

Hydro One Networks Inc.

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BY COURIER

May 11, 2018

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: EB-2017-0364 - Hydro One Networks Inc.'s Section 92 – Lake Superior Link Project –
Correction of Evidence**

Further to the additional evidence filed by Hydro One Networks Inc. on May 11, attached is a blue page providing corrections of minor errors and omissions identified on page 23 of the prefiled evidence.

Yours very truly,

ORIGINAL SIGNED BY MICHAEL ENGELBERG

Michael Engelberg

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**LAW**

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BY COURIER

May 7, 2018

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: EB-2017-0364 - Hydro One Networks Inc.'s Section 92 – Lake Superior Link Project -
Additional Evidence**

Pursuant to Procedural Order 1, please find enclosed Hydro One's additional evidence in the above-mentioned proceeding, inclusive of the following attachments.

Attachment 1	EB-2010-0059 Board Policy: Framework for Transmission Project Development Plans
Attachment 2	Final Customer Impact Assessment – Lake Superior Link & East-West Tie Station Projects
Attachment 3	Hydro One's Licence of Occupation
Attachment 4	Parks Canada Pukaskwa National Park Licence Communication
Attachment 5	Project Overview – Potential Infrastructure Alteration and Renewal – Pukaskwa National Park
Attachment 6	Pukaskwa National Park Environmental Evaluation – Hydro One Right-of-way Maintenance Activities
Attachment 7	Construction Execution Plan – Hydro One Lake Superior Link Project – Pukaskwa National Park
Attachment 8	MOECC Letter to Hydro One Dated April 10, 2018
Attachment 9	Ministry of Energy Letter to Hydro One dated March 2, 2018
Attachment 10	Hydro One Letter to Six First Nations Partners of BLP - February 16, 2018
Attachment 11	Hydro One Letter to First Nations and Métis Communities – April 30, 2018
Attachment 12	Correspondence Regarding Hydro One's Accommodation – April 12, 2018
Attachment 13	Correspondence to Six BLP Member Chiefs on Equity – May 2, 2018
Attachment 14	IESO's Second Need Update Report – May 5, 2014
Attachment 15	OPA Letter – September 30, 2014

Attachment 16	Curricula Vitarum
Attachment 17	Double Circuit Bypass Design
Attachment 18	Notice of Commencement
Attachment 19	MOECC Email to Hydro One – May 4, 2018

Hydro One notes that the Final Customer Impact Assessment is included in this submission as Attachment 2.

This filing has been filed with the Board using the Regulatory Electronic Submission System and hard copies of such will be filed with the Board.

Yours very truly,

ORIGINAL SIGNED BY MICHAEL ENGELBERG

Michael Engelberg

EB-2017-0364: HYDRO ONE ADDITIONAL EVIDENCE

INTRODUCTION & SUMMARY

The following information is provided to the Ontario Energy Board in response to Procedural Order No. 1 in the above-mentioned proceeding.

Hydro One's s. 92 Leave to Construct application to build the Lake Superior Link is the first made by Hydro One pursuant to the OEB's EB-2010-0059 Policy: Framework for Transmission Project Development Plans ("the Designation Policy"), which is provided as Attachment 1.

The Policy was initiated to reduce transmission costs, based on the belief that competition in transmission in Ontario would drive economic efficiency for the benefit of customers. In the matter of the tie line that is the subject of the two s. 92 applications now before the OEB, the OEB did not limit the competition aspect to the development phase of the Project: rather, the competition also included the construction and ownership phase. In its Decision in phase 2 of the Competitive Designation proceeding¹, the OEB wrote:

"Designation does not carry with it an exclusive right to build the line or an exclusive right to apply for leave to construct the line."

As a result of the developer designation proceeding, NextBridge was designated to complete the development component of the project based on NextBridge's forecast cost of \$22.2M in development costs and \$378-409 million construction costs.

Both Hydro One and NextBridge have filed s. 92 applications to build the line, but there are two main differences between the applications.

I. Project Capital and OM&A Cost

Hydro One has submitted an application to construct the project with a capital cost of \$636.2 million. NextBridge has filed an application that will have a capital cost in excess of \$779.7 million², which is nearly double what NextBridge originally provided to the OEB and the value considered by the OEB in making its decision to award the development phase designation.

Hydro One has submitted an application for a project that will have ongoing OM&A costs of approximately \$1.3 million/year. NextBridge has filed an application for a project that will have ongoing OM&A costs of \$4.7 million/year³.

¹ EB-2011-0140 – Decision and Order – August 7, 2013

² Includes \$737 million in construction costs provided in EB-2017-0182 Exhibit B, Tab 9, 1, and NextBridge's Extended Development Period Budget cost estimate of \$42.7 million provided in EB-2015-0216 on Page 8 – July 24, 2017.

³ EB-2017-0182 – I.B.NextBridge.Staff30 – January 25, 2018

II. In-Service Date

Hydro One's project forecasts an in-service date of December 2021. NextBridge's project forecasts an in-service date of December 2020.

Hydro One's evidence is that a one-year delay in the IESO's recommended 2020 in-service date is manageable. Ontario's northwest transmission system today has a capacity shortfall of 100 MW according to the IESO's planning criteria and assumptions. In 2020 that capacity shortfall is forecast to have grown to 240 MW; and in 2021 the expected shortfall is 250 MW.

In 2015, the IESO forecast 300 MW capacity shortfall in 2020, but at the same time the IESO recommended delaying the in-service date to 2020. It is apparent that the IESO believed that a capacity shortfall of 300MW was manageable to ensure a safe and reliable transmission system. Hydro One's evidence is that a capacity shortfall of 250 MW is clearly manageable.

The cost savings in Hydro One's proposal are a function of Hydro One's lower construction costs and the optimized route through Pukaskwa National Park ("the Park"), resulting in the best use of existing infrastructure and a substantially reduced environmental impact by taking approximately 50km off the overall line length and the use of far less greenfield area.

Hydro One's evidence is also that even if Hydro One were to follow the exact same route that NextBridge has proposed, the cost of the Hydro One line would still deliver significant cost savings to Ontario ratepayers. Following the NextBridge route would increase the cost of the Hydro One proposal by \$40.7 million, to \$676.9 million, still resulting in capital savings of \$100 million⁴ and OM&A savings of \$3 million per year, when compared to the NextBridge proposal.

In Procedural Order No. 1, the OEB asked Hydro One to provide additional evidence to respond to questions asked by the OEB. Hydro One is responding to these and to the evidence filed by NextBridge on April 30, 2018.

Hydro One's evidence is that it has provided a technically safe and sound transmission solution that is also innovative: the Designation Policy encouraged transmitters to propose innovative solutions.

Parks Canada has raised no objection to Hydro One's Project route through the Park, and Hydro One is in the process of obtaining all necessary approvals. Final approvals are expected well within the established schedule provided in Hydro One's evidence.

Regarding the matter of Ontario environmental assessment ("EA"), Hydro One has two options for satisfying this requirement. One option is by obtaining a Declaration Order to exempt Hydro One from Individual EA requirements, upon the MOECC's approval of the NextBridge EA. The other option is for Hydro One to obtain its own Individual EA, and Hydro One has submitted a Notice of Commencement for Hydro One's Terms of Reference in pursuit of this second option. Either of Hydro One's solutions will result in far less environmental impact than the NextBridge proposal, and both options will allow Hydro One to have its alternative in-service by December 2021.

Hydro One's evidence is also that it has engaged Indigenous Communities and is offering a 34% ownership stake in the Hydro One project, as well as other benefits to those Communities, including more sustained employment opportunities for individuals looking to train and work as part of the

⁴ This is relative to the \$777,181,000 costs documented by NextBridge in Exhibit B, Tab 9, Schedule 1 of EB-2017-0182 – Filed: July 31, 2017

Hydro One project. The benefits to Indigenous Communities of the Hydro One project are superior to those offered by NextBridge.

Hydro One's application is complete and complies with OEB Filing Requirements. Where written evidence was unavailable at the time of filing due to the expeditious nature in which Hydro One had to develop its prefiled evidence, Hydro One provided justification, in accordance with section 13.03 of the *OEB Rules of Practice and Procedure*, as to when those pieces of evidence would be filed. Those pieces of evidence, namely the System Impact Assessment and Customer Impact Assessment, have been filed and have been part of the record since March 29, 2018⁵. The in-service date and the evidence supporting that date have also been filed with the OEB for its consideration. There is no further information required to meet the filing requirements of the OEB for leave to construct applications. Hydro One's application is complete.

In summary, Hydro One's proposal, as filed, is the far superior solution for all Ontario customers, and all necessary prerequisite approvals (such as EA) are achievable. As stated above, even if Hydro One were to follow the NextBridge route, the cost of the Hydro One project would still be substantially lower than that of the NextBridge proposal.

ADDITIONAL EVIDENCE ON OEB QUESTIONS

ROUTING

- a. **Please provide copies of all Hydro One existing arrangement(s) with Parks Canada that pertain to the use of the corridor for Hydro One's existing transmission line in Pukaskwa National Park.**

Hydro One owns and uses the existing multi-circuit 230 kV steel tower transmission line that passes through the Park. The line was constructed in the late 1960s, before the Park was established. Hydro One's rights are pursuant to its overholding on a Licence of Occupation (the "Licence") which is renewed regularly and is currently in the process of renewal with Parks Canada pursuant to the past practice of successive renewals. The Licence is provided as Attachment 3. By the consent, and with the acknowledgement of, Parks Canada and Hydro One, the most recent Licence remains in place until the renewal is completed. Communications regarding this consent and ongoing negotiations to renew the Licence is provided in Attachment 4.

- b. **What is the status of discussions between Hydro One and Parks Canada regarding permission for Hydro One to reinforce its existing transmission towers in Pukaskwa National Park?**

The terms of the most recent Licence permit the maintenance and modification of existing facilities within the Park. Hydro One has been engaging with Parks Canada since September 5, 2017, and Parks Canada remains supportive of the LSL Project and is working collaboratively with Hydro One to undertake the necessary environmental impact assessments and studies. In November 2017, Parks Canada verified in writing that they have no objections to the Project, as provided in Hydro One's prefiled evidence at Exhibit C, Tab 1, Schedule 2, Attachment 2.

⁵ The Final Customer Impact Assessment is filed as Attachment 2 of this submission but has not changed since the Draft Customer Impact Assessment was filed on March 29, 2018.

The Hydro One Licence through Pukaskwa National Park allows for “operating, maintaining, inspecting, altering, renewing, replacing or repairing an electrical transmission line and equipment necessarily incidental thereto”⁶.

The following is a chronology of key correspondence, meetings, and submissions.

