Hydro One Networks Inc.
7th Floor, South Tower
483 Bay Street
Toronto, Ontario M5G 2P5
www.HydroOne.com

Tel: (416) 345-1507
Fax: (416) 345-6833
Kathleen.Burke@HydroOne.com

Kathleen Burke
Director, Applications Delivery
Regulatory Affairs

BY EMAIL AND RESS

December 10, 2021

Ms. Christine E. Long, Registrar
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Long,

EB-2021-0110 – Custom IR Application (2023-2027) for Hydro One Networks Inc. Transmission and Distribution – Corrections to Interrogatories and Other Preliminary Matters

On November 29, 2021 Hydro One Networks Inc. filed its interrogatory responses for the above application. On December 7, 2021 and to assist the OEB and intervenors in their preparation for the Technical Conference, Hydro One filed additional details regarding witness panels and accountabilities.

By way of this letter, Hydro One is submitting the following corrections to its interrogatory responses:

- I-14-C-LPMA-011 – page 2, Table 1, 2021 YTD (Q3) values
- I-06-A-CCC-010 – page 1, typographical error ("respectfully" changed to "respectively") and correction to description of E-Energy Probe-72
- I-09-B3-ED-019b – page 5, part f), Cost of Losses estimates for the period 2016-2027

Furthermore, the accountabilities identified in the December 7, 2021 letter for the following interrogatory responses are being revised as follows:

- I-01-B3-STAFF-099 – Assigned to Mr. Bruno Jesus
- I-24-D-VECC-030 – Assigned to Mr. Spencer Gill and Mr. Samir Chhelavda. Additional questions on external revenues should be addressed on the basis set out in Exhibit D-2-2, Table 2.
- Questions regarding Hydro One's redirection process are to be directed to Panel 1

Hydro One wishes to advise parties that one of the witnesses on Panel 3, Finance and Compensation, has unfortunately experienced a death in their immediate family. Another witness will step in to answer

questions at the Technical Conference but to provide the new witness an opportunity to prepare, Hydro One will be changing the order of the panels as follows:

- Current Panel 3 – Finance and Compensation will be changed to New Panel 4
- Current Panel 4 – Rates, Load and Custom IR will be changed to New Panel 3

An electronic copy of this letter has been submitted using the Board's Regulatory Electronic Submission System.

Sincerely,

Kathleen Burke

C - LONDON PROPERTY MANAGEMENT ASSOCIATION - 011

Reference:

Exhibit C-2-2, Table 1

Interrogatory:

Please update Table 1 to reflect the most recent actual information available for 2021. Please also explain any changes that result from the 2021 update in 2022 and/or subsequent years.

Response:

Hydro One continues to track toward the 2021 forecast as filed. Any variance at year-end will be accommodated through an adjustment in 2022 to maintain consistency with the OEB-approved plan total.

1 **Table 1 – In-Service Capital Additions 2018-2027 ($M) (Exhibit C-2-2, p.2)**

OEB Category	2018		2019		2020		2021			2022		2023	2024	2025	2026	2027
	OEB Approved	Actuals	OEB Approved	Actuals	OEB Approved	Actuals	OEB Approved	2021 YTD (Q3)	Forecast	OEB Approved	Bridge	Forecasting Period				
1. System Access	196.9	196.9	147.7	189.9	144.7	197.5	160.8	157.4	182.7	143.1	181.2	239.6	241.8	227.5	212.5	204.1
2. System Renewal	229.6	229.6	223.3	201.9	225.3	217.8	241.9	159.8	248.7	251.2	225.5	355.2	425.6	504.4	476.3	507.3
3. System Service	113.9	113.9	81.6	89.2	170.9	97.3	138.8	49.1	70.8	112.4	137.7	226.3	148.8	251.2	200.9	195.1
Subtotal Categories 1, 2, and 3	**540.4**	**540.4**	**452.6**	**481.1**	**540.9**	**512.6**	**541.4**	**366.2**	**502.2**	**506.7**	**544.4**	**821.0**	**816.2**	**983.1**	**889.7**	**906.5**
4. General Plant Allocated to Distribution	87.4	87.4	103.9	104.1	135.9	155.5	164.1	96.2	197.9	103.4	112.0	149.9	211.1	220.4	171.5	201.2
Grand Total	**627.8**	**627.8**	**556.5**	**585.1**	**676.8**	**668.1**	**705.5**	**462.4**	**700.1**	**610.1**	**656.4**	**970.9**	**1,027.3**	**1,203.4**	**1,061.2**	**1,107.8**

