



NORTHERN PASS:

The most **Advanced**
and **Comprehensive**
Energy Solution
for New England

NORTHERN PASS AT A GLANCE



Proven project partners

- **Eversource:** New England's largest energy delivery company and experienced transmission developer and operator
- **Hydro-Québec:** Operators of a vast fleet of clean hydropower generation and transmission facilities and longtime energy supplier to New England



New, clean power supply will lower costs and improve reliability

- 1,090 MW of firm clean energy from Québec hydropower facilities delivered year-round
- New transmission line connects New England to abundant renewable energy resources
- Improves fuel diversity in the region



Clean energy to help Massachusetts achieve Global Warming Solutions Act goals

- Up to 9.4 TWhs of clean, renewable hydroelectricity annually



Shovel-ready; power to flow in 2020

- 2020 in-service date
- Construction contracts in place, and U.S. and Canadian permits expected in 2017
- Approval secured to interconnect to ISO-NE system



Project support in New Hampshire

- 80% of transmission lines co-located along existing transmission rights-of-way or underground in public roads
- Positive community outreach plan with significant support from New Hampshire Governor, and labor and business organizations



Employment and economic benefits

- Hundreds of jobs during construction
- Priority hiring of New Hampshire and Massachusetts workers through a labor agreement with IBEW Locals 104 and 490
- \$10 million committed over 20 years to support Massachusetts low-income energy programs and services
- \$200 million Forward NH Fund supporting investments in clean energy innovation, economic development and community betterment

PROJECT OVERVIEW

The Northern Pass project will bring clean energy and a much-needed new source of electric power to New England.

By providing a new interconnection path between Hydro-Québec's vast hydroelectric resources and New England, Northern Pass will help Massachusetts achieve the clean energy goals required by its Global Warming Solutions Act (GWSA). It will also create jobs, lower wholesale energy costs, and provide a host of other unique economic benefits to energy consumers in New Hampshire and Massachusetts.

The Northern Pass will fill its new, dedicated transmission line with 1,090 megawatts of firm hydroelectric energy year-round, including during winter and summer days when demand for energy is greatest. This will ensure cleaner air, energy security, and price stability in the region for decades to come.

Shovel-ready, with a 2020 in-service date, Northern Pass is the most advanced and comprehensive energy solution for Massachusetts.



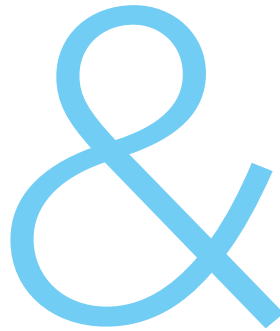
Massachusetts Clean Energy RFP

In August 2016, Governor Charlie Baker of Massachusetts signed into law *An Act Relative to Energy Diversity* (H. 4568). Its aims are to reduce energy costs, enhance reliability, and contribute to the state's greenhouse gas reduction (GHG) requirements.

The Act requires utilities to competitively solicit proposals for up to 9.45 TWhs of clean energy generation from diverse sources, including firm hydropower and onshore wind supported by firm hydropower.

This historic act recognizes the important role of hydropower in the supply mix and helps meet the state's GHG emissions reduction targets under the *Global Warming Solutions Act*. It also lays a foundation for the New England region to transition to a cost-effective clean energy future.

In accordance with the Act, a request for proposals was issued in March 2017. The deadline for bids was July 27, 2017, and selection is scheduled for early 2018.

EVERSOURCE**Hydro
Québec**

Powerful Partners: Eversource and Hydro-Québec

The project is a joint proposal of two leading energy companies with extensive experience in the Massachusetts energy market: local provider Eversource Energy and Canada's Hydro-Québec.

Hydro-Québec has been providing power into New England for decades. With a fleet of 62 hydroelectric generating stations, the company has enough power to supply Massachusetts with even more clean hydropower today, but additional transmission infrastructure is required to deliver this ready supply to the region.

That's where Eversource comes in. Operating New England's largest energy delivery system, Eversource Energy serves 3.7 million customers in Massachusetts, New Hampshire, and Connecticut. It has extensive experience building and operating the transmission grid in the region, and a proven track record of bringing large and complex transmission projects into service, from concept through construction, on time and under budget.



Lowering Energy Prices and Improving Reliability

Because Hydro-Québec's power comes from its entire system of hydroelectric generating stations, its hydropower is a constant, permanently available, and flexible energy source that can respond instantly to changes in demand. Transported over Northern Pass' dedicated HVDC line, it will act as baseload generation.

Thanks to this new energy supply, electric consumers will see a reduction in wholesale energy costs. Further, Northern Pass will diversify the region's energy mix, helping to fill the gap created by the retirement of older generating plants and reducing reliance on natural gas-fired sources, particularly during the winter months when the gas pipeline system into New England is constrained.



Helping Massachusetts Meet its Clean Air Goals

Northern Pass will be capable of providing up to 9.4 TWhs of clean hydroelectric energy that the Massachusetts legislation requires.

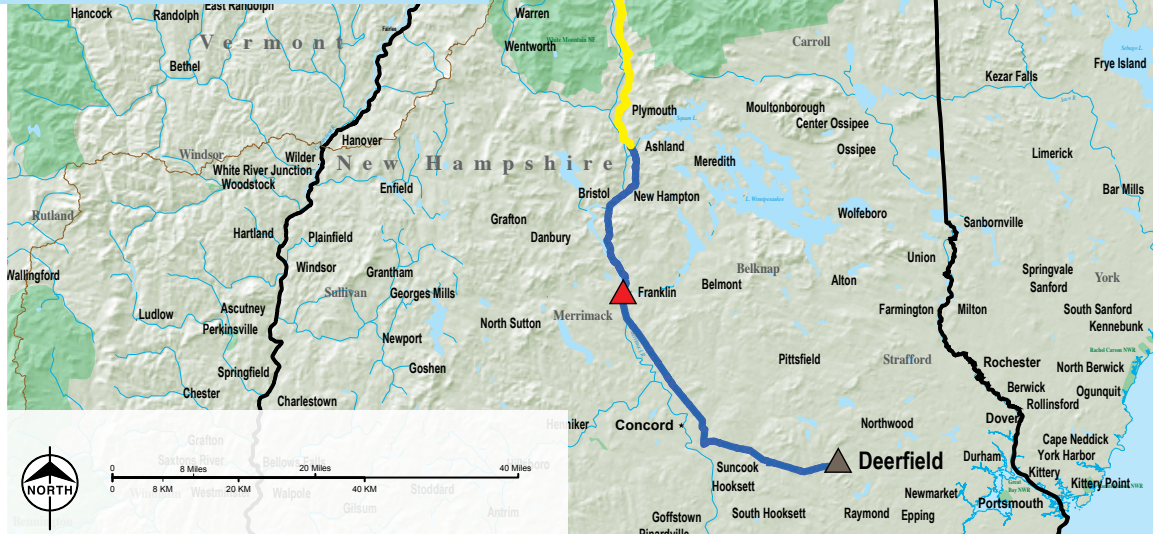
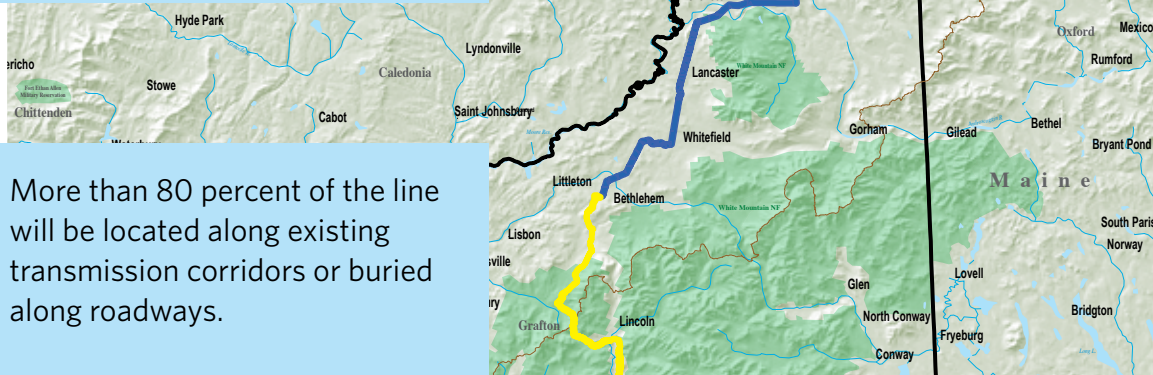
New Jobs and Economic Growth for New Hampshire and Massachusetts

The construction of Northern Pass will bring jobs and other economic advantages to host-state New Hampshire and neighboring Massachusetts. These benefits include:

- **Priority to New Hampshire and Massachusetts workers** through a project labor agreement with the International Brotherhood of Electrical Workers Locals 104 and 490.
- **Northern Pass has finalized an agreement** with Massachusetts low income advocacy organizations Action, Inc., Action for Boston Community Development, and the National Consumer Law Center that commits a total of \$10 million in funding to support low-income energy programs and services for Massachusetts low-income customers over 20 years.
- **As the host state, New Hampshire will receive millions of dollars in benefits**, including increased tax revenue and support for clean energy innovation, economic development, and investment in local communities through the \$200 million Forward NH Fund. These benefits, as well as lower wholesale energy costs, are the reason the project has strong support from many of New Hampshire's business leaders, labor organizations, and elected officials including Governor Chris Sununu.



DELIVERING CLEAN ENERGY TO NEW ENGLAND



- Des Cantons to NH
- Underground Northern Pass Route
- Overhead Northern Pass Route
- Substation
- Converter Terminal

Length of Line in Québec: 79 kilometers

Length of Line in NH: 192 miles

Positioned Years Ahead of Competing Projects



Northern Pass is advanced in its development. It is an engineered project with all state and federal permits expected in 2017, and with all major construction and supplier contracts fully executed. Northern Pass stands alone as the project best positioned to meet the Massachusetts GWSA goals and the region's critical energy challenges.



**RESPONSE TO
REQUEST FOR PROPOSALS
FOR
LONG-TERM CONTRACTS FOR
CLEAN ENERGY PROJECTS**

**Submitted by
Hydro Renewable Energy Inc. (HRE),
an affiliate of Hydro-Québec, and
Northern Pass Transmission LLC (NPT)**

TO

**Fitchburg Gas & Electric Light Company d/b/a Unitil
Massachusetts Electric Company d/b/a National Grid
Nantucket Electric Company d/b/a National Grid
NSTAR Electric Company d/b/a Eversource
Western Massachusetts Electric Company d/b/a Eversource
and
Massachusetts Department of Energy Resources**

July 27, 2017

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	REDACTED

APPLICANT INFORMATION; CONFIDENTIALITY STATEMENT

APPLICANT INFORMATION:

Applicant/Bidder:

Hydro Renewable Energy Inc.

Courier Address:

REDACTED

Contact:

REDACTED

Phone:

REDACTED

Mailing Address:

REDACTED

Email:

REDACTED

Applicant/Bidder:

Northern Pass Transmission LLC

Address:

56 Prospect Street
Hartford, CT 06103

Contact:

Patrick Smith

Phone:

REDACTED

Email:

REDACTED

CONFIDENTIALITY STATEMENT:

As authorized by Sections 1.7.4 of this RFP, this Proposal is filed in both "complete" and "redacted" versions. Information has been redacted either as "Confidential Business Information" (CBI) or as "Critical Energy Infrastructure Information" (CEII).

Information designated as CONFIDENTIAL–CBI consists of detailed cost and pricing information and other sensitive commercial and financial information that is not generally known nor readily ascertainable, and if known to competitors of a Bidder, particularly other bidders responding to this and future requests for proposals, would be of economic value to the competitors and would provide

them with an unfair advantage in their bidding and negotiating strategies, which could be used to the detriment of the Bidders and the public. The Bidders have not disclosed this information elsewhere than in this Proposal, and in the preparation of this Proposal, have shared it only with those individuals whose roles in the bid preparation required them to have access to it. The confidentiality of the information has been preserved pursuant to confidentiality agreements. The confidential nature of this information is recognized by Section 1.7.4 and Appendix F of this RFP, MA G.L.C. 25A, sec. 7, and the common law of Massachusetts.

Information designated as CONFIDENTIAL–CEII is "Critical Energy Infrastructure Information," which provides specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure for the production, generation, transportation, transmission, or distribution of energy that could be of interest to persons planning an attack on such infrastructure. This information is maintained as confidential pursuant to requirements of FERC, ISO-NE, and the Bidders.

Section 1 CERTIFICATION, PROJECT AND PRICING DATA (CPPD FORM)

The Certification, Project and Pricing Data ("CPPD") document is a Microsoft Excel workbook that is provided on the website at www.MACleanEnergy.com. The CPPD must be submitted as a working Microsoft Excel file. Parties may also submit a signed PDF in addition to the working Microsoft Excel file. The CPPD document has six parts, listed below. If the bidder provides information in other sections of its proposal that conflicts with the information provided in the CPPD, the CPPD shall be considered to contain the governing and binding information for both the evaluation and any resulting contract offer.¹ The bidder may provide up to five different offers on terms and/or pricing (e.g., 10 year and 15 year) for the same facility, which should be submitted on a single CPPD. All bids must include the appropriate bid fees as described in the body of the RFP in section 1.10 or the bid will be considered not eligible for consideration.

Part I Guidelines and Instructions for completing the spreadsheet

Part II Proposal Certification Form

Part III Bid and Contact Information

Information includes term, pricing type and contact information.

Part IV Project Information

Throughout this document, Project means all physical aspects of the bid, including generation facilities, transmission lead lines to move power to the grid, transmission proposals, and mandatory and voluntary transmission system upgrades. Information includes actual or expected Commercial Operation Date, size, output, dates, technology, location, delivery point, capacity factor, percentage entitlement, contract maximum amount and other technical information.

Part V Pricing Information

Information includes annual peak and off-peak contract energy by contract year and corresponding prices, and, where applicable, RECs by contract year and corresponding prices, and alternative pricing. Information for up to five offers is input on five separate worksheets in the CPPD.

Part VI Operational Information

Information regarding projected deliverables for Eligible Facilities.

¹ One exception is that if operational information in Part VI of the CPPD conflicts with information elsewhere in the proposal or information otherwise known the energy production information in Part VI of the CPPD may be modified in conducting the price evaluation.

Confidential Attachment 1 includes the completed CPPD in the required format for each Bidder.

Section 2	EXECUTIVE SUMMARY OF THE PROPOSAL (INCLUDING THE BASE PROPOSAL AND ANY ALTERNATIVE PROPOSALS)
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The bidder is required to provide an executive summary of the project proposal that includes a complete description of the proposed generation and/or transmission bid, the proposed contract term and pricing schedule, and other factors the bidder deems to be important.
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REDACTED

REDACTED

- A fully executed project labor agreement with the International Brotherhood of Electrical Workers (IBEW) Locals 104 and 490, and Northern Pass' general contractor, PAR Electrical Contractors, which will give priority to IBEW members in both New Hampshire and Massachusetts

REDACTED

Beyond economic benefits, Northern Pass has finalized an agreement with leading low-income advocacy organizations—Action for Boston Community Development, Action, Inc., and the National Consumer Law Center—that commits \$10 million in funding paid for by the project's developers to support low-income energy programs and services for Massachusetts low-income customers over 20 years.

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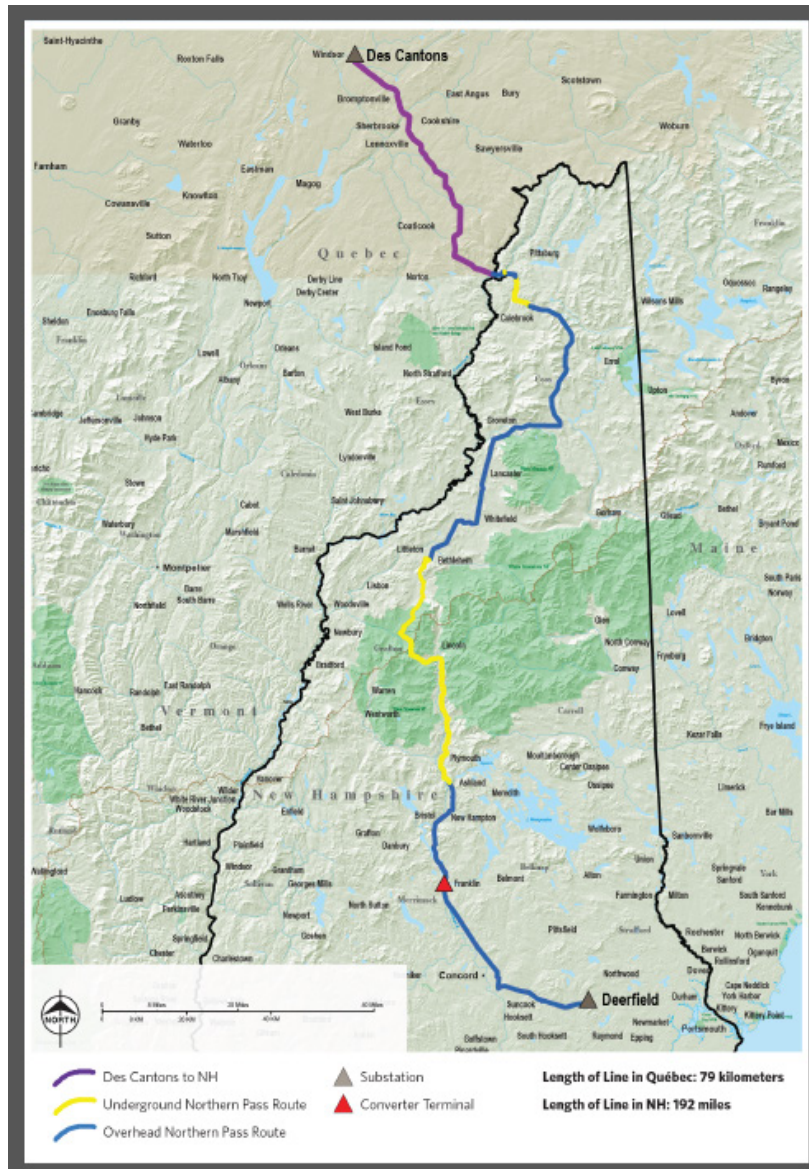
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The NPT portion of the HVDC transmission line begins at the U.S.-Canadian border in the town of Pittsburg, New Hampshire and extends 158 miles south and southeast to Franklin, New Hampshire, where the power will be converted from DC to AC. The project continues over a new 345-kV AC transmission line for approximately 34 miles to the existing Deerfield Substation, where it will interconnect with the ISO-New England transmission system. The New Hampshire construction will include overhead and underground lines, with more than 80 percent of the line built within existing rights-of-way or buried under public roads.

The project will also include upgrades to the AC transmission grid required by ISO-NE under Section I.3.9 of the ISO-NE tariff. REDACTED

NPT has taken extraordinary steps to minimize and mitigate the environmental impacts of the NPT Line, as the New Hampshire Department of Environmental Services (DES) recognized in its March 1, 2017 recommendation to approve the NPT Line. The DES concurred that the NPT Line's proposed route is the least impactful among the potential alternatives, as it avoids visual impacts to the White Mountain National Forest and other iconic scenic resources by installing the largest underground DC cable in North America. The DES stressed that more than 80 percent of the NPT Line will be installed in existing transmission corridors or underground in public roadways, and its overhead segments are in less populated areas and sited to avoid high elevations and concentrations of wetlands, water resources, archaeological resources and wildlife habitats. By way of compensatory mitigation, NPT will preserve more than 1,600 acres of land and contribute more than \$6 million to conservation projects.



REDACTED

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Industry-Leading Construction Partners

PAR Electrical Contractors

PAR, a subsidiary of Quanta Services, Inc. (the largest electric transmission and distribution specialty contractor in North America), will be the general contractor for the construction of the NPT Line. As premier providers in the electric power industry, PAR and other Quanta companies regularly furnish engineering, procurement and construction services for comprehensive infrastructure projects. Eversource Energy has extensive experience with PAR and other Quanta companies, including through its large Middletown to Norwalk (Connecticut) and New England East-West Solution transmission projects.

ABB Inc.

ABB, a global leader in power and automation technologies, will supply the HVDC converter terminals at Des Cantons and Franklin, along with the HVDC cable and Deerfield Static Var Compensator for the NPT Line. As a leader in technology development, ABB continues to facilitate innovative solutions in areas such as ultra-high-voltage power transmission, enabling smart grids and enhancing eco-efficiency. With a large network of factories and service centers across the world offering life-cycle support, ABB is a technology leader in the market of high-voltage products.

REDACTED

NPT also will provide funding of \$10 million to programs that benefit low-income electric customers in Massachusetts at no cost to EDC customers. Working together with low-income organizations—Action for Boston Community Development; Action, Inc.; and the National Consumer Law Center—NPT will provide this funding over 20 years to help advance the availability of the Massachusetts Department of Housing and Economic Development's Low-Income Home Energy Assistance Program (MA LIHEAP), as well as weatherization and related energy efficiency programs and services provided to Massachusetts low-income customers.

V. Improved Reliability Across the Region

The project's I.3.9 approval to connect to the ISO-NE system and its increased transmission capacity will allow more renewable sources to participate in the New England market. In addition, Northern Pass will increase resource adequacy and system reliability in New England by:

REDACTED

REDACTED

VII. NH Support for Northern Pass

Throughout planning and project development, NPT has focused its outreach efforts on listening to and addressing the concerns of New Hampshire's residents from a variety of stakeholder groups. Through its many conversations and outreach efforts, NPT has earned broad support from a range of stakeholders, including New Hampshire Governor Chris Sununu, developer Les Otten of the historic Balsams Resort, heads of innovative tech firms and regional Chambers of Commerce, labor groups like IBEW and the New Hampshire Building Trades Council, and local newspapers like the *New Hampshire Union Leader* and the *Concord Monitor*. NPT expects to have its state permitting complete in 2017.

