VIGGO C. FISH
Direct Dial: 603.226.4412
Email: viggo.fish@mclane.com
Admitted in NH
11 South Main Street, Suite 500
Concord, NH 03301
T 603.226.0400
F 603.230.4448

MCLANE MIDDLETON

November 29, 2017

Via Electronic Mail & Hand Delivery

Pamela Monroe, Administrator
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

Re: Site Evaluation Committee Docket No. 2015-06
Joint Application of Northern Pass Transmission LLC and Public Service Company of New Hampshire d/b/a Eversource Energy (the "Applicants") for a Certificate of Site and Facility
Applicants' Response to October 27, 2017 SEC Record Request

Dear Ms. Monroe:

Enclosed for filing in the above-captioned docket, please find an original and one copy of the Applicants' redacted memorandum responding to the SEC's October 27, 2017 record request. The memorandum also responds to The Brattle Group's confidential memorandum dated October 31, 2017.

An unredacted confidential version of the enclosed memorandum has previously been circulated to those parties that are authorized to access confidential materials in this proceeding.

Please contact me with any questions or concerns.

Sincerely,

Viggo C. Fish

VCF:slb

cc: SEC Distribution List

Enclosure

Record Response Explaining Differences in MOPR Calculations for Northern Pass

prepared for Eversource Energy by London Economics International LLC

November 21, 2017

During its October 27, 2017 hearing, the Site Evaluation Committee ("SEC") sought to reconcile the difference between the Minimum Offer Price Rule ("MOPR") estimates by London Economics International LLC ("LEI") and The Brattle Group ("Brattle") in their respective supplemental testimonies. Brattle filed a memo dated November 1, 2017, providing their explanation. LEI provides its explanation below.

Brattle suggested a [redacted] difference between its and LEI's calculation of the MOPR price based on Brattle's conclusion that LEI did not account for the cost of transmission facilities in Québec attributable to Northern Pass ("Project"). As LEI demonstrates, however, the cost of transmission service in Québec is already implicitly reflected in LEI's MOPR calculation for the Project. Therefore, when Brattle suggests that LEI's MOPR price should be increased by $4 kW-mo to [redacted], it is effectively double counting transmission costs in Québec. At the same time, LEI does agree with Brattle that differences in projected energy revenues will impact the MOPR. Finally, LEI shows that what Brattle considers to be a small difference in opportunity costs can have a significant impact on the MOPR price. Although LEI stands by its original MOPR analysis, having considered these factors LEI concludes that, when employing the same or similar assumptions, there is a de minimis difference between its and Brattle's MOPR prices.

The MOPR estimate presented in LEI's rebuttal testimony is consistent with the intent of the MOPR analysis and LEI's understanding of how the Internal Market Monitor at ISO New England will consider new imports on elective transmission upgrades ("ETU"). The Project should clear the Forward Capacity Auction ("FCA") based on LEI's capacity market price forecasts and, indeed, also based on Brattle's capacity market forecasts, which Brattle notes is only one of several possible scenarios presented in its Supplemental Testimony.

I. LEI disagrees with Brattle's conclusion that LEI's MOPR price is $3.2/kW-mo higher because it does not account for transmission costs in Canada

In its November 1, 2017 memo, Brattle provided its explanation of the difference in MOPR price estimated by LEI[1] and Brattle's estimate under the "Existing Year Round Surplus, High Energy Cost, No Clean Energy Credit" scenario.[2] Under this scenario, Brattle concluded that the major differences lie with the treatment of transmission costs for the Québec portion of the transmission line and the assumed trajectory for energy revenues post-2030. Importantly, Brattle's

[1] See LEI's April 2017 Rebuttal Report, Section 3.4, page 30

[2] See The Brattle Group's April 2017 supplemental report, Table 1, page 15

memorandum and analysis assumed that the capital costs of new transmission facilities in Québec should be added to Northern Pass capital costs for purposes of calculating the MOPR price. As noted above, LEI disagrees with Brattle's treatment of the capital costs for the Québec transmission facilities in the MOPR calculation but agrees in part with Brattle's explanation as it relates to assumptions of energy revenues.

As further discussed below, it would be wholly inconsistent to add $607 million CAD (approximately $463 million USD) in capital cost to the cost of the Project in the MOPR calculation because (1) it would conflict with the transmission agreement entered into between parties around these capital costs and the Hydro-Québec Open Access Transmission Tariff ("OATT")[3] and (2) it would result in double counting of transmission charges payable by Hydro-Québec Production ("HQP") to export energy out of Québec.

