STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

SEC DOCKET NO. 2015-06

JOINT APPLICATION OF NORTHERN PASS TRANSMISSION LLC &
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
D/B/A EVERSOURCE ENERGY
FOR A CERTIFICATE OF SITE AND FACILITY

SUPPLEMENTAL PRE-FILED TESTIMONY OF

GEORGE E. SANSOUCY

on behalf of

THE TOWNS OF NORTHUMBERLAND, WHITEFIELD, LITTLETON, SUGAR HILL, FRANCONIA, PLYMOUTH, ASHLAND WATER & SEWER, BRISTOL, NEW HAMPTON, PEMBROKE AND DEERFIELD AND THE CITY OF CONCORD

MARCH 24, 2017

Introduction and Qualifications

Q 1. Please state your name, business address, and affiliation.

A 1. My name is George E. Sansoucy. My business address is 7 Greenleaf Woods Drive, Unit 2, Portsmouth, New Hampshire 03801. I am the owner of George E. Sansoucy, P.E., LLC.

Q 2. Describe your educational background and professional qualifications to appear in this proceeding?

A 2. I have a Bachelor and a Master of Science Degree in Civil Engineering and I am a Registered Professional Engineer in New Hampshire and a certified general appraiser in New Hampshire, and a certified assessing supervisor by the NH Department of Revenue Administration. My firm, George E. Sansoucy, P.E., LLC, provides valuation, consulting and engineering services to clients throughout the United States. The firm's two primary services are 1) consultation services on energy and regulatory matters involving the public and private utilities sector in the United States. Over the years, I have testified in legal and regulatory proceedings in New Hampshire and elsewhere in the United States and before state and federal courts and administrative agencies throughout the United States, including the Federal Energy Regulatory Commission and the Nuclear Regulatory Commission, and

2) the valuation of public utility infrastructure, energy projects, and complex industrial properties.

Q 3. What documents have you reviewed in preparation for your testimony?

A 3. I have reviewed the application and supporting documentation, testimony and exhibits of William Quinlan, James Muntz, Michael Ausere, and Robert Andrew,

Q 4. What areas of testimony are you providing related to your review of the testimony of the persons referenced above?

A 4. At this time, my testimony is related to the following subject matters in part or in whole:

1. Northern Pass Route Selection – Quinlan, Muntz
2. Financial Feasibility – Ausere

Purpose and Summary

Q 5. What is the purpose of your testimony?

A 5. The purpose of my testimony is to present and express the technical opinions and concerns regarding the construction of Northern Pass in New Hampshire in total in the towns of Northumberland, Whitefield, Sugar Hill, Franconia, Plymouth, Ashland Water & Sewer, Bristol, New Hampton, Concord, Pembroke, and Deerfield. Additionally, the purpose of my testimony is to supplement my prior testimony of November 15, 2016 regarding Northern Pass.

Exhibits

Q 6. Are you sponsoring any exhibits?

A 6. Yes. I am sponsoring 9 exhibits:

- Exhibit – 24: Hydro Quebec Phase 2 Drawing and Photo
- Exhibit – 25: ISO New England FCA-11
- Exhibit – 26: Maine Power Express
- Exhibit – 27: New England Clean Power Line
- Exhibit – 28: New England Clean Energy RFP
- Exhibit – 29: Additional Transmission Line Maps
- Exhibit – 30: NHPUC Docket 15-459 Order 25953
- Exhibit – 31: Docket DE-15459 Settlement Agreement
- Exhibit – 32: Hydro Quebec News Articles

Testimony

Route Selection – William Quinlan, James Muntz (Bowes for Muntz)

Q 7. In addition to your testimony of November 15, 2016, do you have added concerns and information regarding route selection, and specifically the need for Northern Pass, in your view?

A 7. Yes. Since my testimony in November, more information has come out regarding the need for Northern Pass at this time. Specifically, FCA-11 has occurred, the current Capacity Auction. New information has surfaced regarding the proposals for

competing electric transmission lines into the New England area from Hydro Quebec in New York, Vermont, and Maine, and we are investigating whether Hydro Quebec Phase I and Hydro Quebec Phase II could be valid options for siting of Northern Pass if required. In addition, as supported by Exhibit 5 to my November 15, 2016 pre-filed testimony, there is an indication that the 230,000 volt line is only half used. I will include more details and supporting documents regarding these issues in my supplemental testimony for Track 2 regarding Julia Frayer's analysis.

