HYDRO ONE TRANSMISSION EB-2019-0082

VECC COMPENDIUM Panel 3

October 31, 2019

TAB 1

VECC INTERROGATORY #9

Reference:

TSP-01-01p. 32

Interrogatory:

a) Hydro One has three types of customers: generators, large industrial end users and local distribution companies (LDCs). Did the customer engagement surveys and other activity consider each type of customer separately and with a different set of questions or was one single form of survey used for all three customer groups? For example, was the number of customers concerned with power quality differentiated among the types of customers?

b) Does Hydro One maintain a database of requests and complaints from each of its 153 (or 156) customers?

c) Does Hydro One TX assign account managers for each of its 153/156 customers? Does Hydro One schedule annual, biannual or regular meetings with each of its customers?

d) Does Hydro One Tx hold annual group meetings with LDCs in order to better understand this sectors needs and service issues? If not please explain why this would not be desirable?

Response:

a) The 2017 Transmission Customer Engagement Survey had supplemental questions for LDCs. These can be found in Exhibit B-1-1, Sec 1.3, Attachment 1, pages 54-56. Otherwise the survey was uniformly offered to all segments. Exhibit B-1-1, Sec 1.3, Attachment 1, page 21 breaks down the Power Quality responses by each segment, single vs. multi-circuit, and by region.

b) Hydro One maintains customer information in its Customer Relationship Management (CRM) database.

c) All transmission connected customers and LDCs have access to their own Account Executive. Hydro One Account Executives make best efforts to meet with their customers each year, or as necessary depending on the level of activity between the customer and Hydro One.

Witness: Spencer Gill

d) Hydro One conducts several meetings with LDCs each year, some of which are group settings. These meetings present an opportunity to discuss specific issues, and general LDC related issues.

ONTARIO ENERGY BOARD

FILE NO.:	**EB-2019-0082**	**Hydro One Networks Inc.**
VOLUME:	**6**	
DATE:	**October 29, 2019**	
BEFORE:	**Emad Elsayed**	**Presiding Member**
	Lynne Anderson	**Member**
	Robert Dodds	**Member**

sophisticated as well, you know. They're not just like, you know, your residential customer. So what do you say about that?

MR. GILL: So what I would say about that is the next time that we do a formal engagement like this, it will be likely under a combined hearing. So it would be comprehensive among all of our stakeholders, or all of our customer groups, all of our customer segments.

With respect to C and I customers attendance at our large customer conference, part of the work that I was doing throughout 2017 and 2018 was consolidating what we call a large customer group.

So we have expanded that down to large distribution accounts. So there are...

MS. DURANT: So you have their contact information. You can get in touch with those groups?

MR. GILL: So the folks who have a demand of 2 megawatts and above now have an assigned account executive to them. So that's an additional hundred accounts there.

The company is in the process right now of expanding that model to a lower threshold. Obviously, there's an exponential curve there in terms of the number of accounts. So a lot of the work that is happening right now is research with respect to who needs to have a customer account rep with them. But there is definitely a push internally to broaden the service and increase the value to this customer segment, which hasn't had, you know, as much attention as it should.

TAB 2

SS-12 Aylmer-Tillsonburg Area Transmission Reinforcement

Start Date:	Q2 2020	**Priority:**	High
In-Service Date:	Q2 2022	**3 Year Test Period Gross Cost ($M):**	29.3
Trigger(s): Supply Reliability, Compliance			
Outcomes: Improve supply reliability to the Aylmer-Tillsonburg area.			

A. NEED AND OUTCOME

Investment Need

This investment is required to improve voltage performance and supply reliability issues in the Aylmer-Tillsonburg area. Aylmer TS and Tillsonburg TS are normally supplied by a 60 km single 115kV circuit (W8T) which emanates from Buchanan TS. The combined station summer peak load is forecast to increase from 106MW in 2016 to about 122MW by 2023.

Regional planning studies have identified a number of issues for the supply to the area:

- The HV and LV voltages at Tillsonburg TS do not meet the IESO's Ontario Resource and Transmission Assessment Criteria ("ORTAC"), under peak load conditions;
- The thermal ratings of a 1.5 km section of 115kV circuit (W8T) are exceeded; and
- The frequency of delivery point interruption at Tillsonburg TS falls below the minimum Customer Delivery Point performance standard.

These needs are described and documented in the London Area Regional Infrastructure Plan (Exhibit B, Tab 1, Schedule 1, TSP Section 1.2, Attachment 11). Upon the completion of the London Area Regional Infrastructure Plan, it was concluded that the transmission reinforcement will be required in order to provide voltage support and improve customer delivery performance.

