measures will be necessary.

**(2) Archeological Resources**

At the time the original Application was filed, Phase I-A archeological survey had been completed for the Project. The new underground segments were previously included in the Phase I-A archeological survey and the results of that survey apply equally to the redesigned route. Since that time, a Phase I-B archeological survey has also been completed for the entire project. The Phase I-B survey has confirmed the absence of any archeological sites for the underground portion of the route.

The Phase I-B archeological survey was conducted at previously recorded sites and locations exhibiting archeological resource sensitivity to determine the presence or absence of archeological sites along the entire route. The archeological study followed methodologies described in the NH Division of Historical Resources Archeological Standards and Guidelines (NH Department of Transportation 2004) and utilized a strategy of intensive walkover inspection, shovel test excavation, resource mapping, data interpretation, and presentation of results. The Phase I-B study was completed at 28 locations where archeological sensitivity was previously assigned or where sites were previously recorded. This study addressed both pre-contact Native American and post-contact European-American archeological resources. The results of the study are that archeological resources are absent in 26 of the 28 locations. For those locations, no further survey is recommended and archeological sensitivity is no longer assigned. After review by NHDHR, the Applicant will submit the report directly to the SEC.

The two archeological sites described in the Phase I-A survey were also studied during the Phase I-B archeological effort. The Project's archeological consultant has recommended that the LaRoche Brook Wetlands Cellar Hole site in Durham (27-ST-105) be considered as potentially eligible for listing on the National Register of Historic Places and that impact to this site should be avoided. The Project will avoid direct impacts to the Cellar Hole and employ matting or capping to protect adjacent archeological resources. The Phase I-B report recommends that if avoidance of these adjacent resources cannot be achieved a Phase II survey should be completed. The Project's archeological consultant has also recommended that the Langmaid Road Quarry site in Durham (27-ST-119) be considered not eligible for listing on the National Register of Historic Places. Therefore, no further survey is recommended for the Langmaid Road Quarry site.

**(e) Description of the status of the applicant's consultations with the division of historical resources of the department of cultural resources, and, if applicable, with the lead federal agency, and, to the extent known to the applicant, any consulting parties, as defined in 36 C.F.R. §800.2(c), available as noted in Appendix B.**

On January 24, 2017, an SRP representative met with NHDHR to review and discuss the change in the Project design at the Frink Farm in Newington. On January 25, 2017, Eversource employee Mark Doperalski e-mailed NHDHR confirming the details of that meeting, and in a January 27, 2017 e-mail, NHDHR concurred that the design change would minimize the Project's effect on the Frink Farm.

## Site 301.07 Effects on Environment.

Each application shall include the following information regarding the effects of, and plans for avoiding, minimizing, or mitigating potential adverse effects of, the proposed energy facility on air quality, water quality, and the natural environment:

**(b) Information including the applications and permits filed pursuant to Site 301.03(d) regarding issues of water quality;**

**(1) Introduction on Water Quality Issues**

**a. Surface Water Quality**

**4. Freshwater Streams**

No permanent impacts to streams will occur. Cable burial within the Frink Farm also resulted in an additional 84 square feet of temporary impact to a small perennial stream resulting from a stream diversion needed to install the underground duct bank. Project-wide temporary stream impacts during construction will total 568 square feet (0.01 acre). No additional stream buffer clearing is needed as a result of the amendment, therefore no change in secondary stream impacts.

**c. Wetlands**

**1. Background and potential effects**

As a result of continued field studies, the Applicant has revised the list of most common principal wetland functions to include: floodflow alteration, fish and shellfish habitat, production export, sediment/toxicant/pathogen retention, and wildlife habitat.

**2. Study and mitigation**

Additional impacts to water resources from the amended design are almost entirely temporary. Direct fill impacts have been reduced by 28 square feet resulting in a total of 778 square feet (0.02 acres) of permanent fill in freshwater wetlands and 6,114 square feet (0.14 acres) of permanent fill in freshwater and tidal wetlands. The two largest areas of change to temporary impacts were in Newington at the Flynn Pit and the Frink Farm. In the Flynn Pit, temporary impacts declined by 2,087 square feet due to the Town's approval for a new right-of-way to allow the project to go underground around Days Pond and the associated wetland. At the new underground cable proposed for the Frink Farm and Hannah Lane, temporary impacts increased by 18,013 square feet due to burial of the cable and associated work roads across seven wetlands in the corridor. Most other changes resulted in a decline in temporary impacts as engineering and construction requirements were modified in response to design changes. Temporary impacts now total 306,631 square feet (7.04 acres).