Q 8. Do you continue to believe that Northern Pass is not needed, and is premature?

A 8. Yes. At this time, I do not believe Northern Pass is necessary and is largely redundant. It is not needed in the foreseeable future. It also has not demonstrated that a need sufficiently exists to warrant the level of disruption and impact the company is proposing to have on the New Hampshire communities and citizens by building Northern Pass in its current pathway and route selection.

Q 9. What additional information do you cite to support your continued concern regarding the necessity of Northern Pass at this time?

A 9. I am sponsoring Exhibit 25 which is the FCA-11 capacity auction bid that occurred on Feb. 6, 2017 for capacity commitment period of June 1, 2020 to May 31, 2021. The system value for capacity closed in round 5 at a rate of $5.29 per kilowatt month with the exception of New Brunswick, which closed at $3.38 per kilowatt month. This is down from $7.03 per kilowatt month in FCA-10 and down from $4.00 in New Brunswick from FCA-10. The take-away from FCA-11 is that the New England ISO

procured adequate new energy resources and efficiency and demand reduction capacity resources of 640 megawatts, an additional 720 megawatts of behind the meter renewables and, in addition to these, the New England market cleared with a surplus of 1,760 megawatts. The entire list of existing generators included is provided with Exhibit 25. It is interesting to note the use of New York facilities through the New York ties into New England that were picked up by ISO. These eliminate or reduce the need for indigenous power supply sources within New England. Such resources include the Erie Boulevard Hydroelectric facilities owned by Brookfield and managed by Brookfield Energy Marketing, 364 megawatts imported through its New York ties. These are existing facilities owned by Erie Boulevard, the old Niagara Mohawk hydros. Also, the Carr Street Generating Station also managed by Brookfield Energy Marketing at 83 Megawatts. The Burrillville Energy Center, a new gas fired generating plant of 512 megawatts in Burrillville, Rhode Island was added. Other large facilities coming into FCA-11 include the Roseton #2 oil fired generation unit in Newburg, New York, through the New York ties at 596 megawatts, 170 megawatts of new capacity from New Brunswick Energy Marketing and the New Brunswick tie, a new Bayside Power import from New Brunswick through the New Brunswick tie offered by Emera Energy Services at 250 megawatts, Roseton #1 at 610 megawatts, the Killingly Energy Center at 531 megawatts, Ocean States Power Phase III at 238 megawatts, and Hydro Quebec Energy Services offering capacity and power over the Highgate tap, the New Brunswick tap, and the New York ties as well as the Phase I and Phase II Hydro Quebec excess of 441 megawatts, upgrades to Bear Swamp's Pumped Storage facility at 47 and 44

megawatts each, and Milford Power offering an additional 202 megawatts through GDF Suez. Northern Pass, if it had bid, was not selected and is not in the FCA-11 pickup by New England ISO. Because Northern Pass did not bid into FAC-11, it therefore cannot be awarded capacity payments between 2020 and 2021.The 2017 CELT report has not yet been published. The list of generators who have been selected for FCA-11 has been published and Northern Pass is not one of them. The final CELT report will prepare the final amounts of capacity available versus bid versus selected and the surpluses will be outlined. Refer to my previous testimony of 11/15/16 for the similar analysis of the CELT report for 2016 which was available by November 2016.

Q 10. For the Clean Energy RFP by the New England states of Connecticut, Massachusetts, and Rhode Island, what additional capacity has been selected to be contracted through the Clean Energy RFP that affects the capacity need for Northern Pass?