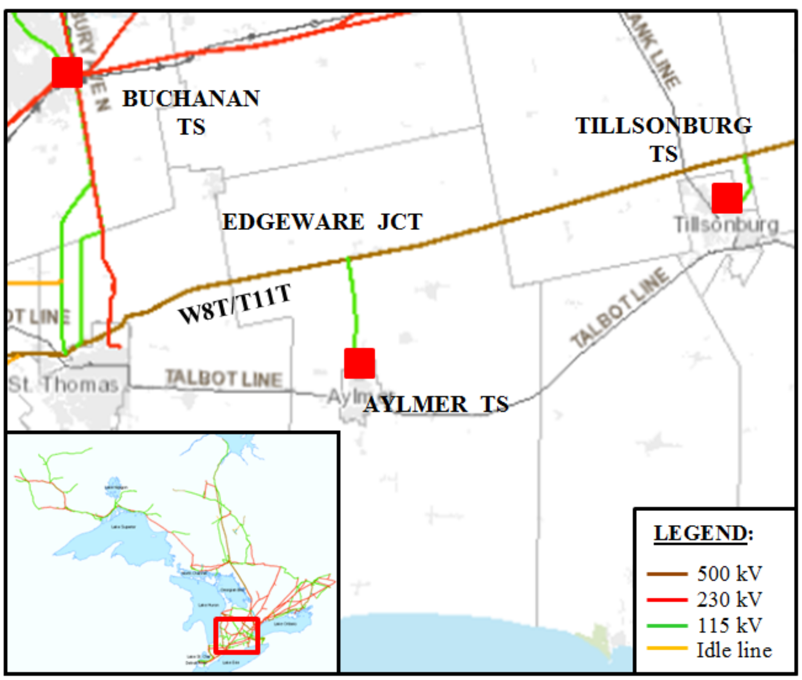
Not proceeding with this investment would result in inadequate supply capacity and reliability in the Aylmer-Tillsonburg area. This project is assigned a High Priority to improve supply to customers.

Investment Description

As per the need described above, the proposed project involves the:

- Installation of two capacitor banks on the 27.6kV bus at Tillsonburg TS to provide reactive power support; and
- Construction of 3.5 km of new 115kV single circuit transmission line from Cranberry Junction to Tillsonburg TS.

A map showing the project location is provided below.



Hydro One will apply for a “Leave to Construct” approval under Section 92 of the *Ontario Energy Board Act* in Q4 2019. A summary of the need, project description, risk, and costs have been presented herein; with specific details to be provided in the Section 92 application. All land matters will be addressed in the Section 92 application.

Hydro One will initiate a Class Environmental Assessment, as required under the *Environmental Assessment Act*, for this project in Q2 2019 with approvals planned to be obtained by Q4 2019.

Hydro One studies show that the project will not adversely affect the reliability of the IESO-controlled grid or service to other transmission connected customers. The System Impact Assessment and Customer Impact Assessment will be completed in 2019 to confirm the above prior to the submission of the Section 92 application.

Outcomes

This investment will address the supply capability issue and reduce risk of interruption to customers in the Aylmer-Tillsonburg area.

The following table summarizes the anticipated benefits as a result of the project:

Customer Focus	• Improve supply reliability in the Aylmer-Tillsonburg area.
Operational Effectiveness	• Improve operational flexibility with provision of dual supply to Tillsonburg TS.
Public Policy Responsiveness	• Comply with the IESO's Ontario Resource and Transmission Assessment Criteria.

B. EXPENDITURE PLAN

This investment is non-discretionary. The project costs, as presented in the table below, will be recovered from the appropriate rate pool(s) and/or capital contribution from the customers. Hydro One will be responsible for the cost of installation of low-voltage capacitors and will also partially fund the 115kV line extension to improve delivery point performance as per Hydro One's Customer Delivery Point Performance ("CDPP") Standard[1]. The remaining project cost will be recoverable through incremental revenue from the appropriate rate pool and/or capital contribution from the customers. The project costs and capital contribution amount are considered preliminary as they are only

[1] *The CDPP Standard is provided in Attachment 1 of Exhibit D, Tab 2, Schedule 1.*

TAB 3

EXHIBIT 1 – ADMINISTRATIVE DOCUMENTS

2019 Cost of Service

Chapleau PUC.
EB-2018-0087

1.4. Utility Description

CPUC's service area is an embedded utility completely contained within the municipal boundaries of the town of Chapleau therefore the utility only serves the community of Chapleau. The area is embedded within the Hydro One Networks Inc. The map below shows the utility's service area. A more detailed PDF version of the map can be found at Appendix H of Exhibit 1.