Notwithstanding the above discussion, Brattle estimated that including the capital costs of new transmission facilities in Québec will increase LEI's calculated MOPR by $4/kw-mo, all else being equal. LEI disagrees with Brattle's estimate. Using the ISO-NE workbook to calculate the initial MOPR price, and adding the capital costs of the new transmission facilities in Québec increases the MOPR from [redacted] to [redacted] not [redacted] as Brattle concluded. Compared to the MOPR price Brattle calculated for the scenario where NPT is supplied by an existing year-round surplus of $4.4/kW-mo[5], the variance is therefore reduced to roughly [redacted] under this scenario.[6]

Québec Transmission Upgrade Costs

The Hydro-Québec OATT specifies the terms and conditions under which any customer must acquire transmission service. The first step in obtaining transmission service is to submit an application, even if the transmission path does not exist yet (as is the case for the Project). Notably, article 13.4 of the OATT states that:

> "The Transmission Provider shall offer a standard form of agreement for Firm Point-to-Point Transmission Service […] to an Eligible Customer when the latter submits a Completed Application for Firm Point-to-Point Transmission Service".

The signed agreement between Hydro-Québec TransÉnergie (the transmission service provider) and HQP (the transmission client) essentially represents the culmination of the

[3] Available at <http://www.oasis.oati.com/HQT/HQTdocs/HQT_OATT_2017_2017-05-03.pdf>

[4] See LEI's April 2017 Rebuttal Report, Section 3.4, page 30

[5] See The Brattle Group's April 2017 supplemental report, Table 1, page 15

[6] It is also worth noting that for its MOPR calculations LEI used the ISO-NE workbook that the Internal Market Monitor ("IMM") will use for its analysis. Although this workbook was available to Brattle, it used instead a workbook that it had developed.

application process and determination of costs and obligations, and this agreement has been filed in this proceeding as CFP Exhibit 275 (the "Québec Transmission Service Agreement").

Regarding the cost of any network upgrades necessary to grant the request for transmission service, Attachment J to the OATT includes the provision that:

> "Any Network Upgrade to the Transmission System required to meet the need for Transmission Service […] shall be paid for by the Transmission Provider and incorporated into its rate base for cost recovery purposes through transmission rates set forth herein." [emphasis supplied].

There is, however, a maximum amount to be borne by the transmission provider for network upgrades made to meet the requirements for providing transmission service. Article 8.5 of the Québec Transmission Service Agreement estimates the cost of network upgrades to the transmission system at $607 million CAD,[7] and evaluates that HQP's transmission reservation for 1,128 MW for a duration of 15 years (as described in Articles 1.0 and 5.0) covers transmission upgrade costs of up to $532/kW CAD (approximately $600 million CAD). As such, under the Québec Transmission Service Agreement, HQP would only be responsible for $7 million CAD ($607 million CAD less $600 million CAD), or $5 million USD capital funding payment, which would be payable upon completion of the network upgrade construction (see Article 8.5). The transmission provider will recoup the remainder of the capital costs through the payment by HQP of the point-to-point transmission service rate (which HQP pays on any export transaction). Using ISO-NE's MOPR workbook, this $7 million CAD ($5 million CAD) would only add [redacted] to LEI's [redacted] MOPR estimate and the impact is therefore *de minimis*.

MOPR Analysis

In its MOPR analysis, LEI included revenues from energy sales in the ISO-NE markets over the NPT transmission interface. Furthermore, as discussed in LEI's and Brattle's MOPR analysis descriptions, the opportunity cost[8] for HQP if it cannot sell energy over the Project is to use existing transmission interfaces to export into neighboring markets. In both scenarios (i.e. sales over the Project, or opportunity cost from sales over existing transmission interfaces), HQP would need to procure point-to-point transmission service in Québec at the current rate in the Hydro-Québec OATT.[9] Since transmission costs are identical on both the revenue side for the project and the opportunity cost side, they would be completely "offset" or netted out in the MOPR calculation.

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[7] Page 7 of CFP Exhibit 275

[8] Meriam-Webster defines opportunity cost as "the added cost of using resources that is the difference between the actual value resulting from such use and that of an alternative." As such the opportunity costs, in reflecting "value" are equivalent to profit and would need to deduct out any costs (such as transmission costs).

[9] For 2017, the rate is CA$76.13/kW-year plus a rate rider increase of CA$0.18/kW-year.

To illustrate this, LEI used the MOPR workbook, in which it reduced the energy revenues from sales over the Project by the cost of the Hydro-Québec OATT point-to-point transmission service tariff. However, to be consistent, LEI also reduced the opportunity costs by the same Hydro-Québec OATT point-to-point transmission service tariff and added the incremental $5 million in capital costs per the Quebec Transmission Service Agreement. This results in virtually the same MOPR as LEI had initially calculated, only adding [redacted], as noted above.

In conclusion, LEI's MOPR calculation does not ignore transmission costs on the Québec side. Rather, LEI's MOPR captures both transmission costs associated with sales over NPT, and transmission costs associated with opportunity costs. Brattle's analysis of the MOPR essentially considers transmission costs to export energy from Québec in its sales over the Project but does not account for such costs in the opportunity costs. This omission artificially increases Brattle 's estimate of MOPR.

