

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15 (Sched. B);

AND IN THE MATTER OF an Application by Hydro One Networks Inc. (**Hydro One**) for electricity distribution rates beginning January 1, 2018, until December 31, 2022 (the **Application**).

EB-2017-0049

**Interrogatories From
Energy Storage Canada (ESC)**

January 24, 2018

Question: 1

Reference: • Exhibit H1, Tab 2, Schedule 3

- a) Please explain, in detail, and provide supporting calculations, for Hydro One's method of determining and calculating demand charges for:
- (i) licensed energy storage providers that are connected to the distribution system, licensed pursuant to an Ontario Energy Board license in the form of a facility that is connected to a distribution system and is capable of withdrawing electrical energy from distribution system (i.e. charging), and then storing such energy for a period of time, and then re-injecting only such energy back into the distribution system, minus any losses (i.e. discharging); and
 - (ii) customers, including large industrial, all commercial, and all residential customers that have energy storage equipment behind their distribution meter (**BTM**).

Question: 2

Reference: • Exhibit H1, Tab 2, Schedule 3, sections:

- 1.1.10.2 (Connection Impact Assessments – Embedded LDC Generators (Rate Code 45B)),
 - 1.1.10.3 (Connection Impact Assessments – Small Projects <= 500 kW (Rate Code 45C);
 - 1.1.10.5 (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – Capacity Allocation Required Projects (Rate Code 45E); and
 - 1.1.10.6 (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – TS Review for LDC Capacity Allocation Required Projects (Rate Code 45F).
- a) Please explain, in detail, and provide example calculations for Hydro One's method of determining and calculating Connection Impact Assessment charges for customers (including, without limitation, any energy storage customers), in the following rate codes:
- (i) 45B (Connection Impact Assessments – Embedded LDC Generators)
 - (ii) 45C Connection Impact Assessments – Small Projects <= 500 kW

- (iii) 45E (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – Capacity Allocation Required Projects)
 - (iv) 45F (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – TS Review for LDC Capacity Allocation Required Projects)
- b) Please describe how the system benefits provided by energy storage facilities are considered in the Connection Impact Assessment charges for energy storage facilities in the following rate codes:
 - (i) 45B (Connection Impact Assessments – Embedded LDC Generators);
 - (ii) 45C Connection Impact Assessments – Small Projects \leq 500 kW);
 - (iii) 45E (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – Capacity Allocation Required Projects); and
 - (iv) 45F (Connection Impact Assessments – Greater Than Capacity Allocation Exempt Projects – TS Review for LDC Capacity Allocation Required Projects).
- c) Please update Table 16, Table 17, Table 19, and Table 20 to show calculations for charges to:
 - (i) distribution-connected energy storage; and
 - (ii) BTM energy storage.
- d) Please explain why energy storage facilities are included in Rate Code 45 (Small Projects \leq 500 kW).
- e) Please explain why Small Vehicle Time is included as part of the Connection Impact Assessment charges for energy storage facilities in:
 - (i) Rate Code 45B (Embedded LDC Generators); and
 - (ii) Rate Code 45C (Small Projects \leq 500 kW).

Question: 3

Reference:

- Ontario Energy Board, Filing Requirements for Electricity Transmission and Distribution Applications (the **Filing Requirements**), Chapter 5: Consolidated Distribution System Plan Filing Requirements, section 5.0.4.3 at page 4 and section 5.4.1 at

page 15.

- Exhibit B1, Tab 1, Schedule 1
- Exhibit B1, Tab 1, Schedule 1, Section 1.3, Attachment 1
- Exhibit B1, Tab 1, Schedule 1, Section 3
- Exhibit C1, Tab 1, Schedule 3, page 8.

Preamble: The Filing Requirements require that Hydro One's distribution system plan (**DSP**) include the consideration(s) Hydro One has given to the investments necessary to facilitate the integration of distributed generation and customers with energy storage capability.

Exhibit B1, Tab 1, Schedule 1, Section 1.3, Attachment 1 shows that 9%-16% of Hydro One customers prioritize upgrading the system to connect new customers, including those using energy storage.

Hydro One describes energy storage at Exhibit C1, Tab 1, Schedule 3, page 8, as one of "the most impactful disruptive technologies affecting utilities over the coming decade due to rapidly declining cost and mass production" and that it "has potential benefits to utilities in terms of peak load shifting (thereby having a positive effect on deferring asset replacement), frequency regulation (improving power quality for customers), reserve capacity (providing better reliability), and improved voltage support".

- a) Please describe how Hydro One has considered and implemented energy storage planning and investment into its DSP. Please provide a chart showing:
- (i) all instances where Hydro One has considered energy storage (as a solution, alternative to a wires investment, or otherwise);
 - (ii) whether or not the energy storage project was implemented;
 - (iii) if the energy storage project was not implemented, the reasons why it was not implemented;
 - (iv) if the energy storage project was implemented, the quantified system benefits, the deferred distribution investment, and the customer rate impact of the project; and
 - (v) all instances where Hydro One has considered and/or incorporated energy storage in its capital planning decision-making processes.

**ALL OF WHICH IS RESPECTFULLY
SUBMITTED THIS**

24th day of January, 2018



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