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BY EMAIL

February 4, 2021

Ms. Christine E. Long
Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4
Registrar@oeb.ca

Dear Ms. Long:

**Re: Hydro One Networks Inc.
Leave to Construct Application – Power Downtown Toronto
OEB Staff Submission**

Ontario Energy Board File Number: EB-2020-0188

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 to all other registered parties to this proceeding.

Hydro One Networks Inc. is reminded that its reply submission is due by February 12, 2021, should it choose to file one.

Yours truly,

Andrew Pietrewicz
Project Advisor, Generation & Transmission

Encl.



OEB Staff Submission

Leave to Construct Application – Power Downtown Toronto

Hydro One Networks Inc.

EB-2020-0188

February 4, 2021

1 BACKGROUND AND OVERVIEW

1.1 Overview of the Application

Hydro One Networks Inc. (Hydro One) applied to the Ontario Energy Board (OEB) on October 27, 2020 under sections 21 and 92 of the *Ontario Energy Board Act, 1998* (OEB Act) for leave to construct approximately five circuit km of 230 kV transmission cable and associated facilities in the City of Toronto (the Project or the Power Downtown Toronto project). Hydro One also sought related approvals under section 97 of the OEB Act for the forms of land owner agreements that it has or will offer to land owners that are directly impacted by the project.

The cable will replace 7.2 circuit km of Hydro One's existing 115 kV cable between Esplanade Transformer Station (TS) and Terauley TS. Hydro One has also applied to the OEB for approval of the forms of agreements it will offer to affected landowners.

1.2 Process to Date

Hydro One filed its application on October 27, 2020. The OEB issued a Notice of Hearing on November 17, 2020. The Power Workers' Union (PWU), the Building Operators and Managers Association (BOMA), and City of Toronto (City) applied for, and were granted, intervenor status. Prior to registering as an intervenor, on December 27, 2020, the City filed a letter of comment with the OEB.

OEB staff and BOMA filed interrogatories on December 16, 2020 and January 6, 2021, respectively, in accordance with the timeline established through Procedural Order No. 1. The City filed interrogatories on January 8, 2021, in accordance with the timeline established through an OEB letter dated January 5, 2021. The PWU did not file interrogatories.

On January 7, 2021, Hydro One filed a letter with the OEB identifying that, as a result of ongoing detailed design work, it intends to descope the mid-shaft at Sherbourne Street and Shuter Street from the construction work being requested as part of the Application. In response, the OEB issued Procedural Order No. 2 that allowed parties to file additional written interrogatories on the scope change described in Hydro One's January 7, 2021 letter. OEB staff filed related interrogatories on January 11, 2021; no other party filed interrogatories.

Hydro One's responses to interrogatories were received by the OEB on January 18, 2021.

1.3 Statutory Criteria for Assessing Section 92 and Section 97 Applications

Section 92 of the OEB Act (and the associated regulations) requires leave of the OEB for the construction, expansion or reinforcement of electricity transmission lines. In considering whether to grant leave, the OEB is restricted to the criteria set out in section 96(2) of the OEB Act:

In an application under section 92, the OEB shall only consider the following when, under subsection (1), it considers whether the construction, expansion or reinforcement of the electricity transmission line or electricity distribution line, or the making of the interconnection, is in the public interest:

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 sources.

Section 97 of the OEB Act states that leave shall not be granted under section 92 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.

1.4 Submission Overview

OEB staff's submission focusses on price and the reliability and quality of electricity service. The promotion of renewable energy sources is not relevant in the context of this application. OEB staff has also reviewed the proposed land owner agreements.

In reviewing applications under section 92 of the OEB Act, the OEB also typically considers the need for a project and alternatives to the project as part of the consideration of price.

OEB staff supports Hydro One's section 92 request for leave to construct, subject to the conditions of approval set out in Section 2.5. OEB staff also supports Hydro One's section 97 request for approval of the forms of agreements it will offer to affected landowners. OEB staff's submission is provided in further detail below.

