

August 29, 2018

**VIA COURIER, RESS and EMAIL**

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
2300 Yonge Street, 27<sup>th</sup> Floor  
Toronto, ON  
M4P 1E4

Dear Ms. Walli:

**Re: Upper Canada Transmission, Inc. (“NextBridge”) and  
Hydro One Networks Inc. (“HONI”)  
East-West Tie Line Project and Lake Superior Link Project  
Combined Hearing  
EB-2017-0182/EB-2017-0194/EB-2017-0364  
NextBridge Interrogatories to the Independent Electricity System Operator  
 (“IESO”)**

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In accordance with Procedural Order No. 1 dated August 13, 2018, enclosed please find interrogatories filed by NextBridge to the IESO in the above noted proceeding.

Yours truly,

(Original Signed)

Krista Hughes  
Senior Legal Counsel  
Enbridge Employee Services Canada Inc.

**Upper Canada Transmission Inc. (on behalf of NextBridge Infrastructure)  
Application for leave to construct an electricity  
transmission line between Thunder Bay and Wawa, Ontario**

- and-

**Hydro One Networks Inc.  
Application to upgrade existing transmission station facilities  
in the Districts of Thunder Bay and Algoma, Ontario**

-and-

**Hydro One Networks Inc.  
Application for leave to construct an electricity transmission line  
between Thunder Bay and Wawa, Ontario**

**WRITTEN INTERROGATORIES OF UPPER CANADA TRANSMISSION, INC.  
("NEXTBRIDGE") TO THE INDEPENDENT ELECTRICITY SYSTEM OPERATOR  
("IESO")**

**NextBridge-1**

Reference: The IESO's June 29, 2018 Addendum to the 2017 Updated Assessment for the Need for the East-West Tie Expansion - Reliability Impacts and the Projected System Costs of a Delay to the Project In-Service Date (hereinafter referred to as "IESO June 29, 2018 Report".)

Provide all work papers, including the electronic/active version of all spreadsheets, models, analyses, input files and documents, used, relied upon, referenced and/or created in the development of the IESO June 29, 2018 Report.

**NextBridge-2**

Reference: The IESO's June 29, 2018 Report at 1, lines 4-7.

Define what is meant by "reliability impacts".

### **NextBridge-3**

Reference: The IESO's June 29, 2018 Report at 1, lines 8-10.

- a) Identify all the categories of "additional costs" that were considered.
- b) Identify any types or categories of costs that were considered, but not included in the Report.

### **NextBridge-4**

Reference: The IESO's June 29, 2018 Report at 1, lines 8-10.

- a) Explain in detail what is meant by "increased risks to system reliability."
- b) Identify each risk to system reliability that was considered.
- c) Identify each risk to system reliability that was intentionally not considered.

### **NextBridge-5**

Reference: The IESO's June 29, 2018 Report at 1, lines 26-28.

Please provide a copy of the referred to Ontario planning criteria.

### **NextBridge-6**

Reference: The IESO's June 29, 2018 Report at 1, lines 26-28.

- a) Does the IESO need to reject the entire 150 MWs of load every time the existing East-West Tie line is out of service? If not, explain in detail your response.
- b) Explain in detail whether the rejection of the 150 MWs is related to or independent of the need to incur the capacity and energy replacement options and costs.
- c) Does the rejection of 150 MWs of load occur any time the line is out of service, including planned and forced outages? If no, explain your response in detail.
- d) Explain in detail whether the rejection of the 150 MWs of load is dependent on whether the load is near peak levels or is it at all times of the year at all load levels?
- e) Confirm that the phrase "provided load can be restored within 8 hours" means that the existing East-West Tie line has been restored to service. If not confirmed, explain in detail how load has been restored without the existing East-West Tie line being brought back into service, including whether there are

instances in which the East West Tie must be restored in order to bring back load.

- f) Provide all documents, analysis, and studies that support that the existing East-West Tie line can in all types of outages, including a tower collapse, be restored within 8 hours.
  - i. What actions would the IESO take if the existing East-West Tie line was out for an extended time (i.e., a week)?
  - ii. Would sustained load curtailment be a potential outcome of extended outage of the existing East-West Tie line?
- g) Confirm that the IESO would rather not be in the position of having to rely on the rejection of 150 MWs of load or any amount of load to maintain system reliability. If not confirmed, explain your response in detail.
- h) How long has the SPS been used as an “interim measure” for the loss of the existing East-West Tie line?
- i) In the past, has any load been rejected from the loss of the existing East-West Tie line?
- j) What type of load is contemplated to be included in the SPS and rejected for the loss of the existing East-West tie?
- k) In the past, what has been the outages and typical availability of the existing East-West line tie?
- l) Confirm that the IESO would rather not be in the position of relying on an SPS. If not confirmed, explain your response in detail at 1, lines 26-28.