A - CONSUMERS COUNCIL OF CANADA INTERROGATORY - 010

Reference:

Exhibit A-3-1, Page 43-47, Table 11

Interrogatory:

Does Table 11 represent a complete list of all third-party studies and reports undertaken in support of this Application? If not, please provide a complete list. Please indicate whether the work was subject to an RFP process and if not, indicate why it was sole sourced. Please provide the cost of the work (including costs related to the hearing process). Please indicate how those costs are to be recovered.

Response:

For the complete list of third-party studies, along with each study's procurement method, please refer to SPF Section 1.3 Tables 1 and 2 for the studies included in the System Plans and Exhibits A, C, H and L, respectively. Sole sourcing was used where a study requires specific expertise, or where relevant knowledge and experience from conducting prior Hydro One studies would provide continuity and efficiency. For cost of work (including costs related to the hearing process), please see interrogatory response E-Energy Probe-72.

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B3 - ENVIRONMENTAL DEFENCE INTERROGATORY - 019B

Reference:

Exhibit B-3-1, DSP Section 3.6, Page 9

Interrogatory:

a) Please elaborate on the following excerpt and confirm whether Hydro One declined to update its line loss study as directed by the OEB:

Update its distribution line loss study for consideration in its next rebasing application, which should include an assessment of the actual line losses for a five-year period.	151	Hydro One assessed the actual line losses for a five-year period and is filing the results of this assessment, which indicates that the anomalous variation that caused the OEB to require an updated study is not present in the previous five-year period.	L-06-02 L-06-02-01	Clement Li and Bijan Alagheband

b) Please file a copy of any distribution line loss studies completed by Hydro One since 2000.

c) Does Hydro One Distribution quantify and consider the potential value of distribution loss reductions for different options when procuring equipment (e.g. transformers) and deciding on the details of demand-driven capital projects (e.g. the type and sizing of conductors)? If yes, please explain how and provide documentation detailing the methodology used.

d) If Hydro One Distribution is considering the value to its customers of distribution loss reductions for planning purposes, how does it calculate the dollar value ($) of said loss reductions (kWh)? Is the value calculated based only on the HOEP or on all-in cost of electricity (e.g. including the GA)?

e) Further to the above question, Hydro Ottawa and Burlington Hydro use the all-in cost of electricity. If Hydro One Distribution's practice differs, please explain whether there are aspects of its system that would justify this.

f) Please complete the following table:

Value of Hydro One Distribution System Energy Losses –						
	2015 (historic)	…	2027 (forecast)	Historic annual average	Forecast annual average	Total
Electricity Purchases (MWh)						
Electricity Sales (MWh)						
Losses (MWh)						
Losses %						
All-In Cost of Electricity ($/MWh) – Annual Average						
Cost of Losses ($)						

g) Please complete the following table:

GHG's from Hydro One's Forecast Distribution System Energy Losses						
	2023	2024	2025	2026	2027	Total
Forecast Losses (MWh)[1]						
Carbon Intensity of Electricity[2] (CO2e/MWh)						
GHGs (CO2e)						

h) In EB-2019-0261, Hydro Ottawa agreed to, and the Board approved, the following: "Between 2021 and 2025, Hydro Ottawa shall endeavour to maintain its five-year average total system losses below the target of 3.02% set by the OEB in EB-2005-0381 through cost-effective measures." Is Hydro One willing to agree to the same terms? If not, what commitments can Hydro One make to the Board in this regard? In particular, please indicate what target Hydro One is willing to meet.