2 OEB STAFF SUBMISSIONS

2.1 Price

2.1.1 Need and Alternatives

The 115kV Hydro One underground cables C5E/C7E provide supply to the core of downtown Toronto including along University Avenue, the University of Toronto, Toronto City Hall, the Toronto financial district and tourist/entertainment areas. The sections of the cables between Esplanade TS and Terauley TS have been in service for over 60 years. Laboratory testing has determined that these sections are at end-of-life. Hydro One states in response to Staff Interrogatory #2 that there are no non-wires or distribution system alternatives to replacing the cable.

Hydro One provided evidence that the Project is the best option to maintain the function of the end-of-life cables. Alternatives analysis was carried out as part of the Class Environmental Assessment (EA) for Minor Transmission Facilities, which was initiated in May 2018 and completed in April 2020. The existing cables were also included as facilities reaching end-of-life in the Toronto Regional Infrastructure Plan (RIP) dated March 6, 2020, which summarized the status of the EA analysis. Links to the EA and the RIP were provided in the interrogatory responses.

The EA noted that failure of the existing cables will result in prolonged circuit outages, potential customer interruptions, loss of redundant supply negatively affecting operational flexibility, and potential for oil leaks requiring environmental remediation; therefore, the cables should be replaced before failure. The RIP made the same recommendation.

As explained in response to Staff Interrogatory #4¹, the EA evaluated six alternatives based on technical, environmental and cost criteria, including different route and installation methods. The EA established the preferred route and tunneling as the preferred method. This solution consists of a tunnel 25 m below the surface extending under Sherbourne St. between Esplanade TS and Dundas St, under Dundas St. between Sherbourne St. and Bay St., and a short distance under Bay St. between Dundas St. and Terauley TS. The total length of the route is approximately 2.5 km and would be situated within existing road allowances.

While referencing the route and installation method determined by the EA, the application compared the use of 115 kV rated cables, with the recommended alternative of 230 kV rated cables to be operated at 115 kV, at an incremental cost of \$500,000.

¹ Exhibit I / Tab 1 / Schedule 4

The responses to OEB Staff Interrogatories # 1² and # 3³ explain that the use of 230 kV rated cables is recommended because they are able to withstand temporary overvoltages at a lower cost than installing mitigation measures in conjunction with 115 kV cables.

As indicated in the response to Staff Interrogatory #24⁴, the removal of the mid-shaft from the project scope slightly reduced the estimated project cost, without changing the functionality of the solution.

The evidence states that, pending approval, construction for the Project is scheduled to begin in May 2021, and be completed in December 2024. This is consistent with the in-service date stated in the RIP.

Submission

OEB staff supports the recommended solution, which differs from the existing cables in route and installation method, because it is the preferred route and installation method identified in the EA. OEB staff also supports the use of cables that are higher rated than the existing cables, because, as described in interrogatory responses, it is the lowest cost means of accommodating temporary overvoltages.

2.1.2 Project Cost

The estimated capital cost of the Power Downtown Toronto project is \$107.2 million, including overheads and capitalized interest, but not including removal costs of \$0.6 million.⁵ Inclusive of removal costs, the total Project cost is \$107.8 million. Hydro One does not anticipate that the Project will cause incremental operating and maintenance costs once completed. The Project budget as provided in the application, not including removal costs, is shown in Table 1.

² Exhibit I / Tab 1 / Schedule 1

³ Exhibit I / Tab 1 / Schedule 3

⁴ Exhibit I / Tab 1 / Schedule 24

⁵ Removal costs are the costs associated with the decommissioning and removal of the existing oil-filled cables and associated components between Terauley TS and Esplanade TS.

Table 1: Project Cost⁶

	Estimate Cost (\$000's)
Materials	16,816
Labour	14,188
Equipment Rental & Contractor Costs	43,146
Sundry	7,941
Contingencies	8,266
Overhead	8,910
Allowance for Funds Used During Construction	7,940
Total Project Work	\$107,208

The Materials line item in Table 1 includes an incremental cost of \$500,000 to upgrade the existing 115 kV transmission cable connecting Esplanade TS and Terauley TS with 230 kV rated XLPE cable. To justify the expense, Hydro One identified the benefits of the upgrade that included the cable's ability to withstand any potential overvoltages due to lightning, switching surges or fault conditions.⁷ Hydro One also explained that, although three alternatives to manage overvoltages exist, two are cost prohibitive and the third compromises reliability.⁸