### **NextBridge-7**

Reference: The IESO’s June 29, 2018 Report at 2, lines 9 through 3, line 11.

- a) For each option identified, did the IESO conduct a probabilistic assessment of the likelihood that the option would be available to be used during 2021 and 2022? If so, please provide the assessment. If not, please provide your opinion on the likelihood each of the options will be available for use during 2021 and 2022.
- b) Explain in detail whether the IESO would use one or a combination of the listed interim measures/options in 2021 and 2022.

### **NextBridge-8**

Reference: The IESO’s June 29, 2018 Report at 2, lines 9 through 3, line 11.

Explain in detail why the IESO would or would not need to implement one or more of the identified options once the new East West Tie line is in-service.

### **NextBridge-9**

Reference: The IESO's June 29, 2018 Report at 2 footnote 3

Preamble: IESO states that the 150-200 MW represented by the Manitoba import limit is not a real-time operating limit.

- a) Please provide a copy of the referred to planning criteria and reliability criteria.
- b) Confirm that no real-time limit was provided for the Manitoba import because the IESO cannot reasonably rely on a higher limit than 200 MWs and still be in compliance with or be consistent with the referred to planning criteria and reliability criteria. If not confirmed, explain in detail your response.
- c) Confirm that there are real-time limits on the Manitoba line that, at times, are lower than 150 MWs. If not confirmed, explain in detail your response.

### **NextBridge-10**

Reference: The IESO's June 29, 2018 Report at 2, lines 9 through 3, line 11.

Explain in detail under what system conditions would the identified options be needed to maintain system reliability.

### **NextBridge-11**

Reference: The IESO's June 29, 2018 Report at 3, lines 12-18.

Provide the criteria, if any, the IESO used to determine that its estimate of capacity cost was "reasonable."

### **NextBridge-12**

Reference: The IESO's June 29, 2018 Report at 3, lines 12-18.

- a) Confirm that a cost was not estimated for the outage of the existing East-West Tie line for the 15 day period that Hydro One under the Lake Superior Link project estimates it would take to construct its new quad circuit towers in Pukaskwa National Park. If so confirmed, provide an estimate of the capacity and energy costs associated with a 15 day and a 21 day outage of the existing East West Tie line, and add those costs to Table 2 and reproduce Table 2. If not confirmed, explain in detail your response.

- b) Explain in detail whether the rejection of 150 MW of load for only 8 hours planning criteria is consistent with allowing a planned outage of the existing East-West Tie line for 15 or more days to construct the quad circuit towers.

### **NextBridge-13**

Reference : The IESO's June 29, 2018 Report at 3, lines 12-18.

- a) Confirm that the societal (customer) cost associated with the rejection of 150 MWs of load for 8 hours was not estimated and included in the Report.
- b) Provide an estimate of the societal (customer) cost associated with the rejection of 150 MWs of load for 8 hours and add that cost to Table 2 and reproduce Table 2.

### **NextBridge-14**

Reference: The IESO's June 29, 2018 Report at 4, lines 1-4.

- a) How does the IESO compare the risk of acquiring interim measures pre-2022 to 2022 and beyond?
  - i. Please provide an analysis on how the risk was determined to be acceptable until the end of 2022.

### **NextBridge-15**

Reference: The IESO's June 29, 2018 Report at 4, lines 10-12.

What lead time does the IESO need to implement each of its interim options?

### **NextBridge-16**

Reference: The IESO's June 29, 2018 Report at 4, Table 1.

- a) Explain in detail how Project Cost and Projected Cost Range were calculated including the price(s) and number of hours estimated for the capacity purchases.
- b) Explain the significance, if any, of the inclusion of the Allowable Load Rejection Column.
  - i. If the Allowable Load Rejection column was eliminated, would that change the Project Cost column estimates? If yes, please reproduce Tables 1 and 2 with the Allowable Load Rejection column eliminated and the Projected Cost column recalculated.