Indirect impacts are related to vegetation conversion (permanent tree removal) in the wetlands and will result in a revised total of 306,724 square feet (7.04 acres) of wetland conversion. Clearing of the upland buffer of perennial, intermittent and ephemeral streams will result in 87,200 square feet (2.00 acres) of secondary impacts.

Clearing in the 100-foot vernal pool envelope will result in 7,377 square feet of impact to forested upland, of which approximately 2,950 square feet (0.07 acres) will be temporary and allowed to recover, and 4,427 square feet (0.10 acres) will be maintained as permanent right-of-way.

Please also refer to PSNH Response to DES Wetlands Bureau November 10, 2016 Progress Report, submitted to NHDES on January 11, 2017.

### ***Wetland Mitigation***

The calculated Aquatic Resource Mitigation (ARM) Fund Payment has increased by \$8,479.27 to a total of \$318,450.38 following the modifications to the design included in this amended permit application filing. Even though total impacts declined, the cost for mitigation increased due to higher equalized values in the four towns. The revised water resource impacts and approximate total cost for the compensatory payment by town is shown in Table 2(a). The dollar value may change during the review process with NHDES and USACE. Details are also provided in the amended NHDES Wetland Permit Application. See Appendix 13(a); see also PSNH Seacoast Reliability Project, Supplemental Information, Permittee-Responsible Compensatory Wetland Mitigation Proposals, submitted to NH DES on January 11, 2017.

**Table 2(a). Approximate in lieu fee payment for compensatory wetland mitigation for the SRP.**

Town	A: Secondary Impact: Forested Wetland Conversion (SF)	A1: Conversion Mitigation Area (15% of total area A) (SF)	B: Secondary Impact: Stream Buffer Clearing (SF)	B1: Conversion Mitigation Area (15% of total area B) (SF)	C: Permanent Impacts (SF)	Total Impacts for Mitigation by Town (SF) (Sum A1+B1+C)	ARM Payment (from NHDES ARM Fund Calculator by Town) <sup>2</sup> (USD)
Madbury	2,072	311	7,383	1107	199	1,617	\$6,501.15
Durham (Freshwater)	216,621	32,493	68,997	10,350	203	43,046	\$192,471.01
Durham (Tidal)					3,550	3,550	\$31,746.14
Newington (Freshwater)	76,726	11,509	10,820	1,623	376	13,508	\$62,599.05
Newington (Tidal)					1,786	1,786	\$16,553.44
Portsmouth	11,305	1,696	0	0	0	1,696	\$8,579.60
Total:	306,724	46,009	87,200	13,080	6,114	65,203	\$318,450.38

<sup>2</sup> <http://des.nh.gov/organization/divisions/water/wetlands/wmp/>

Since the SRP SEC permit application was submitted on April 12, 2016, the Towns of Durham and Newington have developed permittee-responsible mitigation projects, summarized below. Both concepts have merit for compensation for different aspects of wetland resource impacts by the SRP if the regulatory agencies concur.

### ***Wagon Hill Farm, Durham***

#### **Introduction and Site Description**

The Town of Durham has proposed a shoreline stabilization project to reduce the amount of erosion from the Wagon Hill Farm shoreline bordering the Great Bay Estuary and the Oyster River and restore salt marsh that has already eroded. Wagon Hill Farm is Town-owned conservation land consisting of 139 acres with 1,100 feet of tidal frontage on the Little Bay, Oyster River and Smith Creek, and 8.5 acres of tidal and freshwater wetlands. PSNH proposes to stabilize a portion of the existing eroded shoreline, which is partially the result of uncontrolled foot and pet traffic along the shoreline. The erosion has been exacerbated by rising sea level; wind, wave and ice action; and shading from mature trees on the bank. This erosion is continuing to degrade shoreline and salt marsh habitats and has negative impacts on wildlife, shellfish, and fish habitats. The erosion reduction plan proposes to stabilize and restore the shoreline using a living shoreline concept, as well as measures to halt foot traffic in the sensitive areas by re-designing nearby walking paths to discourage off-path travel, using fences and viewing platforms on the adjacent upland, and installing clear signage along the shoreline area.