Regarding the Materials, Labour, and Equipment Rental and Contractor line items, Hydro One described that its overall estimates for costs represented an Association for the Advancement of Cost Engineering (AACE) Class 3 estimate. Hydro One identified that the AACE Class 3 estimate, that carries a -20% / +30% level of confidence, was developed in partnership with its experienced tunneling and XLPE cable installation consultants.⁹

Through interrogatories, OEB staff sought further information on the basis for Hydro One's Contingency and Sundry budgets that combined represent 15% of the proposed Project's costs. With respect to the Contingency, Hydro One described that the budget is underpinned by the results of a risk workshop undertaken with the Hydro One project team and engineering consultants. To leverage lessons learned, Hydro One explained that the workshop participants considered past successes and failures, as well as experiences from other tunnel projects in the Toronto area. Lastly, during construction of the Power Downtown line, Hydro One stated that the contingency budget will be consistently monitored and updated as necessary to remain current.¹⁰

⁶ Exhibit B / Tab 7 / Schedule 1 / p. 1

⁷ Exhibit I / Tab 1 / Schedule 1 / p. 2

⁸ Exhibit I / Tab 1 / Schedule 3 / p. 1

⁹ Exhibit I / Tab 1 / Schedule 9 / pp. 1-2

¹⁰ Exhibit I / Tab 1 / Schedule 9 / pp. 1-2

Regarding Sundry costs, Hydro One identified that these are typical, important and appropriate project costs that include real estate, insurance, bonding, allowances for disposal of contaminated soils and rock, utility relocations, and temporary power connection from Toronto Hydro.¹¹

To illustrate the reasonableness of the Project’s budget, Hydro One provided cost information for two comparable transmission line projects – the Midtown Tunnel Bayview to Birch Junction project (Midtown) and the Esplanade to John Transmission Station tunnel and cable installation (Esplanade) project, completed in November 2016 and December 2007, respectively. Table 2 shows the total costs on a per circuit kilometre basis of the two comparators and the Power Downtown Toronto project.

Table 2: Project Costs¹²

	Midtown	Esplanade	Power Downtown
	(\$000s)		
Total Cost/Circuit km	\$20,226	\$28,980	\$21,442

The evidence shows that the comparator projects are similar to the Power Downtown Toronto project in several ways. For example, both comparables included the installation of similar lengths of 230 kV XLPE cable through newly built 3-meter diameter tunnels constructed between 30 meter and 70 meters below the City of Toronto. A notable distinction, however, is that the cost of Esplanade project is 35% higher than the Power Downtown Toronto project. Hydro One supported its expectation of lower costs for the Power Downtown Toronto project with reference to more recent tunneling projects completed in the Toronto area and to raw material pricing that is now available for contractors.¹³

Through interrogatory response, Hydro One also discussed the lessons learned during each comparable project and how they will be leveraged to the benefit of the Power Downtown Toronto project. These lessons learned included, but are not limited to, completing all engineering work before issuing requests for proposals (RFP), implementing an RFP pre-qualification process, and the importance of a good geotechnical and hydro geotechnical report to project risk mitigation.^{14,15}

¹¹ Exhibit I / Tab 1 / Schedule 11 / p. 1

¹² Exhibit B / Tab 7 / Schedule 1 / p. 3

¹³ Exhibit I / Tab 1 / Schedule 13 / p. 2

¹⁴ Exhibit I / Tab 1 / Schedule 12 / p. 1-2

¹⁵ Exhibit I / Tab 1 / Schedule 13 / p. 1

Submission

OEB staff submits that the evidence provided by Hydro One with respect to the Project's budget demonstrates that the cost estimate for the Power Downtown Project is reasonable. OEB staff's submission is based on the information provided on comparable projects, Hydro One's justification for the installation of a 230 kV cable, as well as the process Hydro One undertook to develop the budget. This process included consultation with tunnelling and cable contractors, as well as consideration and incorporation of lessons learned. OEB staff also notes that the OEB has previously granted leave to construct approvals for projects with an AACE Class 3 estimate (e.g. the recent Power South Nepean Project¹⁶ and Barrie Area Transmission Upgrade¹⁷).

