ONTARIO ENERGY BOARD

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

INDEPENDENT ELECTRICITY SYSTEM OPERATOR
SUBMISSION

Overview

Upper Canada Transmission Inc. (NextBridge) and Hydro One Networks Inc. (Hydro One) filed applications with the Ontario Energy Board (OEB) under section 92 of the *Ontario Energy Board Act*, *1998* (OEB Act).

The first application, filed by NextBridge, seeks an order granting leave to construct a new electricity transmission line between Wawa and Thunder Bay with a proposed in-service date of December 2020 (NextBridge-EWT Application)[1].

Hydro One filed two applications seeking an order granting leave to construct (i) a transmission line between the same two points as the NextBridge-EWT Application, with an in-service date

[1] EB-2017-0182

of the end of 2021 (Hydro One-LSL Application)[2], and (ii) the facilities necessary to upgrade existing transmission stations associated with the new transmission line (Hydro One-Station Upgrades Application)[3].

On August 13, 2018, the OEB issued Procedural Order No. 1 on Combined Hearing where the OEB combined the NextBridge-EWT Application, the Hydro One-Station Upgrades Application, and the Hydro One-LSL Application and set out procedural steps for hearing the three applications, including provisions for written submissions by October 31, 2018[4]. As such, the IESO's final submissions are provided below.

The IESO's evidence in this proceeding focuses on the in-service date for the East-West Tie Expansion (EWT Expansion) necessary to serve the emerging capacity need in the Northwest, the reliability impacts and costs associated with managing the capacity gap post-2020 (to 2024), and the reliability impacts of the respective projects. Accordingly, the IESO's submissions will address the following:

1. The IESO continues to recommend an in-service date of 2020 for the EWT Expansion;
2. There will be additional costs associated with a delay to the 2020 in-service date of the EWT Expansion;
3. The increased risks to system reliability of a delay in the EWT Expansion beyond 2022 are unacceptable, and there are also significant cost uncertainties associated with an in service date beyond 2022; and
4. Neither the NextBridge-EWT Application nor the Hydro One-LSL Application have a material adverse impact on the reliability of the integrated power system provided they comply with the requirements set out in their respective System Impact Assessments (SIA).

The IESO continues to recommend an in-service date of 2020 for the EWT Expansion

The IESO plans the electricity system according to applicable planning standards including NERC TPL-001-4[5] issued by the North American Electric Reliability Corporation (NERC) and

[2] EB-2017-0362
[3] EB-2017-0194
[4] EB-2017-0182, EB-2017-0194, EB-2017-0364, Procedural Order No. 1, page 5
[5] IESO response to NextBridge Interrogatory 9, Attachment 1 - Transmission System Planning Performance Requirements

the Northeast Power Coordinating Council, Inc's (NPCC) Directory 1[6]. In addition to these broader North American reliability standards, the IESO also plans the electricity system to Ontario-specific planning standards prescribed by the Ontario Resource and Transmission Assessment Criteria (ORTAC)[7].

As noted in the IESO's 2017 Updated Assessment for the Need for the East-West Tie Expansion (2017 Update Report), there is a capacity need that emerges in 2020 that is expected to exceed the allowable level of load rejection as prescribed in ORTAC , section 7.1[8]. As a result, the solution to meet this capacity need, the EWT Expansion, is required in service at this time. The EWT Expansion continues to be the IESO's recommended option to maintain a reliable and cost-effective supply of electricity to the Northwest for the long term[9]. To the extent, the EWT Expansion cannot be in-service in 2020[10], interim measures must be taken.

There will be additional costs associated with a delay to the in-service date of the EWT Expansion past 2020

As previously stated, there is a capacity need that emerges in the Northwest after 2020[11] that the IESO can no longer manage through the use of load rejection alone. ORTAC, section 7.1 allows for the use of load rejection of 150 MW and the capacity gap after exceeds that level. Therefore, in order to maintain reliability of the Northwest system and comply with Ontario planning standards, the IESO will take the necessary actions to acquire the required additional capacity if the EWT Expansion is not in-service in 2020[12].

There are a number of potential interim measures that may be used to address the additional capacity requirement post-2020[13] and there is a range of additional costs associated with these potential interim measures. These potential interim measures include demand response, firm imports from Manitoba, and contract extensions with existing resources. Table 1 in the IESO's

[6] IESO response to NextBridge Interrogatory 9, Attachment 2 - Design and Operation of the Bulk Power System
[7] IESO response to NextBridge Interrogatory 5, Attachment 1
[8] IESO's Addendum to the 2017 Update Report, page 2, Figure 1
[9] IESO's 2017 Update Report, page 2
[10] The IESO acknowledges Hydro One's letter of October 29, 2018 indicating that an in-service date of 2020 is not possible for either proponent of the transmission line.
[11] IESO's Addendum to the 2017 Update Report, page 2, Figure 1
[12] IESO's Addendum to the 2017 Update Report, page 4
[13] Ibid

Addendum to the 2017 Update Report, reproduced below, identifies the projected cost of the incremental capacity requirements.