II. LEI agrees that differences in projected energy revenues will impact the MOPR.

In addition, Brattle concludes that the difference in MOPR prices is caused largely by the different assumptions Brattle and LEI used regarding NPT's future energy revenues beyond 2030. Specifically, LEI assumed energy market revenues would grow at a nominal annual average rate of 2.0% (i.e., constant in real dollars) between 2030 and 2060, where Brattle assumed a 3.2% escalation rate (i.e., growing at 1.2% in real constant dollars). Brattle correctly states that using LEI's assumed escalation rate of 2.0% nominal results in a higher MOPR. As Brattle acknowledges, estimating future energy revenues is inherently challenging. For that reason, LEI initially assumed zero net growth in energy revenues beyond 2030 in order to provide a conservative MOPR price estimate. At the same time, LEI accepts that incorporating an extension of assumed near-term trends, as Brattle did, is not unreasonable.

Including the costs of the new transmission facilities in Canada and employing Brattle's 3.2% escalation rate for energy revenues to LEI's MOPR workbook results in a MOPR price of [redacted]. Compared to Brattle's $4.4/kW-mo price, this reduces the variance between LEI and Brattle's MOPR calculations to [redacted]. Under this scenario, both LEI and Brattle's analyses show NPT will clear in the forward capacity auction.

Alternatively, correcting for Brattle's incorporation of Québec transmission facilities costs while also limiting the growth in the assumed energy prices in the longer term under the opportunity cost side of the equation decreases Brattle's MOPR estimate to $3.0/kW-mo, [redacted].

Under both scenarios, when employing the same or similar assumptions, remaining differences between LEI's and Brattle's MOPR calculations are small and, more importantly, clearly evidence that the Project will clear in the forward capacity auction.

III. Other differences in MOPR inputs could have a larger impact on the MOPR than Brattle recognizes.

Notwithstanding LEI's agreement regarding projected energy revenues, there are other input factors that should be considered in more detail. Brattle notes that "[t]he remaining difference reflects small differences in transmission costs, energy opportunity costs, capacity performance revenues, and the assumed commercial online date."[10] For example, in addition to the energy revenue escalation rate, LEI also initially chose a conservative estimate of the energy opportunity costs for the Project.

Differences in energy opportunity costs can significantly affect the MOPR price for the Project. As illustrated in Figure 1 of Brattle's memorandum, the energy opportunity cost makes up more than half of the total levelized costs for the Project in Brattle's analysis. Even slight reductions in this cost will lower the MOPR price. For instance, if HQP were to reflect lower opportunity costs in its bid than estimated by LEI and Brattle, then the MOPR price would be lower.

Using Brattle's Figure 1 as an example, if the opportunity cost (which Brattle calculated as $19/kW-mo) were reduced by 10%, the overall levelized costs for the Project would be reduced by $1.9/kW-mo from $37 kW-mo to $35.1/kW-mo. Following their logic, given that the U.S. transmission and Québec transmission costs remain the same, reducing energy opportunity costs by 10% would consequently lower Brattle's MOPR price by $1.9/kW-mo from $4.4/kW-mo to $2.5/kW-mo. Similarly, lowering the opportunity cost estimate by 10% in LEI's MOPR workbook would further reduce LEI's MOPR price by roughly [redacted].

The above scenario is realistic given the constraints HQP currently faces in making opportunity sales on existing interfaces. Indeed, if HQP does not have access to NPT, the opportunity sales on the existing interfaces will need to be made during off-peak periods when these existing interfaces are not utilized. However, since the "best" (i.e. higher priced) off-peak hours are already being captured by HQP on existing interfaces, the average revenue from opportunity sales would be below the average of all off-peak prices. In this regard, there is a high likelihood that both Brattle and LEI's calculated MOPR prices are conservatively high.

IV. Hydro Québec's commitment to Northern Pass indicates Hydro Québec's confidence that the Project will clear in the Forward Capacity Auction.

The analyses conducted by LEI and Brattle demonstrate that, when incorporating the same or substantially similar assumptions about the Project, the Project will clear in the forward capacity auction. Expert analysis can provide a high degree of confidence on this issue, but it is not necessary to narrowly reconcile LEI's and Brattle's MOPR price estimates, as an economic regulator might do in a rate case, because the willingness of HQ to invest in the Project should be

[10] Brattle Memorandum, November 1, 2017, at p. 2.

considered a strong indicator of HQ's confidence that the Project will clear. Expert consultants may disagree over model inputs, but there should be no disagreement that HQ is a sophisticated investor and an experienced participant in the New England forward capacity market. Ultimately, it should be remembered that as a participant in a competitive marketplace, HQ will be responsible for submitting its offer into the forward capacity auction. HQ's bid will be approved if, after reviewing the various bid components, the IMM finds that it is reasonable.

HQ has offered capacity into the forward capacity market since its inception and has taken on a capacity supply obligation in each forward capacity auction. In addition, HQ has made, and continues to make, a substantial investment in this Project both through the Transmission Service Agreement and through its investment in the Québec interconnection. While the analyses performed by LEI and Brattle provide a high level of confidence that the Project will clear in the forward capacity auction, HQ's firm commitment to the Project also indicates that HQ is confident that the Project will clear.