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BY EMAIL

September 6, 2019

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4

Dear Ms. Walli:

**Re: Hydro One Networks Inc. and Hydro Ottawa Ltd.
Application for Leave to Construct – Power South Nepean Project
OEB Staff Submission**

Ontario Energy Board File Number: EB-2019-0077

In accordance with Procedural Order No. 1, please find attached the OEB Staff Submission for the above proceeding. This document has been sent to Hydro One Networks Inc. and Hydro Ottawa Ltd. and to all other registered parties to this proceeding.

Yours truly,

Original Signed By

Judith Fernandes
Case Manager

Encl.



OEB Staff Submission

Application for Leave to Construct – Power South Nepean Project

Hydro One Networks Inc. and Hydro Ottawa Ltd.

EB-2019-0077

September 6, 2019

1 BACKGROUND

On May 28, 2019, Hydro One Networks Inc. and Hydro Ottawa Ltd. (Hydro One and Hydro Ottawa or the applicants) applied to the Ontario Energy Board (OEB) under section 92 of the *Ontario Energy Board Act, 1998* (Act) for approval to:

- rebuild a 10.9 km section of the existing 115 kV S7M single circuit line as a double circuit 230 kV line from a point at West Hunt Club Road to Cambrian Road JCT
- build a new 1.3 km section of double circuit 230kV line S7M from the Cambrian Road JCT to a new proposed Municipal Transformer Station (South Nepean MTS)
- construct the South Nepean MTS

The line connection and station work together are referred to as the Power South Nepean Project (Project). These facilities are required to increase supply capacity to accommodate Hydro Ottawa's customer load growth in the South Nepean area of Ottawa.

As part of the application, Hydro One and Hydro Ottawa requested approval under section 97 of the Act for the form of agreement they will offer to landowners affected by the route or location of the proposed line.

The OEB issued a Notice of Hearing on June 26, 2019. In response to the Notice of Hearing, the Independent Electricity Operator (IESO) and Pollution Probe applied for intervenor status. The OEB granted the IESO and Pollution Probe intervenor status. Procedural Order No. 1 was issued on July 31, 2019, setting out the dates for interrogatories, interrogatory responses and submissions. OEB staff filed interrogatories on August 9, 2019, and responses to interrogatories were filed on August 23, 2019.

2 SUBMISSION

The requirement that an applicant obtain leave to construct transmission facilities arises from subsection 92(1) of the *Ontario Energy Board Act* (Act) which provides:

No person shall construct, expand, or reinforce an electricity transmission line or an electricity distribution line or make an interconnection without first obtaining

from the Board an order granting leave to construct, expand or reinforce such line or interconnection.

Section 96(2) of the Act provides that in considering whether an application under section 92(1) of the Act is in the public interest, the OEB shall only consider the following:

1. The interests of consumers with respect to prices and the reliability and quality of electricity service.
2. Where applicable and in a manner consistent with the policies of the government of Ontario, the promotion of the use of renewable energy resources.

OEB staff supports the applicants' proposal and submits that the application should be approved, subject to the OEB's standard conditions of approval.

2.1 Need

Much of the demand in the South Nepean area is supplied from the provincial electricity transmission grid through two 115kV transmission lines (S7M and L2M), with distributed generation contributing about 7MW. The 115 kV network was originally developed to supply a relatively small number of customers in a rural area. Regional development has given rise to significant demand growth on this system as the area is being transformed into denser residential communities and commercial areas.

The need for the Project was identified in the IESO's Ottawa Area Integrated Regional Resource Plan (IRRP) dated April 28, 2015 and in the Greater Ottawa Regional Infrastructure Plan (RIP) dated December 2, 2015. In a letter to Hydro Ottawa and Hydro One dated April 25, 2016, the IESO recommended a new supply station and connection line for the South Nepean area be developed to address the growing electricity demand in the area. The IESO letter requested that Hydro One and Hydro Ottawa initiate work on the development of a new transmission station and connection line in the South Nepean area to target an in-service date of 2021. The regional plans and the IESO letter were provided as part of the application¹.

The IESO also stated that based on the timeline and magnitude of the need for additional supply capacity in the South Nepean area, it will not be feasible to address the need through additional conservation and local generation.

¹ Exhibit B-3-1/Attachments 1,2,3

OEB Staff Interrogatory #1(a) and (b) requested more detailed information on the electricity demand drivers to support the forecasted demand growth beginning in 2015 and asked the applicants to comment on the stage of the anticipated developments in the South Nepean area, more particularly the Citigate Business Park; the Nepean Town Centre commercial and high density residential areas; and the City of Ottawa Barrhaven South Expansion Community Design Plan (CDP). In response, the applicants confirmed that these developments constitute the main electricity demand drivers, stating the Citigate Business Park has seen 12% of the concept plan developed; the Nepean Town Centre concept plan has not seen any development to date, with the first medium and high density developments to be energized in 2021; and the development in Barrhaven South Expansion CDP is expected to commence in 2022.