Table 1 Projected Cost of the Incremental Capacity Requirements (2020-2024)

Year	Requirement (MW)	Allowable Load Rejection (MW)	Incremental Requirement (MW)	Projected Cost (2017$ millions)	Projected Cost Range (2017$ millions)
2020	239	150	89	$16	$7 to 20
2021	251	150	101	$18	$8 to 23
2022	272	150	122	$22	$9 to 27
2023	360	150	210	$38	$16 to 47
2024	394	150	244	$44	$19 to 55

As shown in Table 1, if the EWT Expansion is not in service in 2020, the projected annual cost of the incremental capacity requirements for the Northwest ranges from $7 million to $27 million up to 2022 and further increases to up to $55 million post-2022[14]. The increased projected annual costs associated with the 2023 and 2024 period are a result of the need to acquire an increasing number of interim measures to meet the growing capacity need of the Northwest.

The increased risks to system reliability as a result of the EWT Expansion not being in service by the end of 2022 are unacceptable and the associated cost uncertainty increases significantly

As noted in the IESO's Addendum to the 2017 Update Report, to the extent the delay to the EWT Expansion extends beyond 2022, the risk of being unable to manage the capacity need through interim measures and the cost of managing the associated risk will substantially increase[15]. This is due to:

- A step change in the capacity need, requiring more capacity to be acquired;
- The need for an increased number of interim measures to be implemented to meet the increased capacity need. As more interim measures are required the risk that the IESO may not be able to implement the required number of interim measures increases; and
- With multiple interim measure required after 2022, cost uncertainties increase, especially around contract extensions[16].

[14] IESO's Addendum to the 2017 Update Report, page 4, Table 1
[15] IESO's Addendum to the 2017 Update Report, page 3
[16] Ibid

It is the IESO's opinion that there is a real risk that the IESO may not be able to acquire the needed capacity if the EWT Expansion is delayed beyond 2022. For this reason, as well as the associated cost uncertainty, the IESO strongly recommends that the EWT Expansion not be delayed beyond 2022.

Neither the NextBridge-EWT Application nor the Hydro One-LSL Application have a material adverse impact on the reliability of the integrated power system provided they comply with the requirements set out in their respective SIAs.

As part of its assessment of reliability, the IESO conducts SIAs of proposed new connections to the IESO-controlled grid. SIAs were completed for both the NextBridge-EWT Application and the Hydro One-LSL Application. As a result of these assessments, the IESO determined that neither project poses any adverse impact to the reliability of the IESO-controlled provided the projects comply with the conditions included in their SIAs.

SIAs contain requirements applicable to all transmitters, as well as project-specific conditions. The NextBridge-EWT Application SIA contains the usual requirements applicable to all transmitters, as well as a few additional requirements pertaining to the project.

The Hydro One-LSL Application SIA contains the same requirements included in the NextBridge-EWT Application SIA as well as two additional requirements:

1. A restoration plan is to be submitted that is acceptable to the IESO and that documents the restoration options for the EWT corridor and describes how the circuits will be restored following contingencies such as the loss of the towers; and
2. At least 24 months before the commencement of system-impactive project related outages, an outage plan, acceptable to the IESO, is to be submitted for the installation of the 35 km section of the project between Wawa TS and Marathon TS where the existing double circuit towers will be replaced with quadruple circuit towers[17].

These two additional requirements are included due to the IESO's limited experience with quadruple circuit towers in the Northwest. These requirements, if met, satisfy the IESO that the Hydro One-LSL Application can be operated reliably[18].

[17] SIA – Hydro One-LSL Application, pages 2-3
[18] Combined Hearing Transcript, Volume 4, October 9, 2018, page 112

Conclusion

The IESO continues to recommend an in-service date of 2020 for the EWT Expansion, which is when the capacity need in the Northwest exceeds the allowable level of load rejection per ORTAC, section 7.1. If the EWT Expansion is not in service by 2020, the IESO will take the necessary interim measures to acquire the required additional capacity.

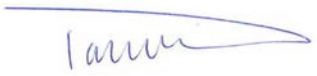
There will be additional costs associated with a delay to the recommended 2020 in-service date of the EWT Expansion. The annual costs associated with a delay to the in-service date of the EWT Expansion ranges from $7 million to $55 million, depending on the interim measure(s) implemented.

Beyond 2022, the number of interim measures that would need to be employed and the risks associated with acquiring multiple interim measures increase the overall reliability risk to the Northwest and increase the associated cost uncertainties. The increased risk to reliability of delaying the EWT Expansion beyond 2022 is unacceptable. For this reason, as well as the heightened cost uncertainty, the IESO strongly recommends not delaying the in-service date of the EWT Expansion beyond 2022.

Finally, so long as the associated requirements in the SIAs for each of the NextBridge-EWT Application and the Hydro One-LSL Application are met, there will not be an adverse impact on the reliability of the IESO-controlled grid.

All of which is respectfully submitted.

Yours truly,



Tam Wagner

Senior Manager, Regulatory Affairs