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BY EMAIL AND RESS

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Mr. Alex Share
Manager of Generation & Transmission
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Mr. Share,

EB-2020-0265 – Hydro One Networks Inc. Section 92 – Hawthorne to Merivale Reconductoring Project - Update on Project Cost

In accordance with the Ontario Energy Board's ("OEB") Decision and Order, regarding Hydro One's leave to construct application for the Hawthorne to Merivale Reconductoring Project ("HMR Project" or "Project"), dated April 22, 2021, Hydro One is providing the OEB with an update regarding an increase in Project cost. The Project in-service date is not expected to change from that approved in Hydro One's application, namely December 2023. The revised Project forecast cost is \$46.9 M versus \$21.3M (total project cost forecast inclusive of removals) approved in EB-2020-0265. The cost variance will be managed via Hydro One's Redirection Process within the OEB-approved transmission capital envelope.

The current Project forecast estimate of \$46.9M was derived from applying the Association for Advancement of Cost Engineering (AACE) Class 2 (+20% / -10%) principles and processes. The Project is now approximately 50% complete which has resulted in the elimination of some of the execution risks that were considered and included in the Project's s.92 Application prior to construction commencement, such as: the completion of project designs, completion for the scope of the M31A line replacement, OPGW installation. Additionally, all major project materials have now been sourced and acquired.

Hydro One has informed the IESO of the progress of this Project with respect to cost and schedule and will continue to do so. The IESO confirmed this Project remains the appropriate option to proceed with and the forecast cost increase does not change the preferred transmission alternative. The HMR Project remains the preferred alternative, consistent with the options considered and analysis provided in Hydro One's S.92 Application at Exhibit B, Tab 5, Schedule 1. The HMR Project, as approved by the OEB, will provide benefits consistent with the evidence provided to the OEB during the S.92 leave to construct hearing, being; increased reliability and adequate of capacity.

The updated Project cost forecast will increase a typical 2020 residential customer's monthly bill¹ by \$0.04 per month, to \$181.62² using the same average consumption assumptions used by the OEB at the time Hydro One filed the S.92 Application. The updated Project cost impact on a typical customer bill in 2023, based on the OEB-approved average residential consumption of 750 kWh, would be an increase of \$0.02 per month to \$134.54³. Both scenario's updated comparative information detail is provided below in **Tables 1 and 2 of Appendix A**.

The cost variance is attributable to the following factors:

Drivers of the cost increase:

- **A higher than anticipated cost for re-stringing the conductor (\$12.0M)** - The conductor restringing execution element was more complex than originally planned due to the dual-bundled conductor configuration being used, combined with the size/weight of the 1443 kcmil conductors being bundled. Increased labour costs due to the project execution methods, limitations to anticipated outage windows, and additional labour for the operation of more specialized restringing equipment necessary for the Project's unique conductor configuration increased costs by \$4.0M.

Due to the size and complexity of the conductor configuration of the circuits an additional \$8.0M of equipment rental costs are forecast. The unique conductor size and the bundled nature of the design, require the rental of specialty equipment for installation activities. The forecast included in the s.92 Application assumed Hydro One's own equipment would be used, however, as the Project execution plan matured, it was deemed inadequate due to equipment reach and load capacity limitations. Specialty equipment, such as Bronto Skylifts, and aerial devices were needed to assist with the stringing preparation. Other stringing equipment associated with public safety was also deemed essential due to the use of this specialty equipment and project being sited in a major urban area (i.e. City of Ottawa). This resulted in additional boom tip rider costs, rental of a 40-tonne boom-truck, and rental for a Hydrovac truck for hole excavation which was used to construct the temporary safety rider poles installation throughout the transmission line corridor.

- **Additional costs for tower reinforcements (\$3.8M)** - A dual-bundled heavier conductor (i.e. 1443 kcmil) was installed to accommodate the required capacity increase on these lines, as approved. This required additional steel reinforcement on all 94 transmission lattice towers as the existing towers were designed for a single conductor per phase. The cost estimate included in the s.92, included preliminary engineering design and did not account for the extent of these tower

¹ When utilizing Hydro One's R1 rate class and the OEB-approved 2020 rates and demand factors (i.e. Residential R1 at 920 kWh per month at Tiered prices). For comparative purposes this remains consistent with the category of customer and per month kWh usage incorporated in the analysis by Hydro One in the original analysis, as presented in Exhibit B, Tab 1, Schedule 9, pg.3.

² Appendix A, Table 1, Row A, Average monthly bill amount of \$181.58, plus, the \$0.04 increase resulting from the updated project forecast costs = \$181.62 per month.