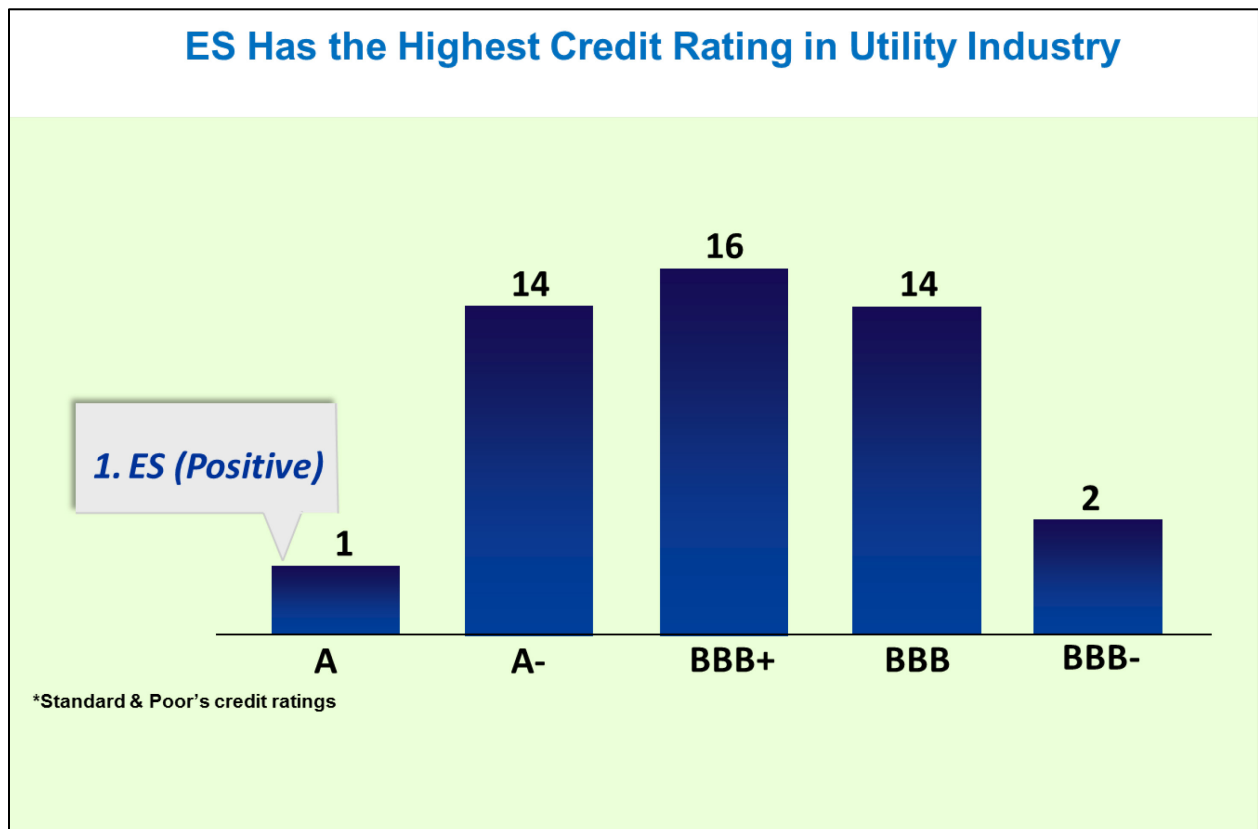
VIII. A Powerful Clean Energy Partnership

Hydro-Québec and Eversource are ideal partners to ensure that Massachusetts can achieve its energy diversity goals by providing a source of clean, firm, baseload power. Together, these companies offer a unique combination of assets and experience, and a level of financial strength and stability unmatched by other projects.

Eversource Energy

Eversource Energy is New England's largest energy company, serving 3.7 million retail electric and gas customers in Massachusetts, New Hampshire and Connecticut with a dedicated workforce of 8,000 employees. In 2016, the company posted \$7.6 billion in revenues, and had assets totaling \$32

billion. Further, Eversource has earned an "A" rating and "Positive" outlook from Standard & Poor's—the highest S&P rating of any U.S. electric utility system.



Eversource is a catalyst for clean energy in the region. The company is ranked as the #1 utility in the country for its energy efficiency and conservation programs, and is focused on ensuring that the future energy supply for New England increasingly comes from renewable energy resources. Toward this end, Eversource recently announced a partnership to develop off-shore wind generation off of the Massachusetts coast, and is constructing 62 megawatts of solar energy facilities in locations around the Commonwealth. Further, Eversource's electric distribution subsidiary, NSTAR, has filed a petition with the Massachusetts Department of Public Utilities to advance electric vehicles and battery storage to further reduce the Commonwealth's carbon footprint.

With an unwavering commitment to deliver energy to its customers reliably and safely, Eversource invested \$5.8 billion in capital between 2014 and 2016, with \$2.4 billion spent on electric transmission. Eversource has extensive experience building and operating New England's electric system. Over the past 11 years, the company has built numerous large and complex transmission projects on time and under budget. These include the Middletown to Norwalk (Connecticut) 345 kV transmission project, which featured the installation of underground cables along a 24-mile route—the longest continuous section of cross-linked polyethylene (XLPE) underground conductor cable used anywhere in the U.S. Eversource's financial stability, technical experience and capability, and proven track record building major infrastructure projects efficiently and cost-effectively, positions it very well for the Northern Pass project.

Hydro-Québec

Hydro-Québec is the ideal regional partner to ensure that Massachusetts can achieve its energy diversity goals by providing a source of clean, reliable, firm, baseload power. REDACTED

Unsurpassed Capacity and Experience

Hydro-Québec is a state-owned corporation with a mandate from the Government of Québec to harness the vast potential of the Province's water resources. Hydro-Québec generates more than 99% of its electricity from hydropower, a source of clean, renewable energy. With over 500,000 lakes and some 4500 rivers, about 12% of Québec's territory is covered with water. On 75 of these rivers, Hydro-Québec has developed and operates a system of power stations, dams, reservoirs and control structures.

Since 1944, Hydro-Québec has overseen the development of Québec's hydropower potential into a high performance fleet of hydroelectric generating stations with installed capacity totaling over 36,000 MW. Hydropower development requires high up-front capital investment, but has low operating costs over a long lifespan – in the case of Hydro-Québec's installations, well over 100 years. This means that operating costs are predictable over the long term, which enables Hydro-Québec to enter into long-term contractual arrangements and offer competitive pricing far into the future.

Hydro-Québec has long been a market participant in NEPOOL and the ISO-NE markets, and has long provided New England with a significant source of clean energy on a nonfirm basis over the existing interties. REDACTED

REDACTED

REDACTED

REDACTED

Baseload Energy that can Firm Up and Unlock Intermittent Energy Sources

Dispatchable, continuous, and predictable hydropower is the only renewable generation resource that can support the development of intermittent resources such as solar and wind power. The capability of a generation resource to respond instantly to dispatch instructions is vital in a region that has a growing amount of intermittent resources in the generation mix. REDACTED

REDACTED

Northern Pass presents a unique opportunity to enable Massachusetts and its Distribution Companies to meet the 2020 goals of the GWSA, thus maintaining their pre-eminent position in responding to the challenge of global warming. REDACTED

Eversource and Hydro-Québec recognize that the Evaluation Team has a large and important task before it. In the following sections of this Proposal, we have endeavored to provide thorough and informative responses to each of this RFP's questions. Of course, we will be pleased to respond promptly to any requests for further information that the Evaluation Team may have. REDACTED

FREQUENTLY USED TERMS

In addition to terms defined in this RFP, this Proposal frequently uses the following defined terms:

"ABB" is ABB Inc., a Delaware corporation.

"AC" is alternating current.

"ACOE" is the U.S. Army Corps of Engineers.

"Bidders" are HRE and NPT.

"DC" is direct-current.

"DEIS" is the Draft Environmental Impact Statement for the NPT Line issued by the DOE in July 2015, available at <http://www.northernpasseis.us/library/draft-eis/draft-eis-documents>.

"DEIS Supplement" is the Supplement to the NPT Line Environmental Impact Statement issued by DOE in November 2015, available at <http://www.northernpasseis.us/news/>

"Distribution Companies" or "EDCs" are Fitchburg Gas & Electric Light Company d/b/a Unitil, Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, and NSTAR Electric Company and Western Massachusetts Electric Company d/b/a Eversource.

"DOE" is United States Department of Energy.

"EDC TSA" or "EDC Transmission Service Agreement" is the proposed transmission service agreement between each Distribution Company and NPT resulting from this Proposal. REDACTED

"EIS" is an Environmental Impact Statement.

"Eversource Energy" or "ES" is Eversource Energy, a Massachusetts business trust and one of the sponsors of the Project.

"FAA" is the U.S. Federal Aviation Administration.

"FERC" is the Federal Energy Regulatory Commission.

"FEIS" is the Final Environmental Impact Statement issued by the DOE.

"GW" is gigawatts, and "GWh" is gigawatt hour.

"HRE" or "Hydro Renewable Energy" is Hydro Renewable Energy Inc. (f/k/a H.Q. Hydro Renewable Energy, Inc.), a Delaware corporation and subsidiary of Hydro-Québec.

"HRE TSA" or "HRE Transmission Service Agreement" is the Transmission Service Agreement dated October 4, 2010, between HRE and NPT, REDACTED

"HQ Équipement," "Hydro-Québec Équipement" or "HQE" is Hydro-Québec Innovation, équipement et services partagés - SEBJ, a division of Hydro-Québec.

REDACTED

"HQ PPA," "HRE PPA" or "HQ Power Purchase Agreement" is the proposed power purchase agreement between each Distribution Company and HRE resulting from this Proposal

REDACTED

"HQ Production," "Hydro-Québec Production" or "HQP" is a division of Hydro-Québec responsible for generation assets owned by the enterprise.

"HQ TransÉnergie," "Hydro-Québec TransÉnergie" or "HQT" is Hydro-Québec TransÉnergie, a division of Hydro-Québec.

"HQ US" is H.Q. Energy Services (U.S.) Inc., subsidiary of Hydro-Québec.

"HVAC" is high voltage alternating current.

"HVDC" is high voltage direct current.

"Hydro-Québec" or "HQ" is an agent of Québec and one of the sponsors of the Project.

"ISO-NE" is ISO-New England, Inc.

REDACTED

"MW" is megawatts.

"MWh" is megawatt hour.

"NEPA" is the National Environmental Policy Act.

"NHDOT" is the New Hampshire Department of Transportation.

"Northern Pass," "Northern Pass Project" or "Project" is the project under development being submitted in response to this RFP as described in this Proposal.

"Northern Pass Line" or "NPT Line" is a portion of the Transmission Project consisting of the U.S. transmission line
REDACTED

"NPT" is Northern Pass Transmission LLC, a transmission developer that is a subsidiary of wholly owned Eversource Energy Transmission Ventures, Inc.

"PAR" is PAR Electrical Contractors, Inc., a Missouri corporation, and a subsidiary of Quanta Services, Inc.

"Proposal" is this proposal dated July 27, 2017, submitted by the Bidders.

"PSNH" is Public Service Company of New Hampshire d/b/a Eversource Energy.

"PUC" is New Hampshire Public Utilities Commission.

"Québec Line" is a portion of the Transmission Project in Québec consisting of a new transmission line that will extend from the Des Cantons Substation to the U.S. border, where it will connect to the Northern Pass Line, as described in this Proposal.

"RFP" is the Request for Proposals for Long-Term Contracts for Clean Energy Projects issued March 31, 2017, by the Distribution Companies in coordination with the Massachusetts Department of Energy Resources.

"ROW" is a right-of-way.

"RPI" is Renewable Properties, Inc., a wholly owned subsidiary of Eversource Energy Transmission Ventures, Inc.

"SEC" is the New Hampshire Site Evaluation Committee.

"SEC Application" is the application filed with the SEC by NPT on October 19, 2015, available at <http://www.northernpass.us/siting-application.htm>.

"SVC" is Static Var Compensator.

"Transmission Project" is the Québec Line and the Northern Pass Line.

"TWh" is terawatt hour.

"XLPE" is cross-linked polyethylene.

"VSC" is Voltage Source Converter, also referred to in this Proposal as the DC to AC converter terminal.

Section 3	OPERATIONAL PARAMETERS
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REDACTED

Subsection 3.1	Maintenance Outage Requirements
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Specify partial and complete planned outage requirements in weeks or days for all generation facilities and transmission facilities. Also, list the number of months required for the cycle to repeat (e.g., list time interval of minor and major overhauls, and the duration of overhauls).

REDACTED

REDACTED

Subsection 3.2 Operating Constraints
Specify all the expected operating constraints and operational restrictions for the project (i.e., limits on the number of hours a unit may be operated per year or unit of time). If the bid includes firm deliveries, list the anticipated situations and frequency of interruptions of transmission sources which would affect power deliveries.

REDACTED

REDACTED

Subsection 3.3 Reliability
Describe how the proposal would provide enhanced electricity reliability to Massachusetts, including its impact on transmission constraints.

REDACTED

There are two aspects of electric system reliability:

REDACTED

REDACTED

The NPT Line will improve regional **transmission reliability** by providing a high capacity high voltage transmission line that directly connects to the ISO-NE transmission system, along with associated ISO-NE transmission system impact upgrades required by ISO-NE's I.3.9 approval of the NPT Line. This will:

REDACTED

NPT's reliability benefits have been emphatically recognized by expert Federal agencies:

Federal Energy Regulatory Commission (FERC)

FERC identified a number of specific benefits to the regional power grid when it accepted the existing HRE Transmission Service Agreement. It noted, for example, that Northern Pass:

"will reduce congestion between Québec and New England and facilitate integration and delivery of low-cost hydro-electric power. In addition, we find that with the addition of

hydro-electric power to the base case, the existence of the [Project] will help mitigate overloads."¹

FERC also commented that Northern Pass:

"will include making available up to 1,200 MW of hydro-electric power previously unavailable from Québec. The [Project] will not only diversify New England's power supply mix, but it will also allow more energy imported from Québec to be delivered during peak hours when marginal generation costs and market-clearing prices are highest."²

United States Department of Energy (DOE)

In July 2015, DOE issued a Draft Environmental Impact Statement (DEIS) concerning the Northern Pass Line, available at <http://www.northernpasseis.us/library/draft-eis/draft-eis-documents>, in connection with its processing of NPT's application for a Presidential Permit.³ In the DEIS, DOE emphasizes that Northern Pass will significantly enhance the reliability of the ISO-NE transmission system by addressing two "primary" reliability needs: diversity of electricity supply, and non-intermittent electricity supply (DEIS, pp. S-4 – S-6; 1-4 – 1-6).

Citing numerous ISO-NE reports, DOE stressed that, as is well known to the Distribution Companies:

"New England is increasingly dependent on natural gas as a primary fuel for generating electric energy..." (DEIS at 1-4). "In 2013 natural gas plants provided approximately 45 percent of the system's electric energy production, as compared to approximately 15 percent in 2000. The ISO-NE 2014 Regional System Plan anticipates further future reliance on natural gas due to the low price of natural gas and resulting retirement of less efficient oil and coal units, as well as the loss of nuclear generation capacity...This heavy reliance on natural gas-fired capacity creates a risk to the New England electric system...New England's increasing dependence on natural gas raises concerns regarding the adequacy of the region's natural gas pipeline capacity and gas supply in the pipelines to serve electric power generation reliably." (*Id.*, internal citations and quotation marks omitted.)

DOE also cited the conclusion of a 2013 NESCOE report that "in the absence of infrastructure or other solutions to increase supply or reduce demand, New England will experience significant natural gas infrastructure constraints." (*Id.*) In addition, DOE noted that FERC has found that Northern Pass would "diversify New England's power supply mix." (*Id.*, at 1-5)

¹ *Northern Pass Transmission LLC*, 134 FERC 61,095 at P 26 (2011).

² *Id.* at P 40. The NPT Line has been reduced from 1,200 MW to 1,090 MW since the issuance of the DEIS.

³ The full DEIS, including the Executive Summary of the DEIS, and a copy of the Supplement to the DEIS, issued in November, 2015 are available at <http://www.northernpasseis.us/library/draft-eis/draft-eis-documents>; or at <http://www.northernpasseis.us/news/>.

In its DEIS, DOE stressed that:

"the Project has the potential to contribute a non-intermittent (i.e., baseload) power supply to the region."

DOE observed that currently, an aging nuclear fleet provides roughly 30% of ISO-NE's baseload generation and, citing a report of the Nuclear Regulatory Commission, as the result of expected nuclear retirements, there will be a need in the near-term for non-intermittent, reliable power in New England (*Id.*). Citing a NESCOE report, DOE concludes:

"With a decline in reliable power from nuclear sources, and a need to diversify to avoid over-reliance on natural gas, hydroelectric power provides a logical solution to these needs." (*Id.*)

The retirement of the 680 MW Pilgrim Nuclear Power Station in June 2019 reinforces the need for Northern Pass.

Subsection	3.4	Moderation of System Peak Load
Describe how the proposal would contribute to moderating system peak load requirements and provide the following information:		
i)		
Estimated average output for each summer period (June - September) from 1:00 –6:00 pm		
ii)		
Estimated average output for each winter period (October - May) from 5:00 – 7:00 pm		

REDACTED

REDACTED

Subsection	3.5	Development Stage of Project
<p>Describe whether the project is in operation, in construction or in the development phase.</p> <p>(a) If in operation, when did the project achieve commercial operation</p> <p>(b) If in construction, when did construction commence and what are the projected dates for initial testing and commercial operation.</p> <p>(c) If the project is partly in one development stage and partly in another, please explain in detail the status of the project.</p> <p>If the proposed project is an expansion, repowering, environmental investment or other modification of an existing Facility, please describe the project in detail, the total cost and cost on a \$/kW basis specifying the existing project and the proposed expansion, repowering or other modification. Indicate any incremental or decremental capacity.</p>		

REDACTED

REDACTED

Northern Pass Line

The Northern Pass Line:

- Consists of approximately 158 miles of +/- 320 kV, HVDC transmission line from the New Hampshire/Canadian border to a new terminal in Franklin, NH, where the electric power will

be converted from DC to AC and sent, via a roughly 34-mile, 345 kV HVAC transmission line, to the Deerfield Substation for interconnection with the New England grid.

- Includes all upgrades required by NPT's ISO-NE I.3.9 approval.

Attachment 6.1.4 includes an overview map of the route, and Attachment 14.1 contains a detailed description of the Northern Pass Line. NPT has:

REDACTED

List of Attachments: None

Section 4	ENERGY RESOURCE AND DELIVERY PLAN
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REDACTED

Subsection 4.1	Energy Resource Plan
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<p>For Eligible Facilities, the bidder is required to provide an energy resource or fuel supply plan for its proposed project, including supporting documentation. The fuel supply/energy resource profile information should be consistent with the type of technology/resource option proposed and the term proposed. The information requested is organized according to the type of project or energy resource. Bidders should respond to all information requests which are relevant to the bid in a timely manner.</p>
--

REDACTED

Wind Energy Projects

Provide a summary of all collected wind data for the proposed site. Identify when the data was collected and by whom.

Indicate where the data was collected and its proximity to the proposed site. Include an identification of the location and height for the anemometers that were used to arrive at an assessment of the site generation capability.

Provide (a) at least one year of hourly wind resource data, and (b) a wind resource assessment report from a qualified unaffiliated third-party wind resource assessment firm. Include an analysis of the available wind data which addresses the relationship between wind conditions and electrical output. Provide a projection of net annual energy production, including projections of average net hourly energy production, based on the wind resource data (a 12 x 24 energy projection) at both P50 and P90 levels.

Provide a site-adjusted power curve. Each curve should list the elevation, temperature and air density used.

Identify the assumptions for losses in the calculation of projected annual energy production, including each element in the calculation of losses.

If your bid includes a delivery forecast which is substantially different than NREL data would suggest, please reconcile the differences.

REDACTED

Landfill Gas

This subsection is not applicable to the Bidders' Proposal.

Biomass

This subsection is not applicable to the Bidders' Proposal.

Solar

This subsection is not applicable to the Bidders' Proposal.

Hydropower

Describe the project characteristics in terms of water flow (on a monthly basis) and head, and state the assumptions regarding seasonal variations, and a conversion of such flow into megawatts and megawatt-hours.

REDACTED

REDACTED

Provide monthly flow duration curves based upon daily stream flow records.

REDACTED

Identify if the project is run-of-river or has storage capability.

REDACTED

Specify if the project is new, or if the project is an expansion of an existing facility.

REDACTED

Describe why the generation proposal qualifies as Incremental Hydropower Generation. If the entire project is not new, specify the amount of power provided to or sold into the ISO-NE market during 2014, 2015, and 2016. Provide information which demonstrates that the resources and transmission capacity described in your proposal are capable of providing an increase in the amount of such power compared to the average power deliveries in ISO-NE over those three years.

Northern Pass increases the transfer capability between Québec and New England by constructing a new 1,090 MW interconnection which will allow Hydro-Québec to provide Incremental Hydroelectric Generation to Massachusetts.

REDACTED

REDACTED

The bidder must disclose in its bid how it proposes to certify that the environmental attributes are included with the energy delivered.

REDACTED

Other information as required to describe the energy resource plan

Identification of fuel supply (if applicable)

What is the availability of the fuel supply?

Does the bidder have any firm commitments from fuel suppliers? If so, please provide a copy of any agreements with confidential information redacted if necessary.

Yes ☐ No ☐

This Section is not applicable to this Proposal.

Subsection 4.2 Clean Energy Generation Delivery Plan

Please provide documentation that any clean energy plan delivery plan that includes hydroelectric generation meets the definition of "Incremental Hydroelectric Generation" as defined in the body of the RFP.

REDACTED

Please provide an energy delivery plan and profile for the proposed project, including supporting documentation. The energy delivery profile must provide the expected Clean Energy Generation to be Delivered into the ISO-NE market settlement system and permit the Evaluation Team to determine the reasonableness of the projections for purposes of Sections 2.2.1.3 Eligible Bid Categories and 2.2.1.7 Minimum Contract Size of the RFP. Such information should be consistent with the energy resource plan provided above and also considering any and all constraints to physical delivery into ISO-NE.

REDACTED

Clean Energy Generation for projects containing new Class I eligible resources only must comply with Section 2.2.2.7 of the RFP. They must submit a delivery profile guaranteeing 70% of the energy in their delivery profile for the Winter Peak Period over the course of every Winter Peak Period on the CPPD form in their bidder response package.

This subsection is not applicable to this Proposal.

Clean Energy Generation for projects containing firm service hydroelectric generation, and Clean Energy from new Class I RPS eligible resources paired with firm service hydroelectric generation must comply with section 2.2.2.7 of the RFP. They will be required to submit a delivery profile with no Winter Peak Period hour less than 60% of their highest annual single hourly delivery claimed in their annual delivery profile as submitted as a part of their CPPD form in their bidder response package. Bidders will be required to guarantee the submitted delivery profile in all hours during the Winter Peak Period. Bidders should supply any studies performed to support this profile. Bidders should respond to all information requests which are relevant to the bid in a timely manner.

REDACTED

Subsection 4.3 REC/Environmental Attribute Delivery Plan

Please provide documentation demonstrating that the project will Deliver GIS Certificates representing those RECs or Environmental Attributes. For projects located outside of the ISO-NE control area, describe how the Delivered energy and associated RECs or Environmental Attributes will satisfy NEPOOL-GIS rules for the Delivery of GIS Certificates.