2.1.3 Consumer Impacts

The costs of Hydro One's existing circuits C5E and C7E between Terauley TS and Esplanade TS are recovered through line connection rates. Hydro One stated that the costs to replace the circuits will also be recovered through line connection rates. Hydro One stated that no customer contributions will be required because the Power Downtown Toronto project is not driven by load increase or customer load applications.¹⁸

Hydro One estimated that the Project will increase the line connection pool revenue requirement by 3.09% over a 25-year period: it will increase the currently approved rate of \$0.97 kW/month to \$1.0 kW/month. The maximum revenue shortfall related to the Project will be \$8.06 million in 2032.

Hydro One estimated the Project will increase the typical monthly residential customer bill by \$0.07 or 0.04%¹⁹. Table 3 below details the typical residential customer impact outlined in the pre-filed evidence.

¹⁶ EB-2019-0077

¹⁷ EB-2018-0117

¹⁸ Exhibit B / Tab 9 / Schedule 1 / p. 2

¹⁹ Exhibit I / Tab 1 / Schedule 1 and Exhibit I / Tab 1 / Schedule 3

Table 3: Impact on Typical Residential Customer²⁰

A. Typical monthly bill (Residential R1 in a high density zone at 1,000 kWh per month with winter commodity prices.)	\$183.56 per month
B. Transmission component of monthly bill	\$15.31 per month
C. Line Connection Pool share of Transmission component	\$2.11 per month
D. Transformation Connection Pool share of Transmission component	\$5.07 per month
E. Network Connection Pool share of Transmission component	\$8.13 per month
F. Impact on Line Connection Pool Provincial Uniform Rates	3.09%
G. Net impact on typical residential customer bill (C x F)	\$0.07 per month or \$0.78 per year
F. Net increase on typical residential customer bill (G / A)	0.04%

Submission

OEB staff submits that Hydro One’s evidence demonstrates that the Power Downtown Toronto project costs are reasonable given the need for the Project and the lack of a suitable and less expensive alternative.

2.2 Reliability and Quality of Service

The IESO’s Final Expedited System Impact Assessment (SIA) concluded that the Project is 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 confirmed that it will implement the requirements noted by the IESO in the SIA.

Hydro One’s Final Customer Impact Assessment (CIA) concluded that the Project will increase supply reliability for connected customers as it reduces the chance of cable failure; that power flows, area station voltages and short circuit levels are not expected to be materially impacted; and that there will be no adverse impact on Hydro One transmission customers.

Hydro One confirmed that, because the new cable will follow a different route than the existing cable, no major outages are expected to impact supply to Toronto Hydro

²⁰ Exhibit B / Tab 9 / Schedule 1 / p. 3

throughout the construction of the Project. In response to OEB Interrogatory #18, Hydro One further described outage sequencing and coordination measures that will support continuity of service to Toronto Hydro, even in the event of a construction delay.²¹ Hydro One also confirmed that the functionality and operating times of the existing protection system will not change because of the Project (settings will be adjusted to ensure the same functionality and timing).

Submission

OEB staff does not have any concerns about the reliability and quality of service associated with the Power Downtown Toronto project, considering Hydro One's evidence, interrogatory responses, and the conclusions of the IESO's SIA and Hydro One's CIA.

2.3 Proposed Land Owner Agreements

According to section 97 of the OEB Act, in an application under sections 90, 91 or 92 of the OEB 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 stated that no new permanent land rights are required for properties impacted by the route. Instead, Hydro One will rely primarily on existing land and legislated occupation rights to construct, operate and maintain the proposed new transmission facilities. Hydro One expects that no early access agreements will be required.

While no new *permanent* land rights or *early access* agreements have been identified, *temporary* land rights will be required for construction purposes.

Where required, and if necessary, Hydro One has proposed to employ land rights agreements associated with Hydro One's temporary use during construction that have been previously approved by the OEB. In response to OEB Staff interrogatory #20, Hydro One confirmed that form agreements included in this application have been previously approved by the OEB in Hydro One's approved leave to construct application for the Barrie Area Transmission Upgrade Project²² and that no amendments or alternations have been made to the previously approved form agreements²³.