³ Appendix A, Table 2, Row A, Average monthly bill amount of \$134.52, plus, the \$0.02 increase resulting from the updated Project forecast costs = \$134.54 per month.

reinforcements as later identified in the final design/drawing package released for construction. Additionally, increased labour costs were incurred to perform the tower reinforcement work that was condensed and undertaken in the spring and fall season outage windows. The increase in those above-described costs, inclusive of additionally steel tower reinforcement is approximately \$2.4M. Furthermore, specialty hire equipment was required to execute the steel tower reinforcement work on the higher sections of the transmission towers, at an additional cost of approximately \$1.4M.

- **Additional cost of a construction / laydown area complex (\$2.2M)** - The Project plan incorporated into the OEB-approved S.92 assumed the utilization of space at either Merivale TS and/or Hawthorne TS for material storage, assembly and project execution. However, due to the ongoing Hydro One work in eastern Ontario and the project development of the Merivale TS refurbishment project, the space available inside the two prior-mentioned stations was constrained to a point that was insufficient to accommodate this Project's requirements. In response, Hydro One negotiated a lease on a suitable property adjacent to Albion TS, for the project's duration. This almost 5-acre land is ideally suitable for the Project's marshaling yard and construction complex, is adjacent to the M30A/M31A corridor and is between the terminating stations of the line Project, Merrivale TS and Hawthorne TS. The lease agreement and the yard setup, facility rentals, are forecast to cost an additional \$2.2M.
- **OPGW Installation and associated facility removals (\$1.6M)** – The OPGW installation project plan for the M31A circuit and associated cost estimate, did not include an additional trenching required for the fiber routes from the transmission towers to the control buildings. The cost of equipment rental needed for the trenching and removals is estimated to be \$0.8M, and the associated additional costs for labour (including project management), subcontractor costs and materials is forecast to be \$0.8M, totaling and additional \$1.6M.
- **Other** – The balance of the cost increase, approximately \$6.9M, is due to several items, consisting of i) additional interest and overhead, the majority related to the specific cost elements outlined above, ii) increases in labour rates during project execution period, compared to estimated, and iii) the increase in the cost of constructing and removing access roads for the Project.

Sincerely,



Joanne Richardson

c/ Intervenors of record in EB-2020-0265 (electronic only)

APPENDIX A – ECONOMIC RATE IMPACT ANALYSIS

For comparison purposes, Hydro One updated the 2020 analysis underpinning its S.92 Application evidence utilizing the updated Project cost estimate included in this letter. The results of the analysis, as it related to the impact on those customer bills, is provided below in Table 1.

Table 1
Rate Impact Using the S.92 Average Residential Consumption as per Prefiled Evidence (920 kWh⁴)

Rate Impact Year of Comparison	2020 Rate Impact	
Cost Estimate Utilized	2020 Estimate as Filed in S.92	2022 Updated Cost Estimate
A. Typical monthly bill	\$181.58 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 Network Connection Pool Provincial Uniform Rates	0.26%	0.51%
G. Increase in Transmission costs for typical monthly bill (C x D)	\$0.02 per month or \$0.25 per year	\$0.04 per month or \$0.5 per year
H. Net increase on typical residential customer bill (E / A)	0.01%	0.02%

*Items A to E are based on Typical monthly bill prior to analysis the impact of the Project's cost on rates.

Additionally, Hydro One is providing an analysis of the cost increase included in this letter using the OEB-assumed 2023 average residential consumption, of 750 kWh. The results of the analysis, as it related to the impact on those customer bills, is provided below in Table 2.

⁴ This Average Residential Consumption represents the OEB's 2020 assumed amount.

Table 2
Rate Impact Using Current Average Residential Consumption (750 kWh⁵)

Rate Impact Year of Comparison	2023 Rate Impact	
Cost Estimate Utilized	2020 Estimate as Filed in S.92	2022 Updated Cost Estimate
A. Typical monthly bill	\$134.52 per month	
B. Transmission component of monthly bill	\$15.98 per month	
C. Line Connection Pool share of Transmission component	\$1.55 per month	
D. Transformation Connection Pool share of Transmission component	\$5.23 per month	
E. Network Connection Pool share of Transmission component	\$9.20 per month	
F. Impact on Network Connection Pool Provincial Uniform Rates	0.00%	0.18%
G. Increase in Transmission costs for typical monthly bill (C x D)	\$0.00 per month or \$0.00 per year	\$0.02 per month or \$0.2 per year
H. Net increase on typical residential customer bill (E / A)	0.00%	0.01%

* Items A to E are based on Typical monthly bill prior to analysis the impact of the Project's cost on rates.

⁵ This Average Residential Consumption represents the OEB's 2023 assumed amount.