REDACTED

REDACTED

List of Attachments:

Attachment		Description
		REDACTED

Section 5	FINANCIAL/LEGAL
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REDACTED

Section Introduction

Bidders are required to demonstrate the financial viability of their proposed project. Bidders should provide the following information:
--

Subsection 5.1 Relationship to Financing

Each bidder is required to submit information and documentation that demonstrates that a long term contract resulting from this RFP Process would either permit the bidder to finance its proposal that would otherwise not be financeable, or assist the bidder in obtaining financing of its proposal.
--

The financial strength and experience of both Hydro-Québec and Eversource have been, and will continue to be, critical in attracting capital at favorable terms from investors, and the Bidders' financial strength is described in greater detail in this Section 5.

REDACTED

REDACTED

Subsection 5.2 Bidder Organization

Please provide a description of the business entity structure of the bidder's organization from a financial and legal perspective, including any general and limited partners, officers, directors, managers, members and shareholders, involvement of any subsidiaries supporting the project, and the providers of equity and debt during project development. Provide an organization chart showing the relationship between the equity and debt participants and an explanation of the relationships. For jointly owned facilities, identify all owners and their respective interests, and document the Bidder's right to submit a binding proposal.

The Project has resulted from significant coordinated planning and development by Hydro-Québec and Eversource Energy, and their collective efforts have advanced toward completion of permitting and siting phases in anticipation of commencing construction. The following organization chart shows the relevant entities within Hydro-Québec and Eversource Energy and the relationship between

the parties for purposes of this Proposal. The remainder of this Section 5.2 provides additional information regarding those entities and the proposed transaction structure.

REDACTED

HYDRO-QUÉBEC

Hydro-Québec is a long-standing participant in the New England energy market and operates one of the major systems in Canada for the generation, transmission and distribution of electric power.

Hydro-Québec supplies virtually all electric power distributed in Québec, the largest province in Canada in land area and the second largest in population. Hydro-Québec was created in 1944 by the Hydro-Québec Act of the Parliament of Québec and is an agent of Québec. Accordingly, Hydro-Québec is a government-owned corporation; all of its capital stock is held by the Minister of Finance on behalf of the Government of the Province of Québec.

Hydro-Québec is one of the largest power generators in North America. Its system power is almost exclusively generated by hydroelectric facilities. Hydro-Québec also transmits and distributes electricity. Hydro-Québec has been selling power to the New England energy markets since the 1980s over the existing transmission lines interconnecting the two regions.

REDACTED

EVERSOURCE ENERGY

Eversource Energy has deep roots in the energy industry. A Fortune 500 energy company headquartered in Boston, Massachusetts, and Hartford, Connecticut and listed on the New York Stock Exchange, Eversource Energy:

- Operates New England's largest energy delivery system;
- Is committed to safety, reliability, environmental leadership and stewardship, and expanding energy options for its more than 3.7 million electricity and natural gas customers;
- Serves over 500 cities and towns throughout New England (Massachusetts, New Hampshire, and Connecticut); and
- Is primarily composed of four regulated electric transmission and distribution companies and two regulated natural gas distribution companies, and for all business segments combined includes property, plant, and equipment with a book value of US\$21.4 billion as of December 31, 2016.

Eversource Energy's regulated electric subsidiaries own both transmission and distribution assets. Eversource Energy invested over US\$5.3 billion in new energy infrastructure between 2014 and 2016, and Eversource Energy's transmission business has a combined rate base of approximately US\$5.7 billion as of December 31, 2016.

Eversource Energy will participate in the Project through NPT, an indirect wholly owned subsidiary of Eversource Energy. NPT has access to Eversource Energy's financial resources. Similarly, most personnel involved in managing NPT are employees of a service company affiliate of Eversource Energy.

As the owner of the Northern Pass Line, NPT has the authority to submit this Proposal. Attachment 5.2.2 contains copies of the actions taken by the NPT members authorizing NPT's participation in this RFP and the submission of this Proposal.

Subsection 5.2*⁹ Financing Plan
For projects that include new facilities or capital investment, provide a description of the financing plan for the project, including construction and term financing. The financing plan should address the following:

i.	Who will finance the project and the related financing mechanism or mechanisms that will be used (i.e. convertible debenture, equity or other) including repayment schedules and conversion features
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REDACTED

ii.	The project's existing initial financial structure and projected financial structure
-----	--

REDACTED

⁹ Section retained as 5.2 consistent with RFP template (notwithstanding previous Section 5.2).

REDACTED

iii.	Expected sources of debt and equity financing
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REDACTED

REDACTED

REDACTED

iv.	Estimated construction costs
-----	------------------------------

REDACTED

v.	The projected capital structure
----	---------------------------------

REDACTED

vi.	Describe any agreements, both pre and post commercial operation date, entered into with respect to equity ownership in the proposed project and any other financing arrangement.
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REDACTED

In addition, the financing plan should address the status of the above activities as well as the financing of development and permitting costs. All bidders are required to provide this information.

REDACTED

Subsection 5.3 Financing Experience
Provide documentation illustrating the experience of the project sponsor in securing financing for projects of similar size and technology. For each project previously financed provide the following information: <ul style="list-style-type: none">i. Project name and locationii. Project type and sizeiii. Date of construction and permanent financingiv. Form of debt and equity financingv. Current status of the project

With the completion of hundreds of capital projects over the past decade, Hydro-Québec and Eversource Energy have established a successful track record in delivering customer value and demonstrated expertise in building, financing, owning and maintaining infrastructure for the electric industry. In virtually all instances, Hydro-Québec and Eversource Energy have financed those investments at the corporate level (either directly or through subsidiaries), and the debt and equity ratios are merely a reflection of the capital structure of the operating utility that owns the assets.

Attachments 5.3.1 and 5.3.2 provide additional details regarding the recent financing experience of each sponsor with respect to projects of similar size, technology, and/or profile.

Subsection 5.4 Financial Strength
For projects that include new facilities or capital investment, provide evidence that the bidder has the financial resources and financial strength to complete and operate the project as planned.

Hydro-Québec and Eversource Energy are stable and diverse energy companies with strong balance sheets indicative of the financial strength to complete and operate Northern Pass in the ordinary course of their respective businesses.

HYDRO-QUÉBEC

Hydro-Québec finances its own projects using various corporate sources of financing to meet its financial needs. Hydro-Québec's borrowings consist mainly of debentures and medium-term notes, nearly all of which are guaranteed by the Québec government, which is Hydro-Québec's sole shareholder. Hydro-Québec TransÉnergie, which will construct and own the Canadian transmission facilities constructed for the Project, had fixed transmission assets totaling CA\$21.3 billion on December 31, 2016. Hydro-Québec Production, which owns the HQ Hydropower Resources, is one of the largest power generators in North America, with close to CA\$30.9 billion in property, plant and equipment for generation assets. In 2016, Hydro-Québec's net income was CA\$2.86 billion.

Attachment 5.4.1 includes additional information regarding the financial strength of Hydro-Québec as of December 31, 2016.

EVERSOURCE ENERGY

NPT's financial capability to construct and operate the Northern Pass Line is based on the:

REDACTED

Attachment 5.4.2 includes additional information regarding the ability of Eversource Energy to finance large projects, including the Northern Pass Line.

The strong financial condition of each sponsor is also evidenced by its credit ratings from the three major ratings agencies, Standard and Poor's (S&P), Moody's Investors Service (Moody's), and Fitch Ratings (Fitch), as set forth in Section 5.5.

Subsection 5.5 Financial Statements
Provide complete copies of the most recent audited financial statement or annual report for each bidder for each of the past three years; including affiliates of the bidder (if audited statements are not available, reviewed or compiled statements are to be provided). Also, provide the credit ratings from Standard & Poor's and Moody's (the senior unsecured long term debt rating or if not available, the corporate rating) of the bidder and any affiliates and partners.

HYDRO-QUÉBEC

The current senior unsecured (long term) debt ratings of Hydro-Québec are:

Sponsor	S&P	Moody's	Fitch
Hydro-Québec	AA-	Aa2	AA-

The Annual Reports of Hydro-Québec for the fiscal years ended December 31, 2016, December 31, 2015, and December 31, 2014 can be found at:

December 31, 2016	http://www.hydroquebec.com/publications/en/docs/annual-report/annual-report-2016.pdf
December 31, 2015	http://www.hydroquebec.com/publications/en/docs/annual-report/annual-report-2015.pdf
December 31, 2014	http://www.hydroquebec.com/publications/en/docs/annual-report/annual-report-2014.pdf

EVERSOURCE ENERGY

The current senior unsecured (long term) debt ratings of Eversource Energy are:

Sponsor	S&P	Moody's	Fitch
Eversource Energy	A-	Baa1	BBB+

The following are links to the Annual Reports on Form 10-K of Eversource Energy for the fiscal years ended December 31, 2016, December 31, 2015, and December 31, 2014:

December 31, 2016	http://services.corporate-ir.net/SEC/Document.Service?id=P3VybD1hSFIwY0RvdkwyRndhUzUwWlc1cmQybDZZWEprTG1OdmJTOWtiM2R1Ykc5aFpDNXdhSEEvWVdOMGFXXOXVQVkJFUmlacGNHRm5aVDB4TVRRcE5qSTBNQ1p6ZFdKemFXUTIOVGM9JnR5cGU9MiZmbj1FdmVyc291cmNIRW5lcmd5XzEwS18yMDE3MDIyMy5wZGY=
December 31, 2015	http://services.corporate-ir.net/SEC/Document.Service?id=P3VybD1hSFIwY0RvdkwyRndhUzUwWlc1cmQybDZZWEprTG1OdmJTOWtiM2R1Ykc5aFpDNXdhSEEvWVdOMGFXXOXVQVkJFUmlacGNHRm5aVDB4TURjM05qYzFOU1p6ZFdKemFXUTIOVGM9JnR5cGU9MiZmbj1FdmVyc291cmNIRW5lcmd5XzEwS18yMDE2MDIyNi5wZGY=
December 31, 2014	<a "="" href="http://services.corporate-ir.net/SEC/Document.Service?id=P3VybD1hSFIwY0RvdkwyRndhUzUwWlc1cmQybDZZWEprTG1OdmJTOWtiM2R1Ykc5aFpDNXdhSEEvWVdOMGFXXOXVQVkJFUmlacGNHRm5aVDB4TURFd01UazFNaVp6ZFdKemFXUTIOVGM9JnR5cGU9MiZmbj1Ob3J0aGVhc3RvdGlsaXRpZXNfMTBLXzlwMTUwMjI1LnBkZg==">http://services.corporate-ir.net/SEC/Document.Service?id=P3VybD1hSFIwY0RvdkwyRndhUzUwWlc1cmQybDZZWEprTG1OdmJTOWtiM2R1Ykc5aFpDNXdhSEEvWVdOMGFXXOXVQVkJFUmlacGNHRm5aVDB4TURFd01UazFNaVp6ZFdKemFXUTIOVGM9JnR5cGU9MiZmbj1Ob3J0aGVhc3RvdGlsaXRpZXNfMTBLXzlwMTUwMjI1LnBkZg==

Ratings reports and printed copies of any annual reports are available upon request.

Subsection 5.6 Directors and Officers
Please also include a list of the board of directors, officers and trustees for the past three years and any persons who the bidder knows will become officers, board members or trustees.

HYDRO-QUÉBEC

The following tables include the board of directors and officers of HRE for the past three years.

**HYDRO RENEWABLE ENERGY INC.
DIRECTORS
2014-2017**

TERM		NAME
BEGINNING	END	
2010-09-14		CACCHIONE, Richard
2015-05-05		MARCASSA, Florence
2017-05-03		LENEY, Stella
2010-09-14	2015-05-04	NADEAU, Marie-José
2010-09-14	2015-05-05	ST-ARNAUD, Sonia
2011-03-11	2014-10-09	LANCTÔT, Maxime
2015-05-05	2017-01-23	DESGAGNÉ, Pierre-Luc
2017-01-25	2017-04-20	LENEY, Stella

**HYDRO RENEWABLE ENERGY INC.
OFFICERS
2014-2017**

TERM		NAME	TITLE
BEGINNING	END		
2014-12-12		CACCHIONE, Richard	President and Chairman
2015-05-05		ST-ARNAUD, Sonia	Vice President Project Development and Strategies
2012-10-26		CELLUCCI, Sandro	Vice President Legal Affairs and Compliance
2016-06-08		BERGEVIN, Simon	General Manager
2015-05-05		MARCASSA, Florence	Treasurer
2010-09-14		DESNOYERS, Michèle	Assistant Treasurer
2017-05-03		BROUILLETTE, Louise	Assistant Treasurer
2017-05-03		LENEY, Stella	Secretary
2017-05-03		DAIGNEAULT, Patrice	Assistant Secretary

TERM		NAME	TITLE
BEGINNING	END		
2010-09-14	2015-05-04	NADEAU, Marie-José	Secretary
2010-09-14	2016-12-23	CORMIER, Ginette	Assistant Secretary
2010-09-14	2015-05-05	ST-ARNAUD, Sonia	Treasurer
2011-08-08	2014-12-12	CACCHIONE, Richard	Chairman
2011-08-08	2014-10-09	LANCTÔT, Maxime	President
2011-09-27	2016-06-08	DEMERS, Steve	General Manager
2012-10-26	2014-10-09	RACINE, Sylvie	Director Regulatory Affairs and Marketing
2013-02-04	2016-06-08	BERGEVIN, Simon	Assistant General Manager
2015-05-05	2017-01-23	DESGAGNÉ, Pierre-Luc	Secretary
2017-01-05	2017-04-20	BROUILLETTE, Louise	Assistant Treasurer
2017-01-25	2017-04-20	LENEY, Stella	Secretary

Currently, Hydro-Québec is not aware of any other individuals who will become officers or board members of HRE.

EVERSOURCE ENERGY

NPT's Members Committee is as follows:

MEMBERS COMMITTEE

Philip J. Lembo

Leon J. Olivier

The following people previously served on NPT's Members Committee during the last three years (date of resignation in parentheses):

James J. Judge (05/04/2016)

James A. Muntz (09/29/2014)

Kathleen A. Shea (09/29/2014)

NPT's officers include:

OFFICERS:

Leon J. Olivier, Chairman of the Members Committee and President

Gregory B. Butler, Executive Vice President and General Counsel

Philip J. Lembo, Executive Vice President and Chief Financial Officer

Jay S. Buth, Vice President, Controller and Chief Accounting Officer
Christine L. Vaughan, Vice President and Treasurer
Emilie G. O'Neil, Assistant Treasurer-Corporate Finance & Cash Management
Richard J. Morrison, Secretary

The following people previously served as NPT officers during the last three years (date of resignation in parentheses):

James A. Muntz (10/31/2016)
James J. Judge (05/04/2016)

Subsection	5.7	Required Security
The bidder should demonstrate its ability (and/or the ability of its credit support provider) to provide the required security, including its plan for doing so.		

REDACTED

Subsection 5.8 Credit Concerns

Provide a description of any current or recent credit issues/credit rating downgrade events regarding the bidder or affiliate entities raised by rating agencies, banks, or accounting firms.

Each Project sponsor is rated by the three major credit rating agencies.

HYDRO-QUÉBEC

Hydro-Québec does not have any current or recent credit issues or rating downgrade events. Hydro-Québec's S&P credit ratings were recently raised to "AA-" from "A+", and they globally have remained stable for the past 5 years. Credit rating agencies, banks, and accounting firms have not raised any issues regarding the company during that period. Hydro-Québec's credit ratings are available in Section 5.5 and on Hydro-Québec's Investor Relations website:

<http://www.hydroquebec.com/investor-relations/about-the-issuer/credit-ratings.html>

Attachment 5.4.1 includes additional information regarding the quality of Hydro-Québec as an issuer as of December 31, 2016.

EVERSOURCE ENERGY

Eversource Energy does not have any current credit issues or recent rating downgrade events and is not aware of any pending credit issues/credit rating downgrade events regarding its enterprise, raised by rating agencies, banks, or accounting firms. In April 2015, S&P raised Eversource Energy's corporate rating to A (stable), reflecting S&P's assessment of Eversource Energy's business risk profile as excellent, and S&P subsequently raised the outlook from stable to positive in July 2016. Also, in July 2016, Fitch raised its outlook from stable to positive.

Subsection 5.9 Use of Tax Credits
--

Describe the role of the Federal Production Tax Credit or Investment Tax Credit (or other incentives) on the financing of the project.
--

REDACTED

REDACTED

Subsection	5.10 Litigation; Disputes
Bidders must disclose any pending (currently or in the past three years) litigation or disputes related to projects developed, owned or managed by Bidder or any of its affiliates in the United States, or related to any energy product sale agreement.	

HYDRO-QUÉBEC

There is no pending (currently or in the past three years) or threatened litigation or disputes related to projects developed, owned, or managed by Hydro Renewable Energy Inc. or any of its affiliates in the United States.

REDACTED

REDACTED

REDACTED

The annual reports referenced in Section 5.5 disclose material litigation and disputes regarding Eversource Energy and its other affiliates.

Subsection 5.11 Operating Life/Depreciation Period

What is the expected operating life of the proposed project? What is the depreciation period for all substantial physical aspects of the bid, including generation facilities, transmission lead lines to move power to the grid, transmission proposals, and mandatory and voluntary transmission system upgrades?

All of the assets involved in this Proposal have a useful life that significantly exceeds the duration of the proposed HQ PPA and EDC TSA.

HQ HYDROPOWER RESOURCES

REDACTED

A hydroelectric generating station that is properly maintained and refurbished can have a service life of more than 100 years. (Hydro-Québec has generating stations in its fleet that have been in operation for over 100 years.)

REDACTED

TRANSMISSION PROJECT

The expected operating life of the transmission facilities (the Québec Line and the Northern Pass Line) is at least 40 years, and the depreciation period is 40 years.

Subsection 5.12 Status of Financing
--

For projects that include new facilities or capital investment, has the bidder already obtained financing, or a commitment of financing, for the project? If financing has not been obtained, explain how obtaining a long-term agreement as proposed will help you in obtaining financing for the proposed project, in obtaining more favorable terms for the financing of the proposed project, or in supporting the future capital investment.

REDACTED

REDACTED

Subsection 5.13 Existing Contracts for Energy or RECs
--

State whether the bidder or its affiliates have executed agreements with respect to energy, RECs and/or capacity for the project (including any agreements that have been terminated) and provide information regarding the associated term and quantities, and whether bidder has been alleged to have defaulted under or breached any such agreement.

REDACTED

Subsection 5.14 Energy Sector Involvement
--

List all of the Bidder's affiliated entities and joint ventures transacting business in the energy sector.
--

REDACTED

REDACTED

EVERSOURCE ENERGY

Eversource Energy and its affiliates regularly conduct business in the energy sector in a comprehensive manner. Information regarding those activities is contained in annual reports in Section 5.5. The following affiliates of Eversource Energy have FERC market-based rate authority and registered market participant status with ISO-NE:

- The Connecticut Light and Power Company,
- NSTAR Electric Company,
- Public Service Company of New Hampshire, and
- Western Massachusetts Electric Company.

Subsection 5.15 Bankruptcy

Has Bidder, or any affiliate of Bidder, in the last five years, (a) consented to the appointment of, or was taken in possession by, a receiver, trustee, custodian or liquidator of a substantial part of its assets, (b) filed a bankruptcy petition in any bankruptcy court proceeding, (c) answered, consented or sought relief under any bankruptcy or similar law or failed to obtain a dismissal of an involuntary petition, (d) admitted in writing of its inability to pay its debts when due, (e) made a general assignment for the benefit of creditors, (f) was the subject of an involuntary proceeding seeking to adjudicate that Party bankrupt or insolvent, (g) sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency or reorganization or relief of debtors?

Neither Project sponsor (Hydro-Québec, Eversource Energy), nor any of the Bidders, in the last five years, has:

- (a) Consented to the appointment of, or was taken in possession by, a receiver, trustee, custodian or liquidator of a substantial part of its assets,
- (b) Filed a bankruptcy petition in any bankruptcy court proceeding,
- (c) Answered, consented or sought relief under any bankruptcy or similar law or failed to obtain a dismissal of an involuntary petition,
- (d) Admitted in writing of its inability to pay its debts when due,
- (e) Made a general assignment for the benefit of creditors,
- (f) Been the subject of an involuntary proceeding seeking to adjudicate that entity bankrupt or insolvent, or
- (g) Sought reorganization, arrangement, adjustment, or composition of it or its debt under any law relating to bankruptcy, insolvency or reorganization or relief of debtors.

Similarly, affiliates of Hydro-Québec, and the electric and gas operating subsidiaries of Eversource Energy have not suffered any of those occurrences in the past five years.

Subsection 5.16 Conflicts of Interest
--

Briefly describe any known conflicts of interest between Bidder or an affiliate of Bidder and any Distribution Company, or any affiliates of the foregoing.

Neither Bidder is aware of any conflicts of interests with any of the Distribution Companies.

HYDRO-QUÉBEC

Hydro-Québec and its affiliates are not aware of any conflict of interest with any of the Distribution Companies or any affiliate of the Distribution Companies.

EVERSOURCE ENERGY

NPT and its parent, Eversource Energy Transmission Ventures Inc., are affiliates of NSTAR Electric Company d/b/a Eversource Energy and Western Massachusetts Electric Company d/b/a Eversource Energy, two of the Massachusetts Distribution Companies participating in the Section 83D Solicitation Process and members of the Evaluation Team.

Eversource Energy maintains a rigorous compliance program, Code of Business Conduct, and has policies in place to avoid conflicts of interest and appearances of impropriety, and to ensure compliance with State and Federal codes of conduct and affiliate transactions rules. Eversource Energy has endorsed and supported the use of the Utility Standard of Conduct for the Section 83D Solicitation Process and RFP, the principles of which are consistent with Eversource Energy's compliance program and Code of Business Conduct, and has instituted additional measures to ensure adherence. For example, among other things, Eversource Energy has established separate teams for bidding and evaluation. Each person involved with either team receives a copy of the Utility Standard of Conduct and a list of people on each team, and submits a signed certificate acknowledging that such person has read those standards and agrees to comply with them. Each participant on the Eversource Energy bid and evaluation teams has received training and periodic reminders regarding their obligations under the Utility Standard of Conduct, and is directed to a single point of contact within the Eversource Energy Legal Department (Deputy General Counsel & Chief Compliance Officer) for any questions regarding compliance.

Subsection 5.17 Claims against Distribution Companies
Describe any litigation, disputes, claims or complaints involving the Bidder or an affiliate of Bidder, against any Distribution Company or any affiliate of any Distribution Company.