#### **Proposed Project**

The proposed project has two primary objectives: (1) design and build a living shoreline that has both structural and biological elements to minimize erosion, and (2) re-establish the degraded salt marsh to further protect the shoreline. The resulting stabilized and restored shoreline will help to protect the water quality and aquatic habitats of the Oyster River and the Great Bay Estuary including the adjacent Salt Marsh and Sparsely Vegetated Intertidal systems, both of which are Exemplary Natural Communities documented by NHHNB. Preliminary estimates suggest that approximately 10,000 square feet of salt marsh, plus approximately 1,100 linear feet of adjacent shoreline could be restored. The Town of Durham has partnered with University of New Hampshire coastal ecologists (Dr. David Burdick and Dr. Greg Moore) and coastal engineer (Dr. Tom Ballestero) and NHDES Coastal Program staff (Kirsten Howard and Kevin Lucey) to secure funding, collect baseline data, and design the living shoreline solution. This solution will likely include a combination of nearshore deflectors and energy dissipaters to protect against wave and ice action, enhancement of the existing salt marsh, and restoration of salt marsh previously lost to erosion, as well as protection of an upland area preserved for marsh migration as sea level rises. A 5-year monitoring program is proposed to study and assess the results of the project. Performance criteria will be established for evaluating the project



with respect to the primary objectives (e.g., minimizing erosion and salt marsh development). Erosion and vegetation development criteria will be based on current erosion rates, salt marsh conditions and the design that is chosen for the site. The partnership between the town, UNH and NHDES will bring innovative techniques for addressing shoreline erosion and protection from human-caused destabilization. A successful project would serve as an example solution for addressing similar erosion problems elsewhere in the Great Bay Estuary.

### **SRP Mitigation Proposal for Durham**

The Wagon Hill Farm shoreline stabilization project provides the opportunity for the SRP to compensate for unavoidable wetland impacts in Durham. These impacts include approximately 778 square feet of permanent impact caused by SRP structures in freshwater wetlands, up to 3,550 square feet of permanent impact from concrete mattresses on tidal flats, and conversion of forested wetlands and stream buffers as a result of tree removal within the SRP project corridor. The shoreline stabilization project at Wagon Hill Farm will restore deteriorated or fully eroded salt marsh, and will reduce the loss of shoreline habitats and the associated sediment loading into critical estuarine habitats. Direct functional benefits to wetland habitats will include restoration and enhancement of Sediment and Shoreline Stabilization, Wildlife Habitat, Fish and Shellfish Habitat, and Production Export functions.

The Wagon Hill Farm project has been divided into phases for funding sources and milestones: Data Collection, Permitting, Engineering and Design, Construction, and Monitoring. Data collection and conceptual design under Engineering and Design are currently underway and are being funded by a matching grant from the NHDES Coastal Program and Durham (\$40,000). These tasks are expected to be complete by early 2017. The Permitting and remaining Engineering and Design costs have been funded with a second matching grant from NHDES Coastal Program and town monies for \$42,500. Completion of these tasks is scheduled for mid-2017.

The Construction, Monitoring, and Maintenance components are broken into two phases: Phase 1 is proposed for 2017 and will restore 700 linear feet of shoreline and approximately 10,000 square feet of salt marsh; Phase 2 is projected for 2018 based on the results of Phase 1 and will restore an additional 410 linear feet of eroding shoreline and potentially additional salt marsh. The total cost for construction, 5 years of monitoring and maintenance is currently estimated as \$200,000 for Phase 1, and \$175,000 for Phase 2 for a total of \$375,000. Final costs will vary depending on the final design. The costs for construction, monitoring and maintenance will be funded through a mix of money from the Lois Brown Trust, the Town of Durham general fund, and the SRP compensatory mitigation contribution for unavoidable wetland resource impacts in the town. The Lois Brown Trust has up to \$100,000 available for this project. The Town of Durham

voted to approve up to \$84,000 for this project as part of the 2016 annual budget, pending regulatory permit approval for the PSNH contribution. This money will presumably be available in 2017. PSNH proposes to contribute the dollars calculated for the In-Lieu Fee contribution for wetland impacts in Durham towards construction costs. Under the current amended proposal, the value of that contribution is approximately \$224,000, although that may change during final design and the SEC permitting progress. Table 2-1 depicts the cost allocation by contributor for construction.