OEB Staff Interrogatory #1(c) requested any updates to the planning information provided in the pre-filed evidence given that the second regional planning cycle is now underway. The applicants provided updated planning forecasts for the Ottawa sub-region and the South Nepean area, reflecting higher planning forecasts compared to the forecast provided in the pre-filed evidence. The applicants stated that the discontinuation of the 2015-2020 Conservation First Framework and implementation of a new Interim Framework with a centrally delivered program offering until December 31, 2020 has affected the energy efficiency programs and the contracted renewable distributed generation capacity which has, in turn resulted in an increase in the Ottawa sub-region planning forecasts of nearly 223 MW by 2032. The applicants reiterated that given the greater need for additional supply capacity, additional conservation and local generation are not feasible alternative solutions.

The total existing supply capacity in the South Nepean area is 56 MW. Based on the updated forecasts provided for the area, demand, net of conservation and distributed generation, is expected to increase to 120 MW by 2032. This additional growth is expected to place increased stress on the existing transmission and distribution infrastructure – the 115 kV line, step-down stations and distribution feeders in the South Nepean area.

The evidence states that each of the three stations supplying South Nepean is reaching, or has already exceeded its planning capacity. In addition to the station and feeder capacities being exceeded, the 115 kV single circuit transmission line, S7M, which provides the primary supply to this area and its surroundings, is also approaching its limit with forecast demand on this circuit expected to reach its capacity of 108 MW in 2026.

Hydro One and Hydro Ottawa propose to construct a transmission line and station facilities in order to increase the area's supply capacity to 180 MW and accommodate Hydro Ottawa's forecast customer load growth in the South Nepean area.

Four transmission alternatives were considered by the applicants:

1. **Build a new 115 kV / 27.6 kV station and upgrade 115 kV circuit S7M** – With this option, the new station would be supplied at 115 kV and the existing 115kV circuit would be rebuilt to be able to supply the new station load.
2. **Build a new 230 kV / 27.6 kV station and rebuild a section of 115kV Circuit S7M as double circuit 230 kV line** – With this option, one circuit would continue to operate at 115 kV (continuing to be designated as the S7M circuit) and supply the existing stations that it currently serves today at 115 kV – Fallowfield MTS, Richmond MTS and Manotick DS. The second circuit would operate at 230 kV and supply the new 230 kV / 27.6 kV station.
3. **Build a new 230 kV / 115 kV / 27.6 kV station and rebuild a section of 115 kV circuit (S7M) as a double circuit 230 kV line** – With this option, one circuit, the existing S7M 115 kV line, would continue to operate at 115 kV capacity, supplying the existing stations as well as the new station. The second circuit would operate at 230 kV and supply the new station. The new station would have dual supply capability.
4. **Build a new 230 kV/115 kV/27.6 kV station and rebuild a section of 115 kV circuit L2M as a double circuit 230 kV line** – With this option, one circuit, the existing L2M 115 kV line, would continue to operate at 115 kV capacity, supplying the existing stations as well as the new station. The second circuit would operate at 230 kV and supply the new station. The new station would have dual supply capability.

Alternative 3 was selected as the preferred and recommended alternative as it is the lowest cost alternative that permits dual supply capacity to the MTS. In addition, it has the least community, landowner and environmental impact.

The applicants stated that Alternatives 1 and 2 were rejected because they provide only a single circuit supply to the proposed MTS, and do not meet the load security criteria set out in the IESO's Ontario Resource and Transmission Assessment Criteria (ORTAC), which requires that not more than 150 MW of load may be interrupted by configuration.

Alternative 4 is similar to Alternative 3 in that the new station would be built with dual supply capability. However, in Alternative 4, the supply would come from the 115kV circuit L2M located further east, requiring a longer length of line to be built to connect

the new station (18 km versus 12.2 km for Alternative 3), and resulting in additional towers, conductor and associated facilities costs. Under Alternative 4, Hydro One would also need to acquire a new greenfield ROW of approximately 9 km, compared to the new ROW distance required in Alternative 3 (only 1.3 km). Hydro One stated that Alternative 4 was not pursued further as it was expected to be significantly more costly and would have a broader impact on landowners, the environment and the South Nepean community. In response to OEB Staff Interrogatory #3 which requested a cost estimate for Alternative 4, Hydro One stated that it did not incur the cost to develop a cost estimate for Alternative 4 as the benefits in construction and land use costs of Alternative 3 considerably outweighed Alternative 4.