### **NextBridge-17**

Reference: The IESO's June 29, 2018 Report at 4, lines 13-15.

- a) Confirm that the capacity cost estimate sensitivity did not take into account the stated concern that acquiring the interim options may come at a higher cost. Identify the highest capacity cost that could be required by one of the interim options.
- b) Incorporate that highest possible cost into Table 2 calculations and reproduce Table 2.

### **NextBridge-18**

Reference: The IESO's June 29, 2018 Report at 4, line 25 through 5, line 3.

- a) Identify the referred to Northern Ontario interfaces subject to congestion.
- b) Please provide the number of hours per year that it is estimated that low-cost hydro power will be unavailable in 2021 and 2022.

### **NextBridge-19**

Reference: The IESO's June 29, 2018 Report at 4, line 25 through 5, line 3.

Provide in detail how the energy replacement cost was calculated, including the estimated price and the number of hours the replacement energy was required to be purchased.

### **NextBridge-20**

Reference: The IESO's June 29, 2018 Report at 5, lines 4-7.

Confirm that no probabilistic scenarios were modeled with higher costs than \$.5 million (2017\$) per year. If not confirmed, provide the probabilistic scenarios, including an estimate for the high range of energy replacement costs and include that cost in Table 2 and reproduce Table 2. If confirmed, calculate a high range of energy replacement costs and include that cost in Table 2 and reproduce Table 2.

**NextBridge-21**

Reference: The IESO's June 29, 2018 Report at 5, Table 2.

Confirm that the appropriate reading of Table 2 is if the new East-West Tie Line is in service by the end of 2020, then approximately \$19 million dollars would be saved in 2021, and another \$23 million in 2022 for a total savings of \$42 million dollars in savings for those two years. If not confirmed, please explain your response in detail.

**NextBridge-22**

Reference: Hydro One March 29, 2018 Lake Superior Link Additional Evidence, page 6.

Preamble: For the long-term operation of the lines, Hydro One states that installation of the four-circuit line in the Park will not have a more adverse impact on overall reliability of the power system than the other alternative of having two separate double-circuit EWT lines.

Does IESO agree with this statement? If not, why not?

**NextBridge-23**

Reference: The IESO's June 29, 2018 Report.

- a) Confirm that the Report also shows that there are additional potential costs associated with the operation of Hydro One's quad transmission tower design through Pukaskwa National Park, because the loss of all four circuits would require the implementation of the same rejection of load and interim options as set forth in the Report. If not confirmed, explain you response in detail.
- b) Reproduce Table 2 and provide an estimate of the additional costs associated with replacement capacity and energy costs assuming the Hydro One quad transmission tower design was constructed and operational at the end of 2022, and the Hydro One quad tower design had a 1, 5, and 10 day outage during a typical peak period in the years 2023 and in 2024.

**NextBridge-24**

Reference: The IESO's June 29, 2018 Report.

- a) Confirm that, all other things being equal, from a reliability perspective and ability to serve load without interruption, the IESO would rather see two parallel



(existing and new) East West Tie lines in operation versus the Lake Superior Link proposal using approximately 90 quad circuit transmission towers. If not confirmed, explain your response in detail.

- b) Assuming the Lake Superior Link is in-service by the end of 2022, what is the maximum amount of hours or days that the Lake Superior Link quad circuits could be out of service during a typical system peak period without jeopardizing system reliability for (i) the years studied in the Report and (ii) when East-West Tie transfer capability is increased to 650 MW?
- c) Assuming the Lake Superior Link is in-service by the end of 2021, what is the maximum amount of hours or days that the Lake Superior Link quad circuits could be out of service during a typical system peak period without incurring a loss of load for (i) the years studied in the Report and (ii) when East-West Tie transfer capability is increased to 650 MW.
- d) Explain in detail how the load that relies on the Lake Superior Link project would be fed if all four circuits of the Lake Superior Link are out of service during a typical peak period.
- e) Explain in detail whether there is a different probability or level of risk for loss of load if only two circuits on the Lake Superior Link are out of service versus all four.

### **NextBridge-25**

Reference: The IESO's June 29, 2018 Report.

Has the IESO conducted any additional analyses or come into additional information that would change the results of the Report? If yes, please update the sections of the Report that are impacted by the additional analyses or information.