**Table 2-1. Cost allocation by contributing partner for construction of the Wagon Hill Farm Shoreline Stabilization Project.**

<b>Contributing Partner</b>	<b>Amount</b>
Lois Brown Trust	\$100,000
Town of Durham	\$51,000
PSNH	\$224,000
Total	\$375,000

### ***Newington Conservation Easement***

#### **Introduction and Site Description**

The Newington Conservation Commission is pursuing a 10- acre conservation easement on a 13-acre parcel on Old Post Road (Map 17 Lot 15) that borders an existing conservation parcel and encompasses a section of the Knights Brook Prime wetland. PSNH is working with the Town of Newington to develop a permittee-responsible compensatory mitigation project that would offset the wetland functional impacts of the Seacoast Reliability Project, and meet the town's goal of protecting this valuable parcel for wetland and wildlife habitat.

The Knights Brook system has been a top priority for conservation in Newington, and is listed as such in their 2009 Master Plan. The 10 acres proposed for easement support approximately 3.7 acres of wetland including a 200-foot section of Knights Brook, several springs, forested wetlands, shrub wetlands, wet meadow, and emergent marsh. The adjacent uplands are a mix of mowed fields and upland forest.

The landowners are retaining 3 acres of upland which contain their house, gardens and most outbuildings. They want to continue to maintain and use a set of walking paths through the easement lands. The walking paths are mowed grasses in the fields and a mix of cleared ground and bark mulch in the woodlands. Several wetland crossings have boardwalks and low bridges that were permitted in 2008.

A large portion of the parcel is ranked as Tier 1 habitat (Highest Ranked Habitat in NH) under the 2015 Wildlife Action Plan, with Knights Brook and its wetlands ranked as Supporting Landscape. The Tier 1 ranking is assigned to the mowed fields, in recognition of their habitat value for a number of bird species with declining populations in NH. The landowners have stated their intention to continue mowing the fields under the conservation easement.

The parcel is adjacent to, or in close proximity to, existing protected lands along the Knights Brook corridor totaling approximately 100 acres. These include the Frink Farm, a 38-acre parcel under an agricultural easement that is predominantly hay fields and pasture, and contains considerable riparian habitat and a tributary to Knights Brook. Abutting the proposed parcel is a 36-acre conservation easement that contains a mix of wetland and forested upland and approximately 1,600 linear feet of Knights Brook. North of, and adjacent to, the 36-acre lot is a 26-acre parcel owned by the Town, also under a conservation easement. This parcel abuts approximately 700 linear feet of Knights Brook and protects its riparian wetland as well as additional upland buffer. The acquisition of a conservation easement on the proposed parcel would increase the size of this block of protected lands, which also increases its value as watershed protection and wildlife habitat.

### **Project Status**

With the help of the Rockingham County Conservation District, the Newington Conservation Commission (NCC) submitted an ARM Fund pre-proposal to NHDES on April 22, 2016, to secure additional funds for the purchase of the conservation easement. The NHDES response indicated that the project needs to develop a functions and values assessment, a stewardship plan that addresses the use of the existing trails, puts limits on construction of new trails, and creates vegetative buffers to protect aquatic habitat. Since that time, the NCC has gotten a formal appraisal of the value of the easement, a full functions and values assessment, and is currently negotiating the terms of the easement with the landowners using the NHDES conservation easement template. This easement commits the landowners to no new trail construction and limits the use of the existing trails for their private purposes only.

The NHDES had originally requested that a natural vegetative buffer be restored along the edges of all wetlands to protect water quality and wildlife habitat. After reviewing the Tier 1 designation of the mowed fields, NHDES has agreed that the value of the fields and wet meadow outweighs the benefits of the natural buffer along most of the wetlands. NHDES is requesting that a natural buffer along the wetland edge on the western edge of the mowed fields to protect the wetlands bordering Knights Brook. The landowners have agreed to allow a 100-foot natural buffer to regenerate in that area, although their footpath will remain. A Letter of Intent was signed between the landowner and the NCC, dated September 1, 2016, to commit

to the purchase of the conservation easement, and a draft of the easement has been agreed to by the NCC and the owners (See Appendix B in the Natural Resource Impact Assessment Amendment (Appendix 34(a))). The NCC will be the easement holder and has committed to annual monitoring to ensure the terms of the easement are maintained.