In 2019, CPUC will rely on its approximately 30 km of circuits deliver approximately 26,173,316 kWh and 19,722 kW of energy to approximately 1,200 customers. CPUC`s distribution system is connected to the 115 kV transmission system through Chapleau DS. The distribution system is comprised of two voltage systems: one at 4.16 kV and the other at 25 kV. CPUC owns two 115-4.16 kV transformers at the DS totaling 6.2 MVA which supply 3 feeders. In addition, CPUC has one 25 kV feeder supplied by Hydro One Networks Inc. which is limited to supplying approximately 3.5 MVA of capacity. Approximately 60% of the distribution assets are rated at 4.16 kV and 40% are rated at 25 kV.

CPUC does not host any utilities within its service area, nor have any embedded utilities within its service area.

CPUC is a registered Market Participant dealing directly with the IESO. Details of the utility's capital assets are presented in the Distribution System Plan in Exhibit 2.

2-Staff-28

Ref: Exhibit 2, DSP, page 19, section 2.3.1.2.1 Methods and Measures

Preamble:

At the above noted reference, CUPC indicated that loss of supply outages occurs due to problems associated with assets owned by another party then CPUC or the bulk electricity supply system.

Question:

a) Please provide more detail regarding the timelines and details of loss of supply received from Hydro One Networks when an unplanned outage occurs.

Responses:

Date	Reason	Customers Affected	Duration (HRS)
23 July 2013	Tree on Hydro One line	340	0.5
10 September 2014	Fault on Hydro One circuit, going by protection to station reclosure causing PUC customers to lose power (occurred twice in same day)	340	0.5
28 September 2014	Outage on HONI side knocking out all CPUC	1260	4
3 October 2014	Tree on F4 Hydro One Circuit	340	1
15 October 2014	Hydro One problem causing CPUC customers to lose power	340	1
9 March 2015	Bird contact in HONI station	340	5.5
2 August 2015	Bird contact damaging metering equipment	340	5
1 November 2015	Scheduled Outage HONI W2C	1208	6
18 November 2015	HONI F4 feeder problem opening station reclosure affecting PUC F1 feeder	340	1
14 December 2015	HONI F4 feeder problem opening station reclosure affecting PUC F1 feeder	340	0.5
17 December 2015	HONI F4 feeder problem opening station reclosure affecting PUC F1 feeder	340	1
1 May 2016	Scheduled Outage HONI W2C	1208	6
5 June 2016	Scheduled Outage HONI W2C	1208	8
15 July 2016	Bird contact HONI station affecting PUC F1 feeder	340	1
30 July 2017	Scheduled Outage HONI W2C	1208	7.5
5 August 2017	Fault on HONI F4 affecting PUC F1 feeder	340	1
10 September 2017	Problems on the WC2	1208	7
21 September 2017	Bird contact HONI station affecting PUC F1 feeder	340	4.5
6 May 2018	Scheduled Outage HONI W2C	1208	4
27 May 2018	Scheduled Outage HONI W2C	1208	4

28 October 2018	Scheduled Outage HONI W2C	1208	2.5

2.0-VECC-6

Reference: DSP, pgs. 27, 85- of 221

a) The evidence shows a primary reason for outages in Chapleau is loss of supply. Will the voltage conversion in any manner mitigate loss of supply issues for the Utility?
b) If Chapleau could have Hydro One change one thing to improve reliability of supply to its service territory what would that be? If such a solution has been proposed (as mentioned in Exhibit 2) what cost was suggested that CPUC would need to incur for Hydro One to proceed with the suggested reliability improvement upgrade?

Responses:

a) The voltage conversion will not mitigate loss of supply (LoS) issues as majority of the issues are on the Hydro One system (for additional detail, see 2-Staff-28). Should a LoS occur at the 25kV station affecting CPUC's current in-service 25kV feeder, the affected customers cannot have their service restored until Hydro One addresses the issue. Since CPUC operates at a 4.16kV for its remaining feeders, CPUC does not have the capability to connect the 25kV-feeder to those feeders for switching to reduce the number of customers (or restore power to a percentage if not all customers). However, the voltage conversion can enable a faster restoration of power to a percentage of customers should all feeders be operating at the same voltage level through the use of tie-points and switching capabilities between feeders.

b) HONI has already rectified the issue to improve the reliability related to LoS events with the installation of proper reclosure units. The Loss of Supply outages were on account of Hydro One not having the proper sizing of reclosures on the F4 feeder. This is the same feeder that supplies Chapleau's F1 25kv feeder. What was happening was that whenever a fault occurred down stream of the new reclosures the unit did not isolate the fault as intended. The fault continued to the station opening the station reclosure therefore affecting CPUC 25kv feeder. Since the installation of proper reclosures, CPUC has not experienced LoS events due to the faults occurring from the improper sizing.

   CPUC did not incur any cost for Hydro One to repair the reclosures.