Date	Correspondence/Meeting/Submission
September 13, 2017	Teleconference between Hydro One, SNC-Lavalin and Parks Canada - Presented Hydro One’s initial overview of project - Discussed Parks Canada’s rejection of NextBridge’s proposal, which could not be contemplated because it would be considered to be new development under the <i>Canada National Parks Act</i> - Determined that the key point going forward was to determine whether Hydro One’s proposal was considered a new development - Agreed to meet in late September to discuss further
September 29, 2017	In person meeting at Pukaskwa National Park – Hydro One, SNC-Lavalin, Parks Canada - Conducted a detailed project discussion with Parks Canada to identify potential areas of concern and provide sufficient comfort to Parks Canada staff to enable Parks Canada to seek a timely legal opinion on the proposed upgrade to existing transmission facilities within Pukaskwa National Park - Agreed formal project overview to be provided by Hydro One for evaluation by Parks Canada and preparation of a formal response
October 13, 2017	Submission of Project Overview provided by Hydro One for evaluation by Parks Canada – Attachment 5.
November 20, 2017	Teleconference between Hydro One, SNC Lavalin, Parks Canada (finalized minutes of meeting available) - Discussed Project Overview and what type of assessment would be required under licence agreement to meet federal EA requirements; Parks Canada felt it might be a basic impact analysis not detail but would confirm once more detail received - Parks Canada requested a detailed construction plan be submitted - Discussed, community consultation, renewing licence agreement, access agreements, research permits, collaboration on studies, information sharing
November 27, 2017	Parks Canada correspondence to Hydro One Parks Canada verified in writing that that they did not object to the Project (as provided in Hydro One’s prefiled evidence at Exhibit C, Tab 1, Schedule 2, Attachment 2)
January 19, 2018	Hydro One submission of Environmental Evaluation Report to Parks Canada in support of the Licence renewal (Attachment 6).
February 12, 2018	Hydro One submission of Construction Execution Plan to Parks Canada in accordance with Article 8.01 of the Licence (Attachment 7).

⁶ Article 2.01 (a) of the Licence, provided as Attachment 3 of this submission

c. When is a final decision expected from Parks Canada?

The Licence requires compliance with applicable environmental law wherein any required environmental assessments will be conducted in accordance with the *Canadian Environmental Assessment Act* (CEAA). The Licence renewal triggers the need for either a Basic or a Detailed Impact Assessment, under section 67 of CEAA.

Hydro One has already commenced some of the required environmental studies, including a caribou study, in cooperation with Parks Canada. A meeting with Parks Canada is scheduled for May 9, 2018, to discuss Environmental Study Workplans. The remaining studies will begin near the end of May 2018 and progress throughout the summer. Final reports are expected at the end of September or early October 2018. It is anticipated that final approvals required from Parks Canada will be received once they have reviewed the studies completed within the Park boundaries and the Impact Assessment is finalized. Based on the current schedule, approval from Parks Canada is anticipated to be in late 2018.

Additionally, the Ministry of Energy wrote in a letter dated March 2, 2018, that Hydro One's proposed Lake Superior Link Project may have the potential to affect First Nation and Métis communities who hold or claim protected aboriginal or treaty rights within the Park or in close proximity thereto. Hydro One recognizes the importance of consultation with Indigenous communities in connection with the Lake Superior Link Project. Hydro One, together with its construction partner, SNC-Lavalin, will undertake consultation on all aspects of the project, including the portion that goes through the Park. In fact, Hydro One and SNC-Lavalin met with the six member First Nations of Bamkushwada Limited Partnership on April 6, 2018 and delivered a presentation describing Hydro One's proposed project, including its consultation principles. Hydro One's Indigenous consultation process is designed to provide relevant project information to Indigenous communities proximate to the Project in a timely manner. The process enables affected Indigenous communities to review, consider and raise issues, concerns and questions they may have with the Project. The process also allows Hydro One to respond clearly and transparently to any concerns or questions raised.

d. How would cost estimates and the proposed in-service date for the Lake Superior Link change if Parks Canada were to refuse to permit Hydro One to reinforce its existing line through Pukaskwa National Park?

In the unlikely event that Parks Canada were to refuse to permit Hydro One to reinforce its existing line through Pukaskwa National Park, thus restricting Hydro One to follow NextBridge's route as detailed in the currently filed IEA, costs would increase but would still be far below those of NextBridge.

The cost for this route deviation would be in the order of \$40.7M, increasing Hydro One's total costs to \$676.9 million. Despite this increase, an overall capital savings of approximately \$100 million⁷ would persist. Additionally, if Hydro One were forced to follow the NextBridge route, OM&A costs would increase by \$130k per year. Again, despite the increase, recurring OM&A costs would still be \$3 million less than the NextBridge alternative.

The proposed in-service date of December 2021 will not change, provided that all other milestones detailed in Exhibit B, Tab 11, Schedule 1 of the Application are met. Additionally, EA studies

⁷ This is relative to the \$777,181,000 costs documented by NextBridge in Exhibit B, Tab 9, Schedule 1 of EB-2017-0182 – Filed: July 31, 2017

underway for the project will also encompass the potential to follow the existing NextBridge route as a potential alternative for the LSL should the Board decide that this is the best alternative for Ontario ratepayers.

e. What reliability impacts to transmission service might arise from the reinforcement of the existing transmission towers in Pukaskwa National Park, both during construction and in the long-term operation of the line?

Hydro One has proposed to replace around 90 towers that support approximately 35 km of the existing double-circuit EWT line in the Park, with new four-circuit towers to accommodate both the existing and new line within the existing right-of-way.

During construction, for two weeks in 2020, the existing EWT line between Wawa and Marathon will be outaged to remove and replace the existing towers and reinstall the existing line on the new towers. Hydro One has had initial discussions with the IESO and will satisfy the SIA requirement that Hydro One submit plans and schedules for the outage two years in advance. This will allow the IESO and Hydro One to assess the impact of the outage, coordinate other impactive outages in the area to reduce the risk to system reliability, and prepare action plans and communication plans with neighbouring transmission operators. Initial reviews and discussions show that the risk of a two-week outage of the existing line is manageable.

Hydro One's plan is to install the new line in the Park in 2021, on the four-circuit towers, with outages to one of the two existing EWT circuits at a time. As these outages are required only to ensure stringing safety, emergency restoration to service of the outaged line can be done in hours. Hydro One and SNC-Lavalin have extensive experience and knowledge of construction in proximity to live and existing transmission lines and are confident that the work can be carried out safely and without significant risk to system reliability.

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. The reasons for this assessment are as follows:

- i. For over 90 years, Hydro One has installed hundreds of three-circuit and four-circuit towers that carry a combination of 500 kV, 230 kV and 115 kV circuits. Examples include Longwood TS to Macksville Jct and Burlington TS to Beach Rd Jct four-circuit installations. There have been no incidents of failures of any four-circuit installation (towers and their foundations). In addition, Hydro One and SNC-Lavalin have a wealth of knowledge and experience in designing and operating four-circuit lines that provide safe and reliable electricity worldwide.
- ii. The exiting EWT line is approximately 50 years old and was designed to withstand "one-in-50-year" storms. The new four-circuit line in the Park will be stronger and designed for "one-in-100-year" storms. This means that the likelihood of a severe storm in the future damaging the existing line (and leaving east-west connected only by the new EWT line) will be less as a result of using the new stronger towers to replace the existing line in the Park.
- iii. In the unlikely event of failure of the four-circuit towers, Hydro One has extensive knowledge and experience in outage restoration. Hydro One has response teams in Thunder Bay, Marathon, and Sault Ste. Marie, a fleet of helicopters at Thunder Bay and other locations in the North, and close to 265 trades staff which provide Hydro One with a unique capability for timely restoration of any potentially damaged facilities. This applies not only to the long-

term operation of the four-circuit line in the Park, but more importantly, to the operation of the entire 400 km of the new EWT line from Wawa to Thunder Bay.

The NextBridge proposal for a new double-circuit line going around the Park would still be in close proximity to the existing EWT line for approximately 200 km, half the length of the lines from Wawa to Thunder Bay. Therefore, if a severe storm that could potentially cause outages and major damage to the four-circuit line in the 35 km distance through the Park were to occur, it would have the same potential to cause outages and major damage to both the existing and new EWT lines at other locations along the route and would not be a material risk that is unique to the Hydro One solution. However, only Hydro One has the experience (over 100 years of transmission experience), staff and facilities in Northern Ontario to effectively respond to such events and restore both lines if they are damaged. The experience with restorations in the past, as well as the installation of the new four-circuit line in the Park and the new double-circuit line over the rest of the route, enable Hydro One to plan and be prepared for responding to any potential failures in the future to ensure timely restoration of facilities damaged by severe storms.

Lastly, Hydro One states that the preference, at the beginning of the designation phase of this Project, was that the entire 400 km of the new EWT line be adjacent to the existing line. The OEB asked the Designated Transmitter to try to route the new line through the Park to reduce the length and cost of the line. This preference was weighed in parallel with potential, yet unlikely, reliability concerns now being reconsidered in this request. To address the reliability concerns, Hydro One's Lake Superior Link has a tower design that withstands "one-in-100-year" storms as stated in point two above.

ENVIRONMENTAL ASSESSMENT WORK

a. What is the status of discussions between Hydro One and the Ministry of the Environment and Climate Change regarding any exemption to Environmental Assessment Act requirements?

Hydro One has and will continue to have meetings with the Ministry of Environment and Climate Change (MOECC) regarding regulatory mechanisms that are available in connection with Hydro One's Lake Superior Link (LSL) Project. Meetings with MOECC staff have been taking place since August 23, 2017, and up to and including March 26, 2018, and have included both MOECC and Hydro One staff. Some of these meetings were initiated by the MOECC and some also included representatives from the Ministry of Energy (MoE) and Ministry of Natural Resources and Forestry (MNRF).

In its April 10, 2018, letter to Hydro One, provided as Attachment 8 to this submission, MOECC stated that "If Hydro One chooses to pursue an alternative regulatory mechanism instead of completing the Individual Environmental Assessment process for the proposed project, Hydro One is encouraged to refer to the ministry's website for more information on these processes. Specifically, for information relating to Declaration Orders please visit the Environmental Assessment Declaration Orders webpage." [Emphasis Added]

Based on its meetings with the MOECC, two options were identified to allow Hydro One to meet its EA obligations for the LSL Project: an Individual Environmental Assessment (EA); or a Declaration Order. MOECC has confirmed, on numerous occasions and in writing, that both options are open to Hydro One, as they would be to any proponent under the *Environmental Assessment Act* (the *Act*).

Option 1: Declaration Order

This option exempts a proponent from an Individual EA and is based on approval of the Minister of the Environment and Climate Change, and Cabinet.

A Declaration Order is provided for under Section 3.2 of the *Act* and allows the Minister to declare that the *Act*, the regulations, or a matter provided for under the *Act* does not apply. This requires the approval of the Lieutenant Governor in Council, or of such ministers of the Crown as the Lieutenant Governor in Council may designate.

Declaration Orders are usually considered when the proposal is in the public interest; where potential environmental effects are likely to be minimal; and where environmental impacts are already being adequately addressed.

Having regard to these guidelines, Hydro One believes that the proposed LSL Project is a strong candidate for a Declaration Order for the following reasons:

- The proposal is in the public interest. The proposed savings of over \$100 million in capital costs and additional \$3 million in annual operating costs are of significant benefit to electricity customers and the Province. The avoidance of further costs associated with, in essence, duplicating EA work already completed is also in the public interest. This avoidance of duplication of effort is also consistent with the OEB Policy EB 2010-0059, which states, on page 3, “In devising this process, the Board has sought to avoid duplication and unnecessary effort for transmitters, Board staff and other stakeholders”.
- The potential environmental effects of the LSL Project routing are expected to be minimal. In fact, the proposed LSL Project route reduces the linear distance of line proposed by NextBridge by approximately 50 km and reduces the required corridor width by approximately 50%. No widening would be required within the Park. The route through the Park was actually the very same reference route utilized by NextBridge in the Designation Phase of the Project¹. This was originally NextBridge’s preferred alternative since it is less impactful to the environment. However, NextBridge does not have permission from Parks Canada to proceed with this route because twinning the corridor would be considered as new development by Parks Canada and is not permissible. Hydro One is able to utilize its existing corridor pursuant to its current Licence Agreement with Parks Canada, thus reducing the environmental impact of the Project
- The environmental impacts of the proposed LSL Project will already be adequately addressed through the existing EA submitted by NextBridge, which assesses approximately 78% of the proposed Hydro One LSL Project route. Additional studies and consultation, which are currently being conducted by Hydro One, will address any differences in the proposed LSL Project.