[1] If no better numbers are available, the losses from 2019 or the average over 2015 to 2019 could be used for the purpose of this row of this response.
[2] Please base this figure on the IESO's January 2020 Annual Planning Outlook - http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Jan2020.pdf?la=en; see also the data tables at http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Data-Tables-Jan2020.xlsx?la=en.

i) In EB-2019-0261, Hydro Ottawa agreed to, and the Board approved, the following: "In addition, over the course of 2020-2021, Hydro Ottawa shall prepare a plan to reduce distribution losses as much as possible through cost-effective measures. The utility shall file the plan with the OEB when complete. In 2022-2025, Hydro Ottawa shall implement as many of the cost-effective measures set out in its plan as possible (e.g., any changes to planning and procurement processes to better mitigate losses, investments that can be made within current budgets, operational measures, etc.). All other cost-effective measures will be incorporated into the utility's next rebasing application and DSP." Is Hydro One willing to agree to the same terms? If not, what commitments can Hydro One make to the Board in this regard.

j) In EB-2019-0261, Hydro Ottawa agreed to, and the Board approved, the following: "Finally, as described in Hydro Ottawa's response to undertaking JT 3.10, a pilot of a Grid Edge Volt/VAr Control ("VVC") solution will be complete by the end of 2020. If this pilot is successful, Hydro Ottawa shall increase the deployment of these (or equivalent) units by conducting an analysis in 2021 to identify potential suitable locations and by deploying these units in a subset of locations which are deemed to be suitable and cost-effective, with an estimated investment of up to $1.0M over the five-year test period. The cost of these investments will be accommodated within the overall approved capital budget." Is Hydro One willing to agree to implement similar technology through an equivalent commitment? If not, what commitments can Hydro One make to the Board in this regard?

k) Please complete the following table:

Distribution Losses – Correlated with Consumption and Peak Demand				
	2010	…	2020	Average
Annual distribution losses (MWh)				
Annual consumption (MWh)				
Losses as % of consumption (%)				
Peak demand (MW)				
Ratio of loss % to peak demand				

Response:

a) In the EB-2017-0049 Decision dated March 7, 2019 at page 151, the OEB approved the loss factors proposed by Hydro One for Hydro One's existing rate classes. Specifically, the OEB stated "[t]hese loss factors were previously approved by the OEB, and no party objected to their continued approval."

However, the OEB noted that it was "concerned about the variation in distribution losses from year to year; from a low of 5.3% in 2012 to a high of 10.4% in 2013 (averaging 8.3%). Hydro One is expected to update its line loss study for consideration in its next rebasing rate application, which should include an assessment of the actual line losses for a five-year period."

The OEB's concern regarding the variation in losses from year to year has been resolved because as explained in Exhibit L-6-2 pages 3 to 4, this variation was the result of changes to Hydro One billing systems at that time. After 2013, Hydro One's loss factors remained stable as demonstrated by the data in L-6-2 Attachment 1. Moreover, L-6-2 Attachment 1 provides the actual line losses for a five-year period, as requested by the OEB in EB-2017-0049.

b) As indicated in Exhibit L-06-02, at page 3, Hydro One's existing total loss factors, which it proposes to continue to use for all existing Hydro One rate classes for the 2023 to 2027 Custom IR period, are based on the methodology and recommendations of the line loss study that was filed with the OEB on January 31, 2014 as Exhibit G1-8-2, Attachment 1 in EB-2013-0416. A copy of that study is provided at B3-ED-19b-1. Hydro One has not completed additional line loss studies since the study that was filed in EB-2013-0416. Moreover, as any earlier line loss studies going back to 2000 would be irrelevant to this application and available on the OEB's website, Hydro One declines to provide copies of any such additional studies.

c) Yes, see Exhibit B-3-1 Section 3.6.4 How the Capital Plan Addresses Distribution System Losses for details. For specific Total Ownership Cost calculations for Hydro One distribution transformers, please see the study by Kinectrics, 2016 attached at B3-ED-19b-2.

d) Hydro One considers the benefits of reduced losses for planning purposes based on qualitative considerations such as system operations, and efficiency.

e) Please refer to part d) above.

f) For the purposes of this response Hydro One has included the load of embedded customers when calculating losses. For the requested information over the years 2016-2020 and forecast

period, please see the following tables. The figures include Acquired Utilities. It can be observed that the historic average loss factor is 6.1%, which is the same as forecast (6.1%). For the years 2010 to 2015, the losses are not readily available, and they would not be consistent with the figures provided above as they do not include Acquired Utilities.