TAB 4

VECC INTERROGATORY #14

Reference:

D-02-01-01p. 3

Interrogatory:

a) Please explain the rationale for different customer delivery point performance standards based on load size. If the response relies on requirements in the Transmission System Code, please provide those requirements.

b) The proposed standards are based on data which is between 28 and 19 years old. Please explain why standards based on this aged data remain relevant to current performance of delivery points in Ontario.

c) Please explain the impediments to updating the standards based on 2000-2018 data.

d) Please explain for each of the past 5 years (2019 inclusive) how many "technical and financial evaluations were done in consultation with affected customers" due to point performance failing below the minimum CDPP.

Response:

a) When the standards were developed, the rational for different customer delivery point performance standards based on load size was provided in the following Board document: RP-1999-0057, EB-2002-0424. Following is a copy of the related materials from the document.

2.3.1 Load Grouping for Group (Outlier) CDPP Standards – General

Hydro One has proposed to apply different performance standards depending on the size of total average station load being served. For this purpose, load would be classified in one of four load bands (0-15 MW, 15-40 MW, 40-80 MW and >80 MW).

Hydro One took the position that the use of load bands accommodates normal year-to-year delivery point performance variations, limits the number of delivery points that are to be considered "performance outliers" to a manageable level, is commensurate with customer value ("the bigger the load the greater the level of reliability"), and will allow, or direct, focus on reliability improvements at the "worst" performing delivery points.

As evidence of the reasonableness of the methodology of basing performance standard on load size, Hydro One pointed to the Independent Electricity System Operator's ("IESO") Supply Deliverability Guidelines. Those Guidelines, which apply to preconnection studies for transmission customer connections, contain as a basic premise that the level of reliability of supply should be related to the size of the load being served, i.e., the larger the load, the greater the level of reliability. Similarly, in general the greater the load affected, the shorter the duration of the interruption is desired. The Guidelines also refer to the former Ontario Hydro's Guide to Planning Regional Supply System Deliverability (also known as the "E2" Guide). That Guide reflects a similar approach by using groupings according to load size for purposes of establishing the maximum acceptable severity of interruption.

Hydro One also submitted a survey of customer interruption costs ("CIC"), which represent the economic value to customers of unsupplied MWh of energy. The survey indicated that, for a given duration of interruption, the CICs increase as the size of the load increases. Hydro One then calculated a "Customer Value of Reliability" based on the number of interruptions that would result in different levels of CICs being achieved, up to a "CIC Ceiling" equal to Hydro One's annual transformation and line connection costs for a 15 MW load.

The Board considers that the use of a grouping methodology for performance standard purposes strikes the right balance with respect to practical application and accuracy. The Board finds that Hydro One's approach, based on a measure of the customer's value of reliability which varies with the size of the load served, is reasonable. Although Hydro One is not able to estimate the value that one megawatt represents to each customer in terms of some common quality, such as profit or productivity, the Board finds that the CIC concept is not unreasonable as a proxy.

b) Ontario transmission system was well developed in 70s and 80s. The system had relatively good reliability performance in 90 due to stable equipment performance. The overall system T-SAIDI performance in this period is better than that from 2000s or 2010s, where aging equipment failure is a main contributor to the later.

c) It is possible to update the standards based on 2000-2018 data, however, there will be no impact to customers as a result of doing so.

d) Over the last five years Customer Delivery Points below the minimum CDPP triggered have been between 84 - 105. Hydro One has completed assessments of all of these 84 DPs for 2017 which are determined based on the three year performance history. 2018 analysis is expected to be completed by Q1 2020. Hydro One consults with its customer on a regular basis, such as planning and operating meeting or different stages of ongoing sustainment programs and projects. In most cases, mitigation measures are part of Hydro One sustainment planning and assessments for safe, secure and reliable operation. Hydro One undertakes customer specific consultation for performance failing below the minimum CDPP if and when a) mitigation results in any changes to system configuration affecting customer(s) and b) a customer contribution is required to implement mitigation.

VECC INTERROGATORY #15

Reference:
D-02-01-01

Interrogatory:

a) In the above noted section is an explanation as to the attribution of costs for delivery point reliability improvements. Please clarify – if a delivery points falls below the CDPP standard can the affected customer(s) be required to financially contribute to improvements to bring the delivery point to its respective CDPP standard. If this is correct please explain the rationale for customer contribution to maintain a station at its CDPP standard.

Response:

a) Correct. Where the three-year rolling average of the delivery point performance falls below the minimum Group CDPP Standard, Hydro One's level of incremental investment to improve the group outlier's reliability performance will be limited to the present value of three years' worth of transformation and/or transmission line connection revenue associated with the delivery point. Any funding shortfalls for improving delivery point reliability performance will be made up by the affected delivery point customers. Hydro One is of the view that this sharing of costs between the affected customers and ratepayers is necessary to strike a balance that encourages proceeding with only those reliability performance improvements that are technically and economically practical and to limit the subsidization of reliability improvement costs by other pool customers.

Witness: Bruno Jesus