HYDRO-QUÉBEC

Neither Hydro-Québec, nor any affiliate of Hydro-Québec, is involved in any litigation or dispute with the Distribution Companies or any affiliate of the Distribution Companies.

Furthermore, there is no claim or complaint involving Hydro-Québec or its affiliates against the Distribution Companies or any affiliate of the Distribution Companies.

EVERSOURCE ENERGY

There is no pending litigation, disputes, claims or complaints involving NPT or Eversource Energy Transmission Ventures, Inc., and any of the Distribution Companies or any affiliate of any Distribution Company. Any material litigation, disputes, claims or complaints involving any other affiliate of Eversource Energy and any of the Distribution Companies or any affiliate of any Distribution Company are disclosed in the annual reports referenced in Section 5.5.

Subsection 5.18 Energy Litigation/Disputes

Describe any litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving Bidder or an affiliate of Bidder, and relating to the purchase or sale of energy, capacity or renewable energy certificates or products.
--

HYDRO-QUÉBEC

In relation to the purchase or sale of energy, capacity, or renewable energy certificates or products, there is no litigation, dispute, claim or complaint, or event of default or other failure to satisfy contract obligations, or failure to deliver products, involving Hydro Renewable Energy Inc.

REDACTED

EVERSOURCE ENERGY

NPT has not been implicated in any litigation, disputes, claims or complaints, or events of default or other failure to satisfy contract obligations, or failure to deliver products, involving, and relating to the purchase or sale of energy, capacity, or renewable energy certificates or products. Material litigation and disputes regarding Eversource Energy or its other affiliates for the past three years are disclosed in the annual reports referenced in Section 5.5.

Subsection	5.19 Investigations; Debarment
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Confirm that Bidder, and the directors, employees and agents of Bidder and any affiliate of Bidder are not currently under investigation by any governmental agency and have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action (detail any exceptions).

HYDRO-QUÉBEC

REDACTED

Hydro-Québec and its affiliates, and the directors, employees and agents of Hydro-Québec and any affiliate of Hydro-Québec are not currently under investigation by any governmental agency. Hydro-Québec and its affiliates have not in the last four years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action.

EVERSOURCE ENERGY

Neither NPT nor Eversource Transmission Energy Ventures, Inc., nor any directors, employees and agents of Eversource Energy or its other affiliates (when acting on behalf of those entities) are currently under investigation by any governmental agency, or have in the last four years been convicted or found liable in that capacity for any act prohibited by State or Federal law in any jurisdiction, in each case involving conspiracy, collusion or other impropriety with respect to bidding on any contract, or have been the subject of any debarment action.

Subsection	5.20	Regulatory Approvals
Identify all regulatory and other approvals needed by Bidder to execute a binding sale agreement.		

REDACTED

Subsection 5.20*¹¹ FERC Compliance
Describe how the project will conform to FERC's applicable regulatory requirements, including, but not limited to, FERC requirements relating to allocation of transmission capacity and open access, the justness and reasonableness of rates, the potential for undue preference or discrimination, and affiliate dealings, if any. Describe how your proposed approach is consistent with FERC precedent and ratemaking principles.

REDACTED

NORTHERN PASS LINE

This Proposal complies with all applicable FERC requirements.

REDACTED

¹¹ Section retained as 5.20 consistent with RFP template (notwithstanding previous Section 5.20).

REDACTED

As referenced in Section 5.16, Eversource Energy has a compliance program and a Standard of Conduct for the Massachusetts Clean Energy Solicitation Process that addresses any concern regarding affiliate relationships.

For all of those reasons, NPT believes that the transactions contemplated by this Proposal will satisfy all necessary FERC requirements.

REDACTED

Subsection 5.21 Distribution Companies and Bidders

Describe and document any and all direct and indirect affiliations and affiliate relationships, financial or otherwise in the past three years between the bidder and one or more of the Distribution Companies and their affiliates, including all relationships in which one of the Distribution Companies has a financial or voting interest (direct or indirect) in the bidder or the bidder's proposed project. These relationships include:

- Corporate or other joint arrangements, joint ventures, joint operations whether control exists or not;
- Minority ownership (50% or less investee);
- Joint development agreements;
- Operating segments that are consolidated as part of the financial reporting process;
- Related parties with common ownership;
- Credit, debenture, and financing arrangements, whether a convertible equity feature is present or not;
- Wholly owned subsidiaries; and
- Commercial (including real property) relationships with any Distribution Company.

HYDRO-QUÉBEC

REDACTED

There are no direct and indirect affiliations and affiliate relationships, financial or otherwise in the past three years between Hydro-Québec or its affiliates and any of the Distribution Companies or any affiliate of the Distribution Companies.

EVERSOURCE ENERGY

NPT has the following relationships, financial or otherwise, with either a Distribution Company or its affiliates:

- Eversource Energy's corporate chart (included as Attachment 5.21) depicts the relationship between NPT and all of its affiliates under the common control of Eversource Energy.

REDACTED

- Like other Eversource Energy companies, NPT has a service agreement with its affiliate Eversource Energy Service Company.

- NPT has two options with its affiliate, Renewable Properties, Inc., relating to real property, and a lease agreement with its affiliate PSNH, each as described in Section 6 of this Proposal.
- There is a site access agreement among NPT, PSNH and Properties, Inc. (PSNH's wholly-owned real estate subsidiary) pursuant to which NPT was granted access to relevant properties to conduct due diligence.

REDACTED

List of Attachments:

<i>Attachment</i>	<i>Description</i>
5.2.1	HRE Authorization
5.2.2	NPT Authorization
5.3.1	Hydro-Québec – Financing Experience
5.3.2	Eversource Energy – Financing Experience
5.4.1	Financial Strength of Hydro-Québec as of December 31, 2016
5.4.2	Eversource Energy – Financial Highlights
	REDACTED
	REDACTED
5.21	Eversource Energy Corporate Chart

Section 6	SITING, INTERCONNECTION, AND DELIVERABILITY
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REDACTED

Section Introduction

This section of the proposal addresses project location, siting, real property rights and interconnection issues. Bidders should ensure that the threshold criteria outlined in Section 2.2 of the RFP for generation, transmission proposals, and system upgrades are verified in their responses.

Subsection 6.1 Site Plans

Provide a site plan including a map of the site that clearly identifies the location of the Eligible Facility site and/or Transmission Project route, the assumed right-of-way width, the total acreage for Eligible Facilities, the anticipated interconnection point (or, if applicable, multiple points for a Transmission Project), and the relationship of the site to other local infrastructure, including transmission facilities, roadways, and water sources. In addition to providing the required map, provide a site layout plan which illustrates the location of all major equipment and facilities on the site.

Site plan included?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	If not, please explain:	N/A
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The requested plans and maps are provided in Attachments 6.1.1 through 6.1.7:

REDACTED

- Des Cantons Substation Site Plan ([Attachment 6.1.2](#))
- Québec Line Route Map ([Attachment 6.1.3](#))
- NPT Line Route Map ([Attachment 6.1.4](#))
- Deerfield Substation Site Plan ([Attachment 6.1.5](#))
- Franklin Terminal Site Plan ([Attachment 6.1.6](#))
- NPT Transition Station Site Development Plan ([Attachment 6.1.7](#)), which is representative of the requested information available for a typical NPT transition station where the overhead facilities transition to underground facilities (and vice versa).

REDACTED

Québec Line

The Québec Line will be located entirely within Canada, originating in the existing Des Cantons Substation. The Des Cantons Substation is supplied by three 735 kV lines, ensuring a reliable connection of the Québec Line to the Hydro-Québec TransÉnergie grid.

The Québec Line will use existing 450 kV line structures, to be operated at 320 kV, for approximately the first 2.6 miles and then will share an existing right-of-way (ROW) with the 450 kV Des Cantons–New England (Phase II) line for about 37 miles, requiring an expansion of that ROW. Finally, a new ROW is required for the last portion of the Québec Line (9.9 miles) in order to reach the crossing point at the Québec/New Hampshire border (where it will connect with the Northern Pass Line).

REDACTED

Northern Pass Line

As depicted on Attachment 6.1.4, the width of the overhead ROW for the NPT Line is at least 120' (with most of the ROW being 150' or more), and extends to nearly 400' in some areas. The following summarizes the width in segments:

Table 6.1.1 NPT Overhead ROW Widths

ROW Segment/Location	Map Reference	ROW Width	Length
Pittsburg to Dummer ^a	N1 ROW	120'	32 miles
Dummer to Whitefield	N2 ROW	150' – 315'	30 miles
Whitefield to Bethlehem ^b	C1 ROW	265' – 315'	10.5 miles
Bridgewater to Franklin	C2 ROW	150' – 392.5'	25.5 miles
Franklin to Deerfield	S1 ROW	150' – 265'	34 miles

^a Excludes 8 miles of underground.

^b Excludes 52 miles of underground from Bethlehem to Bridgewater.

The following table summarizes total acreage of the various segments of the NPT Line:

Table 6.1.2 Acreage of NPT Line Segments

<i>Description</i>	<i>Site Acreage</i>
OH Transmission – Existing ROW	574.6
OH Transmission – New ROW	169.0
UG Transmission	68.9
Converter Terminal	15.9
Transition Station 1	3.0
Transition Station 2	1.0
Transition Station 3	2.3
Transition Station 4	3.1
Transition Station 5	0.9
Transition Station 6	1.5
Deerfield S/S	8.4
Scobie Pond S/S	3.4

Subsection 6.2 Site Control

Identify any real property rights (e.g., fee-owned parcels, rights-of-way, development rights or easements or leases) that provide the right to use the Eligible Facility site and/or Transmission Project route, including, for Eligible Facilities, and any rights of way needed for interconnection.

REDACTED

- | |
|---|
| i. Does the project have a right to use the Eligible Facility site and/or Transmission Project route for the entire proposed term of the PPA or tariff (e.g., by virtue of ownership or land development rights obtained from the owner)? |
|---|

Yes ☒

No ☐

If not, please explain: N/A

Hydro-Quebec and NPT have acquired, or have the ability to acquire in the normal course of the siting and permitting process, site control over the property needed for Northern Pass.

- | |
|---|
| ii. If so, please detail the Bidder's rights to control the Eligible Facility site and/or Transmission Project route control. |
|---|

Québec Line

The Québec Line will connect into the existing Des Cantons Substation. From the existing Des Cantons Substation, it will use existing 450 kV line structures, to be operated at 320 kV, for the first 2.6 miles. It will then parallel the existing 450 kV Des Cantons–New England (Phase II) line for about 37 miles, requiring an expansion of the existing 450 kV ROW. Since that line goes into Vermont, the Québec Line will move out of the existing, expanded ROW in the south section in order to reach the crossing point at the Québec/New Hampshire border; therefore, a new ROW is required for the last portion of the Québec Line (9.6 miles) in order to reach the crossing point at the Québec/New Hampshire border (where it will connect with the Northern Pass Line).

REDACTED

NPT Line

NPT has secured or can expect site control for the entire route of the Northern Pass Line. Site control is grouped into the following categories:

Affiliate Lease. NPT has an option to lease from Renewable Properties, Inc. (RPI), a NPT affiliate, new ROW from the Canadian border in Pittsburg, New Hampshire to the existing PSNH ROW in Dummer, New Hampshire, covering the property and rights needed to permit, construct, operate, and maintain the transmission line and related facilities, including transition station sites. The lease would also include the HVDC converter terminal in Franklin, New Hampshire. The leasing arrangement is not subject to any regulatory approval. REDACTED

Underground Rights. The HVDC portions of the Northern Pass Line that will be located underground in public highways (two sections totaling approximately eight miles in the towns of Pittsburg, Clarksville and Stewartstown, and approximately 52 contiguous miles beginning in Bethlehem and continuing through Sugar Hill, Franconia, Easton, Woodstock, Thornton, Campton, and Plymouth, and ending in Bridgewater) will be installed, operated, and maintained pursuant to New Hampshire law RSA 231:160 *et. seq.* Approval to use public highways in this manner has been sought in connection with the SEC Application. By letter dated April 3, 2017, the New Hampshire Department of Transportation confirmed that it will issue a permit to NPT which will allow construction in public highways. A portion of the underground line within the White Mountain National Forest requires a special use permit from the U.S. Forest Service, for which NPT has applied.¹³

PSNH ROW. NPT has executed a lease agreement with PSNH (available at <http://www.puc.state.nh.us/Regulatory/Docketbk/2015/15-464.html>) to lease approximately 100 miles of existing transmission ROW from PSNH pursuant to New Hampshire law RSA 374:30 in three segments:

- ✓ Dummer to Bethlehem – approximately 41 miles
- ✓ Bridgewater to Franklin – approximately 25 miles
- ✓ Franklin to Deerfield – approximately 34 miles

The lease grants to NPT the right to construct, operate, and maintain a transmission line within a portion of those existing corridors (including the right to relocate existing transmission and

¹³ See Sections 7.1 and 7.2 for additional information regarding the permitting process for the Northern Pass Line.

distribution lines as needed to accommodate the Northern Pass Line). That lease also includes the interconnection point, Deerfield Substation. PSNH has submitted the lease to the New Hampshire Public Utilities Commission for its review and approval.

ACOE. NPT also will require easements from the ACOE for short segments of the Northern Pass Line that will be constructed on PSNH ROW over land owned by the ACOE. Although the PSNH ROW predates the ACOE's acquisition of the land, NPT will require easements from the ACOE to occupy aerial space for electrical clearances outside the PSNH ROW, to place small portions of transmission structures and foundations outside the ROW, and to enable access for construction and maintenance purposes. NPT has applied to the ACOE for those easements and expects that they will be issued in conjunction with an ACOE decision to issue a Section 404 permit (also applied for) by November, 2017 (tied to DOE's issuance of the Presidential Permit).

Crossings of Public Waters and Lands and Railroads. On June 16, 2017, the State of New Hampshire Public Utilities Commission, pursuant to New Hampshire law RSA 371:17, granted licenses for the NPT Line to cross over or under public waters and lands owned by the State of New Hampshire, including rivers, railways, and forest lands, conditioned upon the issuance of a Certificate of Site and Facility by the SEC. N.H. P.U.C. Order 26,025, <http://www.puc.state.nh.us/Regulatory/Orders/2017orders/26025e.pdf>. In addition, the NPT Line will cross a privately-owned railroad in Stark, New Hampshire, pursuant to agreements with the St. Lawrence and Atlantic Railroad, which have already been executed.

iii. Describe the status of acquisition of real property rights, any options in place for the exercise of these rights and describe the plan for securing the necessary real property rights, including the proposed timeline. Include these plans and the timeline in the overall project timeline.
--

As described in Section 6.2(ii) above, the property rights for Northern Pass include all required access rights. Sections 7 and 10 include further details regarding the permitting process for the Québec Line and the Northern Pass Line which necessarily will address the outstanding aspects of site control for the Project's transmission facilities. All property arrangements and approvals for those transmission facilities have been structured to extend well beyond the term of the proposed HQ PPA.

iv. Identify any joint use of existing or proposed real property rights

REDACTED

REDACTED

NPT Line

See the description of NPT's lease of PSNH ROW in Section 6.2(ii) above.

Subsection 6.3 Zoning and Permitting

Provide evidence that the Eligible Facility site and/or Transmission Project route is properly zoned or permitted. If the Eligible Facility site and/or Transmission Project route is not currently zoned or permitted properly, identify present and required zoning and/or land use designations and permits and provide a permitting plan and timeline to secure the necessary approvals.
--

REDACTED

Detail the zoning and permitting issues:
--

The Transmission Project either has already addressed all zoning and land use requirements, or is doing so as part of the permitting process which will be completed during 2017.

REDACTED

NPT - Zoning

Pursuant to New Hampshire law RSA 162-H:16 II, no local zoning approvals are required for a facility for which a Certificate of Site and Facility has been issued by the SEC. Therefore, the pending SEC proceeding will address all State zoning requirements.

Permitting plan and timeline:

REDACTED

Start date:	In Process	Completion date:	REDACTED
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Subsection 6.4 Surrounding Area
Provide a description of the area surrounding the Eligible Facility site and/or Transmission Project route, including a description of the local zoning, flood plain information, existing land use and setting (woodlands, grasslands, agriculture, other).

REDACTED

REDACTED

Existing Land Uses along the NPT ROW

- | | | |
|----------------------|---|-------------------------------|
| ❖ Agricultural lands | ❖ Forests | ❖ Commercial areas |
| ❖ Residences | ❖ Areas of scenic & historic significance | ❖ Variety of wildlife habitat |
| ❖ Recreational areas | | |

There will be no changes to prevailing land uses after construction of the NPT Line.

- ☐ 100 miles of the route follows existing overhead transmission corridors.
- ☐ 60.5 miles will be underground on state and municipal roads.
- ☐ 32 miles of the overhead route is on new ROW.
 - o 24 miles are within a working forest, and forest management within this entire area will continue uninterrupted during and after construction.
 - o 8 miles are within land owned or controlled by NPT.

Also, the operation of the line will not place any new demands on local or regional services or facilities. By using existing roadways and transmission corridors for more than 80% of the route and locating substantial portions of the NPT Line underground, the NPT Line is consistent with local patterns of development. Siting a new transmission line in already-developed roadway and transmission corridors is a sound planning and environmental principle because it reinforces local patterns of development and minimizes environmental impacts. Detailed existing land use descriptions for each community in the project corridor are summarized in the report entitled *Northern Pass Transmission Project Review of Land Use and Orderly Development*, which was submitted as Appendix 41 to NPT's SEC Application, and Appendix 47 includes flood plain information. Those appendices can be accessed at <http://www.northernpass.us/siting-application.htm>.

The DEIS also provides a detailed analysis of land uses in the vicinity of the NPT Line, which is divided into three geographic sections and one "administrative section" defined by the White Mountain National Forest (WMNF). Those sections are depicted on Maps 1–4 in Appendix A to the Executive Summary of the DEIS. The DEIS Supplement provides a summary of land use impacts of the NPT Line in which it concludes:

"The majority of the Project under Alternative 7 [which is the final route of the NPT Line] would be located in either the existing PSNH transmission route or existing roadway corridors, but the portion of new transmission route in the Northern Section would result in the conversion of approximately 454 acres (184 ha) of currently non-developed land into Developed, Open Space." DEIS Supplement, at 11.

Subsection 6.5	Interconnection Path
For Eligible Facilities, describe and provide a map of the proposed interconnection that includes the path from the generation site to the ISO-New England ("ISO-NE") Pool Transmission Facilities ("PTF"). Describe how the bidder plans to gain interconnection path site control.	

REDACTED

Interconnection map included? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If not, please explain.

REDACTED

REDACTED

The Northern Pass Line will interconnect with the ISO-NE Pool Transmission Facilities at the PSNH Deerfield Substation located in Deerfield, New Hampshire. The NPT Line has received a final I.3.9 approval from ISO-NE

REDACTED

Interconnection site control:

REDACTED

Subsection 6.6 Interconnection Status
Please describe the status of any planned interconnection to the grid. Has the bidder made a valid interconnection request to ISO-NE, the applicable New England Transmission Owner, or any neighboring control areas, to interconnect at the Capacity Capability Interconnection Standard? Have any studies been completed by ISO-NE or the applicable Transmission or Distribution Owner? If multiple interconnection requests have been made, please specify all such active requests which have not been superseded by subsequent requests and information regarding the status of each. Provide copies of any requests made and studies completed. Describe how such studies and information support the costs assumed in preparing your bid and the associated timeline proposed.

REDACTED

REDACTED

On July 19, 2016, NPT completed its I.3.9 interconnection process with an approval from ISO-NE. As part of the interconnection request, NPT requested Capacity Network Import Interconnection Service (CNIIS) for up to 1,090 MW. A copy of the approval letter is provided as Attachment 6.6.1,
REDACTED

The I.3.9 approval requires that specific system upgrades to the New Hampshire AC transmission system be made in order to allow for interconnection of the Northern Pass Line. NPT has accounted for those facilities in the planning and development of the Northern Pass Line. REDACTED

REDACTED

Subsection 6.7 Electrical System Performance/Reliability
<p>Describe the Project's electrical system performance and its impact to the reliability of the New England Transmission system. For Transmission Projects provide a description of how the project would satisfy ISO-NE's I.3.9 requirements. Provide the status of any interconnection studies already underway with ISO-NE and/or the transmission owner. Provide a copy of any studies completed to date. Provide a copy of an interconnection agreement, if any, executed by the bidder with respect to the proposed project. If an interconnection agreement has not been executed, please provide the steps that need to be completed before an interconnection agreement can be executed and the associated timeline.</p> <p>Performance and its impacts:</p> <p>Attachments:</p> <p>Copy of completed study attached: <input checked="" type="checkbox"/> If none, please explain.</p> <p>Copy of Interconnection Agreement attached: <input type="checkbox"/> If none, please explain.</p>

REDACTED

REDACTED

Subsection 6.8 Studies in lieu of I.3.9
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Projects that do not have I.3.9 approval from ISO-NE must include technical reports or system impact studies that approximate the ISO-NE interconnection process, including but not limited to clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions. All studies must assume the project will interconnect using the Capacity Capability Interconnection Standard, must use the current ISO-NE interconnection process (including network impact scenarios from multiple projects interconnecting), and must also detail any assumptions with respect to projects ahead of the proposed project in the ISO-NE interconnection queue and any assumptions as to changes to the transmission system that differ from the current ISO- NE Regional System Plan. Please include a scenario analysis that shows how changes in the project interconnection queue could impact interconnection costs.

NPT has an I.3.9 approval from ISO-NE; accordingly, this section is not applicable. REDACTED

Subsection 6.9 Alternative Interconnection

To the extent that you provide an alternative interconnection scenario based on ISO-proposed interconnection process changes, you must also include studies using the proposed ISO-NE-proposed process. Any such studies must be accompanied with clear documentation of study technical and cost assumptions, reasoning, and justification of such assumptions.
--

This section is not applicable.

Subsection 6.10 Electrical Models for ISO-NE

Provide the electrical models of all energy resources supporting the proposed project in accordance with the filing requirements of the ISO-NE Tariff Schedule 22 and 23.