A 10. The Clean Energy RFP winning bids total 460 megawatts of capacity with an authorized procurement level of 5,000 gigawatt hours of annual generation. Winning bids included a New Hampshire wind farm, a New York wind farm, and nine (9) major solar systems in New Hampshire, Connecticut, Maine, and Rhode Island with a total solar capacity of 306.4 megawatts. Larger electric transmission lines appeared not to have been successful in bidding the New England Clean Energy RFP. The clean energy RFP is a state sponsored solicitation that will produce a long-term fixed contract for the selected projects. These state sponsored projects will operate at a priority over a

merchant project such as Northern Pass and therefore diminishes the likelihood of Northern Pass's success or even construction.

Q 11. Were there other projects proposed and bid into the Clean Energy RFP that were not selected by the states, and are still active?

A 11. Yes. In the New England Clean Energy RFP, a number of electric transmission lines were bid, some new to the landscape. These included Northern Pass, Maine Clean Power Connection, Maine Renewable Energy Interconnect, Clean Energy Interconnect, Vermont Green Line, and the Evergreen Express. These high voltage electric transmission lines included a substantial amount of proposed wind power, firm hydro power, battery storage, and solar. They comprised approximately 4600 megawatts of transmission capacity proposed in the Clean Energy RFP that were not selected, but nevertheless, are in process. All of the competing transmission lines are shown on Exhibit 29.

Q 12. Do you have other information from the New England ISO regarding the total capacity available at this time for New England?

A 12. Yes. In addition to the large transmission lines that were not selected, a number of additional small projects were proposed, but not selected. These included the transfer of approximately 572 megawatts of hydroelectric capacity from PJM to the New England ISO, new fuel cell projects and heat recovery projects, wind projects, and solar photovoltaics. These projects comprised approximately 5000 megawatts of additional renewable capacity for the New England region.

Q 13. In addition to these existing proposals and RFP's, what additional directives and initiatives are in process to continue the development of renewable energy in New England?

A 13. The Clean Energy RFP was released in 2015 with bids announced in 2016. In 2016, Massachusetts passed a comprehensive clean energy bill requiring utilities to competitively solicit an additional 1200 megawatts of clean energy generation, including baseload hydropower, wind, solar, stand-alone on-shore wind, and other Class I renewables. The legislation also permits the procurement of 1600 megawatts of off-shore wind in addition to on-shore. The total procurement is for 2800 additional megawatts and will bring Massachusetts' use of renewable energy up to 40% of the total energy consumed in Massachusetts. Also, Massachusetts has started the energy storage initiative where demonstration projects are being solicited for battery storage, energy storage through pump storage, or any other form of storage or load shifting that may be sponsored through utility contracts.

Q 14. Please summarize your on-going concerns for the need for Northern Pass based on this additional information.

A 14. It is clearly apparent that there are a large number of competing proposals and contractual developments for renewable energy in the New England market place. FCA-11, for this year, indicates that there is a glut of electricity and capacity greater than there was in FCA-10. With the various proposals being offered and initiatives established by the different states, the glut appears to continue to grow and without contracts, capacity pricing has the possibility of collapsing, thereby hurting Northern

Pass. Collapsing capacity prices reduce the value and likelihood that Northern Pass can be financially constructed and operated because the line will be paid less for its operations. Therefore, Northern Pass may end up with no option but to either be successful in one of the state sponsored initiatives, or cease development. With the approval of the Clean Power Link in Vermont, which can back-feed into New Hampshire, the urgency of electricity for New Hampshire is substantially reduced. Exhibit maps provided in this testimony demonstrate the multiple locations of entry into the southern New Hampshire market for electricity by the various proponents using various types of transmission lines or generation facilities to satisfy the demand and need for clean energy and power in general. The State of New Hampshire, through its SEC, is faced with a review of a project that is contrary to the public interest because it is simply not needed. The SEC must consider whether or not the disruption of the landscape, view, roads and streets within communities, and the construction of aerial high voltage transmission lines in the proposed route of Northern Pass is even worth the approval when it is not needed. There is no sense of urgency related to Northern Pass and no reason the necessary time can't be taken to explore all possible options, such as the use of the existing Hydro Quebec Phase I and Phase II rights-of-way, the use of the Interstate 93 rights-of-way, and the purchase of the Portland Pipe Line easement as an underground transmission easement from Canada to Portland, Maine, and then underwater into the Massachusetts market. The idea of opening a new corridor in New Hampshire with its attendant impacts at this time makes no sense.