Furthermore, the proposed LSL Project route follows lands already disturbed by existing infrastructure, which is consistent with best practice in Ontario. Based on the Provincial Policy Statement (2014) under the *Planning Act* (Section 1.6.3) “Before consideration is given to developing new infrastructure and public service facilities:

- a) the use of existing infrastructure and public service facilities should be optimized; and
- b) opportunities for adaptive re-use should be considered, wherever feasible.”

Hydro One also notes that the *Electricity Act, 1998* addresses corridor lands. Section 1(j) says:

The purposes of this Act include the following:

- (i) To protect corridor land so that it remains available for uses that benefit the public, while recognizing the primacy of transmission uses.*

Further Section 114.7 says:

A person or entity who has the statutory right to use corridor land shall, to the extent practicable, ensure that the design and construction of any transmission system on the land maximizes the area available for other uses.

Hydro One's proposed LSL would yield a 50% smaller environmental footprint relative to the NextBridge proposal. Even if Hydro One were required to follow the NextBridge route in its entirety, Hydro One's proposed LSL would still yield an approximately 37% smaller environmental footprint due to the structure design and narrower right-of-way requirements.

Hydro One expects to be in a position to request a Declaration Order no later than December 2018, by which time the NextBridge EA is expected to be approved, which is a prerequisite, according to advice from MOECC, for Hydro One to proceed with the Declaration Order.

Hydro One has allowed at least six months for MOECC approval once the application for the Declaration Order is submitted. If the MOECC makes a decision to issue a Declaration Order, this will be posted on the Environmental Bill of Rights Registry for a minimum of 30-45 days for public comment, and Cabinet will then need to approve the MOECC's decision to make a Declaration Order. By nature, Declaration Orders generally have an expedited approval process and timeline.

Option 2: Individual EA

Hydro One continues to believe that a Declaration Order is an appropriate regulatory measure for Hydro One's LSL Project, as it avoids the unnecessary cost and duplication associated with completion of an Individual EA and considers the interest of electricity customers and the Province. However, in parallel, and in the event that a Declaration Order is not granted, an Individual EA has been commenced and is underway. Specifically, Hydro One has submitted a Notice of Commencement⁸ for the LSL Terms of Reference (TOR) to MOECC for review.

Hydro One generally concurs with the schedule provided in the NextBridge submission (Attachment A, Appendix 14) and agrees that the Hydro One Individual EA process could be completed by July 2019. In this regard, Hydro One has already commenced its Individual EA. Several of the required studies in respect of those portions of the proposed LSL Project route, which differ from those of NextBridge, have already been commenced and/or completed and consultation has also been commenced. In fact, some of those consultations began as far back as September of 2017. Further, Hydro One's Notice of Commencement has been submitted to the MOECC and its receipt acknowledged by the MOECC with a timeline for response provided by the MOECC to Hydro One⁹.

- b. What are the implications for Hydro One's proposed project if no exemption is forthcoming or if it cannot avail itself of the environmental assessment work performed by NextBridge?**

⁸ Notice of Commencement dated May 2, 2018 from Hydro One to MOECC, provided as Attachment 18.

⁹ Email dated May 4, 2018 from MOECC to Hydro One, provided as Attachment 19.

Exemption Implications

If no “exemption”, such as a Declaration Order, is obtained despite the compelling case and significant cost savings to ratepayers and the improved environmental footprint, Hydro One will continue to proceed with the Individual EA in respect of which a Notice of Commencement for a Terms of Reference has already been submitted to the MOECC for review. Referencing the schedule provided by NextBridge in its evidence (Appendix 14), Hydro One could complete this process by July 2019, thereby meeting the proposed construction schedule.

Several of the required studies in respect of those portions of the proposed LSL Project route, which differ from those of NextBridge, have already been commenced and/or completed and consultation has also been commenced. In fact, some of those consultations began as far back as September of 2017. Further, Hydro One’s Notice of Commencement has been submitted to the MOECC and its receipt acknowledged by the MOECC with a timeline for response provided by the MOECC to Hydro One.

It is likely that this Individual EA process could be even further expedited. Based on a review of the existing NextBridge Terms of Reference, the same scope would be applicable to the proposed LSL Project route. In fact, the preferred route in the NextBridge Terms of Reference was through the Park.

Reliance on the NextBridge EA

There is no reason why Hydro One cannot avail itself of the NextBridge EA as there is nothing that factually or legally prevents Hydro One from relying on the publicly available information in the NextBridge EA. There can be no claim of confidentiality over the EA since the *Act* makes it clear that the assessment is a public document that may be accessed by anyone (Section 6.4 of the *Act*). Further, the NextBridge EA has been made publicly available for review and consideration by the public. Hydro One does not intend to reproduce or publish the NextBridge EA or studies, merely to reference them as already completed. Hydro One does intend to verify/validate technical information and will be completing its own studies in those areas where the proposed LSL Project route varies from that of NextBridge.

It is clear from the OEB’s 2013 Designation Order for the tie line that the development work, which included the EA work and work product, was for the benefit of the line construction, and for the benefit of whoever might be designated to construct the line. It would have been expected that the party chosen to construct the line, if different from the party designated to complete the development work, would not repeat or reproduce all of the development work, except to the extent of any differences in route. There is no reason for, or benefit to, duplicating studies that have already been completed. It would be a waste of time, incur unnecessary cost, and deplete regulatory and stakeholder resources.

INDIGENOUS CONSULTATION

- a. **What Indigenous consultation obligations arise from Hydro One’s proposal to build the Lake Superior Link, and specifically, (Indigenous consultation obligations) from the proposed reinforcement of transmission towers in Pukaskwa National Park? How will such obligations be satisfied within the proposed project timelines?**

By letter dated March 2, 2018, provided as Attachment 9, the Ministry of Energy determined that Hydro One’s proposed Lake Superior Link Project may have the potential to affect First Nation and

Métis communities who hold or claim protected aboriginal or treaty rights. The Crown listed the following Aboriginal communities that should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely affected by the project:

1. Animbiigoo Zaagi'igan Anishinabek First Nation (Lake Nipigon Ojibway)
2. Biinjitiwaabik Zaaging Anishinabek First Nation (Rocky Bay)
3. Biigtong Nishnaabeg
4. Bingwi Neyaashi Anishinabek (Sand Point First Nation)
5. Fort William First Nation
6. Ginoogaming First Nation
7. Long Lake #58 First Nation
8. Michipicoten First Nation
9. Missanabie Cree First Nation
10. Ojibways of Batchewana
11. Ojibways of Garden River
12. Pays Plat First Nation
13. Pic Mobert First Nation
14. Red Rock Indian Band (Lake Helen)
15. MNO Greenstone Métis Council
16. Red Sky Independent Métis Nation
17. MNO Superior North Shore Métis Council
18. MNO Thunder Bay Métis Council
19. Métis Nation of Ontario

Together with its construction partner, SNC-Lavalin, Hydro One will undertake consultation as described below on all aspects of the project including the portion that goes through the Park.

Hydro One's broad principles to meaningfully consult and substantially address Indigenous concerns raised during the consultation process include:

- thoroughness of the consultation process, starting as early as the feasibility stage and into the project approval process;
- means and mechanisms to provide an organized and sustained system for consulting Indigenous peoples;
- sufficient funding to allow Indigenous peoples to meaningfully assemble and/or challenge evidence; and
- accommodation measures to avoid or mitigate any loss, cost or damage from a proposed project to Indigenous interests and to provide compensation where avoidance or mitigation is not possible.

Hydro One recognizes the importance of consultation with Indigenous communities in connection with the Lake Superior Link Project. Hydro One's Indigenous consultation process is designed to provide relevant project information to Indigenous communities proximate to the Project in a timely manner. The process enables affected Indigenous communities to review, consider and raise issues, concerns and questions they may have with the Project. The process also allows Hydro One to respond to any concerns or questions raised in a clear and transparent manner.

On February 16, 2018, Hydro One sent a letter to the six First Nation partners in Bamkushwada Limited Partnership ("BLP"), introducing its Lake Superior Link submission filed with the OEB. A copy of these letters is provided as Attachment 10. Additionally, on April 30, 2018, Hydro One sent a similar notification letter to the other twelve First Nations and Métis communities listed in the

Ministry of Energy's response regarding consultation. A sample of these letters is provided as Attachment 11. As indicated in both letters, Hydro One is ready to begin the consultation process immediately and has already scheduled meetings in May and June 2018 with a number of First Nation and Métis communities.

Hydro One met with BLP and their lawyer on April 6, 2018, at which time Hydro One's Vice President of Indigenous Relations delivered a presentation describing Hydro One's proposed project. SNC-Lavalin's Vice President of Aboriginal and Northern Affairs also attended. During the meeting, BLP's lawyer informed Hydro One that the terms of an exclusivity agreement signed between BLP and NextBridge prohibited BLP from being informed by Hydro One of any information that would show financial benefits to First Nations of the Hydro One project as compared to the NextBridge project. BLP's lawyer further instructed Hydro One to provide a written response to BLP's lawyer within one week of the meeting, to respond to the following key issues:

1. Hydro One's estimated project schedule;
2. Hydro One's Indigenous Consultation approach and timeline;
3. Hydro One's approach to Accommodation, given what the BLP lawyer stated to be the existing prohibitions in the apparent exclusivity agreement between BLP and NextBridge; and
4. Hydro One's contingency plan if Hydro One were not to receive required approvals from Parks Canada to go through the Park.

As documented in Attachment 12, on April 12, 2018, Hydro One's Vice President of Indigenous Relations provided BLP's lawyer with a letter that responded to the questions. Specifically regarding issue #3, Hydro One's approach to Accommodation, Hydro One stated,

"Should the OEB award Hydro One leave to construct the Lake Superior Link, we are committed to offering BLP an opportunity to own 34% in a limited partnership that will own the Lake Superior Link assets, thus offering substantially higher net income and dividends to the six First Nation communities as compared to the NextBridge offer. For illustration purposes, we estimate that our First Nations ownership partners will receive close to \$6M in annual dividends. Based on the applications submitted to the OEB by each of Hydro One and NextBridge, the estimated returns on investment for each proposal are as follows:

Proponent	Project Cost	FN Equity Share	FN Investment	Annual Net income attributable to Bamkushwada LP	Annual Dividend to Bamkushwada LP of Net Income	Total estimated Dividends Over 30 Years*
Hydro One	\$636M	34%	\$86.5M	\$7.7M	\$5.4M	\$115M
NextBridge	\$777M	20%	\$62.2M	\$5.5M	\$3.9M	\$83.1M

Note: the numbers above are based on estimated project costs and current OEB allowed return on equity. Actual equity ownership will be based on the final cost to construct the project.¹⁰*

BLP's lawyer responded to the Hydro One letter by sending Hydro One an e-mail on April 17, 2018, stating that she could not provide Hydro One's letter to her clients unless Hydro One redacted its response to Issue #3, because Hydro One's response provided more information than was requested and contained information that BLP and the First Nations are prohibited from seeing.

¹⁰ Page 2 of the April 12, 2018 Letter

Prior to making this submission, Hydro One informed the six BLP member Chiefs, via email on May 2, 2018, of the equity participation it was willing to offer BLP First Nations as part of this Project. Counsel for BLP responded that doing so would place BLP First Nations in potential breach of the agreement with Nextbridge. These agreements that NextBridge has entered into have affected Hydro One's ability to conduct meaningful consultation activities. These communications are provided as Attachment 13.