### **SRP Mitigation Proposal for Newington**

The Newington Conservation Easement project provides the opportunity for the SRP to compensate Newington for unavoidable permanent impacts caused by SRP structures in freshwater wetlands (approximately 362 square feet), up to 1,786 square feet of permanent impact from concrete mattresses on tidal flats and rocky shore, and conversion of forested wetlands and stream buffers as a result of tree removal within the SRP project corridor. Placing a conservation easement on this parcel will protect a section of Knights Brook and its Prime Wetland, and will enlarge an existing protected block of habitat in a section of town with development potential. It will also narrow a gap in land protection between two existing conservation easements. Direct functional benefits to wetland habitats will include protection and enhancement of Groundwater Discharge, Floodflow Alteration, Shoreline Stabilization, Sediment/Toxicant Removal, Nutrient Removal, Wildlife Habitat, and Production Export functions.

The 2016 appraisal value of the conservation easement is \$260,000. PSNH proposes to contribute the dollars calculated for the In-Lieu Fee contribution for wetland impacts in Newington towards the purchase of the easement. Under the current amended proposal, the value of that contribution is approximately \$79,000, although that may change during final design and the SEC permitting progress. The NCC has committed \$100,000 from their conservation fund, and will request the remaining monies (estimated as \$81,000) to be raised at through a special warrant article at the 2017 Town Meeting. Table 2-2 depicts the cost allocation by contributor for purchase of the easement.

**Table 2-2. Cost allocation by contributing partners for the Newington Conservation Easement Acquisition.**

<b>Contributing Partner</b>	<b>Amount</b>
Newington Conservation Commission Fund	\$100,000
Town of Newington*	\$81,000
PSNH	\$79,000
<b>Total</b>	<b>\$260,000</b>

\*To be requested as a warrant article in the 2017 Town Meeting.

***In-Lieu Fee Reversion***

PSNH will continue to work with the applicable parties to develop a mitigation package that will be acceptable to NHDES and USACE. In the event that a town proposal does not come to fruition, or develop within an acceptable schedule for the agencies, PSNH agrees that the SRP compensatory mitigation funds will revert to the State In-Lieu Fee program to be dispersed by NHDES under the general Aquatic Resource Mitigation Fund grant program for the Salmon Falls-Piscatqua Rivers Service Area.

**Site 301.08 Effects on Public Health and Safety.**

Each application shall include the following information regarding the effects of, and plans for avoiding, minimizing, or mitigating potential adverse effects of, the proposed energy facility on public health and safety:

- (b) **For electric transmission facilities, an assessment of electric and magnetic fields generated by the proposed facility and the potential impacts of such fields on public health and safety, based on established scientific knowledge, and an assessment of the risks of collapse of the towers, poles, or other supporting structures, and the potential adverse effects of any such collapse.**

This section provides electric and magnetic fields (EMF) information for the Project, presenting projections for future EMF levels associated with the proposed transmission line in each segment where the design is being amended.

The company prepared calculations of magnetic field levels in the vicinity of the proposed transmission lines under average annual loads. Under all of these conditions, the calculated electric and magnetic fields are well below the exposure levels corresponding to ICNIRP and ICES Basic Restriction limits summarized in the table below. The calculated Electric and Magnetic Field levels associated with this project are shown in the tables after.

Please also refer to Appendix 41(a), Electric and Magnetic Fields Summary, Seacoast Reliability Project, Amended Calculations (September 30, 2016).

**Table 3(a). Magnetic-field Levels (mG) during Average Annual Loads and Typical Conductor Height**

Magnetic Field Calculations (mG)							
Line Section		Average Annual Loads					
		Pre-Project			Post-Project		
From	To	- ROW Edge	Maximum	+ ROW Edge	- ROW Edge	Maximum	+ ROW Edge
Route 108	Timber Brook Lane	0.27	1.6	0.27	4.35	17.36	7.62
Section West of Durham Point Road (±1900 feet)		0.27	1.6	0.27	6.71	17.89	4.13
Underground from Little Bay to Structure 102		0.00†	0.00	0.00†	0.48†	24.43	0.47†
Structure 102	Frink Farm	4.54	26.77	4.54	8.37	29.6	8.37
Underground through Frink Farm		0.00†	0.00	0.00†	0.48†	24.43	0.47†
Frink Farm	Fox Point Rd	4.54	26.77	4.54	3.97	17.63	7.92
Spaulding Turnpike Crossing		0.00	0.00	0.00	8.37	29.6	0.64