Electrical models attached: <input checked="" type="checkbox"/> If none, please explain.
--

Because the NPT Line is an Elective Transmission Upgrade, Schedule 25 of the ISO-NE Tariff applies, rather than ISO-NE Tariff Schedules 22 and 23 (Large Generation Interconnection Procedures and Small Generator Interconnection Procedures). As a practical matter, Schedule 25 is based on the provisions of Schedule 22 for Large Generating Facilities. *See* 151 FERC ¶61,024, Dkt. ER 15-1050-000, Approving Proposed Tariff Provisions, April 14, 2015. As ISO-NE has stated:

Because of its technical and operational features, a controllable transmission facility that sources energy in another Control Area and sinks in New England appears – for purposes of the markets, scheduling, and dispatch – as an energy source at its point of termination in the New England Control Area. Put another way, the controllable transmission facility, when combined with an import contract, appears like a generator lead in the New England system. FERC Dkt. ER 15-1050-00, Revisions to the ISO-New England Inc. Transmission, Markets and Services Tariff, Filing Letter of ISO-NE, at 29 (April 14, 2015)

REDACTED

REDACTED

Subsection 6.11 Electrical One-Line Diagrams

Provide a copy of an electrical one-line diagram showing the interconnection facilities and the relevant facilities of the transmission and/or distribution provider.

Electrical one-line diagram attached: <input checked="" type="checkbox"/> If none, please explain.
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REDACTED

Subsection 6.12 Interconnection Facilities

Specify and describe the current or new interconnection facilities (lines, transformers, switching equipment, system control protection, etc.) that bidder owns or is intending to construct or have constructed in order to deliver the proposed energy.

Northern Pass involves the construction of transmission facilities in the United States and Canada, connecting the Des Cantons Substation (Canada) to the Deerfield Substation (southern New Hampshire).

REDACTED

REDACTED

Northern Pass Line

Please refer to Section 14.1, including Attachment 14.1, for a description of the Northern Pass Line and its associated interconnection facilities at the existing PSNH Deerfield Substation. The SEC Application (available at <http://www.northernpass.us/siting-application.htm>), specifically Volume 1, Section (h)(1), includes additional information regarding the major components the Northern Pass Line.

U.S. transmission construction for energy deliveries also includes upgrades to the ISO-NE transmission system pursuant to the NPT Line's I.3.9 approval REDACTED

Subsection 6.13 IDV Files
Incremental data requirements for Projects that include Transmission facilities; 1. IDV file(s) in PSSE v32 format modeling only the new/modified Transmission components of the project: <input checked="" type="checkbox"/> If none, please explain:

REDACTED

REDACTED

<p>2. If the Bidder does not use PSSE, provide in text format necessary modeling data as follows:</p> <ul style="list-style-type: none">- Line Data: Voltage/Thermal Ratings/Impedances (r, X and B)/Line Length: from to (bus numbers and names)- Transformer data: (including Phase shifting transformers if applicable): Terminal Voltages/Thermal Ratings/Impedance: from to (bus numbers and names)- Reactive compensation models as necessary- Other changes to the model that would occur due to a Project such as terminal changes for lines/transformer/generator leads/loads etc.
--

This section is not applicable to Northern Pass; however, the Bidders can provide the submitted and/or further information in another reasonably available format if requested by the Distribution Companies.

Subsection 6.14 Full Deliverability
Please detail with supporting information and studies (as available) that the energy contemplated in your proposal is able to be delivered to the Distribution Companies without material constraint or curtailment.

REDACTED

REDACTED

Subsection 6.15 Full Dispatch
Please provide sufficient information and documentation to demonstrate that the proposed point of delivery into ISO-NE, along with their proposed interconnection and transmission upgrades including any transmission upgrades beyond the point of interconnection, is sufficient to ensure full dispatch of the proposal's Clean Energy Generation profile.

REDACTED

List of Attachments:

Attachment	Description
	REDACTED
6.1.2	Des Cantons Substation Site Plan
6.1.3	Quebec Line Route Map
6.1.4	NPT Line Route Map
6.1.5	Deerfield Substation Site Plan
6.1.6	Franklin Terminal Site Plan
6.1.7	NPT Transition Station Site Development Plan
	REDACTED
	REDACTED
6.5	Project Interconnection Overview
6.6.1	NPT I.3.9 Approval (1,090 MW) – ISO-NE QP 348
	REDACTED
	REDACTED
	REDACTED
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Section 7	ENVIRONMENTAL ASSESSMENT, PERMIT ACQUISITION PLAN AND NEW CLASS 1 RPS CERTIFICATION
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REDACTED

Section Introduction

This section addresses environmental and other regulatory issues associated with project siting, development and operations for both generation and transmission projects, as applicable.

REDACTED

The Canadian siting and permitting is expected to be complete by Q3 2017, and the U.S. permitting is expected to be completed during Q4 2017.

REDACTED

Subsection 7.1 Permits
<p>Provide a list of all the permits, licenses, and environmental assessments and/or environmental impact statements required. If a bidder has secured any permit or has applied for a permit, please identify in the response.</p> <ul style="list-style-type: none">i. Provide a list of all Federal, state and local permits, licenses, and environmental assessments and/or environmental impact statements required to construct and operate the project.ii. Identify the governmental agencies that will issue or approve the required permits, licenses, and environmental assessments and/or environmental impact statements.

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The multiple required Federal and State approvals are, for the most part, consolidated under two "umbrellas": the Federal Presidential Permit process and the New Hampshire SEC Permit process.

Federal Permits and Approvals:

The DOE's process for evaluating NPT's request for a Presidential Permit includes a review of the project pursuant to the National Environmental Policy Act (NEPA). As a result, the DOE's EIS ultimately will serve to complete the primary Federal environmental review of the Northern Pass Line. Although the ACOE and USFS will issue separate permits for aspects of the project (i.e., pertaining to water resources and crossings of national forest lands, respectively), they and other Federal agencies are cooperating in the DOE's NEPA process, thereby avoiding the need for these agencies to issue separate EISs or environmental assessments.

The other cooperating Federal agencies, which have provided or are providing input to the DOE NEPA review include the U.S. Environmental Protection Agency – Region 1 (EPA) and the New Hampshire Office of Energy and Planning (NHOEP).

In addition, the U.S. Fish and Wildlife Service (USFWS) is a cooperating agency regarding the ACOE permit review, and the U.S. Department of the Interior National Parks Service (NPS), which has jurisdiction over the Appalachian National Scenic Trail, has delegated review of NPT's crossing of the trail to USFS.

State Permits and Approvals

New Hampshire state permits are being addressed through that state's "one-stop" siting process before the Site Evaluation Committee (SEC). The state agencies participating in the SEC process include:

- The Department of Environmental Services (DES).¹⁴
- Department of Transportation (NHDOT).
- Natural Heritage Bureau (NHNHB).
- Fish and Game Department (NHFG).
- Division of Historical Resources (DHR).
- Department of Safety, Division of Fire Safety, State Fire Marshal (NHDS).

Apart from the SEC process, other New Hampshire permitting agency to which NPT has submitted an application is the Public Utilities Commission (NHPUC).

A complete list of the environmental permits required for the Northern Pass Line is summarized in *Table 7.2.3*. Appendices supporting the SEC Application contain copies of all permit applications submitted to other agencies, including the ACOE and New Hampshire agencies.

¹⁴ DES divisions involved in the Project include the Water Division: Bureaus of Wetlands, Alteration of Terrain, Watershed Management and Shoreland Program.

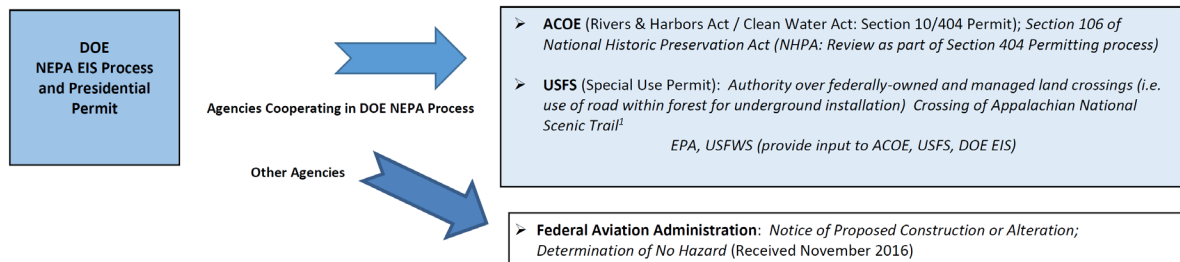
A copy of NPT's entire SEC Application (SEC Docket No. 2015-06), including appendices containing Federal and State permit applications, is available on the following website:

NPT website at: <http://www.northernpass.us/siting-application.htm>

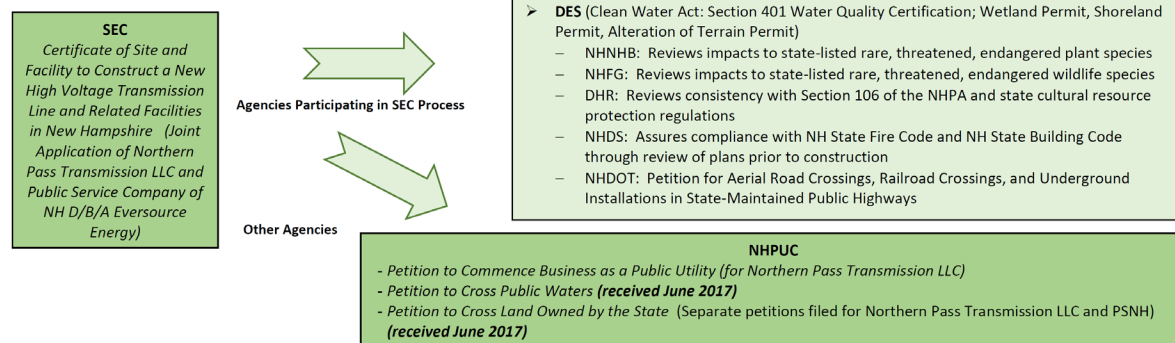
Figure 7.1 illustrates the key agencies involved in the NPT Line and the required U.S. Federal and State permits. The status of the NPT Line permit applications is described in Section 7.2.

Figure 7.1: Siting and Regulatory Approvals and Certifications Required for the U.S. Transmission Portion of the Project, by Issuing Agency¹

FEDERAL PERMITS



NEW HAMPSHIRE PERMITS



¹ NOTE: After the issuance of federal and state permits, NPT will apply for and obtain the following additional construction-related permits:

- EPA: *National Pollution Discharge Elimination System Permit*
- DES: *Groundwater Discharge Permit, Approval of Construction Laydown Areas, Storage Areas, Wire Pulling Sites, Temporary Access Roads and Permanent Access Roads*
- NHDOT: *Special Permit to Move a Load in Excess of Legal Limit; Driveway / Curb Certification*
- NH Department of Resource and Economic Development (NHDRED): *Notice of Intent to Cut*

Subsection 7.2 Regulatory Schedule

Provide the anticipated timeline for seeking and receiving the required permits, licenses, and environmental assessments and/or environmental impact statements. Include a project approval assessment which describes, in narrative form, each segment of the process, the required permit or approval, the status of the request or application and the basis for projection of success by the milestone date. All requirements should be included on the project schedule in Section 10.

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Subsection 7.3	Environmental Assessment
<p>Provide a preliminary environmental assessment of the site and project, including both construction and operation, as applicable. In addition, the bidder should identify environmental impacts associated with the proposed project, any potential impediments to development, and its plan to mitigate such impacts or impediments. The analysis should address each of the major environmental areas presented below, as applicable to the proposed project:</p>	
i.	Impacts during site development
ii.	Transportation infrastructure
iii.	Air quality impacts
iv.	Access to water resources/water quality impacts
v.	Ecological and natural resources impacts
vi.	Land use impacts
vii.	Cultural resources
viii.	Previous site use (e.g., greenfield, brownfield, industrial, etc.)
ix.	Noise level impacts
x.	Aesthetic/visual impacts
xi.	Transmission infrastructure impacts
xii.	Fuel supply access, where applicable

The Transmission Project has completed the environmental assessments and is under final review in the State and Federal permitting processes.

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The Northern Pass Line will not result in any significant impacts with respect to the 12 environmental areas listed in Section 7.3.

Potential environmental impacts associated with the NPT Line include temporary and minor impacts associated with construction, including transportation infrastructure, air quality, access to water/water quality, and fuel supply. In general, environmental impacts have been avoided or minimized by siting approximately 80% of the proposed line along public roadways or existing transmission line corridors.

Extensive environmental and cultural resource field studies have been performed on the Northern Pass Line, providing detailed information regarding the line's area and enabling a full evaluation of potential project impacts and the basis for measures to avoid, minimize, or mitigate such effects.

To investigate the U.S. project area, including the environmental and cultural resource implications of alternative routes and technologies, NPT engaged independent consultants with expert knowledge of environmental and cultural resources in New Hampshire. Project representatives also conducted extensive consultations with representatives of Federal and State resource agencies, as well as other stakeholders. Based on such consultations and on its consultants' expertise, NPT has designed and will implement plans to avoid or, if avoidance is not possible, minimize and mitigate adverse environmental and cultural resource impacts to the extent practical.

The results of wide-ranging environmental analyses of the Northern Pass Line are presented in the SEC Application. With the exception of certain studies that are not provided to the public to protect the integrity of sensitive resources (e.g., archeological resource site locations), the results of those investigations are available for review on the NPT and SEC websites identified in Section 7.1.

[Attachment 7.3](#) summarizes the principal results of NPT's environmental analyses as presented in the SEC Application. The following table includes the references in the SEC application for each of the requested major environmental areas.

Environmental Area	Addressed	SEC Application Reference
i. Impacts during site development	✓	Contained within SEC Application Appendix 2 NHDES Wetland Permit Application and offset by Wetlands Impact Mitigation Plan
ii. Transportation infrastructure	✓	Contained within SEC Application Appendix 6 NHDES Alteration of Terrain Permit, and Appendix 9 NHDOT Petition for Aerial Road Crossings Railroad Crossings and Underground Installations in State-Maintained Public Highways
iii. Air quality impacts	✓	NHSEC Docket No 2015-06 Pre-Filed Testimony of Robert Varney and SEC Application page 66
iv. Access to water resources/water quality impacts	✓	Contained within SEC Application Appendix 2 NHDES Wetland Permit Application
v. Ecological and natural resources impacts	✓	Contained within SEC Application Appendix 31 Wetlands Rivers Streams and Vernal Pools Resource Report and Impact Analysis, Appendix 32 Natural

Environmental Area	Addressed	SEC Application Reference
		Resource Mitigation Plan, Appendix 33 Fisheries and Aquatic Invertebrates Resource Report and Impact Analysis, Appendix 34 Vegetation and Ecological Communities Report, and Appendix 35 Rare Threatened and Endangered Plants and Exemplary Natural Communities Report Redacted
vi. Land use impacts	✓	Contained within SEC Application Appendix 41 Review of Land Use and Local Regional and State Planning
vii. Cultural resources	✓	Contained within SEC Application Appendix 18 Northern Pass Transmission Project - Assessment of Historic Properties October 2015, and Appendices 19 - 30 Archeological Reports
viii. Previous site use (e.g., greenfield, brownfield, industrial, etc.)	✓	Contained within SEC Application Appendix 41 Review of Land Use and Local Regional and State Planning
ix. Noise level impacts	✓	Contained within SEC Application Appendix 39 Northern Pass Project Sound Reports 1 Through 5
x. Aesthetic/visual impacts	✓	Contained within SEC Application Appendix 17 Visual Impact Assessment
xi. Transmission infrastructure impacts	✓	Determined through ISO-NE I.3.9 System Stability and Reliability ISO-NE Approval
xii. Fuel supply access, where applicable	✓	N/A

In addition to the environmental and cultural resource analyses performed by NPT, the DOE conducted an independent environmental investigation of the project area and the potential effects of the development of the Northern Pass Line, pursuant to NEPA. That comprehensive environmental analysis, which was performed under the direction of DOE (working with the cooperating agencies), involved a large EIS team consisting of:

SE Group (primary consultant)	Ecology & Environment, Inc. (primary environmental consultant)	TJ Boyle Associates (visual resources)
Edgeworth Economics	Biodrawversity (aquatic resources)	SEARCH (cultural resources)
RRC Associates (demographics)	Teshmont Consultants, L.P. (transmission systems)	Electromagnetics Consulting (electromagnetic fields, health effects)

The results of DOE's analysis are presented in the DEIS and the DEIS Supplement, which are available on the websites:

- NPT website at: <http://northernpasseis.us>
- DOE's NEPA website at: <https://energy.gov/nepa/listings/environmental-impact-statements-eis>

The DOE is finalizing and about to issue the Final EIS in August 2017.

Subsection 7.4 Community Relations
Provide documentation identifying the level of public support for the project including letters from public officials, newspaper articles, etc. Include information on specific localized support and/or opposition to the project of which the bidder is aware. Provide copies of any agreements with communities and other constituencies impacted by the project, and a plan for community outreach activities, and discuss the status of that plan.

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From the project's inception, NPT has made it a top priority to reach out, listen to, and address the concerns of the people of New Hampshire. Infrastructure projects like building new transmission lines tend to attract early opposition, and the Northern Pass project has been no different. Moving stakeholders from resistance to acceptance requires understanding, collaboration, and trust. These are built through the kind of responsive and sustained two-way communications that have been the hallmark of the Northern Pass campaign and that have helped the project improve and earn the broad support it enjoys today.

Over the past seven years, the NPT team has conducted a comprehensive outreach effort that has encompassed everything from one-on-one meetings with landowners at their kitchen tables to countywide open-house forums to social media informational campaigns. Through the various communications channels described below, the team has contacted, at least through mail and in many cases in-person, every landowner along the proposed route, as well as municipal officials in each of the towns affected, elected officials, business and labor leaders, other stakeholders, and members of the general public.

General Communications:

- 4,453 public inquiries received, answered, and catalogued in the project's database
- 129 landowner site visits from January 2014-July 2015, alone. All landowners were contacted at least by mail, including letters alerting them to field work planned near their residences
- 15 Open Houses in communities along the proposed route, where more than 800 attendees were able to discuss the project, ask questions, and view an interactive map of the route near or on their individual property
- 5 public information sessions
- 5 public hearings before the NH Site Evaluation Committee (SEC)
- 2 sets of bus tours of the proposed route for SEC subcommittee members, interveners, and NPT personnel
- Dozens of in-person meetings with municipal officials in communities along the proposed route; municipal officials were also kept informed of latest developments through phone calls, letters, emails, and hand-delivered information packets describing proposed route changes
- Monthly project newsletters to landowners, municipal officials and interested parties providing project updates and discussing various elements of the project
- Northern Pass website (www.northernpass.us), continually updated with the most current project information, including town-by-town overviews, route maps, permit applications, and

- project news. The "Contact Us" icon allows individuals to reach project representatives through email or by phone
- Presentations to hundreds of community groups and organizations, including Chambers of Commerce, Rotary and Kiwanis Clubs, labor organizations, conservation groups, business groups, and at local colleges
 - Statewide mailer to every registered voter in New Hampshire
 - Ongoing information exchange on three social media platforms: Facebook, Twitter, and YouTube
 - Countless meetings with NPT leadership and key elected officials and state leaders to listen to concerns and opportunities about how to further enhance the project.

Listening and Responding to Concerns

As mentioned above, NPT maintains a database that captures all of these interactions, including inquiries from the public, such as from calls to NPT's project hotline or submitted through the Northern Pass website. In addition to assigning a representative to promptly respond to each inquiry, the database categorizes inquiries by subject matter and community to provide the project team insight into the location and prevalence of public concerns. Based on all of these contacts and inquiries, and the extensive feedback NPT leadership received, three overarching concerns about NPT's proposal were identified:

1. The impact on New Hampshire's landscape and treasured views

Although representing a relatively small number of inquiries (100), the loudest public reactions to the project made it clear that the line's view impact was a major concern. NPT first attempted to address these concerns in 2013 with modifications that would have lowered the height and narrowed miles of overhead line structures, strategically relocated the line to minimize view-shed impacts, and placed 8 miles of line underground.

Despite these modifications, the NPT continued to hear concerns about the project's potential impact on views, particularly through the iconic White Mountains. NPT responded with dramatic changes. Announced in 2015 as part of a package of significant changes and new initiatives collectively called the Forward NH Plan, the new planned route replaces overhead lines with an additional 52 miles of underground construction, for a total of over 60 miles. With these changes, NPT now proposes to build nearly one-third of the project underground, in public highways, to avoid or minimize potential visual impacts to the most sensitive scenic resources in the state, including areas in and around the White Mountain National Forest, Appalachian Trail, and Franconia Notch area.

More than 80% of the proposed route will be along existing transmission corridors or will be buried under public roadways, resulting in reduced potential environmental and visual effects. In addition, the redesign calls for fewer and lower structures to minimize potential effects along the overhead parts of the route, introducing state-of-the-art cable technology, and

substituting streamlined monopole structures in place of lattice structures at a variety of locations.

2. High cost of energy for New Hampshire and the region

New Hampshire's energy rates are among the highest in the nation, with residential prices almost 50% higher than the U.S. average. Customers and opinion leaders have expressed frustration over their own high bills and concern over how these costs challenges sometimes drive away businesses in New Hampshire. By providing energy cost relief and a dedicated supply of clean power, the Northern Pass Line will be an engine for the state's economic growth.

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3. Need for New Hampshire to receive unique benefits for hosting the project

Beyond lowering energy prices and carbon dioxide emissions through the Northern Pass project, the Forward NH Plan introduces a host of additional economic and environmental benefits for the state:

- *Tax Revenue*: Generates an estimated US\$600 million in tax revenue over 20 years for New Hampshire communities.
- *Forward NH Fund*: Commits US\$200 million to fund important New Hampshire priorities in the areas of community betterment, clean energy innovation, economic development and tourism, with an emphasis on the host communities and the North Country.
- *New Hampshire First*: Commits to giving preference to hiring New Hampshire construction workers for the project, which is expected to help create more than 2,400 direct and indirect jobs, both union and non-union, during peak construction.
- *North Country Job Creation Fund*: Provides US\$7.5 million for economic and community development initiatives and job creation, training, and retention programs in New Hampshire's northern communities.
- *Partners for NH's Fish and Wildlife Grant Program*: Donates US\$3 million to the National Fish and Wildlife Foundation to fund the Partners for NH Fish and Wildlife program, which provides annual grants to local organizations to support restoration projects and applied science to strengthen native habitats.
- *Use of Surplus Land*: Donation of several thousand acres of land in the North Country for recreational activities, economic development, and natural resource protection which are important to the region's future.

Changes Earn Project Broad Public Support

The Forward NH Plan improvements announced in 2015, along with ongoing outreach efforts, have helped earn broader public support from diverse stakeholders, including elected officials, business and labor leaders, and many others.