OEB staff does not oppose the proposed project. OEB staff notes that the applicants did not provide a cost benefit analysis for Alternative 4, the only other option that can meet the need and ORTAC. OEB staff is satisfied, however, that the new greenfield ROW that would be required, and the associated impact on landowners, environment and community, are sufficient to justify the selection of the preferred alternative (Alternative 3) in this specific case.

2.2 Price

The total cost of the Project is \$85.8M, with \$58.8M in line costs and \$27M in station costs. In the absence of the need for the project, Hydro One would have undertaken sustainment work on a section of the existing S7M that has been identified as being at end of life. The avoided cost of the sustainment work is estimated to be \$8.7 million. The cost allocated to Hydro Ottawa for the line work is limited to the incremental costs relative to the cost of the avoided sustainment work, consistent with section 6.7.2(b) of the Transmission System Code.

The incremental cost to Hydro Ottawa for the line work is \$50.1M, which will be paid through a capital contribution (\$48.2M) and load revenue. The costs of the station facilities (\$27.0M) will be included in Hydro Ottawa's rate base once in service. In response to OEB Staff Interrogatory #5, Hydro One confirmed that the cost estimate for the line work is an AACE Class 3 estimate and that at this time, no revisions are required or anticipated. OEB staff understands that Class 3 estimates range from -10% to -20% on the low side, and +10% to +30% on the high side. The applicants also confirmed that the budgeted contingency costs are sufficient to cover the identified risks to support the successful delivery of the project.

The applicants provided cost information for three comparable line projects - the Guelph Area Transmission Reinforcement Project (GATR), the Woodstock Area Transmission

Project (WATP) and the GTA-Parkway Station and Parkway to Richmond Hill Line Project (Parkway). These projects are similar in that they all involved building a relatively short length (5 to 15 km) of double circuit 230kV transmission line in an urban/semi-urban environment on existing Hydro One rights-of-way with limited right-of-way clearances. Two of the comparison projects (GATR and WATP) involved replacing an existing 115kV double circuit line with a new 230V double circuit line, and the third project (Parkway) involved building a new double 230kV line on a corridor carrying multiple existing transmission lines. The line cost per km of \$3.6 M/km for the Project lies between the \$2.7 M/km to \$5.1 M/km of the comparator projects provided².

Cost comparisons were also provided for the construction of the station facilities, comparing the South Nepean station work (\$27M) to two stations, Terry Fox MTS (\$28M) and Ellwood MTS (\$25M), both of which were recently constructed by Hydro Ottawa. Hydro Ottawa states that these stations were chosen as good comparators because of their similar construction conditions and design configurations.

The applicants' evidence states that based on the project's initial line connection costs and associated line pool incremental cash flows, there will be a slight increase in the provincial line pool revenue requirement once the project's impacts are reflected in the provincial transmission rate base at the projected in-service date. The line pool rate will be unchanged however over the 25 year time horizon at \$0.94/kW/month and the network pool rate will decrease slightly from \$3.71/kW/month to \$3.70/kW/month.

The applicants state that based on the load forecast, initial capital costs and ongoing maintenance costs, there will be a minor overall decrease in the transmission component of the residential customer bill, although that decrease will be so small that it will not be noticeable to the typical residential customer. The applicants provided the following table to demonstrate the impact on a typical residential customer's bill³.

² Costs included an escalation adjustment of 2% per year

³ Note error in Row I. Decrease in Transmission Costs for Typical Monthly Bill (Cx~~F~~ rather than CxE)

A. Typical monthly bill	\$134.29 per month
B. Transmission component of monthly bill	\$11.58 per month
C. Network Pool share of Transmission component	\$6.43 per month
D. Line Connection Pool share of Transmission component	\$1.52 per month
E. Transformation Connection Pool share of Transmission component	\$3.63 per month
F. Impact on Network Pool Provincial Uniform Rates	-0.27%
G. Impact on Line Connection Pool Provincial Uniform Rates	0.00%
H. Impact on Transformation Connection Pool Provincial Uniform Rates	0.00%
I. Decrease in Transmission costs for typical monthly bill (C x E)	\$0 per month (or -\$0.05 per year)
J. Net impact on typical residential customer bill (G / A)	0.00%

OEB staff submits that the evidence provided by the applicants on cost information for comparable projects suggests that the cost estimates for the proposed project are reasonable. OEB staff also submits that the applicants' evidence demonstrates that the proposed project will have no adverse impact on transmission rates or customer bills.

2.3 Reliability and Quality of Service

The applicants noted that the project will provide dual supply (115 kV and 230 kV) to the new MTS station which will improve supply reliability for customers in the area as a result of shorter restoration times following an outage. As well, the project will enable distribution load transfers between the existing stations and the new station which will help shorten power restoration times.