Hydro One remains committed to its statement regarding a partnership opportunity for BLP communities and would welcome an opportunity to discuss this further with the BLP First Nations.

Hydro One's approach to consultation and engagement with Indigenous communities will be to meet with leadership and community members on a reasonably frequent basis throughout the life of the project. Hydro One also proposes to hold workshops in each community to provide interested community members an opportunity to understand and comment on the technical details with Hydro One and SNC-Lavalin representatives and to provide as much information as required to inform community members. Additionally, Hydro One will also be seeking traditional knowledge information from the communities and will be paying compensation for the use of this information.

Hydro One's objective is to hire and financially compensate Community Engagement Coordinators who will help to organize and execute community meetings, and coordinate the provision of information to Hydro One from the community. Hydro One expects that the Community Engagement Coordinator will be the day-to-day liaison person and will assist with the consultation process.

Hydro One's approach to accommodation will be a package of benefits including, but not limited, to capacity funding, contracting and employment opportunities. In the spirit of cooperation and shared responsibility, Hydro One is committed to offering BLP a more beneficial commercial partnership opportunity as described above, and is working to have meaningful and direct discussions in this regard. If Hydro One and the BLP First Nations do agree upon the proposed equity ownership of 34% as compared to the 20% equity offered by NextBridge, Hydro One's solution would result in higher tax benefits to all Ontario's ratepayers, in addition to the significant capital and OM&A savings previously mentioned.

Hydro One and SNC-Lavalin recognize the importance of having involvement and participation of Indigenous communities and businesses in the execution of the Lake Superior Link Project. Hydro One has a proud history of inclusion through employment and procurement of its projects. Hydro One will be actively procuring goods and services from qualified Indigenous suppliers and from companies who have strong relationships with local Indigenous communities and businesses. Similarly, Hydro One will seek to maximize the employment of members from local Indigenous communities, including those who have received or who are currently completing project related skills training. Hydro One and SNC-Lavalin would also consider additional skills training, prior to construction of the Lake Superior Link Project. Additionally, Hydro One is able to provide lasting employment opportunities throughout its network across the province for skilled Indigenous workers beyond the construction of the Lake Superior Link Project.

b. NextBridge was delegated by the Crown to carry out the procedural aspects of Indigenous consultation for the East-West Tie line project in November 2013. Has Hydro One received a similar delegation for its proposed Lake Superior Link project?

On March 2, 2018, Hydro One received a letter from the Ministry of Energy delegating procedural aspects of consultation to Hydro One regarding its proposed Lake Superior Link Project. Please refer to Attachment 9.

RELIEF REQUESTED BY NEXTBRIDGE

a. Should the OEB grant an order dismissing Hydro One's Lake Superior Link application?

No, the OEB should not grant an order dismissing Hydro One's Lake Superior Link application which will save ratepayers in excess of \$100M in capital costs and \$3M/year in ongoing OM&A. NextBridge's grounds for requesting dismissal of the Hydro One application are predicated on three main grounds:

- a) NextBridge seems to have acted, as a result of being selected as the designated transmitter for the development phase, as if it is authorized to own and operate the facilities that comprise the new east-west tie line project, meaning that Hydro One cannot bring forward an alternative leave to construct application. For example:
 - i) in its open house presentations from 2013 in Northern Ontario, NextBridge showed slides that stated "the new line will be owned and operated by Nextbridge Infrastructure",
 - ii) NextBridge entered into exclusivity agreements with First Nations to prohibit First Nations from entering into commercial discussions with competitors, and
 - iii) NextBridge entered into consultation agreements with First Nations that prohibited the First Nations from being consulted by competitors having a constitutional duty to consult.
- b) Hydro One's proposal for a line to be in-service in 2021 does not meet the Order-In-Council's recommended date.
- c) Hydro One's Application is incomplete because it did not address three filing requirements, namely, evidence in support of need, system impact assessment and customer impact assessment.

The grounds submitted for the NextBridge motion are either inaccurate or completely wrong and should not form the basis of an OEB order to dismiss the Hydro One Lake Superior Link leave to construct application.

- i. *NextBridge is designated to complete only the development component of the Project and is not licensed to own and operate the line.*

It is explicitly documented that the OEB contemplated multiple parties proposing to construct a particular project in the Framework for Transmission Project Development Planning Policy (EB-2010-0059), as the OEB clearly articulated that there is a possibility that a number of competing leave to construct applications may be filed:

The staff Discussion Paper also noted limitations on the Board's ability to guarantee a transmitter the ability to construct and operate a particular project... The designation process of the Board is not a procurement process where the end result is a contract. Neither the Board, the OPA, nor the IESO has statutory authority to procure transmission...The other possibility is that another transmitter brings a leave to construct application for a different project that meets the same need in a better way (emphasis added). The Board cannot prevent any person from submitting an application for any matter under its jurisdiction.¹¹

As a result of phase 2 of the Competitive Designation Proceeding¹², NextBridge was designated to complete the development component of the project. However, as noted above, the designation phase of this Project was not a procurement process, a process which is not part of the OEB's mandate. If NextBridge has misconstrued its authority with respect to this line as the development transmitter, that should not limit the Board's authority in pursuing its statutory objectives, namely, to protect ratepayers with respect to prices, reliability, supply and quality of service.

NextBridge's scope to date on this Project is to complete the development work associated with this Project – nothing more - hence the NextBridge leave to construct application before the OEB¹³. If another transmitter can deliver the Project on a more efficient basis, the OEB should review and consider that Application. The Minister, in responding to the Updated Needs Assessment, articulated that the OEB should do just that, when the Minister wrote:

"I expect the OEB will use its hearing processes to rigorously review any applications (emphasis added) in accordance with its processes and mandate to protect the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service"¹⁴.

Failure to review an alternative leave to construct solution based on a perceived idea that NextBridge is the only party that can build this line would jeopardize the very economic efficiencies that the introduction of competition was attempting to achieve.

ii. *Hydro One's Application meeting the recommended 2020 in-service date*

NextBridge takes the position that Hydro One's Leave to Construct Application should not be considered because it does not meet the recommended in-service date. Again, this is a recommended in-service date predicated on several demand and supply alternatives outlined in the Needs Assessment¹⁵ materializing. Hydro One has articulated in prefiled evidence, in this additional evidence, and in response to the NextBridge evidence that follows, that the one year difference between the IESO recommended date and the date the Lake Superior Link will be put in-service can be addressed. Hydro One submits that there is more than enough evidence before the OEB to substantiate the reasonableness of the one year delay and believes that the assessment of the in-service date of the Project is well within the OEB's jurisdiction in reviewing leave to construct applications – specifically, there is nothing that prohibits the Board from balancing the criteria

¹¹ EB-2010-0059 - Framework for Transmission Project Development Plans – August 26, 2010 - Page 17

¹² EB-2011-0140

¹³ EB-2017-0182

¹⁴ EB-2017-0364 – Exhibit B, Tab 3, Schedule 1, Attachment 2

¹⁵ EB-2017-0364 – Exhibit B, Tab 2, Schedule 1, Attachment 1

outlined in section 1.1 of the *OEB Act* objectives that the OEB normally takes into consideration when assessing a leave to construct application in order to protect ratepayers (i.e., balancing price, adequacy, reliability and quality of electricity service).

It is critical for the context of this evidence, and, more specifically, the timelines associated with Hydro One's Lake Superior Link Project, to understand that the costs associated with the NextBridge leave to construct application is almost double the amount originally estimated in the development phase proceeding, i.e., the estimate the OEB relied upon to select NextBridge as the designated development transmitter. Despite OEB licence conditions that required NextBridge to provide frequent reports on (a) Overall project progress: An executive summary of work progress, cost and schedule status, and any emerging issues/risks and proposed mitigation (emphasis added) and a Risks and Issues Log: An assessment of the risks and issues, potential impact on schedule, cost or scope, as well as potential options for mitigating or eliminating the risk or issue¹⁶ (emphasis added), NextBridge informed no one of the significant cost estimate difference until the NextBridge EWT Leave to Construct Application¹⁷ was filed in July of last year. No one, not the OEB nor any other transmitter and not even the Minister of Energy, was aware of the significantly higher estimate.

This lack of disclosure significantly harmed the ability of all other competing transmitters to complete development work for a most cost-effective alternative – to the detriment of ratepayers. Competing transmitters, including Hydro One, anticipated that NextBridge would not be deviating from the costs they articulated in the development phase, \$440M, since no new revised estimates were ever expressed by NextBridge. Hydro One reiterates that the conditions of the Upper Canada Transmission Licence (now “NextBridge”) required monthly reports that would have included cost estimate changes. NextBridge did not inform the OEB, in any quarterly reports or any other public correspondence, prior to the leave to construct filing, that the NextBridge cost to construct would have significantly differ from the \$440M estimate. Consequently, no transmitter would have reasonably undertaken any efforts to complete development work associated with this project until NextBridge disclosed the facts in the Leave to Construct Application. At that point, July 2017, it was too late for any other transmitter to initiate and complete an Individual EA of its own to meet a recommended 2020 in-service date – a date that Hydro One says can be managed for one year. Consequently, Hydro One states that to dismiss Hydro One's application based on the one- year delay without fully exploring the need date would be against the OEB objective of protecting the interest of ratepayers.

As documented in Hydro One's prefiled evidence and reiterated in the additional evidence filed herewith, Hydro One states that the 2020 in-service date is not a mandatory or critical requirement and instead is a desired date. Please see Hydro One's response to 2e below.

iii. Hydro One's Application is Complete

NextBridge asserts that Hydro One's leave to construct application is not complete. This is factually inaccurate. Hydro One's application is complete and complies with the OEB Filing Requirements. Where written evidence was unavailable at the time of filing due to the expeditious nature in which Hydro One had to develop its prefiled evidence, Hydro One provided justification, in accordance with section 13.03 of the *OEB Rules of Practice and Procedure*, as to when those pieces of evidence would be filed. Those pieces of evidence, namely the System Impact Assessment and Customer Impact Assessment, are on the record and have been part of the record since March 29, 2018¹⁸. The

¹⁶ EB-2011-0140 – Decision and Order Phase 2 – August 7, 2013 – Page 42 - 43

¹⁷ EB-2017-0182

¹⁸ The final CIA is provided as Attachment 2 and has not changed since the filing of the Draft CIA.

in-service date, and the evidence that supports that date, has also been filed with the OEB for its consideration. There is no further information required to meet the filing requirements of the OEB for leave to construct applications. Hydro One's application is complete.

b. Should the OEB issue a decision or order determining that the Lake Superior Link application will not be processed because it is incomplete?

No, the application is complete. The only outstanding issue from NextBridge's list of concerns is the in-service date, which is best addressed through a hearing that allows the OEB to fully assess the decision criteria it takes into consideration during the review of any leave to construct application, namely, balancing price, adequacy, reliability and quality of electricity service. This does not mean in any way that the application is incomplete.

There are multiple transmission alternatives to meet the transmission capacity needs of the province (e.g., overhead or underground cables). Hydro One's alternative results in a one-year delay to the recommended in-service date but also results in capital savings in excess of \$140M and annual recurring OM&A savings greater than \$3M. Despite NextBridge's demand that the OEB dismiss Hydro One's application without a hearing, Hydro One submits that the OEB has a duty to assess whether the huge ratepayer savings offset the one-year delay.

c. Should the OEB issue a decision or order determining that the Lake Superior Link application does not comply with the OEB's Filing Requirements for Electricity Transmission Applications and suspending that application until Hydro One has complied with those Filing Requirements?