New Hampshire Governor Chris Sununu has been a strong supporter, both before and after his election, including in his inaugural address.²¹ In Montreal earlier this year at a meeting with Quebec Premier Collard, Governor Sununu declared that Northern Pass is a "win-win on both sides. It's a project I've always said should happen, could happen, and I believe has to happen."²²

Business leaders in a wide variety of sectors have expressed support for Northern Pass, from the head of the innovative tech firm Dyn,²³ to ski resort developer Les Otten.²⁴ The Greater Manchester Chamber of Commerce, the largest in the state and representing 900 businesses, first endorsed the Northern Pass project in 2012,²⁵ and other local Chambers have offered their support since then. In 2015, 50 businesses signed a letter urging support from elected officials, saying, "The time has come for thoughtful solutions to the historic energy challenges we face."²⁶ These leaders appreciate the economic opportunity and energy cost relief Northern Pass can provide, and have applauded the project for its outreach efforts.²⁷

Labor groups like the International Brotherhood of Electrical Workers and the New Hampshire Building and Trades Council advocate for Northern Pass, noting the economic and jobs benefits for the entire state.²⁸ Communities like Berlin and Franklin cite the many benefits of Northern Pass, including tax revenue, economic development opportunities, reduced greenhouse gas emissions, and an affordable energy source projected to lower costs.²⁹

The New Hampshire media have also acknowledged the important role Northern Pass will play in not only providing clean energy, but also boosting the economy of the state. *The Concord Monitor* wrote, "To ensure reliability and guarantee that the region's remaining coal plants run as little as possible, we support the Northern Pass project, which does less to exacerbate climate change than fossil fuel options." The state's largest paper, the *New Hampshire Union Leader*, said of the project's improved route and benefits, that "More reasonable critics, those with legitimate concerns about the North Country (particularly in tourist-dependent economy and its scenic vistas), are likely to be relieved, if not elated, by the new plan."

²¹ Sununu: "New Hampshire is open for business" NH Business Review, Jan. 6, 2017.

²² [Sununu reaffirms Northern Pass support during Canada visit; Associated Press; Published March 21, 2017.](#)

²³ Jeremy Hitchcock; Co-Founder & CEO of Dyn; Letter to the NH Site Evaluation Committee, March 16, 2016.

²⁴ Balsams Resort press release; March 22, 2017.

²⁵ GMCC letter to NH Site Evaluation Committee; October 19, 2015.

²⁶ Statement of Business Support for the Forward NH Plan; October 2015.

²⁷ Presidential Mountain Resort LLC; letter to the NH Site Evaluation Committee, January 23, 2017.

²⁸ IBEW letter to the NH Site Evaluation Committee; February 22, 2016; City of Berlin letter to New Hampshire Site Evaluation Committee, December 7, 2015.

²⁹ City of Franklin Supports Proposed Northern Pass; letter to the NH Site Evaluation Committee; December 2015.

(Representative examples of public support, including the materials referenced in the summary above, are included as Attachment 7.4.2.)

Outreach Continues to Minimize Construction Impacts

More recent communications have shifted toward anticipating project construction. NPT is implementing a robust communications plan, and will meet and communicate regularly with municipal officials, residents, and business owners throughout the construction process.

The project's current efforts are focused on meeting with towns to discuss the project's design in their community, and inviting them to enter into a Memorandum of Understanding (MOU) that formalizes NPT's commitment to safe work practices and confirms mutually established expectations during construction. The topics covered in a MOU typically include use of town roads, traffic controls, liability insurance, environmental plans, emergency response, reports to the municipality, hours of construction, access roads, laydown areas, and other issues of local concern. Identifying and resolving specific local issues pertaining to the project well in advance will help ensure a smoothly run construction process.

In a similar vein, NPT is also proactively communicating with businesses along the route to answer questions and to work with them regarding traffic controls and other potential impacts during the construction process.

Moreover, NPT continues to meet with communities to outline the new tax benefits they will receive once Northern Pass goes into service. NPT has taken the extra step of providing a tax pledge to communities to provide greater certainty regarding future tax payments.

Communication and Compromise Deliver a Better Plan

Through its commitment to robust communications and public engagement, Northern Pass heard people's concerns, and then acted on them. As a result, Northern Pass benefits today from broad public support in New Hampshire, and is well positioned to most quickly meet the clean energy supply needs of Massachusetts' energy consumers at a highly competitive price.

Subsection 7.5 Tier I Qualifications
For bids that include New Class I Renewable Portfolio Standard Eligible Resources, provide documentation demonstrating that the project was or will be qualified as such. If the facility is already in operation, please indicate when the facility received such qualification.

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Subsection 7.6 Tracking System

All bidders must include sufficient information and documentation that demonstrates that the bidder will utilize an appropriate tracking system to ensure a unit-specific accounting of the delivery of Clean Energy Generation, to enable the Department of Environmental Protection, in consultation with DOER, to accurately measure progress in achieving the commonwealth's goals under chapter 298 of the acts of 2008 or Chapter 21N of the General Laws. The RECs and environmental attributes associated with Clean Energy Generation must be delivered into the Distribution Companies' NEPOOL GIS accounts.
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Subsection 7.7 Project Litigation
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Identify any existing, preliminary or pending claims or litigation, or matters before any federal agency or any state legislature or regulatory agency that might affect the feasibility of the project or the ability to obtain or retain the required permits for the project.
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List of Attachments:

<i>Attachment</i>	<i>Description</i>
7.3	NPT Supplemental Environmental Analysis
7.4.1	Hydro-Québec Public Participation Program
7.4.2	NPT Public Support

Section 8	ENGINEERING AND TECHNOLOGY; COMMERCIAL ACCESS TO EQUIPMENT
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Section Introduction

<p>This section includes questions pertinent to the engineering design and project technology. This section must be completed for a project that includes new facilities or capital investments for both generation and transmission components if applicable. Bidders should provide information about the specific technology or equipment including the track record of the technology and equipment and other information as necessary to demonstrate that the technology is viable.</p>
--

Subsection	8.1	Engineering Plan
Provide a reasonable but preliminary engineering plan which includes the following information:		
i.	Type of generation and transmission technology, if applicable	
ii.	Major equipment to be used	
iii.	Manufacturer of the equipment	
iv.	Status of acquisition of the equipment	
v.	Whether the bidder has a contract for the equipment. If not, describe the bidder's plan for securing equipment and the status of any pertinent commercial arrangements	
vi.	Equipment vendors selected/considered	
vii.	History of equipment operations	
viii.	If the equipment manufacturer has not yet been selected, identify in the equipment procurement strategy the factors under consideration for selecting the preferred equipment	

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i.	Type of generation and transmission technology, if applicable
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REDACTED

ii.	Major equipment to be used
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REDACTED

iii. Manufacturer of the equipment

REDACTED

iv. Status of acquisition of the equipment
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NPT has fully contracted for all construction aspects (including materials) for the NPT Line. NPT also has entered into a general contractor (GC) agreement with PAR under which PAR is responsible for the overall coordination and construction of the NPT Line. *Table 8.1* above lists all materials and services required for the NPT Line.

v. Whether the bidder has a contract for the equipment. If not, describe the bidder's plan for securing equipment and the status of any pertinent commercial arrangements

NPT has contracted for all equipment. See clause (iv) above.

vi. Equipment vendors selected/considered

NPT conducted an extensive procurement process to select its construction and material supplier partners. The details of this process and the vendors that participated in the process are confidential. *Table 8.1* above provides a list of the winning bidders.

vii. History of equipment operations

All of the technology proposed for the Transmission Project has a reliable operational history (including VSC, SVC, and XLPE DC cable). Attachment 8.1.2 includes information provided by ABB regarding HVDC projects that incorporate similar HVDC converter terminal and DC cable technologies as those contracted for the Northern Pass Line. The HVDC voltage source converter (VSC) stations and extruded polymer insulated DC underground cable segments to be installed as part of the Transmission Project have been widely installed throughout the transmission industry. REDACTED

viii. If the equipment manufacturer has not yet been selected, identify in the equipment procurement strategy the factors under consideration for selecting the preferred equipment

Not Applicable.

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REDACTED

Subsection 8.2 Generation Equipment Suppliers
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If the bidder has not yet selected the major generation equipment for a project, please provide a list of the key equipment suppliers under consideration.
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REDACTED

Subsection 8.3 Equipment History

Please identify the same or similar equipment by the same manufacturer that are presently in commercial operation including the number installed, installed capacity and estimated generation for the past three years.

REDACTED

Subsection 8.4 Technology Deployment

For less mature technologies, provide evidence (including identifying specific applications) that the technology to be employed for energy production is ready for transfer to the design and construction phases. Also, address how the status of the technology is being considered in the financial plan for the project.
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REDACTED

Subsection 8.5 Equipment List

Please indicate if the bidder has a full and complete list of equipment needed for all physical aspects of the bid, including generation facilities, transmission lead lines, transmission proposals, and mandatory and voluntary transmission system upgrades. If not, identify the areas of uncertainty and when the full and complete list of equipment will be identified.
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REDACTED

REDACTED

Subsection 8.6 Equipment Acquisition
Please indicate if the bidder has secured its equipment for all physical aspects of the bid, including generation facilities, transmission lead lines, transmission proposals, and mandatory and voluntary transmission system upgrades. If not, identify the long-lead equipment and describe the timing for securing this equipment.

REDACTED

List of Attachments:

<i>Attachment</i>	<i>Description</i>
	REDACTED
8.1.2	Operating History – Transmission Equipment (ABB)

Section 9 OPERATION AND MAINTENANCE

REDACTED

Section Introduction

Projects that can demonstrate that the operation and maintenance ("O&M") plan, level of funding, and mechanism for funding will ensure reliable operations during the term of the contract or the tariff are preferred.

Subsection 9.1 O&M Plan

Provide an O&M plan for the project that demonstrates the long term operational viability of the proposed project. The plan should include a discussion of the staffing levels proposed for the project, the expected role of the project sponsor or outside contractor, scheduling of major maintenance activity, and the plan for testing equipment.

HQ Hydropower Resources

REDACTED

Hydro-

Québec Production will maintain staffing levels to maintain the current high level of reliability of the system as a whole.

REDACTED

REDACTED A hydroelectric generating station that is properly maintained and refurbished can have a service life of more than 100 years. Hydro-Quebec has generating stations in its fleet that have been in operation for over 100 years. To maintain its ability to meet the Québec load and other long term firm commitments to surrounding markets, Hydro-Quebec routinely makes substantial investments to maintain and upgrade its facilities. REDACTED

REDACTED

Hydro-Québec TransÉnergie has significant experience interconnecting and operating between regional systems. There are currently three interconnections between the ISO-NE transmission system and the Hydro-Québec TransÉnergie system (Highgate, Derby, and Phase II). In total, Hydro-Québec TransÉnergie has 15 interconnections with systems in Ontario, New Brunswick, and the U.S. Northeast. For information regarding Hydro-Québec TransÉnergie's system and interconnections, see <http://www.hydroquebec.com/transenergie/en/reseau-bref.html>. The addition of the Québec Line and the Northern Pass Line will be yet another example of Hydro-Québec TransÉnergie's regional and inclusive approach to the transmission network.

REDACTED

REDACTED

The NPT Line will be maintained as part of the larger Eversource Energy utility system.

Unlike Canada where Hydro-Québec TransÉnergie operates an integrated transmission system, ISO-NE will have operating authority over the U.S. Northern Pass facilities pursuant to the terms of a FERC-approved transmission operating agreement (TOA) between NPT and ISO-NE. NPT expects that the TOA will be based on the form of non-incumbent TOA that has recently been approved by FERC for use by ISO-NE with other new, non-incumbent transmission developers in New England. NPT will retain and perform certain functions (e.g., control of the converter in accordance with ISO-NE and other applicable requirements), with Eversource Energy staff or a third party vendor performing those functions in the ordinary course.

All transactions over the NPT Line will be scheduled in accordance with the applicable New England market rules. ISO-NE will also have final approval authority over planned line outages. Therefore, the U.S. Northern Pass transmission facilities effectively will operate in the same manner as all other facilities within the integrated ISO-NE transmission system.

REDACTED

All maintenance activities will be performed consistent with the Eversource Energy maintenance policies, programs, and procedures. [Attachment 9.1.2](#) provides an overview of maintenance activities for the NPT Line. NPT can provide additional information regarding its maintenance organization and practices upon request by the Distribution Companies.

Subsection 9.2 O&M Funding
Describe in detail the proposed O&M funding mechanism and funding levels to support planned and unplanned O&M requirements.

REDACTED

REDACTED

REDACTED

Subsection 9.3 Warranties
Describe the terms (or expected terms) of the warranties and/or guarantees on major equipment that the bidder is utilizing or proposing to utilize.

REDACTED

REDACTED

REDACTED

Subsection 9.4 O&M Agreements
--

Describe the status of the project sponsor in securing any O&M agreements or contracts. Include a discussion of the sponsor's plan for securing a medium-term or long-term O&M contract, including the expected provider of O&M services.

REDACTED

Subsection 9.5 O&M Experience
--

Provide examples of the bidder's experience with O&M services for other similar projects.

HQ Hydropower Resources

Hydro-Québec has developed and operated hydroelectric generation projects since the state-owned corporation was created in 1944. REDACTED Hydro-Québec has been operating and maintaining the HQ Hydropower Resources since the creation of Hydro-Québec or since the stations were commissioned. One of the largest hydroelectric companies in the world, Hydro-Québec operates 61 hydroelectric generating stations located across Québec totaling more than 36,000 MW of generation capacity. REDACTED

Northern Pass Line

Eversource Energy's transmission maintenance and work management group has extensive experience maintaining a vast and diverse portfolio of transmission system assets in Massachusetts, New Hampshire, and Connecticut. Eversource Energy maintains more than 4,200 circuit miles of transmission lines and nearly 600 substations.

The following table summarizes certain relatively new and major installations of transmission facilities in the Eversource Energy system, including the technologies deployed in those projects, all of which were incorporated into Eversource Energy's comprehensive maintenance program after completion. Eversource Energy has continually and successfully maintained these installations since commercial operation through the combination of internal and external resources described in this Section 9.

Recently Completed Eversource Projects > US\$70 Million

Project/Program	Description	Location	In-Service Date
Bethel/Norwalk	Maintenance of a new 21-mile 345 kV line consisting of 2.1 miles of cross linked polyethylene (XLPE) cable, 9.7 miles of high pressure fluid filled (HPFF) cables and 8.6 miles of new overhead lines.	CT	2006
Glenbrook Cables	Maintenance of two sets of parallel 115 kV XLPE cables installed along an 8.7-mile route underneath roadways in a highly congested area of Fairfield County, close to New York City, along with associated substation upgrades.	CT	2008
Stoughton Cables	Maintenance of two parallel 345 kV HPFF cables installed along a 17-mile route, and a third cable installed along an 11-mile route, all underneath roadways in and near Boston, a new 345 kV switching station, and associated substation improvements.	MA	2007 2009
Middletown/Norwalk	Maintenance of new 345 kV circuits consisting of 45 miles of overhead line and 24 miles of underground cables, 57 miles of reconstructed 115 kV line, and new and expanded substations.	CT	2009
Greater Springfield Reliability (NEEWS)	Maintenance of 39 linear miles of new 345 kV transmission lines and reconstructed 115 kV lines between Ludlow, Massachusetts, and Bloomfield, Connecticut, with 13 new or rebuilt substations and switching stations (110 circuit miles)	MA/CT	2013
Long-Term Lower SEMA Upgrades	Maintenance of new 18 mile 345 kV line from Carver, MA, across Cape Cod canal to Bourne, MA and new 345 kV substation, along with reconstructed 345 kV lines on separate towers and related 115 kV modifications.	MA	2014
Interstate Reliability (NEEWS)	Maintenance of Eversource Energy's portion consisting of a new 345 kV line with associated substation improvements.	CT	2015

List of Attachments:

<i>Attachment</i>	<i>Description</i>
	REDACTED
9.1.2	Overview of Maintenance Activities – NPT Line
9.1.3	Sample Converter Maintenance Activities

Section 10 PROJECT SCHEDULE
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Section Introduction

<p>A bidder must demonstrate that its proposal can be developed, financed, and constructed and be technically viable within a commercially reasonable timeframe. The bidder is required to provide sufficient information and documentation that shows that the bidder's resources, process and schedule are adequate for the acquisition of all rights, permits and approvals for the project and for the financing of the project consistent with the proposed project milestone dates.</p>

<p>For Eligible Generation Facilities or Transmission Projects that are not yet in-service, bidders are required to provide a complete critical path schedule for the project from the notice of selection of the project for contract consideration to the start of commercial operations. For each project element, list the start and end date.</p>
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Subsection 10.1 Critical Path Elements
Identify the elements on the critical path. The schedule should include, at a minimum, preliminary engineering, financing, acquisition of real property rights, Federal, state and/or local permits, licenses, environmental assessments and/or environmental impact statements (including anticipated permit submittal and approval dates), completion of interconnection studies and approvals, procurement, facility contracts, start of construction, construction schedule, fuel supply, and any other requirements that could influence the project schedule and the commercial operation date.

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REDACTED

Subsection 10.2 Critical Path Status
Detail the status of all critical path items, such as receipt of all necessary siting, environmental, and ISO-NE approvals.

REDACTED

REDACTED

REDACTED

REDACTED

REDACTED

Section 11 PROJECT MANAGEMENT/EXPERIENCE

REDACTED

Section Introduction

Bidders are required to demonstrate project experience and management capability to successfully develop (for a project that includes new facilities or capital investment) and operate the project proposed. The Distribution Companies are particularly interested in project teams that have demonstrated success in projects of similar type, size and technology and, for projects that include new facilities or capital investment, can demonstrate an ability to work together effectively to bring the project to commercial operation in a timely fashion.

Subsection 11.1 Project Organizational Chart

Provide an organizational chart for the project that lists the project participants and identifies the corporate structure, including general and limited partners.

This Project is a collaboration between Hydro-Québec, Eversource Energy, and their respective affiliates to develop a new intertie between the Hydro-Québec and ISO-NE transmission systems

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The Project to develop the new intertie involves construction of new Canadian and U.S. transmission facilities that are in the advanced stages of development. The following chart depicts the project participants.

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Project Contractors

For the construction of the Northern Pass Line, PAR and ABB are participating as key contractors. PAR, a subsidiary of Quanta Services, Inc. (a Fortune 500 company headquartered in Houston), will construct the North Pass Line as the general contractor. Quanta companies have constructed over US\$20 billion of transmission infrastructure in the past 10 years (including several projects with Eversource Energy). ABB, an industry leader in HVDC systems, will supply the converters to NPT and Hydro-Québec TransÉnergie and the cables to NPT.

REDACTED

Subsection 11.2 Bidder Experience
For a project that includes new facilities or capital investment, provide statements that list the specific experience of the bidder and each of the project participants (including, when applicable, the bidder, partners, EPC contractor and proposed contractors), in developing, financing, owning, and operating generating or transmission facilities (as applicable), other projects of similar type, size and technology, and any evidence that the project participants have worked jointly on other projects.

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This Section 11.2 will be limited to the transmission experience of Hydro-Québec TransÉnergie, Eversource Energy, and PAR and ABB as strategic alliance vendors. Hydro-Québec Production's hydroelectric generation experience is provided in Section 11.3.

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Eversource Energy

Eversource Energy, the ultimate parent of NPT, is an industry leader in the timely and efficiently siting, permitting, constructing, and maintaining large complex transmission projects, including high-voltage and extra-high-voltage overhead, underground, and hybrid transmission lines and associated terminal equipment. Eversource Energy has a proven track record in:

- Successful single-state and multi-state project siting and permitting;
- Working closely with other companies to realize major projects; and
- Safely and efficiently constructing transmission projects.

As described in Section 5, Eversource Energy, a Fortune 500 energy company, has significant financial resources and has made (and continues to make) substantial investment in transmission

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facilities. Eversource Energy financed those investments with its strong cash flows, including appropriately accessing the capital market for borrowings.

Eversource Energy has successfully completed hundreds of traditional and major capital projects over the past decade. Eversource Energy's innovative solutions to technical and environmental challenges include:

- The first and the most extensive 345 kV applications of solid core cross linked polyethylene (XLPE) underground cables in the United States. That experience informs NPT's proposal of 60 miles of XLPE cable as part of its hybrid overhead/underground/HVDC and HVAC project;
- Laying marine cable from a purpose-built ship; and
- Constructing overhead transmission support structures from the air, using helicopters.

For Northern Pass, Eversource Energy has replicated its successful formula by assembling a core team of seasoned professionals who have been involved in the development and construction of numerous large transmission facilities, supplemented by internal and external resources that provide the expertise to support project execution.

ABB – Transmission Project

ABB, a global leader in power and automation technologies, will supply the HVDC converter terminals at Des Cantons (the Québec Line) and Franklin (the Northern Pass Line), along with the HVDC cable and Deerfield SVC for the NPT Line.

ABB, based in Zurich, Switzerland with North American operations headquartered in Cary, North Carolina, employs 150,000 people (about 30,000 in North America) and operates in approximately 100 countries. Financial information regarding ABB can be accessed at <http://new.abb.com/investorrelations/financial-results-and-presentations/quarterly-results-and-annual-reports-2015>.

ABB offers a comprehensive range of high-voltage products that help enhance the safety, reliability and efficiency of power networks while minimizing environmental impact. As a leader in technology development, ABB continues to facilitate innovative solutions in areas such as ultra-high-voltage power transmission, enabling smart grids and enhancing eco-efficiency. Section 11.5 summarizes ABB's experience with HVDC systems. With a large network of factories and service centers across the world offering life-cycle support, ABB remains a technology leader in the market of high-voltage products.

ABB has provided technology and converter equipment to all of the existing HVDC interconnections between Québec and New England, New York and Ontario, including to the Highgate back-to-back

station in Vermont, the Québec-New England Phase II system in Québec and Massachusetts, and the Outaouais and Châteauguay back-to-back stations in Québec.

ABB has been a major equipment supplier for Hydro-Québec's transmission network for more than forty years. This ongoing relation goes back to the early 1970s when ASEA opened a major manufacturing facility on the south shore of Montreal to build large power transformers needed for Hydro-Québec's developing 735 kV network.

In the late 1980s, following ASEA's merger with the Swiss group Brown Boveri, ABB became a major player in the then developing HVDC and FACTS industries. As reflected in the lists below, Hydro-Quebec has a long history of successful EPC contracts with ABB for the deployment of HVDC and FACTS projects on its network.