	2016	2017	2018	2019	2020
Electricity Purchases in MWh	35,938,880	35,217,571	37,457,098	37,236,502	37,523,391
Electricity Sales in MWh	33,884,932	33,193,399	35,483,132	35,112,828	35,117,034
Losses in MWh	2,053,949	2,024,172	1,973,967	2,123,675	2,406,357
Losses (%)	6.1	6.1	5.6	6.0	6.9
All-in Cost of Electricity ($/MWh)	161.9	163.0	159.7	170.5	177.1
HOEP ($/MWh)	16.3	15.5	23.9	17.8	13.5
HOEP + Global Adjustment (GA) ($/MWh)	113.8	116.1	115.7	127.0	126.4
Cost of Losses ($M)	$33.4 - $233.7	$31.4 - $234.9	$47.3 - $228.4	$37.7 - $269.7	$32.5 - $304.3

	2021	2022	2023	2024	2025	2026	2027
Electricity Purchases in MWh	35,507,213	35,643,803	35,853,650	35,974,429	36,090,354	36,202,057	36,311,722
Electricity Sales in MWh	33,477,681	33,606,780	33,807,057	33,921,117	34,030,456	34,135,728	34,239,044
Losses in MWh	2,029,532	2,037,023	2,046,593	2,053,312	2,059,898	2,066,329	2,072,678
Losses (%)	6.1	6.1	6.1	6.1	6.1	6.1	6.1
All-in Cost of Electricity ($/MWh)	179.4	182.9	186.5	190.3	194.2	198.1	202.1
HOEP ($/MWh)	-	-	-	-	-	-	-
HOEP + Global Adjustment (GA) ($/MWh)	-	-	-	-	-	-	-
Cost of Losses ($M)	-	-	-	-	-	-	-

The cost of distribution losses is presented as a range. The lower bound is calculated by multiplying losses by the Hourly Ontario Energy Price (HOEP) and the upper bound is calculated by multiplying the losses by the sum of the HOEP and Global Adjustment (GA). Hydro One expects that the cost of distribution losses would fall somewhere within the identified range however, Hydro One does not have the information necessary to provide a more specific estimate. Hydro One notes that the GA includes costs which are fixed in nature such as CDM programs.

The values for Hourly Ontario Energy Price (HOEP) and Global Adjustment (GA) shown are based on information from the IESO's monthly reports. The all-in cost of electricity for 2021-2027 is based on a forecast prepared by the CER. Hydro One does not have a forecast of HOEP and GA for 2021-2027 and has not estimated the cost of losses for those years.

g) The forecast losses are already provided in f) above. Hydro One does not have the other information requested in this interrogatory.

h) It is Hydro One's understanding that Hydro Ottawa's commitment arose as a result of a Settlement Proposal approved by the OEB. Hydro One is not aware of the basis on which

Hydro Ottawa provided the commitment noted. Hydro One is not prepared to make such a commitment at this time.

i) See I-09-B3-ED-019b(h).

j) See I-09-B3-ED-019b (h). Hydro One is not aware of the details of the Ottawa Hydro pilot project with respect to costs and benefits of such technology.

k) For annual losses in MWh for the years 2016-2020 please see response to part f) above. Hydro One does not have information on peak demand losses. Actual Distribution peak values, including the Acquired Utilities, are presented in the following table in MW.

2016	2017	2018	2019	2020
6,045	5,586	5,918	6,039	6,752

Actual Distribution peak values for the years 2010-2015 would not be consistent with the figures provided above as they do not include Acquired Utilities.

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