Again, no, the application is complete. The only outstanding issue from NextBridge's list of concerns is the in-service date, which is best addressed through a hearing that allows the OEB to fully assess the decision criteria it takes into consideration during the review of any leave to construct application, namely, balancing price, adequacy, reliability and quality of electricity service. This does not mean in any way that the application is incomplete.

ROUTING

d. Hydro One's transmission licence allows the OEB to order it to expand or reinforce its transmission system in order to ensure and maintain system integrity or reliable and adequate capacity and supply of electricity. What legal or other issues may arise if the OEB were to require Hydro One to reinforce the section of its transmission system that runs through the Pukaskwa National Park and to connect with the proposed NextBridge transmission line at both borders of the Park?

Legal submissions regarding the OEB's authority to require Hydro One to expand or reinforce its transmission line through the Park will be made when the NextBridge motion is argued before the OEB.

From a cost perspective, reinforcing the Hydro One line through the Park alone without connecting to the Hydro One-proposed LSL line outside the Park would likely not be cheaper than the Hydro One Lake Superior Link solution, although it would be cheaper than the NextBridge solution. There would be an increase in Hydro One's cost/km rate relative to the cost/km rate provided to complete the entire LSL undertaking, because of the loss of efficiencies that are normally realized through scale as well as the loss of the mitigated risks achieved through the Engineering, Procurement and Construction contract with SNC-Lavalin. Additionally, efficiencies gained by having the same

transmitter complete the necessary OM&A activities along the entire corridor would be eroded. All of these incremental costs would be to the detriment of ratepayers.

Though Hydro One has little information regarding the Indigenous consultations undertaken by NextBridge, the reduced overall cost to the project will have an impact on the returns that can be expected from the First Nation equity partners, thereby perhaps requiring a renegotiation of terms. A shorter NextBridge line would mean a reduction of the nominal First Nations equity participation in the project unless Nextbridge increases its proposed 20% equity offering to First Nations to maintain their nominal participation as negotiated. In turn, this would also impact ratepayers, because a reduction of the nominal First Nations equity participation given the shorter Nextbridge section would reduce the tax-exempt benefits for the total transaction. (NextBridge and Hydro One are not tax-exempt organizations.) Therefore, the combined tax requirements of Nextbridge and Hydro One to be recovered annually through the OEB would likely translate into greater OEB revenue requirements throughout the life of the assets, for both entities.

Forcing Hydro One to complete only the section through the Park would also impact timing of the recommended in-service date, analogous to, and likely even later than, the Hydro One Lake Superior Link solution in-service date. For instance, if Hydro One completes the section through the Park and NextBridge builds the remainder of the line, the following activities would still need to be completed:

- NextBridge's Individual EA would need to be amended because of the need to deviate on the way to the Park and on the way out of the Park, and the area through the Park would need to be studied, as NextBridge has not done that to date
- The area through the Park, as a consequence of being added to the NextBridge amended EA, may then need to be transferred to Hydro One (which, to date, NextBridge has been unwilling to do), and Hydro One would need to become a co-proponent of the Individual EA, or the proponent of a different, independent Individual EA
- A new SIA and CIA would need to be prepared, submitted to the IESO, and obtain approval, in order to satisfy the change in infrastructure and design
- Transmission Connection Agreements will need to be signed between transmitters to establish responsibilities between transmitters.

The resulting delay would also impact agreed job start dates being marketed by NextBridge, which is a concern for local employees.

Additionally, having two transmitters, in essence owning one continuous line, would create ongoing operating and maintenance issues. For instance:

- The maintenance cycles would need to be coordinated between the two transmitters to minimize interruptions
- In the event of a major storm or unplanned outage tripping one or more circuits, the Ontario Grid Control Centre (OGCC) would have to engage both transmitters' maintenance crews to inspect the three different sections of the line to find the faulty tower, insulator or conductor. In the absence of such an agreement, OM&A costs will increase. Hydro One has local presence in northwestern Ontario that they can dispatch quickly to address any outages, if NextBridge does not have similar capabilities, and the appropriate staffing available, delays in restoration will be incurred.

- Work protection issues must be addressed. Unless there is one Controlling Authority¹⁹ (as per Utility Work Protection Code), the entity owning the exit line from the station would have to issue a supporting guarantee for work downstream. Ideally, one entity maintains the entire line to avoid this duplication and complication in establishing a safe work zone. The supporting guarantee is needed to ensure personnel safety in addition to locally applied grounds and it is standard procedure.

IN-SERVICE DATE

e. What are the implications of Hydro One's proposed in-service date of 2021 in the context of the Priority Project OIC and subsequent correspondence and reports?

The main reason for the stated in-service date of 2020 is the OIC, dated Mar. 2, 2016, which stated:

*[AND WHEREAS] Ontario considers the expansion or reinforcement of the electricity transmission network in the area between Wawa and Thunder Bay composed of the high-voltage circuits connecting Wawa TS with Lakehead TS (the "East-West Tie Line Project"), with an in service date of 2020, **to be a priority***

The delay of in-service date from 2018 to 2020 was previously proposed by the IESO (formerly OPA) and NextBridge, and the delay was endorsed by the OEB on November 19, 2015. The OIC stated that the project, and the agreed in-service date of 2020, is a priority.

Based on the OIC and the expectation that the designated and connecting transmitters could be able, at best, to complete the project by the end of 2020 (according to the July 31, 2017, leave to construct applications and their assumptions for approval timelines), the IESO in its 2017 update report²⁰ recommended an in-service date of 2020 by stating,

The IESO **continues to recommend** an in-service date of 2020 for the E-W Tie Expansion project. Discussions with the transmitters confirmed their ability to meet this date, dependent on timely regulatory approvals.

In response, the Ministry of Energy, in its Dec. 4, 2017, letter to the IESO, stated,

Given the IESO's **recommended** in-service date of 2020, I also expect the OEB will proceed in a timely manner in consideration of its performance standards for processing applications.

Upon review of the above references, and further justifications described later in this response, one can conclude that the 2020 in-service date is not a mandatory or critical requirement and is instead a desired **recommended** date.

Hydro One states that a delay of up to one year in the recommended in-service date is justifiable, considering the huge cost saving and reduced environmental impact that results from Hydro One's shorter route and smaller right-of-way compared to the NextBridge proposal. Hydro One is

¹⁹ Controlling Authority definition - The person(s) who occupies a position responsible for the control of specific equipment and devices. This includes the responsibility for performing, directing or authorizing changes in the conditions or in the position of the equipment or devices.

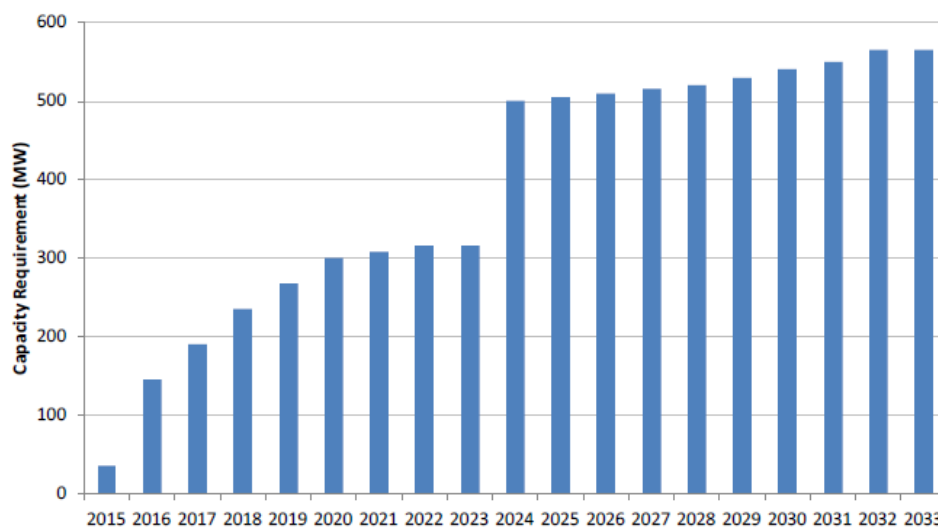
²⁰ IESO Updated Assessment of the Need for the East-West Tie Expansion, December 1, 2017

confident that this delay will not pose an undue risk to electricity supply in the Northwest based on the following reasons.

- i. The IESO's second Need Update Report, dated May 5, 2014, forecast a capacity shortfall greater than the capacity shortfall that is now anticipated in 2020 and still deferred the Project in-service date to 2020 because the capacity shortfall was manageable.

The IESO's second Need Update Report, dated May 5, 2014, forecasted a capacity shortfall of approximately 35 to 230 MW between 2015 and 2018, increasing to approximately 300 MW in 2020. An extract of Figure 6 is provided below and the entire report is provided as Attachment 14 to this submission.

Figure 6. Expected Incremental Northwest Capacity Requirement



Yet, on September 30, 2014, the IESO (then OPA) wrote a letter to the OEB recommending the delay of the EWT in-service date from 2018 to 2020. A copy of this letter is provided as Attachment 15.

The IESO's third Need Update Report of December 15, 2015²¹, states:

“This report also follows several additional filings with the Board in the E-W Tie proceeding, namely: i) the OPA's September 30, 2014 need update letter regarding the development schedule, including a recommendation and explanation of the rationale for revising the project's in-service date from 2018 to 2020.”

“In the filings referenced above, the OPA and IESO advocated that the additional time for development work afforded by the deferral of the in-service date from 2018 to 2020 be used to investigate potential cost savings for the project.” [emphasis added]

NextBridge, in its June 24, 2015, letter to the OEB, requested revisions to the development schedule, based on the delay of the in-service date to 2020. The OEB approved the new schedule²². The delay

²¹ Exhibit B, Tab 2, Schedule 1, Attachment 1 – Page 2

²² EB-2015-0216 – OEB Decision and Order – November 19, 2015

of two years in the in-service date was requested notwithstanding the IESO's forecast 300 MW capacity shortfall in 2020 for the objective of reducing the cost of the project. After the OEB decision to accept the revised development schedule and in-service date of 2020, the IESO issued the third update report of December 2015 and revised the shortfall in 2020 to approximately 160 MW.

Based on the same arguments as those above, Hydro One considers the delay of up to one year in the in-service date to be justified because it offers a significant cost saving and the potential capacity shortfall during that period is manageable as described below.

- ii. The IESO's 2017 update report²³ assumptions are worst-case scenarios.

The report indicates that "A 100 MW capacity need already exists today, and this need continues to grow to approximately 240 MW by the original 2020 in-service date." This shortage is based on the IESO's Reference demand forecast and planning assumption and criteria, including:

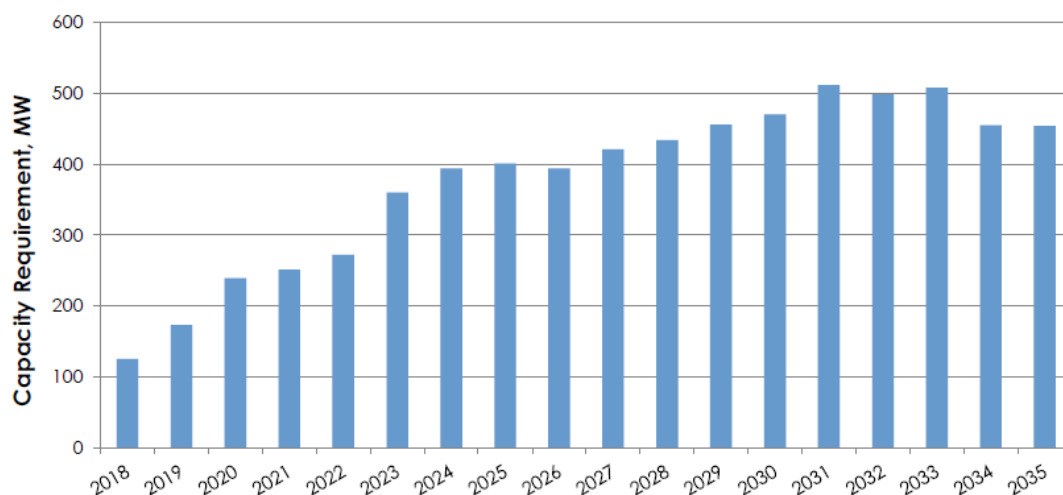
- a) Approximately 740 MW demand in the Northwest (Fig 2 of the 2017 IESO report)
- b) No import from Manitoba and Minnesota
- c) Loss of both circuits of the existing EWT line

This means that based on the IESO's probabilistic assessment, only approximately 500 MW of generation is expected to be available out of 1,364 MW of installed capacity (Fig 4 of IESO report).