HVDC

Installation	Rating	In service	Original Manuf.	Major Upgrade
Châteauguay	1,000 MW back-to-back	1984	BBC/Siemens	2009 by ABB
Radisson-Nicolet (Phase II)	2,000 MW multi-terminal	1991	ABB	2016 by ABB
Outaouais	1,250 MW back-to-back	2009	ABB	
Madawaska	350 MW back-to-back	1985	GE	2016 by ABB

SVC (Static Var Compensation) on 735 kV network

Installation	In service	Original Manuf.	Major Upgrade
La Vérendrye	1984	ASEA	
Chibougamau	1985	ASEA	
Chamouchouane	1990	ABB	
Chénier	2011	ABB	
Némiscau	1980	GE	2013-2014 by ABB
Albanel	1982	GE	2015-2016 by ABB

Series Compensation on 735 kV network

Installation	In service	Original Manuf.	Rating
Six 735 kV substations	1991 to 1995	ABB	17 platforms for a total of more than 5,000 Mvar

PAR – Northern Pass Line

PAR, a subsidiary of Quanta Services, Inc. (the largest electric transmission and distribution specialty contractor in North America), will be the general contractor for the construction of the NPT Line. As premier providers in the electric power industry, PAR and other Quanta companies regularly furnish EPC services for comprehensive infrastructure projects. Quanta's qualifications include:

- A workforce tens of thousands strong and offices across North America and abroad;
- Largest employer of certified electric power linemen in North America;
- The owner of the largest specialized equipment fleet in the industry;
- Best-in-class safety leadership and performance while delivering exceptional value;
- Fortune 500 company with a strong balance and the financial resources for capital-intensive projects (see http://investors.quantaservices.com/annual_reports for additional Quanta financial information); and
- An innovator of technologies and proprietary methodologies.

Eversource Energy has extensive experience with PAR and other Quanta companies, including the large Middletown to Norwalk and NEEWS projects referenced in Section 11.5. Quanta companies also regularly perform work on Eversource Energy's transmission system under master or similar standing procurement arrangements.

If this Proposal omits any information regarding the experience of the Project sponsors and other Project participants, the Bidders can supplement this Proposal upon request of the Distribution Companies.

Subsection 11.3 Similar Project Experience
For a bid that includes existing facilities, provide statements that list the specific experience of the bidder and each of the project participants (including, when applicable, the bidder, partners, EPC contractor and proposed contractors), in owning and operating generating or transmission facilities (as applicable), other projects of similar type, size and technology, and any evidence that the project participants have worked jointly on other projects.

Hydro-Québec

Since its creation in 1944, Hydro-Québec has designed, developed, owned and managed a vast fleet of hydropower generating stations.

Development of generating assets

During the period from 1944-1959, Hydro-Québec undertook construction of a series of hydropower generating stations: the second and third sections of Beauharnois, Carillon, Bersimis-1 and Bersimis-2 and the Manic-Outardes Complex.

In 1971, Hydro-Québec commenced development of the La Grande Complex in the Baie-James region. Project management was assigned to Société d'énergie de la Baie James, which subsequently became a wholly owned subsidiary of Hydro-Québec. In 1996, when the final generating station,

Laforge-2, was commissioned, La Grande became the largest hydropower complex in the world, a title it retained for a number of years.

Another major build-out period began in 2003 and is still undergoing today with continuing work on the Romaine Complex. To date, the following generation stations have been added to the fleet since 2003:

Generating Station	Commissioning Year	Installed Capacity (MW)
Sainte-Marguerite	2003	882
Rocher-de-Grand-Mère	2004	230
Toulnoustouc	2005	526
Eastmain-1	2006	480
Mercier	2007	55
Péribonka	2007-8	385
Rapide-des-cœurs	2008-9	76
Chute-Allard	2008-9	62
Eastmain-1-A	2011-12	768
Sarcelle	2013	150
Romaine-2	2014	640
Romaine-1	2015	270
Total installed capacity added since 2003		4,524

REDACTED

Generating Station Operations

Hydro-Québec owns and operates a fleet consisting of 61 hydropower generating stations with a total installed capacity of over 36,000 MW. The hydropower fleet also includes 27 large reservoirs, as well as 668 dams and 99 control structures (as of December 31, 2016).

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The generating fleet is managed with two major goals in mind: the security of Québec's electricity supply and the profitability of operations. Because reservoir generating stations have large storage capacities and can be started up in a matter of minutes, Hydro-Québec can adjust output based on

domestic demand and conditions on markets outside Québec. Several large reservoirs are managed on a multiannual basis to ensure water level management across the system.

Québec Line

Hydro-Québec TransÉnergie operates one of the most extensive transmission systems in North America, markets system capacity, and manages power flows across Québec. Through one of its divisions, Hydro-Québec TransÉnergie acts as Reliability Coordinator for the transmissions systems in the province of Québec. As discussed in Section 11.2 and [Attachment 5.3.1](#), Hydro-Québec TransÉnergie's in-house EPC contractor, Hydro-Québec Équipement, has extensive experience constructing projects on the same scale as the Québec Line.

Collaboration

Through the years, as regional leaders in the northeastern portion of the North American energy industry, Hydro-Québec and Eversource Energy have collaborated in many instances to advance the energy market in New England. For example, the Phase II transmission line represents an important, continuing reminder of the regional benefits of collaboration. As described in [Attachment 11.3](#), Phase II not only was a major advancement in HVDC technology, but also addressed an overreliance on fossil fuel through the introduction of economically supplied base load clean hydro power.

Subsection 11.4 Key Personnel
Provide a management chart that lists the key personnel dedicated to this project and provide resumes of the key personnel. For Eligible Facilities or Transmission Projects that are not yet in-service, key personnel of the bidder's development team having substantial project management responsibilities must have:
i. Successfully developed and/or operated one or more projects of similar size or complexity or requiring similar skill sets; and
ii. For a project that includes new facilities or capital investment, experience in financing power generation projects (or have the financial means to finance the project on the bidder's balance sheet).

HQ Hydropower Resources

Hydro-Québec has a world class team of experienced professionals managing its hydroelectric generation fleet totalling more than 36,000 MW of installed capacity and one of the most extensive transmission systems in North America. REDACTED

Hydroelectric generation is a core competency of the Hydro-Québec organization. Hydro-Québec's management personnel have been involved in the hydroelectric generation industry for decades and are recognized leaders in their fields. REDACTED

REDACTED

Québec Line

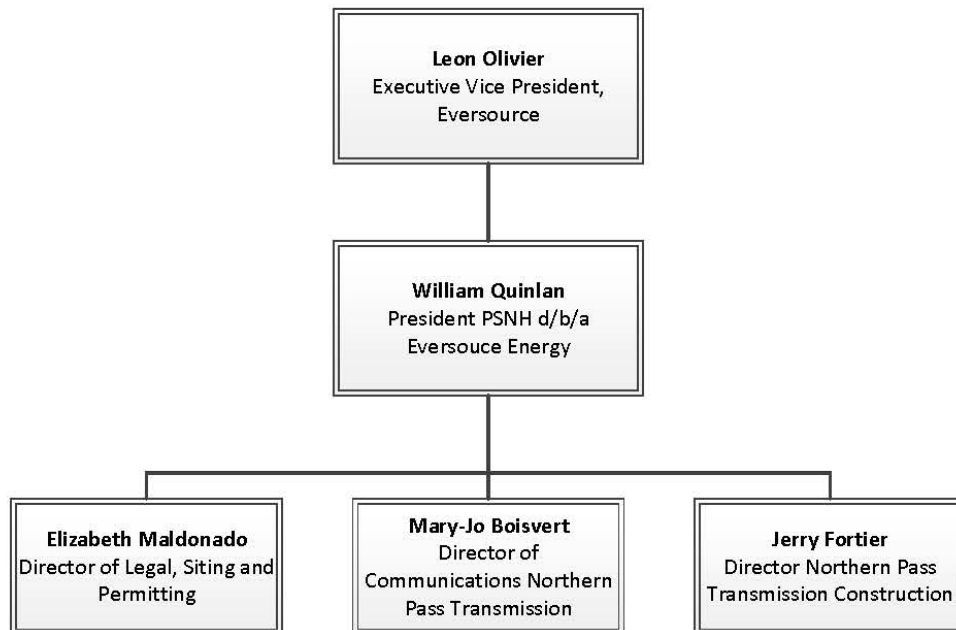
The Québec Line will be constructed, owned, operated, and maintained by Hydro-Québec TransÉnergie, the owner of the transmission grid in Québec, in compliance with its obligations under applicable regulations.

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Northern Pass Line

Eversource Energy has assembled an experienced and talented team to develop, site, and construct the Northern Pass Line. That staff, shown in the NPT organization chart below and the curricula vitae included as [Attachment 11.4.3](#), has held leadership positions and other key roles in many of the large transmission projects that Eversource Energy successfully developed, sited and constructed in recent years.



As described in Attachment 11.4.3, Eversource Energy Transmission Ventures, Inc. key personnel for Northern Pass have worked on many other large transmission projects, with increasing levels of responsibilities based on a track record of achievement and growth. Eversource Energy is confident that its core NPT team, working together with the rest of the Eversource Energy transmission team, will deliver yet another milestone in the rebuilding of the ISO-NE transmission system – on time and within budget.

REDACTED

The Bidders can provide additional information regarding the NPT core and extended team, as well as other personnel within the Eversource Energy transmission department, upon request by the Distribution Companies.

Once constructed, the Northern Pass Line will be operated and maintained as described in Section 9 by Eversource Energy's existing transmission maintenance and work management group, supplemented by services from certain contractors and manufacturers. Consistent with Eversource Energy's approach to all large transmission construction projects, personnel assigned to Northern Pass from the transmission maintenance and work management group have been involved in the development and planning of the Northern Pass Line to ensure a seamless transition from construction to maintenance.

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Subsection 11.5 Successfully Developed Projects

Provide a listing of all projects the project sponsor has successfully developed or that are currently under construction. Provide the following information as part of the response:

- i. Name of the project
- ii. Location of the project
- iii. Project type, size and technology
- iv. Commercial operation date
- v. Estimated and actual capacity factor of the project for the past three years
- vi. Availability factor of the project for the past three years
- vii. References, including the names and current addresses and telephone numbers of individuals to contact for each reference.

Hydro-Québec

Hydro-Québec is continually expanding and renewing its generation and transmission systems.

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Also, Hydro-Québec has commissioned several major hydroelectric generation stations during the past decade. Information regarding those and other existing HQ Hydropower Resources can be found at

<http://www.hydroquebec.com/generation/centrale-hydroelectrique.html>.

Hydro Québec TransÉnergie similarly makes large scale investments in transmission infrastructure to connect new hydroelectric facilities and wind farms to the grid or to increase transmission capacity in response to higher load demand or new customer requests.

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Eversource Energy

Table 11.5.2 provides the information for transmission projects of Eversource Energy with an initial capital cost of more than US\$70 million. Since these are not generation projects, there are no capacity and availability factors.

Table 11.5.2: Recently Completed Eversource Projects > US\$70 Million

Project/Program	Description	Location	In-Service Date	Cost (US\$M)
Bethel/Norwalk	Construction of a new 21-mile 345 kV line consisting of 2.1 miles of cross linked polyethylene (XLPE) cable, 9.7 miles of high pressure fluid filled (HPFF) cables and 8.6 miles of overhead construction	CT	2006	\$337
Glenbrook Cables	Construction of two sets of parallel 115 kV XLPE cables installed along an 8.7-mile route underneath roadways in a highly congested area of Fairfield County, close to New York City; and significant substation upgrades	CT	2008	\$239
Stoughton Cables	Construction in phases of two parallel 345 kV HPFF cables installed along a 17-mile route, and a third cable installed along an 11-mile route, all underneath roadways in and near Boston; a new 345 kV switching station, and associated substation improvements.	MA	2007 2009	\$317
Long Island Replacement Cable	Joint project with Long Island Power Authority: replacement of seven fluid-filled transmission cables between Norwalk, CT and Northport, NY by 3 138 kV XLPE marine cables, buried six feet below the sea bottom.	CT	2008	\$79*
Middletown/Norwalk	Joint project with United Illuminating: Construction of new 345 kV circuits consisting of 45 miles of overhead line and 24 miles of underground cables; reconstruction of 57 miles of 115 kV line; construction of new substations and expansion of existing substations.	CT	2009	\$955*
Greater Springfield Reliability (NEEWS)	Construction of 39 linear miles of new 345 kV transmission lines and reconstruction of existing 115 kV lines between Ludlow, Massachusetts, and Bloomfield, Connecticut with 13 new or rebuilt substations and switching stations (110 circuit miles)	MA/CT	2013	\$676
Long-Term Lower SEMA Upgrades	Construction of new 18 mile 345 kV line between Carver, MA, across Cape Cod canal to Bourne, MA and new 345 kV substation; reconstruction of pre-existing 345 kV line on separate towers, and related 115 kV modifications.	MA	2014	\$106
Interstate Reliability	Joint project with National Grid: Connecticut portion:	CT	2015	

Project/Program	Description	Location	In-Service Date	Cost (US\$M)
(NEEWS)	37 miles of new 345 kV line with associated substation improvements.			\$218*

* Eversource cost only

All of the projects listed in *Table 11.5.2* are owned by Eversource Energy affiliates, and the President of Eversource Energy's transmission department may be contacted for further information with respect to any of those projects at:

REDACTED

Strategic Alliance Contractors – Transmission Project

The strategic alliance contractors involved in the Transmission Project have significant and relevant experience in constructing and installing similar significant transmission infrastructure investments, including the following representative projects.

ABB

ABB pioneered HVDC transmission technology 60 years ago and has been awarded around 90 large HVDC projects in various parts of the world. The HVDC projects supplied by ABB represent a total installed capacity of more than 95,000 MW or about half of the global installed base. Also, ABB has a long and proven record of timely delivery of HVDC projects in the United States and Canada.

ABB offers a comprehensive range of innovative design, engineering and manufacturing solutions that cover all essential parts of modern HVDC transmission systems. For example, ABB develops and manufactures semi-conductors, converter valves, valve cooling systems, converter transformers, control and protection systems, circuit breakers, power capacitors, surge arrestors, etc. Also, ABB leads the industry in the development of extruded polymer insulated cables and cable accessories for HVDC systems.³³

As an industry leader in HVDC systems, ABB has supplied and installed its technologies in several critical infrastructure projects in New England, Quebec and other parts of the world, including:

³³ ABB recently divested its cable technology and manufacturing facilities to NKT Cables to create a business that will be more competitive on a larger scale under NKT Cables' ownership. The divestment includes a long-term strategic partnership between ABB and NKT, under which the two companies will work together to support HVDC projects such as Northern Pass.

Project/Location	ABB Role³⁴
Highgate	In 1985, ABB installed a 200 MW HVDC back-to-back station in northern Vermont to facilitate import of clean energy to New England from hydro-electric generation resources in Quebec. In 2012, ABB finished modernizing and upgrading some of the equipment in the HVDC station to improve its efficiency and extend the service-life of the interconnection.
Sandy Pond ³⁵	In 1990, ABB installed the Sandy Pond HVDC station in eastern Massachusetts and the Radisson HVDC station in northern Quebec. The two stations are part of the 960 miles long Québec - New England Phase II HVDC transmission system. The Sandy Pond station is rated ± 450 kV and can supply up to 2,000 MW of clean power from Quebec to New England. ABB also installed a third HVDC station for the HVDC transmission system in 1992 in southern Quebec. In 2013, ABB was awarded a contract to modernize and upgrade the control and protection systems in all three stations of the link and that work is now completed.
Cross Sound Cable	In 2002, ABB installed (and currently provides maintenance services for) a 330 MW, ± 150 kV HVDC interconnection between the ISO-NE transmission system in New Haven, Connecticut and the ISO-NY transmission system on Long Island. The project consists of two HVDC voltage source converter (VSC) stations and an approximately 24 miles long polymer insulated DC cable circuit across the Long Island Sound. The Cross Sound Cable was the first HVDC project in the United States to utilize VSC station technology and polymer insulated DC cables.
Outaouais	In 2009, ABB installed a 2x625 MW HVDC back-to-back station in western Quebec to facilitate increased exports of clean energy from Quebec to Ontario.
Oklahoma	In 2014, ABB installed a 220 MW HVDC back-to-back station between the Texas (ERCOT) and Oklahoma (SPP) power grids.
Mackinac	In 2014, ABB installed a 200 MW HVDC back-to-back station in northern Michigan. The new HVDC station protects the regional transmission network from inadvertent flows and overload conditions during heavy export of clean wind energy from the upper mid-west to major load centers to the east. The Mackinac project is the first major HVDC back-to-back station in the world to incorporate VSC technology.
Dolwin 1	In 2015, ABB installed an 800 MW, ± 320 kV, HVDC transmission system that connects offshore wind farms located in the DolWin1 cluster in the North Sea to the German national AC transmission grid. The project consists of two HVDC voltage source converter (VSC) stations and an approximately 107 miles long polymer insulated DC cable circuit.

Along with extensive experience with new projects, ABB regularly supports existing US HVDC projects with upgrade work for capacity increases or modernization. The Bidders can provide references for ABB upon request of the Distribution Companies.

PAR - NPT Line

PAR, a subsidiary of Quanta Services, Inc. (a Fortune 500 company headquartered in Houston), will construct the North Pass Line as the general contractor. Quanta companies have constructed over US\$20 billion of transmission infrastructure in the past 10 years.

³⁴ Additional information about these and other HVDC projects installed by ABB is provided in Attachment 8.1.2 and via ABB's website at <http://new.abb.com/systems/hvdc/references>

³⁵ Transmission and Distribution World published an article in connection with the 25th anniversary of that installation (see http://m.tdworl.com/overhead-transmission/national-grid-and-abb-celebrate-25th-anniversary-hvdc-new-england?NL=TDW-04&Issue=TDW-04_20151124_TDW-04_694&sfvc4enews=42&cl=article_7&utm_rid=CPG04000000101428&utm_campaign=5464&utm_medium=email&elq2=b1829e38701247ed86f3560f2456c898).

Project/Location	Quanta Services	Reference
PPL Susquehanna-Roseland 500kV Transmission Line Project	101 miles of new 500 kV DC overhead transmission line. The existing right-of-way required expansion from a single 230 kV electric transmission line to replacing the existing towers with new, taller tower structures, updating the 230 kV to one that will carry 500 kV and adding an additional 500 kV transmission line. The project also included a new 500 kV substation, 7 substation upgrades and 6 230 kV substations.	REDACTED
CL&P/WMECO New England East-West Solutions (NEEWS)	Work included the Interstate Reliability Project, which consists of 38 miles of new 345 kV AC overhead transmission line, and the Greater Springfield Reliability Project, which required the construction or re-build of 27 circuits.	
Allegheny TrAIL 500 kV DC Transmission Line	Constructed approximately 150-mile 500 kV DC transmission line from Southwestern Pennsylvania to West Virginia to Northern Virginia, including construction of two substations.	
CL&P Middletown to Norwalk 345 kV AC Transmission Line	Installed ~43 circuit miles of 345 kV AC overhead transmission lines, various 115 kV AC circuit rebuilds. The structure heights ranged between 30 ft. and 195 ft.	
So. California Edison Tehachapi Renewable Transmission Project	Involved multiple project segments covering over 150 miles of 500 kV and 220 kV overhead and underground construction with various EPC aspects.	

The unparalleled depth of relevant experience of the Project sponsors and the strategic alliance contractors, coupled with outstanding financial and human resources, not only positions Northern Pass for continued success in its development phase, but also establishes a proven path to executing the construction of Northern Pass after receipt of the required regulatory approvals.

Subsection 11.6 Project Team
<p>With regard to the bidder's project team, identify and describe the entity responsible for the following, as applicable:</p> <ul style="list-style-type: none"> i. Construction Period Lender, if any ii. Operating Period Lender and/or Tax Equity Provider, as applicable iii. Financial Advisor iv. Environmental Consultant v. Facility Operator and Manager vi. Owner's Engineer vii. EPC Contractor (if selected) viii. Transmission Consultant ix. Legal Counsel

REDACTED

REDACTED

REDACTED

REDACTED

REDACTED

REDACTED

Subsection 11.7 ISO-NE Experience

Provide details of bidder's experience in ISO-NE other Markets affected by the bid. With regard to bidder's experience with ISO-NE markets, please indicate the entity that will assume the duties of Lead Market Participant for your Project. Please provide a summary of the proposed Lead Market Participant's experience with each of the ISO-NE markets.

Hydro Québec Production, directly or through its marketing subsidiaries, has been an important energy and capacity provider to New England since the early 1980s. REDACTED

List of Attachments:

<i>Attachment</i>	<i>Description</i>
	REDACTED
11.3	Phase II
11.4.1	Hydro-Québec Executive Team
11.4.2	JDA Project Management Team (Roles and Curricula Vitae)
11.4.3	NPT Core Project Management Team (Curricula Vitae)
11.5	Eversource Energy Transmission Projects

Section 12 EMISSIONS

REDACTED

Subsection 12.1 Emissions Estimates

For existing generation facilities, provide emissions estimates based on available continuous emissions monitoring data. Where continuous emissions monitoring data is not available, provide emissions estimates based on the most recent stack emissions test conducted using an EPA reference method approved by the applicable permitting and enforcement authority. Where continuous emissions data or actual stack emissions test data are not available, provide emissions estimates based on emissions factors from the latest edition of EPA's AP-42, Compilation of Air Pollutant Emissions Factors.

For new generation facilities, provide emissions estimates based on available data from the unit manufacturer. Alternatively, provide actual emissions data determined in accordance with the paragraph above for a similar facility built within the past 3 years. Include copies of supporting documentation for all emissions estimates.

Project Anticipated Emissions, expressed in pounds/megawatt-hour (lbs./MWh)

Source of Information	Date of Test (if applicable)	Greenhouse Gases(all except methane) Expressed as Carbon Dioxide equivalent (CO ₂ e)	Nitrogen Oxides (NO _x)	Sulfur Oxides (SO _x)	Carbon Monoxide (CO)	Particulate Matter (PM _{2.5})	Methane (CH ₄)

REDACTED

REDACTED

Subsection 12.2 Emission Reduction Investments
<p>Describe any past investments that will, or have been made to your facility to improve its emissions profile or any planned future investments made to your facility in order to improve its emissions profile. Pollutant specific emissions improving technologies include, but are not limited to:</p> <ul style="list-style-type: none"> • NO_x – Selective/Non-Selective Catalytic Reduction • SO_x – wet/dry scrubbers • PM – fabric filter/bag house, electrostatic precipitator, cyclone separator • CO – oxidation catalyst <p>Investments that improve overall emissions include, but are not limited to:</p> <ul style="list-style-type: none"> • equipment tune-ups (improves combustion efficiency and emissions) • boiler tube replacements (improves heat transfer efficiency and reduces fuel use) • other efficiency improvements (e.g., installing a heat exchanger to use waste heat to pre-heat feed water to the boiler) <p>Include control equipment specifications, date(s) of installation, expected life of equipment, benefits gained from the addition of such equipment, etc.</p>

The HQ Hydropower Resources are not thermal generation facilities. None of the technologies or investments listed apply to hydroelectric generation.