† For sections of Underground Cable which are not within existing Eversource ROWs, calculations are at 50 feet from the transmission line

**Table 4(a). Electric-field levels (kV/m) at Typical Conductor Height**

Electric Field Calculations (kV/m)							
Line Section		Pre-Project			Post-Project		
		- ROW Edge	Maximum	+ ROW Edge	- ROW Edge	Maximum	+ ROW Edge
From	To	- ROW Edge	Maximum	+ ROW Edge	- ROW Edge	Maximum	+ ROW Edge
Route 108	Timber Brook Lane	0.06	0.24	0.06	0.05	1.09	0.40
Section West of Durham Point Road (±1900 feet)		0.06	0.24	0.06	0.40	1.07	0.06
Underground from Little Bay to Structure 102		No External Electric Field from UG Cables					
Structure 102	Frink Farm	0.06	0.24	0.06	0.53	1.20	0.53
Underground through Frink Farm		No External Electric Field from UG Cables					
Frink Farm	Fox Point Rd	0.06	0.24	0.06	0.30	1.05	0.26
Spaulding Turnpike Crossing		0.00	0.00	0.00	0.10	1.20	0.01

**Table 5(a). Exposure Levels Corresponding to Basic Restrictions of ICES and ICNIRP**

	ICES	ICNIRP
Electric Field (kV/m)	26.8	36.4
Magnetic Field (mG)	9,150	12,400

(d) For all energy facilities:

- (2) A facility decommissioning plan prepared by an independent, qualified person with demonstrated knowledge and experience in similar energy facility projects and cost estimates; the decommissioning plan shall include each of the following:

- d. All underground infrastructure at depths less than four feet below grade shall be removed from the site and all underground infrastructure at depths greater than four feet below finished grade shall be abandoned in place;

Please see the Committee's Order in Docket 2015-04 on the Applicant's Motion for Partial Waiver of The Requirements of N.H. Code Admin. Rules, Site 301.08(d)(2) (Dec. 29, 2016).

- (5) A description of any additional measures taken or planned to avoid, minimize, or mitigate public health and safety impacts that would result from the construction and operation of the proposed facility, and the alternative measures considered but rejected by the applicant.

Please see a revision to Appendix 17, *NHDOT Applications*, included in the Amendment filing in Appendix 17(a).

Please see a revision to Appendix 18, *Overhead and Underground Municipal Highway Crossings*, included in the Amendment filing in Appendix 18(a).

### Site 301.09 Effects on Orderly Development of Region.

Each application shall include information regarding the effects of the proposed energy facility on the orderly development of the region, including the views of municipal and regional planning commissions and municipal governing bodies regarding the proposed facility, if such views have been expressed in writing, and master plans of the affected communities and zoning ordinances of the proposed facility host municipalities and unincorporated places, and the applicant's estimate of the effects of the construction and operation of the facility on:

(a) Land use in the region, including the following:

- (1) A description of the prevailing land uses in the affected communities; and
- (2) A description of how the proposed facility is consistent with such land uses and identification of how the proposed facility is inconsistent with such land uses;

The first full paragraph on page 119 of the Application should be modified to read as follows:

The Applicant has considered a number of different alternatives and determined that the Project as proposed maximizes the use of existing corridors, minimizes the need to acquire new land rights, minimizes impacts to densely populated areas, and minimizes adverse impacts to environmental, cultural, and scenic resources. Specifically, in the

Town of Durham, the line will be placed underground crossing Main Street, along the railway and in the vicinity of the Whittemore Center, the Amtrak Station/Dairy Bar, and the Field House/Cowell Stadium. In the Town of Newington, the Project has located the line underground in the Gundalow Landing area, including an underground crossing of Little Bay Road to a riser structure located within the area commonly referred to as the Flynn Pit. The Project has also been modified to include an underground design across the Newington Center Historic District and through the Hannah Lane residential neighborhood. In addition, the Applicant has proposed to reconfigure the existing distribution lines and to reduce structure heights in portions of Durham and Newington. The Project preserves local land use patterns, will not interfere with the implementation of other local master plans and is consistent with the policies and spirit of the planning process in that it will address immediate and long-term development objectives and will not unduly interfere with the orderly development of the region.