- iii. The supply shortage increases only marginally with a one-year delay

The supply shortage increases only marginally from approximately 240 MW in 2020 to approximately 250 MW in 2021 if the in-service date is delayed by one year. This is according to the IESO's Reference demand scenario (Figure 5 of IESO report, copied below).

Figure 5. Expected Incremental Northwest Capacity Requirement under Reference Demand



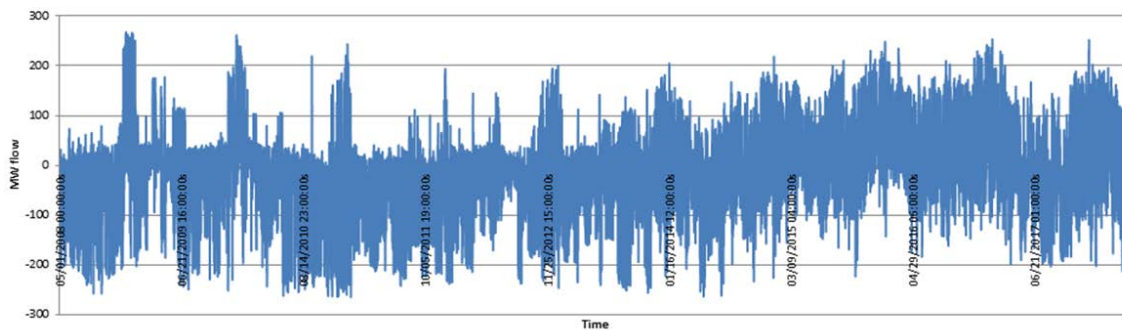
- iv. Probability of capacity shortfall is low, and the risk is manageable.

²³ EB-2017-0364 – Exhibit B, Tab 2, Schedule 1, Attachment 2 – Page 13, Section 6.1

The probability of the coincidence of low generation, loss of the EWT double-circuit line for more than a few hours, and limitation of no import from Manitoba and Minnesota is very small over the course of one additional year before project completion.

Under storm conditions, it is possible that both circuits would trip; and when one circuit is out of service, the second circuit could trip as a result of a fault. But except in rare occasions, the outage is momentary, and one or both circuits return to service in a matter of minutes. If one circuit is out of service for a planned outage and the other circuit sustains a fault, the first circuit could be returned to service in a few hours. When at least one circuit remains in service, it can provide up to 350 MW of capacity to the Northwest, mitigating the supply shortage during low generation.

The existing transmission system has capacity for 150-200 MW import from Manitoba (Page 16 of the 2017 IESO report). The interconnection with Minnesota can also provide up to 100 MW import. Although there is no firm import agreement with Manitoba and Minnesota, just as they are expected to be able to support the post-contingency need in the Northwest for up to 30 minutes, it is likely that they will be able to extend this support for a few hours while at least one of the EWT circuits be brought back to service following an outage. In the past 10 years, Ontario's real time hourly-average import from Manitoba has ranged from 0 to 265 MW. Graph 1 is provided not to contradict the Planning information provided by the IESO, but to illustrate the transfer capability of the Manitoba-tie line. Based on the data provided in Graph 1, it is an extremely conservative assumption that the import capabilities from Manitoba cannot be reasonably relied upon to address the up to one year delay.



Graph 1
10 Year Flow Through Manitoba Tie Line

The IESO's 2017 update report has not raised a major concern regarding the shortage of up to 240 MW in the Northwest between 2018 and 2020 under Reference demand scenario (Figure 5 of IESO report). Instead, the report indicates that the IESO "will . . . monitor electricity supply and demand in the Northwest" (Page 2 and 19 / Sec 1 and 9 of the IESO report)

The 2015 need update report by the IESO had also identified capacity needs in the interim period before the completion of the E-W Tie, although in that report the capacity need in 2020 was predicted to be around 150 MW instead of 240 MW in the new report. The 2015 report indicated that in the interim period, "if necessary, [IESO will] deploy short-term options to bridge the gap until the E-W Tie expansion comes into service" – (page 12)

Therefore, for all these reasons, Hydro One states that a potential capacity need (according to the planning criteria and assumptions) of around 250 MW in 2021, before the completion of Lake Superior Link, has low probability and is manageable, if necessary, by deploying short-term options.

- f. Should the IESO be asked to provide any updated information regarding the in-service date necessary to serve the need and any impacts of a delay to the in-service date to 2021 or beyond?**

Hydro One would be supportive of OEB efforts to obtain that clarity before rendering a decision that could excessively charge ratepayers for a solution that could have been completed in a far more economical manner in both initial cost and ongoing O&M costs.

ENVIRONMENTAL ASSESSMENT WORK

- g. Can NextBridge’s environmental assessment work for the East-West Tie line project be used by Hydro One for the purpose of complying with Environmental Assessment Act requirements?**

There is no factual or legal basis to prevent Hydro One from relying on the information in the NextBridge EA. There can be no claim of confidentiality over the assessment since the *Act* makes it clear that the assessment is a public document that may be accessed by anyone (Section 6.4 of the *Act*). Furthermore, it is clear from the OEB’s 2013 designation order for the tie line that the development work, which included the EA work and work product, was for the benefit of the line construction, not for the benefit of the developer. Therefore, Hydro One will have access to the information in the document. If no “exemption”, such as a declaration order, is obtained despite the significant cost savings to ratepayers and the improved environmental footprint, Hydro One has the option of undertaking an Individual EA.

EVIDENCE IN RESPONSE TO NEXTBRIDGE APRIL 30 SUBMISSIONS

The following section of evidence responds to assertions and expert submissions provided by NextBridge on April 30, 2018, in response to Procedural Order 1. This section is categorized into four main parts that address matters related to environment, design, Indigenous consultations and the system impact assessment.

ENVIRONMENT

NextBridge states that the Ministries of Energy and Environment and Climate Change (“MOECC”) have confirmed that they are not working with Hydro One to finalize a regulatory EA measure.

Neither of the two ministries has stated that they have rejected or are unwilling to consider a regulatory measure, such as a Declaration Order, that would permit Hydro One to avoid the need for an Individual Environmental Assessment (EA). They have simply clarified that such a regulatory measure has not been approved.

In its April 10, 2018, letter to Hydro One, MOECC stated, “If Hydro One chooses to pursue an alternative regulatory mechanism instead of completing the Individual Environmental Assessment process for the proposed project, Hydro One is encouraged to refer to the ministry’s website for more information on these processes. Specifically, for information relating to Declaration Orders please visit the Environmental Assessment Declaration Orders webpage.” There is no indication that such a regulatory mechanism is not available to Hydro One. In fact, the MOECC has specifically pointed Hydro One to the MOECC’s resources in respect of such measures.

Hydro One has and will continue to have meetings with the MOECC regarding appropriate regulatory mechanisms in connection with Hydro One’s Lake Superior Link Project (“LSL”). Meetings with MOECC staff have been taking place since August 23, 2017, and up to and including March 26, 2018 and have included both MOECC and Hydro One staff. Some of these meetings were initiated by MOECC, and some also included representatives from the Ministry of Energy (MoE) and Ministry of Natural Resources and Forestry (MNRF).

NextBridge asserts that the EA belongs to NextBridge and is not available for use without NextBridge’s consent.

There is no basis for Nextbridge to assert that others, including Hydro One, are not permitted to rely on the EA without NextBridge’s consent.

There can be no claim of confidentiality over the EA for two reasons. First, Section 6.4 of the *Environmental Assessment Act* makes it clear that any person may inspect the EA, meaning that it is a public document and subject to review. Second, the EA has been published and is accessible and available to the public.

Further, the EA document contains a limitation section which states: “The reported information is believed to provide a reasonable representation of the East-West Tie Transmission Project (the Project) being proposed at this time and the general environmental conditions at the Project location. Any use of this report, or any reliance on or decisions based on this report, by a third party is the responsibility of such third party. NextBridge Infrastructure LP (NextBridge) will not be held responsible or liable for any damages to the physical environment, any property, or to life which may

have occurred from actions or decisions based upon any of the information within this report.”
[Emphasis Added]

Not only does the Report not state that it cannot be used or relied on without consent, but it was clearly contemplated that the report would be used and relied on by third parties.

Finally, the OEB 2013 Order designating NextBridge for the development phase made it clear that it was possible that another proponent would be constructing and building the line. Specifically, under the heading “Implications of Designation”, the OEB explained: “That Order made it clear that the designation -and the exclusive rights enjoyed thereunder - were limited to the development phase of the project” and “Designation does not carry with it an exclusive right to build the line or an exclusive right to apply for leave to construct the line. A transmitter may apply for leave to construct the East-West Tie line, designated or not. In designating a transmitter, the Board is providing an economic incentive: the designated transmitter will recover its development costs up to the budgeted amount (in the absence of fault on the part of the transmitter), even if the line is eventually found to be unnecessary.” Therefore, it was contemplated that a different proponent might be constructing or building the project and would need to reply on all or some of the EA.

NextBridge asserts that its Consulting Services Agreement gives NextBridge copyright in EA.

Hydro One has not seen NextBridge’s consulting agreements, and they have not been produced for review. While Hydro One does not know whether copyright in the EA has been given to NextBridge under these agreements, it is irrelevant because Hydro One is not intending to reproduce or publish the EA. Hydro One simply intends to review and reference some or all of the EA, and there is nothing that prevents that. Further, Hydro One intends to verify/validate technical information and will be completing its own studies in those areas where the proposed LSL Project route varies from that of NextBridge.

NextBridge asserts that the August 2010 OEB Policy does not expressly provide that EA work loses proprietary character and becomes public property, rather that it provides that undesignated transmitter undertakes development work at its own cost.

The August 2010 OEB Policy does not address any proprietary or ownership issues in relation to the EA at all. It simply makes it clear that if a party has not been designated, it must conduct any EA work that it wishes to conduct at its own cost. That is precisely what Hydro One is doing.

NextBridge asserts that Hydro One assumes that a regulatory measure would allow use of the NextBridge EA.

Hydro One does not require and is not seeking a regulatory measure to permit it to use the NextBridge EA. Rather, Hydro One would be seeking a regulatory measure that would exempt it from EA requirements.

NextBridge asserts that a regulatory measure to exempt Hydro One from the EA does not exist and has not been applied for and MOECC has told Hydro One that an individual EA is required.

The MOECC can exempt any proponent from preparing an environmental assessment for a project or decide that the proponent needs to comply with only some of the requirements of the *Environmental Assessment Act* (the “*EAA*”). This is known as a Declaration Order. The authority for a Declaration Order is provided in Section 3.2 of the *EAA*) and is considered where it is in the public

interest, having regard to the purpose of the *EAA* and weighing it against the injury, damage or interference that might be caused to any person or property by the application of this *EAA* to the undertaking or class.