Q 15. Please restate your thinking and recommendation regarding Hydro Quebec Phases I and II.

A 15. My initial testimony described the use of the existing resource that has a right-of-way throughout New Hampshire to Massachusetts. In the first instance, there is available capacity related to the existing lines. The existing lines have a capacity of 2000 megawatts and largely are not being used at 2000 megawatts. Whether or not they can carry another 400, 800, or 1000 megawatts, there is no reason to construct a new line when some portion of Northern Pass, if not all, can be transmitted, without any additional costs to construct, over the existing lines. There have been a number of discussions about the limitation of capacity on the existing line, even though it was designed for 2000 megawatts.

Q 16. Are there different ways to operate a DC system?

A 16. Yes. DC systems can be operated as multi-terminal direct current and may include bi-pole operation and mono-pole operation. Owners of Hydro Quebec Phase I and II can change the operation as they need to, to allow for the transmission of more or less capacity on the system as required. The fact still remains that the system was constructed for 2000 megawatts of capacity. The annual capacity factors for the use of the line at the Vermont interface from Quebec, have been between 0 utilization in a year to a high of 59% utilization in a year. The average utilization has been in the 30 to 50%.

Q 17. What other options are available to the State of New Hampshire on the Hydro Quebec Phase I and II right-of-way and lines?

A 17. The 350 foot wide right-of-way from Vermont to Massachusetts can be reconfigured in a number of ways. First, there are two 230,000 volt lines built in 1930 to transmit hydroelectric power to Massachusetts. They were designed for 690 megawatts and were completely redundant. There is no reason a converter can't be reinstalled at Monroe, New Hampshire to convert a portion of Hydro Quebec Phase I back to AC and utilize the second line. This would add 345 megawatts of capacity to the system on a permanent basis. These lines were originally built to be redundant to be able to shut off one line and maintain it while the other line still carried the hydroelectric power from the Comerford Dam, the Moore Dam, and McIndoes. Those constraints are no longer as onerous to the New England grid system as they used to be in 1930, and 345 megawatts of capacity is going essentially unused. Secondly, there are four (4) locations where an underground DC line could be buried on the existing right-of-way, to the east and west of Hydro Quebec Phase I and II, and to the east and west on the outside of the right-of-way of the 230,000 volt lines. Third, one of the 230,000 volt lines can be removed and the capacity added to the second 230,000 volt line, reinforced. Lastly, the existing 450,000 volt line can be structurally reinforced to carry more wire. One additional wire will carry approximately 500 – 750 megawatts of DC power, and with the existing 230,000 volt line is utilized, a full 1,000 can be added to the right-of-way on largely the existing infrastructure. I believe that the applicants have hastily proposed a new route that is not needed to be built at this time, and the SEC should recognize that the current NPT proposal is therefore not good for the people of New Hampshire. Also, NPT proposes to spend $1.6 billion. A cost benefit analysis has not

been performed by NPT to determine if use of the Hydro Quebec Phase I and II rights of way and solving the problems related to capacity congestion, if any, is substantially less expensive than the new construction of NPT.

Q 18. You spoke in your original testimony of utilizing the Interstate 93 corridor. Do you still believe that this is an important and viable resource in the state?

A 18. Yes I do. The New Hampshire legislature, in 2015, passed a law to promote the use of the Interstate 93 corridor for energy facilities and I believe that Northern Pass has given essentially nothing but lip-service to this idea. Use of the I-93 corridor would eliminate a substantial portion of the concerns related to the construction of Northern Pass, would require the underground construction of the DC line from Concord to Deerfield and a new converter station in Deerfield, all of which would be a better option than the current proposal to open a new corridor of above ground and some portion buried for the existing Northern Pass proposal.

Q 19. Do you have additional exhibits related to Hydro Quebec Phase I and other competing transmission proposals?