Subsection 12.3 Goal Alignment
<p>Describe how your project will contribute to the Massachusetts 2008 Global Warming Solutions Act (GWSA) and the 2010 Clean Energy and Climate Plan for 2020. Describe how your project will contribute both to the short term 2020 goal, and longer term 2050 goal found in these laws.</p>

Massachusetts's Global Warming Solutions Act (Chapter 28 of the Acts of 2008, as codified at M.G.L. c. 21N) provides that reductions from all sectors of the Massachusetts economy should achieve a 25% reduction in greenhouse gas emissions by 2020 and an 80% reduction by 2050 as compared to 1990 levels, as illustrated below.

REDACTED

REDACTED

REDACTED

REDACTED

REDACTED

List of Attachments:

<i>Attachment</i>	<i>Description</i>
	REDACTED

REDACTED

Section 13	CONTRIBUTION TO EMPLOYMENT AND ECONOMIC DEVELOPMENT AND OTHER DIRECT AND INDIRECT BENEFITS
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REDACTED

Subsection 13.1	Direct Job Creation
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Please provide an estimate of the number of jobs to be created directly during project development and construction (for a project that includes new facilities or capital investment), and during operations, and a general description of the types of jobs created, estimated annual compensation, the employer(s) for such jobs, and the location. Please treat the development, construction, and operation periods separately in your response.

REDACTED

To ensure that utility worker jobs are filled by New Hampshire and Massachusetts workers, NPT has taken the extra step to require that PAR, its general contractor, enter into a Project Labor Agreement (PLA) with the International Brotherhood of Electrical Worker Local Unions 104 and 109 to support the construction of Northern Pass. A copy of the PLA is provided as Attachment 13.1.2. Under the PLA, priority for employment will be given first to New Hampshire-based union workers, and, after that supply is exhausted, PAR will hire Massachusetts-based union workers before looking to other neighboring states for qualified union personnel. Based on the current full IBEW membership of those locals, New Hampshire has ~250 union members, with another ~600 in Massachusetts.

REDACTED

Subsection 13.2 Indirect Job Creation
--

Please provide the same information as provided in response to question 13.1 above but with respect to jobs that would be indirectly created as a result of the proposed project.

REDACTED

REDACTED

Subsection 13.3 Economic Development Impacts

Please describe any other economic development impacts (either positive or negative) that could result from the proposed project, such as creating property tax revenues or purchasing capital equipment, materials or services for New England businesses. Please provide the location(s) where these economic development benefits are expected to occur.

REDACTED

REDACTED

REDACTED

Subsection 13.4 Other Benefits

To the extent not already specified elsewhere in your response, please address the factors listed in Section 2.2.2.9 and describe any benefits or impacts associated with the proposed project.

Subsection 13.5 Winter Contributions
<p>Describe how your project will (a) contribute to reducing winter electricity price spikes in Massachusetts, and (b) guarantee energy delivery in winter months. Class I RPS eligible projects must guarantee that 70% of energy in their delivery profile of the Winter Peak Period will be delivered over the course of every Winter Peak Period (see Section 2.2.2.7). Clean Energy Generation for projects containing firm service hydroelectric generation, and Clean Energy from new Class I RPS eligible resources paired with firm service hydroelectric generation, will be required to submit a delivery profile with no Winter Peak Period hour less than 60 percent (60%) of their highest annual single hourly delivery claimed in their annual delivery profile.</p> <p>a) contribute to reducing winter electricity price spikes in Massachusetts</p> <p>b) guarantee energy delivery in winter months.</p>

REDACTED

Subsection 13.6 Benefits to Low-Income Ratepayers
If applicable, please demonstrate any benefits to low-income ratepayers in the Commonwealth, and the impact, if any, those benefits will have on the cost to the project.

REDACTED

List of Attachments:

<i>Attachment</i>		<i>Description</i>
		REDACTED

Section 14	ADDITIONAL INFORMATION REQUIRED FOR TRANSMISSION PROJECTS (AND ALL SYSTEM UPGRADES ASSOCIATED WITH PROPOSED TRANSMISSION PROJECTS)
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REDACTED

Section Introduction

Bids that include Transmission Projects (and all System Upgrades) must also provide the following information:
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Subsection 14.1 Transmission Project Information

Transmission Project Information:

- | |
|--|
| <ul style="list-style-type: none"> i. Overall project description |
|--|

The Project includes an expansion of Hydro Québec TransÉnergie's transmission grid in Québec in order to interconnect with the Northern Pass Line.

REDACTED

REDACTED

The Northern Pass Line will:

- Deliver 1,090 MW to the ISO-NE transmission system;
- Consist of approximately 158 miles of +/- 320 kV, HVDC transmission line from the New Hampshire/Canadian border to a new terminal in Franklin, where the electric power will be converted from DC to AC and sent, via a roughly 34-mile, 345 kV transmission line, to the Deerfield Substation for interconnection with the New England grid; and
- Include all upgrades required by the ISO-NE I.3.9 approval which was received on July 19, 2016.

Attachment 6.1.4 includes an overview map of the NPT Line route, and Attachment 14.1 contains a detailed description of the Northern Pass U.S. transmission facilities and the upgrades required by the ISO-NE I.3.9 approval.

ii.	The operating voltage of the proposed project: kV: +/-320 (HVDC) and 345 (AC)
-----	---

The HVDC line between the Des Cantons and Franklin converters will have a nominal operating voltage of +/- 320 kV. The AC line between the Franklin converter and Deerfield Substation will have a nominal operating voltage of 345 kV.

iii.	The type of structures (such as steel towers or poles) that would be used for the proposed project
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REDACTED

REDACTED

For the overhead portion of the Northern Pass Line, NPT will use three types of structures - lattice steel, tubular steel monopole and tubular steel H-Frame (AC line only). As part of the SEC process, NPT has provided details of the type, location, and design of each structure. That information can be provided to the Evaluation Team upon request.

iv.	The length of the proposed transmission line and the type(s) of terrain and land ownership of the proposed ROW	
	HQ Overhead miles: ~49miles	Underwater/Underground miles: -0- miles
	NPT Overhead miles: ~132 miles	Underwater/Underground miles: ~60 miles
	(98 miles DC & 34 miles AC)	(DC)
Terrain: See below		

REDACTED

Northern Pass Line

Length. As described in [Attachment 14.1](#), the HVDC line of the NPT Line has a length of ~158 miles, and the AC line has a length of ~34 miles. [Attachment 14.1](#) contains additional information regarding the underground and overhead portions of the NPT Line.

Terrain. The State of New Hampshire represents the northern limits of the Appalachian Highlands geologic province of the United States, and is characterized by terrain summarized as follows:

OVERVIEW OF TERRAIN

Within the New Hampshire section of the Appalachian Highlands, there are three major physiographic regions: the White Mountains, the Eastern New England Upland, and the Coastal Lowland regions. The NPT Line traverses the Eastern New England Upland and the White Mountains regions. Within those two physiographic regions, seven ecological regions are recognized: North Country, White Mountains, Connecticut River Valley, Monadnock - Sunapee Highlands, Southwest NH Lowlands, Lakes, and Merrimack River Valley. The majority of the NPT Line lies within the North Country, White Mountains, Lakes, and Merrimack River Valley regions.

The northernmost portion of the NPT Line is located within the North Country region, north of the Presidential Range in Coös County. The terrain is generally a combination of mountains and large river valleys, including the upper reaches of the Connecticut, Androscoggin, and Ammonoosuc rivers. Elevations in that portion of the NPT Line range from 700 to 4,000 feet above sea level.

As the line continues south, the NPT Line (underground section) crosses the White Mountains region. The White Mountains region is dominated by tall peaks, with elevations ranging from less than 1,000 to more than 6,000 feet. This region of New Hampshire is home to the Presidential Range and the upper reaches and headwaters of several rivers. The majority of the region drains into the Pemigewasset and Saco river systems, with northern portions of the region draining to the Connecticut and Androscoggin rivers.

South of the White Mountains region, the NPT Line passes through the Lakes Region, which is characterized by an abundance of lakes, hills, broad plains, and small mountain ranges. This region is home to several moderate sized rivers including the Saco, Bearcamp, and Winnepesaukee rivers. Elevations in this region range from 300 to more than 3,000 feet. The Lakes Region is bordered to the south by the Merrimack River Valley.

The NPT Line reaches its southern terminus in the Merrimack River Valley, in the town of Deerfield; however, as described in [Attachment 14.1](#), some work on existing transmission infrastructure will take place south of this location in the towns of Deerfield, Candia, Raymond, Chester, Auburn, Derry and Londonderry, Rockingham County. The Merrimack River Valley is characterized by low hilly terrain and lowlands with elevations ranging from less than 500 feet near the river to 1,000 feet on hilltops.

Land Ownership. NPT has acquired, or is completing the regulatory process to acquire, site control over the property needed for the Northern Pass Line. That site control is grouped into the following categories:

- ***Affiliate Lease.*** RPI, a NPT affiliate, has purchased or leased the property and property rights for three segments of a new ROW totaling approximately 32 miles extending from the Canadian border in Pittsburg, New Hampshire to the existing PSNH ROW in Dummer, New Hampshire. REDACTED
- ***Underground Rights.*** The underground HVDC portions of the NPT Line will be located in public highways.⁴⁴
- ***PSNH ROW.*** NPT has executed a lease agreement with PSNH (available at <http://www.puc.state.nh.us/Regulatory/Docketbk/2015/15-464.html>) for approximately 100 miles of existing transmission ROW. PSNH has submitted the lease to the PUC for its review and approval in connection with NPT's SEC Application.
 - ***ACOE.*** NPT also will require easements from the ACOE for short segments of the Northern Pass Line that will be constructed on PSNH ROW over land owned by the ACOE. NPT has applied to the ACOE for those easements, and expects that they will be issued in conjunction with an ACOE decision to issue a Section 404 permit (also applied for) during Q4 2017 (tied to the DOE's issuance of the Presidential Permit).
- ***Crossings of Public Waters and Lands and Railroads.*** The NPT Line will cross over or under public waters and lands owned by the State of New Hampshire and already has received the approval to do so under applicable state law. Crossings of state-owned railroad property will be consistent with applicable state regulations. In addition, the NPT Line will cross a privately-owned railroad in Stark, New Hampshire pursuant to agreements with the St. Lawrence and Atlantic Railroad, which already have been executed.

Further details concerning land acquisition are provided in Section 6.2.

v.	The substation facilities (number of breakers, transformers, etc.) required at each terminal of the proposed project and information as to how the new facilities would interconnect to any existing facilities.
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⁴⁴ By letter dated April 3, 2017, the New Hampshire Department of Transportation confirmed that it will issue a permit to NPT which will allow construction in public highways.

Northern Pass Line⁴⁵

Franklin Converter Terminal

The converter terminal equipment will be located in Franklin, NH. The installed equipment will have Voltage Source Converter (VSC) technology and will have a rating to deliver 1,090 MW at the Deerfield Substation 345 kV substation bus. The VSC design includes the capability to provide both real power and reactive power to support the ISO-NE transmission system.

⁴⁵ See Attachment 14.1 for additional details on *AC System Upgrades per I.3.9 Approval Process*.

REDACTED

The converter will be connected to a 345 kV terminal structure at Franklin which will be connected to the Deerfield Substation via a 34 mile 345 kV overhead transmission line.

PSNH Deerfield Substation

The 345 kV AC line segment of the NPT Line will interconnect with the ISO-NE transmission system at the existing Deerfield Substation. REDACTED

At Deerfield Substation, in accordance with the requirements identified by the ISO-NE as part of its I.3.9 approval ([Attachment 6.6.1](#)), NPT will reconfigure portions of the substation to accommodate the interconnection of the Northern Pass Line. The work involves relocating certain 345 kV line terminals and adding 345 kV line positions to the substation. In addition to the line terminal work, the existing 345 kV, No. 391 line that presently goes by the substation will connect through the Deerfield Substation (thus the addition of two line terminal positions). The 345 kV line work and terminal additions will be constructed within the existing substation fenced area.

The existing substation will be expanded to include the installation of a static VAR (volt-ampere reactive) compensator (SVC) and 345 kV capacitor banks. Those devices, which are required by the ISO-NE I.3.9 approval, will improve the ISO-NE transmission system by providing system voltage support during abnormal system events.

For the Deerfield upgrade, the equipment additions will include breakers, SVC and transformer, capacitor banks, switches and bus, instrument transformers and arresters.

PSNH Scobie Pond Substation

A 345 kV capacitor bank addition is planned for Scobie Pond Substation, along with the installation of two 345 kV breakers in the existing substation bus (resulting from ISO-NE's I.3.9 approval).

Miscellaneous I.3.9 Upgrades

In addition to improvements to the Deerfield and Scobie Substations described above, the ISO-NE I.3.9 approval identified a need to replace ten structures of two 345 kV lines between Deerfield and Scobie Pond⁴⁶ in order to increase the power flow capability of the lines. (See, [Attachment 14.1, AC System Upgrades per I.3.9 Approval Process](#).)

⁴⁶ The two lines are 373 and 391S (which will be re-designated as 3118).

vi.	The estimated costs of the proposed project broken out into separate categories as described below for transmission facilities and substation facilities in nominal year dollars.
a.	<p>For cost of service or modified cost of service proposals:</p> <ol style="list-style-type: none"> 1. Provide the capital cost estimate presented as a buildup of costs by category, such as environmental, engineering, civil works, materials, equipment, construction, construction management, physical and price contingencies, allowance for funds used during construction (AFUDC), and all other categories for which recovery under FERC would be sought. These categories are illustrative; aggregate costs into the categories most relevant to the development of the proposed project. All costs should be provided in nominal dollars. 2. For projects with transmission and substation components, separate the costs into two rows (e.g. use one row for substation construction and a second for transmission construction). Describe the detailed financial plan on a monthly basis during the construction period, e.g., for 3 years or as long as necessary. The plan should present the costs and financial outlays in each month of the construction period, and the corresponding sources of financing (equity contribution and debt drawdown), as in the following illustrative table. Data should include an estimate of the cost of both physical and price contingencies during the construction period. The financing plan should indicate the ability to finance the construction of the proposed project under base case and contingency scenarios. 3. Describe the proposed financing sources and instruments. 4. Sources of funds for construction and working capital - include name of entity providing debt financing, loan amounts, interest rates, repayment period, grace period during construction; and equity provided by project sponsor. 5. Sources of funds for unexpected repairs or replacement construction during the operating period, e.g., replacement of tower. Note: the operating period is the applicant's estimate of the useful life or accounting life of the transmission project element(s).

REDACTED

REDACTED

REDACTED

- b. If the bidder is proposing fixed-rate pricing rather than cost-of-service or modified cost-of-service pricing, provide sufficient information and assessment to show that the proposed project, including any necessary transmission network upgrades, is financially viable. In this regard, provide capital cost estimates and operation and maintenance cost estimates and the basis for your estimates, including the extent to which estimates are based on vendor contracts or vendor quotes, your experience in the development, construction and/or operation of similar projects, your approach regarding contingency and risk management, and your proposed financing plan. All costs should be provided in nominal dollars, although inflation and cost escalation estimates should be provided. Please describe in detail the due diligence you have conducted in developing your pricing and tariff proposal.

REDACTED

vii. Provide a proposed schedule for project development through release for operation that includes, as a minimum, key critical path items such as:

REDACTED

a. Develop contracts for project work: REDACTED

REDACTED

b. Completion of studies and receipt of approvals needed for the interconnection:
REDACTED

REDACTED

NPT has completed the I.3.9 process with ISO-NE ([Attachment 6.6.1](#)) and received its I.3.9 approval on July 19, 2016.

REDACTED

c. Permitting; R/W and land acquisition:

REDACTED

REDACTED

d. Engineering and design:

REDACTED

REDACTED

e. Material and equipment procurement, including identification of long lead time equipment REDACTED

REDACTED

f. Facility construction: REDACTED

REDACTED

g. Agreements (interconnection, operating, scheduling, etc.) with other entities: REDACTED

REDACTED

h. Pre-operations testing: REDACTED

REDACTED

REDACTED

i. Project in-service date:	REDACTED
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REDACTED

j. Other items identified by the bidder

REDACTED

- | | |
|-------|---|
| viii. | Bidder must indicate whether it proposes to recover abandonment costs for its transmission project from the Distribution Companies, as described in Section 2.2.2.6.2 of this RFP. If so, Bidder must acknowledge that recovery of any such abandonment costs shall be in accordance with FERC rules and policies, and also acknowledge that in no event will a Bidder seek to recover abandonment costs if the abandonment was caused directly or indirectly by some act or failure to act of the Bidder. Bidder must further affirmatively commit not to seek from FERC or any other agency or authority any treatment of abandonment costs inconsistent with the provisions of Section 2.2.2.6.2 of the RFP. To the extent the Bidder proposes to recover abandonment costs, such proposal should be further described as set forth in Appendix C-3 of this RFP. |
|-------|---|

REDACTED

REDACTED

Subsection 14.2 Proposed Payment; Cost Containment

The proposed payment required for the transmission project and all system upgrades.

- | |
|--|
| i. All proposals must include significant cost containment as stated in the RFP. |
|--|

REDACTED

REDACTED

ii.	List all situations which may change the proposed payment by consumers during the contract term.
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REDACTED

iii.	Identify any limits placed upon the bidder's post-contract term rates according to current FERC rules.
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REDACTED

REDACTED

iv.	Identify all other project revenues which may be received by the bidder during the contract term which would not reduce rates paid by consumers.
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REDACTED

v.	If the proposed payments may change during the contract term or the proposal is based on cost of service, the bidder must provide the method that transmission owner shall use to determine the payment for the Transmission Project under the transmission Rate Schedule or Tariff and Service Agreement to be filed with FERC. If the proposed payment is a formula rate, the Eligible Bidder must also provide the formula and its proposed inputs that the transmission owner will file with FERC.
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REDACTED

- vi. If the proposed payment is based on the Transmission Project's cost of service and may change during the contract term based on changes in the cost of service, a full revenue requirements model must be included and submitted as a working Excel spreadsheet with the formulas intact.
- a. Provide the annual revenue requirement forecasts for the project – including assumptions. Provide a draft version of the revenue requirement calculation in a format that is similar to what would be included in the Rate Schedule or Tariff and Service Agreement application to FERC, indicating the forecast revenue requirement amounts and all assumptions used in the calculations. This should include but not be limited to the assumptions regarding rate of return, depreciation life, split between debt and capital, AFUDC and weighted cost of capital, and a detailed estimate of the anticipated average annual operating and maintenance cost. Provide the information requested in Section 14.1.a of the Bidder Response Package.

REDACTED

- vii. If the pricing proposed is based on cost of service, detail all cost containment commitments. Examples of such commitments include fixed price components, cost overrun restrictions, or other cost bandwidth provisions that are proposed to limit ratepayer risk must be clearly defined.

REDACTED

REDACTED

REDACTED

- | | |
|-------|--|
| viii. | Please include full and complete descriptions of all cost containment measures that you propose to be included in your pricing. Additionally provide any supporting documentation for any savings or methods of savings including cost caps on any portion of your project. Please include working excel spreadsheets to more fully explain how your cost containment measures should work. Please provide details and notes that describe the nexus between the cost containment provisions in your proposal and those supporting documents and spreadsheets. Please provide examples about how any cost containment measures you are proposing would work. |
|-------|--|

REDACTED

- | | |
|-----|--|
| ix. | To the extent that you are proposing different interconnection scenarios that affect cost please include full and complete cost information on each scenario. Please describe all interconnection and transmission upgrade costs required to interconnect at the Capacity Capability Interconnection Standard and to ensure full dispatch, including transmission upgrades that may need to occur beyond the point of interconnection. |
|-----|--|

REDACTED

- | | |
|----|--|
| x. | Please describe the coordination of the availability of the Clean Energy Generation and any associated transmission or distribution facilities. All proposals must include a project schedule, and proposals including a combination of transmission and Clean Energy Generation should propose complete critical path schedules, for both elements of the project, from the notice of selection for contract consideration to the start of commercial operations (the "Baseline Schedule"). Please describe all aspects of your proposal that protect ratepayers from risks associated with payments for transmission costs when any associated expected Clean Energy Generation, as proposed by the bidder, is absent, reduced, or curtailed as compared to the Baseline Schedule. |
|----|--|

REDACTED

REDACTED

xi. Please describe your approach to avoid line losses.

REDACTED

Subsection 14.3 Payment Schedule
The schedule of the payments defined in 14.2 above including when the payments will commence, how often payments will be required and the length of time over which payments will be required. In no event may payments commence before the Transmission Project is placed in service.

REDACTED

Subsection 14.4 Design Life
The design life of the project.

The design life of the Québec Line and the Northern Pass Line is at least 40 years.

Subsection 14.5 Reliability Benefits
A description of the reliability benefits of the proposed Transmission Project and its impact on existing transmission constraints.

REDACTED

Specifically, for transmission, there are two aspects of electric system reliability:

REDACTED

The NPT Line will improve regional **transmission reliability** by providing a high capacity high voltage transmission line that directly connects to the ISO-NE transmission system, along with associated ISO-NE transmission system impact upgrades required by ISO-NE's I.3.9 approval of the NPT Line. This will:

REDACTED

List of Attachments:

<i>Attachment</i>	<i>Description</i>
14.1 [REDACTED]	Northern Pass Line Description [REDACTED]

Section 15 EXCEPTIONS TO FORM PPA AND OR VARIATIONS FROM THE PROPOSED TARIFF REQUIREMENTS

Section Introduction

Please attach an explanation of any exceptions to the Form PPAs set forth in Appendix C-1 or Appendix C-2 to this Notice, including any specific alternative provisions in a redline format to the Form PPA.

Transmission bids must contain a proposed tariff, rate schedule or transmission service agreement ("Transmission Agreement") that the Bidder proposes as the vehicle for recovery of its transmission costs from the Distribution Companies. In addition, all transmission bids must separately contain a detailed summary of the material provisions of the proposed Transmission Agreement. Such a summary should include, but not be limited to, a discussion of the key provisions set forth in Appendix C-3, as well as a cross-reference to the corresponding sections of the proposed Transmission Agreement where such provisions may be found.

Bidders are discouraged from proposing changes to the Form PPA and or variations from the Proposed Tariff requirements.

REDACTED

REDACTED

REDACTED

List of Attachments:

Attachment	Description
REDACTED	REDACTED