This supports the position that, subject to approval of the Lieutenant Governor in Council, the MOECC has the jurisdiction to either exempt a project or set out conditions the proponent must meet in respect of a project by way of a Declaration Order.

In its April 10, 2018, letter to Hydro One, MOECC stated, “If Hydro One chooses to pursue an alternative regulatory mechanism instead of completing the Individual Environmental Assessment process for the proposed project, Hydro One is encouraged to refer to the ministry’s website for more information on these processes. Specifically, for information relating to Declaration Orders please visit the Environmental Assessment Declaration Orders webpage.”

Hydro One has not yet applied for a Declaration Order because the MOECC has informed Hydro One that it must wait until the NextBridge EA has been approved to make the application. Hydro One is simply following the direction of the MOECC. The MOECC has not told Hydro One that it cannot pursue a Declaration Order. Based on its meetings with the MOECC, two options were identified to allow Hydro One to meet its EA obligations for the LSL Project: an Individual EA or a Declaration Order. MOECC has confirmed, on numerous occasions and in writing, that both options are open to Hydro One, as they would be to any proponent under the *EAA*.

NextBridge asserts that the LSL triggers a class EA for MNRF and Infrastructure Ontario.

Hydro One is well aware of the possibility that other processes may be triggered by the proposed LSL Project. In the event that such Class EA requirements are confirmed to be necessary, Hydro One has considered the associated timelines. Projects subject to a Class EA do not require any further approval under the *EAA* if the planning process set out in the Class EA document is followed and successfully completed. Indeed, Class EA proceedings are intended to proceed quickly. Therefore, in the event that any Class EA is triggered by the proposed LSL Project, Hydro One is confident that they can be completed within the timeline it has developed for the Individual EA for the proposed LSL Project.

However, the Hydro One’s Individual EA will likely address those aspects that would otherwise be covered by the Class EA processes, which may make the Class EA processes unnecessary.

Indeed, NextBridge contemplated and undertook the same process in its Amended EA, which states: “...other provincial EA requirements such as the Ministry of Natural Resources and Forestry’s Class EA for Resource Stewardship and Facility Development Projects and the MNRF’s Class EA for Provincial Parks and Conservation Reserves are intended to be met through the Individual EA process.” Both the NextBridge Terms of Reference and amended EA Report have stated that, through consultation with MNRF, the requirements of the MNRF’s Class EA for Resource Stewardship and Facility Development Projects (MNR 2003) and Class EA for Provincial Parks and Conservation Reserves (MNRF 2005) can be met through the Individual EA process.

In its Amended EA, NextBridge stated that it has “committed to meet the requirements of the Ministry of Infrastructure’s (MOI) Class EA for Public Works (MOI 2012), and related due diligence requirements (e.g. environmental site assessments), with additional information submitted to IO under separate cover to facilitate the Ministry granting easements and licences to NextBridge.” In comparing the properties that may be impacted by the proposed LSL Project, they appear to be the same ones as for the NextBridge Project. However, any differences can be addressed by a Category B EA screening under the MOI Class EA process. This process is not considered onerous and the

timeframe to complete the MOI Category B Class EA would be approximately three months and could be undertaken concurrently with the review and approval of Hydro One's Individual EA.

NextBridge asserts that MOECC is not in a position to exempt Hydro One from completing federal EA requirements.

Hydro One has not stated that the MOECC can exempt Hydro One from federal EA requirements. However, the MOECC has specific authority under Section 3.1 of the EAA to exempt any proponent, including Hydro One, where another jurisdiction imposes requirements with respect to an undertaking and the Minister considers the requirements imposed by the other jurisdiction to be equivalent to the requirements imposed under the EAA. In such circumstances, the Minister may, by order, vary or dispense with a requirement imposed under the EAA with respect to the undertaking or declare that the EAA does not apply with respect to the undertaking. This would permit the MOECC to exempt Hydro One from application of some or all of the requirements under the EAA where Hydro One is satisfying certain federal EA requirements.

Similarly, under *CEAA 2012*, cooperation with other jurisdictions is enabled through various mechanisms. These include carrying out cooperative assessments, establishing joint review panels, and delegating the conduct of all or a part of a federal EA to another jurisdiction. The Federal Minister is required to approve the substitution of the federal EA process by a provincial EA process, if satisfied that the substantive requirements of *CEAA 2012* will be met. Further, the Governor in Council may exempt a designated project from application of *CEAA 2012* if it determines that a province will undertake an equivalent assessment.

Therefore, the federal government can exempt Hydro One from federal EA requirements and, likewise, the MOECC can exempt Hydro One from some or all of the requirements under the EAA.

NextBridge asserts that federal EA requirements could take between 3 months to 12 months and that it is unclear if Hydro One has initiated that process.

Hydro One has been meeting with Parks Canada since September 2017 regarding the proposed LSL Project and associated federal approvals. Hydro One has already commenced several of the required federal environmental studies, including a caribou study, in cooperation with Parks Canada. A meeting is scheduled for May 9, 2018, with Parks Canada staff to discuss Environmental Study Workplans. The remaining studies will begin near the end of May 2018 and progress throughout the summer. Final reports are expected for the end of September or early October 2018. It is anticipated that the final approvals that are required from Parks Canada will be received once they have reviewed the studies completed within the Park boundaries, and once the Impact Assessment is finalized. Based on the current schedule, approval from Parks Canada is anticipated to be in late 2018.

NextBridge asserts that the Federal EA requirements apply where LSL crosses federal reserve lands.

Hydro One understands that its proposed LSL Project and that of NextBridge are considered projects that involve physical activity/work on federal lands (e.g., First Nation reserves), and therefore are considered a "project" under *CEAA 2012*.

For the segments of any project that are located on federal lands, Indigenous and Northern Affairs Canada (INAC) and Environment and Climate Change Canada (ECCC) are required by Section 67 of *CEAA 2012* to determine whether projects on federal lands are likely to cause significant adverse environmental effects. NextBridge consulted with INAC representatives in 2014 and 2017 with

respect to *CEAA 2012* requirements, and NextBridge's Amended EA was developed to meet the anticipated decision-making and reporting requirements under *CEAA 2012*. As documented in the NextBridge EA, NextBridge confirmed with INAC and ECCC that the Amended EA satisfied and could be used to meet the *CEAA 2012* requirements.

Since Hydro One's proposed LSL Project route does not traverse through any additional Federal Reserve Lands as compared with the NextBridge Project, Hydro One will similarly confirm with INAC and ECCC that *CEAA 2012* requirements have been satisfied in respect of the Hydro One proposed LSL Project.

NextBridge asserts that Hydro One cannot complete an Individual EA by June 2019.

Hydro One does not understand this assertion, as NextBridge itself has acknowledged has that Hydro One could complete the Individual EA by July 2019. However, NextBridge was not aware that Hydro One has already commenced the consultation and studies in connection with the EA.

Hydro One has already commenced its Individual EA. Several of the required studies in respect of those portions of the proposed LSL Project route, which differ from those of NextBridge, have already been commenced and/or completed and consultation has also been commenced. In fact, some of the consultation began as far back as September of 2017. Further, Hydro One's Notice of Commencement has been submitted to the MOECC and its receipt acknowledged by the MOECC with a timeline for response provided by the MOECC to Hydro One. Finally, there are opportunities for expediting the EA process, and Hydro One would avail itself of those opportunities, as appropriate.

NextBridge asserts that the MOECC does not consider the proposed LSL Project to be a transfer of proponentcy, but rather a new undertaking and that consultation is individual to a proponent and cannot be transferred.

If consultation is required, it would be only on those aspects that differ from the NextBridge EA. This includes the route deviations, which include the Park, which is covered by a federal EA and the access points to the Park. Consultation will be carried out at selected locations along the entire proposed LSL route and will address any other differences from the NextBridge EA, such as corridor width and tower design.

Hydro One is not proposing to transfer proponentcy and has submitted a Notice of Commencement for a new undertaking for the proposed LSL Project. There is no reason to conduct detailed consultation on those aspects of the proposed LSL Project that are the same as in NextBridge's EA.

For aspects that are unique to Hydro One's LSL Project, consultation is appropriate and is no different than for many other undertakings which undergo multiple revisions because of, for example, changes in routing. In those cases, consultation must be undertaken on multiple occasions with the same stakeholders to address those changes and provide opportunity for input. Those projects are not abandoned because of the need for continued stakeholder consultation and concern for "stakeholder fatigue and frustration".

Hydro One understands that the proposed LSL Project may have the potential to affect First Nation and Métis communities who hold or claim Aboriginal or Treaty rights protected under Section 35 of Canada's *Constitution Act, 1982*. Hydro One, together with its construction partner, SNC-Lavalin, will undertake consultation on all aspects of the proposed LSL Project, including the portion that goes through the Park. This includes consultation with First Nation and Métis communities in close proximity to the Park.

Hydro One recognizes the importance of consultation with Indigenous communities in connection with the proposed LSL Project. Hydro One's Indigenous consultation process is designed to provide relevant project information to Indigenous communities proximate to the LSL Project in a timely manner. The process enables affected Indigenous communities to review, consider and raise issues, concerns and questions they may have with the LSL Project. The process also allows Hydro One to respond to any concerns or questions raised in a clear and transparent manner.

DESIGN

Robert E. Nickerson Memorandum

On April 30, 2018, NextBridge filed additional material to supplement its motion. The material includes a memorandum from Robert E. Nickerson detailing his concerns based on his interpretation of Hydro One's s. 92 application and a picture of a tower schematic taken at an open house. The points below (A-Z) were extracted from Mr. Nickerson's Memorandum with Hydro One's explanation below to specifically address the highlighted concerns or perceived missing information, and ultimately provide assurances that the technical integrity and reliability of the line will be maintained through the Park.

Hydro One, in conjunction with its EPC Partner SNC-Lavalin, has an impressive, competent team of experienced engineers working on the Lake Superior Link Project design. This includes Dr. Ibrahim Hathout and Messrs Angel Pinto Unda, Roman Makuch, Abdel Nasser Haidar and Mourad Meziane. Their CVs, demonstrating their levels of competence and experience behind the Lake Superior Link designs, are provided in Attachment 16. These individuals have been developing the design for several months, which Hydro One assumes is much longer than the time Mr. Nickerson has had to review and make assessments based on the Hydro One s. 92 Application and the photos included in his memorandum.

A. My review included Hydro One's Lake Superior Link Leave to Construct Application (Application), along with the IESO's System Impact Assessment Report (Additional Evidence) and Hydro One's tower designs that were provided to me by NextBridge.

It is important to note that Mr. Nickerson is making his conclusions based on a tower schematic at an open house meant to provide a simple visual for the general public to the type of structure to be used through the Park. Mr. Nickerson does not have sufficient information, including engineering data or design drawings, that would normally be required to make competent conclusions (see item B below).

B. Unfortunately, as explained in this memorandum, even with this information, the Hydro One Application does not provide sufficient information to determine that it has followed a prudent design and testing regime for this relatively unique quad circuit tower design...

Many of the details required to make a proper assessment are included in the full Design Criteria which is not normally included in s. 92 applications (neither Hydro One nor NextBridge included it). However, Exhibit C, Tab 2, Schedule 1 says that the Project complies with code and design requirements, namely:

OEB Minimum Technical Requirements; OEB Minimum Design Criteria; Overhead Systems, CSA 22.3 No.1-15, Canadian Standards Association, June 2015 ("CSA Overhead Systems Standard"); Design Criteria of Overhead Transmission Lines, CSA 22.3 No. 60826:10, Canadian Standards Association, December 2010 ("CSA Design Criteria Standard"); and Guidelines for Electrical Transmission Line Structural Loading,

American Society of Civil Engineers Manual No. 74, Fourth Edition, 2016 ("ASCE Structural Loading Manual").