A 19. Yes. Enclosed is Exhibit 24 which shows a photo of the Hydro Quebec Phase I right-of-way and the possible expansion scenarios. Also enclosed is an updated exhibit with additional transmission lines added that were not provided in the 11-15-16 testimony, showing the new proposed lines, the Clean Energy Link which now has been approved and received a presidential permit, and the Maine Power Express. I have additional exhibits showing, in more detail, elements of the lines, the proposals, their

routes, capacities, etc. In each case, these additional transmission line proposals throughout the northeast offer superior solutions to moving electricity into New England from Canada in comparison to the impacts related to the proposal to build Northern Pass.

Q. 20. Do you have ongoing concerns relative to the assurances from NPT, EE, etc. to hold NH ratepayers harmless from ANY and ALL recovery of Northern Pass expenses?

A. 20. Yes.

Q. 21. What is the source of your concerns?

A 21. Order No. 25,953, issued on October 14, 2016, by the New Hampshire Public Utilities Commission, provides two scenarios in which New Hampshire ratepayers will become responsible for costs related to Northern Pass.

Q 22. Please describe the scenarios that you are referring to.

A 22. As noted in the Order, "If FERC designated the AC portion of Northern Pass as a reliability upgrade, the costs would be recovered through regional transmission rates from all New England ratepayers, including New Hampshire ratepayers." See Exhibit 30.

The DC portion of Northern Pass can also be deemed a reliability project "…eligible for regional cost allocations through the FERC Order 1000 process or any other regional cost mechanism." See Exhibit 30.

Q 23. Who determines if either the AC or DC line is considered a reliability upgrade?

A 23. As noted in the Order, the AC line portion of Northern Pass "could be included in regional rates in the future if ISO-NE identifies a specific reliability need and incorporates the AC line into the regional grid as a component of the most cost effective solution to meet reliability needs." See Exhibit 30.

The Order also indicates that the DC portion of the Northern Pass Project could become eligible for regional cost allocation through the FERC Order 1000 process or other regional cost-sharing mechanism.

Q 24. Has NPT made adequate assurances to the NHPUC that NH ratepayers will be excluded from any rate recovery associated with these scenarios that would otherwise result in NH citizens being required to pay for costs associated with Northern Pass?

A 24. No. NPT has indicated that if the AC line should be included in regional rates, it "commits to work with [PUC] Staff and OCA to limit as much as possible any potential rate effect on New Hampshire ratepayers". See Exhibit 30.

In its response to the scenario in which ratepayers would be subject to tariffs relative to the DC portion of Northern Pass, NPT more strongly commits to "hold harmless New Hampshire retail electric customers from New Hampshire's regionally allocated share of costs". However, they make this commitment only "so long as Northern Pass Project costs are being recovered through any such regional cost sharing process or mechanism." See Exhibit 30.

Financial Feasibility - Michael Ausere

Q 25. Do you have any other concerns not already conveyed in this or your previous Testimony?

A 25. Yes.

Q 26. Please explain.

A 26. As noted in my 11/15/2016 Testimony, Mr. Ausere and other NPT pundits have been adamant that New Hampshire and its citizens will not be responsible for any costs related to the development, construction, operations, and decommissioning of the NPT line. In reading over Mr. Ausere's Pre-Filed Direct Testimony again, I was struck by his discussion of TSA's requirement that HRE's parent, HQ, provide NPT a guaranty of HRE's current and future payment obligations. The guaranty is dependent on the commencement of construction.

Q 27. Why is this a concern?

A 27. The basis of NPT's pundit's assurances that New Hampshire ratepayers will not be subject to any costs related to Northern Pass is that the TSA, approved by FERC, provides the vehicle by which HRE / HQ will compensate NPT for all costs related to the Northern Pass transmission line, including development costs. By NPT's own estimates, made months ago, it had spent nearly $100 million dollars. It is reasonable to assume that that amount has grown exponentially given NPT's efforts just within the context of this SEC proceeding. Per Mr. Ausere's testimony, if construction does not begin, HRE/HQ has made no guarantee to cover NPT's incurred project costs,

let alone any earnings or return. See Exhibit 32 related to Hydro Quebec's revised statements.

Q 28. Does that conclude your testimony?

A 28. At this time, yes.