²¹ Exhibit I / Tab 1 / Schedule 18

²² EB-2018-0117

²³ Exhibit I / Tab 1 / Schedule 20

Hydro One committed that it will provide all impacted landowners with the option to receive independent legal advice regarding the proposed land agreements²⁴. Hydro One also committed to reimbursing private landowners for reasonably incurred legal fees associated with the review and completion of the necessary land rights.

Hydro One will seek temporary rights for a storage/staging area at 75 Elizabeth Street, a City of Toronto property adjacent to Terauley TS. The City of Toronto stated that, in 2019, it “publicly identified the City Property for redevelopment and use for public purposes according to a timeline which will conflict with the timeline for Hydro One’s proposed use of the City Property as currently proposed”²⁵. Hydro One has had discussions with City of Toronto staff and the City of Toronto’s real estate agency on the use of the property for storage/staging purposes. In its letter of comment, the City of Toronto stated that “given the current state of discussions, the City notes that the form of agreement proposed by HONI in its Application is highly unlikely to reflect the final terms of such discussions, assuming that any agreement is possible”²⁶. In response to City of Toronto Interrogatory #3, Hydro One confirmed that it is “willing to work with the City to promote the progress of both projects”²⁷.

Submission

OEB staff has reviewed the proposed forms of agreements and has no issues or concerns. The agreements are consistent with the agreements approved previously by the OEB as part of Hydro One’s Barrie Area Transmission Upgrade Project²⁸.

OEB staff notes the City of Toronto’s comment on the suitability of the form of agreement proposed by Hydro One with respect to the property 75 Elizabeth Street. OEB staff also notes Hydro One’s willingness to work with the City of Toronto.

In its letter of comment, the City of Toronto stated that it “[...] expects that HONI will provide the public with information on the Project and the process for directing questions and complaints to HONI”²⁹. OEB staff shares the City of Toronto’s expectation and encourages Hydro One to continue to promote public awareness of the Power Downtown Toronto Project and of the process for directing questions and concerns to Hydro One.

²⁴ Exhibit I / Tab 1 / Schedule 21

²⁵ Exhibit I / Tab 3 / Schedule 3

²⁶ City of Toronto. Letter of Comment, p.2. December 27, 2020

²⁷ Ibid.

²⁸ EB-2018-0117

²⁹ City of Toronto. Letter of Comment, p.3. December 27, 2020

2.4 Conditions of Approval

The OEB Act permits the OEB, when making an order, to impose such conditions as it considers proper.

Submission

OEB staff proposes that the following conditions of approval be placed on Hydro One. The proposed conditions are based on the standard set of conditions that the OEB has approved in prior leave to construct applications. They have been reviewed by Hydro One during this proceeding; Hydro One has not taken issue with any of them³⁰.

1. Hydro One shall fulfill any requirements of the SIA and the CIA, and shall obtain all necessary approvals, permits, licences, certificates, agreements and rights required to construct, operate and maintain the project.
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. Hydro One shall advise the OEB of any proposed material change in the project, including but not limited to changes in: the proposed route, construction schedule, necessary environmental assessment approvals, and all other approvals, permits, licences, certificates and rights required to construct the project.
4. Hydro One shall submit to the OEB written confirmation of the completion of the project construction. This written confirmation shall be provided within one month of the completion of construction.
5. Hydro One shall designate one of their employees as project manager who will be the point of contact for these conditions, and shall provide the employee's name and contact information to the OEB and to all affected landowners, and shall clearly post the project manager's contact information in a prominent place at the construction site.

³⁰ Exhibit I / Tab 1 / Schedule 22

3 CONCLUSION

In conclusion, OEB staff submits that Hydro One's leave to construct application for the Power Downtown Toronto Project should be granted subject to the conditions of approval proposed in this submission. OEB staff submits that the Project addresses a need, that it represents a reasonable option for addressing that need, that its impacts on price, and reliability and quality of service are reasonable, and that Hydro One's proposed forms of land agreement are appropriate. OEB staff also supports the approval of the forms of landowner agreements.

All of which is respectfully submitted.