OEB Staff Interrogatory #2 asked the applicants to comment on the impact on reliability for the three stations - Fallowfield MTS, Richmond South MTS, and Manotick DS - if the 115kV S7M single circuit was not available. The applicants' response that these stations will remain on this single circuit supply and supply reliability of these three stations will remain unchanged did not address OEB staff's question. However, the applicants did indicate that there will be an improvement to the Fallowfield MTS feeder reliability as some of the feeders will be connected out of the new South Nepean MTS so that the Fallowfield MTS load can be quickly restored in the event of an outage.

The applicants also noted that the project will relieve demand on the existing 28 kV distribution system, which is currently operating at or above the planning rating. During peak or near-peak conditions, additional switching or sectionalizing of circuits is required to restore customers, which can increase the duration of outages. The demand

reductions to bring the system below planning rating will reduce switching required for restoration, also improving reliability for customers.

The applicants filed the IESO's Final System Impact Assessment (SIA) for the connection of the transmission facilities. The conclusion of the IESO's SIA is that the proposed connection of the project and the connection facilities are expected to have no material adverse impact on the reliability of the integrated power system, provided that the requirements in the IESO report are implemented.

Hydro One also completed and filed a final Customer Impact Assessment (CIA). The conclusion of the CIA is that the proposed South Nepean Transmission Reinforcement project will not have any adverse effects on the transmission connected customers of the area provided that the requirements of the SIA and CIA are met.

Based on the evidence provided by the applicants, OEB staff submits there are no concerns with respect to reliability and quality of electricity service.

2.4 Land Matters

According to section 97 of the Act, in an application under sections 90, 91 or 92 of the Act, leave to construct shall not be granted until the applicant satisfies the OEB that it has offered or will offer to each owner of land affected by the approved route or location an agreement in a form approved by the OEB.

Hydro One has confirmed that it will be utilizing its existing land rights for the project and will be acquiring additional permanent and temporary land rights. In response to OEB Staff Interrogatory #7, Hydro One confirmed that it has initiated land acquisition activities with all impacted private landowners and has completed four of the seventeen permanent land right agreements. Hydro One has also confirmed that it has obtained six of the twenty-eight required temporary by-pass agreements. No significant concerns have been raised by impacted landowners. The applicants state that they have applied for the required permits for the use of federal and municipal lands and rail and water crossings and do not have any concerns with obtaining these permits.

Hydro One and Hydro Ottawa seek approval of the forms of agreement offered or to be offered to affected land owners.

In response to OEB Staff Interrogatory #8, the applicants confirmed that all impacted landowners have the option to receive independent legal advice regarding the land agreements. Hydro One confirmed that the Temporary Land Use Agreement and the Damage Claim Agreement have been previously approved by the OEB in previous

leave to construct decisions. In this application, Hydro One is requesting approval of several forms of agreement not previously approved by the OEB⁴:

- Early Access Agreement
- Option to Purchase a Limited Interest Agreement – Easement
- Compensation and Incentive Agreement – Easement
- Option to Purchase Agreement – Fee Simple
- Compensation and Incentive Agreement – Fee Simple Corridor
- Temporary By-Pass Agreement

Hydro Ottawa has entered into an Agreement of Purchase and Sale with the landowner of the property which is proposed to serve as the site for South Nepean MTS and is seeking approval for this form of agreement.

OEB staff has reviewed the proposed forms of agreements and has no issues or concerns with the applicants' proposed form of land agreements. These agreements are consistent with the forms of agreements previously approved by the OEB in Hydro One leave to construct applications. As well, the proposed agreements are consistent with the OEB's Filing Requirements For Electricity Transmission Applications.

2.5 Conclusion

In conclusion, OEB staff supports the applicants' proposal and submits that leave to construct the Power South Nepean project should be granted subject to the OEB's standard conditions of approval, as follows:

1. Leave to construct is granted pursuant to section 92 of the Act and in accordance with the OEB's Decision and Order and shall be subject to fulfillment of the requirements of the SIA, CIA, and all other necessary approvals, permits, licences, certificates, agreements and rights required to construct, operate and maintain the proposed facilities.
2. Unless otherwise ordered by the OEB, authorization for leave to construct shall terminate 12 months from the date of the Decision and Order, unless construction has commenced prior to that date.
3. The applicants shall advise the OEB of any proposed material change in the project, including but not limited to changes in: the proposed route, construction schedule, the necessary environmental assessment approvals, and all other

⁴ Exhibit E-1-1/Attachments 2, 3,4,5,6,9

approvals, permits, licences, certificates and rights required to construct the proposed facilities.

4. Each of the applicants shall designate an employee as a project manager who will be responsible for fulfilment of the conditions of approval. The employee's name and contact information should be provided to the OEB and to all the appropriate landowners, and be clearly posted on construction sites.

The OEB's designated representative for the purpose of the conditions of approval is the OEB's Manager of Supply and Infrastructure (or the Manager of any OEB successor department that oversees electricity leave to construct applications).

All of which is respectfully submitted.