In addition to the revised language above, a report titled *Review of Master Plans in Abutting Municipalities: Seacoast Reliability Project* has been included as Appendix 46 to supplement the material provided in the original application.

**(b) The economy of the region, including an assessment of:**

**(1) The economic effect of the facility on the affected communities;**

Please see Section 301.09(b)(2) – (6) and Section 301.09(c) below.

**(2) The economic effect of the proposed facility on in-state economic activity during construction and operation periods;**

Economic benefits to the local communities in the project area will peak during construction. The Project will invest approximately \$84 million in local and State infrastructure and improvements, with an estimated approximate \$19.1 million spent with New Hampshire businesses and labor. The proposed infrastructure investments are located in the towns of Madbury, Durham, Newington, and the city of Portsmouth. The proposed Project will increase economic activity locally and statewide by creating jobs and increasing economic output (sales), gross state product (“GSP”), and personal income during the planning and construction phase between 2015 and 2018.

**(3) The effect of the proposed facility on State and tax revenues and the tax revenues of the host and regional communities;**

In addition, the Project will provide an increase to the tax base. Within the first year of operation, the Project will pay between \$1.6 and \$2.2 million in total property taxes. This includes \$982,000 to \$1.4 million to the four host communities, \$158,000 to \$175,000 to Strafford and Rockingham Counties, and \$500,000 to \$612,000 to the State for redistribution to local school districts. Actual taxes paid by Eversource will depend on the total cost and market value of the Project property in each community, government spending, other sources of revenue, and the tax base, after construction. Additionally, during the construction phase, the State’s economic output will be approximately \$26.9 to 28.3 million higher, and GSP an estimated \$17.3 million to \$19.9



million higher than they would be in the absence of constructing the proposed Project. See State and Local Tax Revenue Data, Appendix 44(a).

**(4) The effect of the proposed facility on real estate values in the affected communities;**

Based on modifying the Project to include an additional underground segment in the Town of Newington, the number of potentially affected properties that may experience a change in real estate values due to their proximity to the overhead portion of high-voltage transmission lines is reduced from 19 to 14.

**(5) The effect of the proposed facility on tourism and recreation; and**

Potential impacts to tourism were carefully considered as part of the Applicant's review of the Project and the amended Project design. This analysis included an examination of tourist-oriented attractions and recreation facilities in the Seacoast Region, as well as along the Project corridor. This assessment revealed that the amended Project design will not impact tourism or recreation in the area.

**(6) The effect of the proposed facility on community services and infrastructure;**

The amended Project design does not alter the conclusion that once the Project is constructed, the operation of the Project will not place any new or increased demands on school facilities, police or fire stations, roads, transit, solid waste disposal, drinking water or wastewater treatment facilities or services, recreation facilities, medical facilities or services, or any other community service or infrastructure.

**(c) Employment in the region, including an assessment of:**

**(1) The number and types of full-time equivalent local jobs expected to be created, preserved, or otherwise affected by the construction of the proposed facility, including direct construction employment and indirect employment induced by facility-related wages and expenditures; and**

Please replace this section with Site 301.09 (c)(1) of the Application.

During the construction phase of the Project, there will be the greatest economic activity and benefits for Rockingham and Strafford County and the surrounding area. During the peak year of construction, the peak number of total jobs is estimated to be between 54 and 97, depending on the assumptions and modeling specifics. The annual average total number of New Hampshire jobs during the Project construction period is between 30 and 46. The anticipated employment opportunities created by the Project include jobs directly filled by local labor and consist of construction employment and indirect and induced employment from project wages and local project expenditures.

Other local economic benefits include direct expenditures on labor, materials, and services during construction and operations. The estimated employment impacts and economic activity associated with construction of the proposed Project will in turn lead to greater personal income for New Hampshire workers. As a result, personal income

in New Hampshire is estimated to increase by a total of \$8.1 million to \$12.3 million on a cumulative basis over the construction period. Annually, the increase will average between \$2.0 million and \$3.1 million.

- (2) **The number and types of full-time equivalent jobs expected to be created, preserved, or otherwise affected by the operation of the proposed facility, including direct employment by the applicant and indirect employment induced by facility-related wages and expenditures.**

PSNH expects that there may be some additional incremental work needed for the operation and maintenance of the Project due to the additional infrastructure and the amended Project design. However, based on the minimal amount of incremental work, PSNH expects that there would only be nominal impacts to direct, indirect, and induced jobs.