Unlike NextBridge, Hydro One understands firsthand the requirements in designing and operating a transmission line in the particular environments of northern Ontario, as Hydro One has owned, operated and maintained the current EWT Line and other lines for over 50 years. Hydro One's design criteria are based on the technical standards mandated by CSA and the OEB as well as Hydro One's robust loading specification considering heavy ice, wind plus ice, and high wind alone, in addition to the longitudinal loads for line security. The performance of the lines design to these criteria has been proven to be beyond satisfactory for the past 50 years, including in northern Ontario.

C. It is accepted industry practice that unique and new transmission tower configurations (such as that proposed by Hydro One), should be designed and full-scale tested to verify the ability of the structure to support design loads and meet code requirements.

In actuality there are two accepted industry standards, the first being testing as described and the second being the inclusion of additional safety factors to the design models. Hydro One and formerly Ontario Hydro have over 100 years of experience successfully designing angle and dead-end towers without testing using higher overload factor. No recorded failure of any dead-end tower has been experienced in the last 100 years.

Although Hydro One has the utmost confidence in the modeling, full-scale tower testing will be performed on the suspension towers to confirm the suitability of the tower design process and the tower detailing process. Sufficient timelines are incorporated within our schedule to accommodate any unforeseen modifications and retesting if required. Indirectly, the tests also confirm the correctness of the tower members themselves with respect to their connections, steel grades, sizes, and lengths. These towers will be tested according to the international standard IEC 60652.

D. For one tower structure design, this process could take well over one year. In addition, if the inspection of the foundations show that some or all of the foundations require repair or replacement, the effort and time necessary to develop an acceptable plan to mitigate and implement repairs to the foundations could also take a year. Thus, unless Hydro One can provide information and evidence that it has completed all of the above steps and tasks with acceptable results, it is likely Hydro One is over a year or more away from being able to provide the Ontario Energy Board (OEB) and stakeholders with the information and evidence needed to show it can safely and reliably construct and operate the new quad circuit towers on either existing foundations or new foundations, if needed.

The projected timeline to start assembling towers for the Park is June 2020 for the August 2020 outage, which is more than two years from the current date. Given Mr. Nickerson's one-year timeline concern, the current Hydro One timeline provides ample time to ensure that these quad circuit towers and foundations are designed and verified, including load testing.

E. The Application and Additional Evidence does not provide any information that Hydro One has completed any of these tasks or steps. If Hydro One has completed these tasks for its proposed design, I would want to review the supporting data and conclusions. I am concerned that a new quad circuit tower, as proposed by Hydro One, is not appropriate, safe, and reliable given the likely loading on the lines, icing conditions experienced at the Park, and the use of existing foundations.

The suitability of the quad structure design has been developed and modelled to incorporate the most stringent of the ruling standards (refer to item F below). Tower design and modelling in combination with the available site information, such as LiDAR, will provide a design that is both safe and reliable. The remaining steps are tower optimization, which can be done with the load tests, and physical field surveys to confirm the foundation conditions and incorporate necessary reinforcements as required.

The quad towers and foundations were designed and will be stamped by Professional Engineers in the Province of Ontario. All reliability, safety, and security measures have been implemented.

F. Hydro One has not defined the loading requirements for the structures. Included within loading requirements is the ability to resist unbalance longitudinal loading icing events. The severe longitudinal cascade on the Hydro-Quebec system in January 1998 prompted stronger requirements to meet both vertical and longitudinal loads imposed under heavy ice conditions.

During the 1998 ice storm, Hydro One transmission towers withstood the same storm with minor damages, unlike Hydro-Quebec structures. This testifies to the robustness of the Hydro One design criteria.

The project design incorporates the necessary loading requirements for the structures including the associated weather factors representing a one-in-100-year storm. The tables below, which have been extracted from the Design Criteria, provide the details of the loads being considered.

The following table lists the weather cases to be used for the design of structures, conductors, ground wires and hardware:

Cases	Designation	Reference wind pressure on conductors (Pa)	Temp °C	Ice	
				Thickness (mm)	Density (kg/m3)
Deterministic CSA	CSA Heavy	400	-20	12.5	900
	CSA Swing (1)	230	50	0	0
	CSA Swing (2)	230	4	0	0
	CSA Temp Jan	0	-14	0	0
Utility (Hydro One)	Every Day Temp	0	3	0	0
	Maximum Temp	0	127	0	0
	Extreme Cold Temperature	0	-50	0	0
	Ice alone U	0	0	25	900
	Wind alone U	760	15	0	0

	Wind and Ice combined U	384	-20	12.7	900
	Gallop U	130	0	12.7	900
	Bare Cond 15	0	15	0	0
	Bare Cond -20	0	-20	0	0
	Swing (1)	572	15	0	0
Utility (Hydro One)	Swing (2)	245	15	0	0
	Swing (3)	238	-30	0	0
	OPGW Max Tens	380	-20	12.7	900
Ontario Energy Board (OEB)	Limit Tens OEB 1	0	-30	0	0
	Limit Tens OEB 2	0	0	12.5	900
Probabilistic CSA 60826 Wawa	Maximum wind – terrain “C”	833	3	0	0
	Maximum wind – terrain “B”	999	3	0	0
	Maximum ice	0	-10	35.5	900
	Wind and High Ice - terrain “C”	141	-10	35.5	900
	Wind and High Ice - terrain “B”	169	-10	35.5	900
	Wind and Low Ice – terrain “C”	317	-10	19	900
	Wind and Low Ice – terrain “B”	381	-10	19	900
	Wind and wet snow - terrain “C”	317	-10	36	350
	Wind and wet snow - terrain “B”	381	-10	36	350
	Reduced Wind with low temperature – terrain “C”	624	-36	0	0

	Reduced Wind with low temperature - terrain "B"	749	-36	0	0
	Construction and Maintenance – terrain "C"	65	-20	0	0
	Construction and Maintenance – terrain "B"	78	-20	0	0
	Unbalanced ice load	0	-5	35.5/28	900

Cases	Designation	Reference wind pressure on conductors (Pa)	Temp °C	Ice	
				Thickness (mm)	Density (kg/m3)
Probabilistic CSA 60826 Thunder Bay	Maximum wind - terrain "C"	889	3	0	0
	Maximum wind - terrain "B"	1067	3	0	0
	Maximum ice	0	-10	32	900
	Wind and High Ice - terrain "C"	151	-10	32	900
	Wind and High Ice - terrain "B"	181	-10	32	900
	Wind and Low Ice - terrain "C"	339	-10	17	900
	Wind and Low Ice - terrain "B"	406	-10	17	900
	Wind and wet snow – terrain "C"	339	-10	32.5	350
	Wind and wet snow – terrain "B"	406	-10	32.5	350
	Reduced Wind with low temperature – terrain "C"	659	-33	0	0
	Reduced Wind with low temperature – terrain "B"	791	-33	0	0
	Construction and Maintenance – terrain "C"	65	-20	0	0
	Construction and Maintenance – terrain "B"	78	-20	0	0
	Unbalanced ice load	0	-5	32/25	900

Note: 1) The probabilistic loading cases were established for a 1-in-100-year return period.
 2) The ice thickness on conductors was established based on the diameter of Grackle conductor.
 3) The wind pressures on conductors to be used for probabilistic loading cases have been determinate based on average conductor height of 30m and wind span of 300m.

The loading cases for the suspension structures are presented in the tables below:

Suspension Towers

Loading Case	Temp. (°C)	Radial Ice		Wind pressure on structure or dynamic reference wind pressure q_0 (Pa)	Strength Factor	Overload Factors		
		Thickness (mm)	Density (Kg/m ³)			Vert.	Trans.	Long
CSA Heavy	-20	12.5	900	1200	1.0	1.15	1.1	1.0
Ice alone U	0	25	900	0	0.9	1.0	1.0	1.0
Wind alone U	15	0	0	2100 on 1.5 projected area of one face	1.0	1.1	1.1	1.1
Wind and Ice combined U	-20	0	900	760 on 1.5 projected area of one face	0.9	1.0	1.0	1.0
Broken Wires at 75% unloaded tension (two ground wires or two conductors, one on each side of structure in opposite directions)	15	0	0	0	1.0	1.1	1.1	1.1
Construction and Maintenance as per CSA 60826	-20	0	0	Calculated as per CSA 60826	0.5	1.0	1.0	1.0
				With $q_0=26$				
Maximum Wind - Wawa	3	0	0	Calculated as per CSA 60826 With $q_0=329$	0.9	1.0	1.0	1.0
Maximum Ice Wawa	-10	35.5	900	0	0.9	1.0	1.0	1.0
Wind and Ice H (0.4V _r +gR)– Wawa	-10	35.5	900	Calculated as per CSA 60826 With $q_0=56$	0.9	1.0	1.0	1.0
Wind and Ice L (0.6V _r +0.4gR)– 900 – Wawa	-10	19	900	Calculated as per CSA 60826 With $q_0=125$	0.9	1.0	1.0	1.0
Wind and Wet Snow L (0.6V _r +0.4gR)– 350 – Wawa	-10	36	350	Calculated as per CSA 60826 With $q_0=125$	0.9	1.0	1.0	1.0
Reduced Wind with low temperature – Wawa	-36	0	0	Calculated as per CSA 60826 With $q_0=247$	0.9	1.0	1.0	1.0

Loading Case	Temp. (°C)	Radial Ice		Wind pressure on structure or dynamic reference wind pressure q_0 (Pa)	Strength Factor	Overload Factors		
		Thickness (mm)	Density (Kg/m ³)			Vert.	Trans.	Long
Non-uniform ice loading conditions as per CSA 60826 – Wawa	-5	35.5/28	900	0	0.9	1.0	1.0	1.0
Maximum Wind - Thunder Bay	3	0	0	Calculated as per CSA 60826 With $q_0=352$	0.9	1.0	1.0	1.0
Maximum Ice Thunder Bay	-10	32	900	0	0.9	1.0	1.0	1.0
Wind and Ice H (0.6V _r +gR)– Thunder Bay	-10	32	900	Calculated as per CSA 60826 With $q_0=60$	0.9	1.0	1.0	1.0
Wind and Ice L (0.6V _r +0.4gR)- 900 – Thunder Bay	-10	17	900	Calculated as per CSA 60826 With $q_0=134$	0.9	1.0	1.0	1.0
Wind and Wet Snow L (0.6V _r +0.4gR)- 350 – Thunder Bay	-10	32.5	350	Calculated as per CSA 60826 With $q_0=134$	0.9	1.0	1.0	1.0
Reduced Wind with low temperature – Thunder Bay	-33	0	0	Calculated as per CSA 60826 With $q_0=261$	0.9	1.0	1.0	1.0
Non-uniform ice loading conditions as per CSA 60826 – Thunder Bay	-5	32/25	900	0	0.9	1.0	1.0	1.0

G. Specifically Jean-Pierre Giroux, director of Planning at Hydro-Quebec, stated in an overview:

“Now, our new construction standards limit the potential for that effect. The mechanical strength of our grid has been increased. For instance, by making every tenth tower along a transmission line a very robust anti-cascading tower, we limit the damage that results from the collapse of a single tower.”

Hydro One designs its transmission lines to limit cascading by providing suspension towers with longitudinal resistance. The 1998 ice storm shows that the Hydro One design criteria prevented cascading failures.

In any event, as a result of these and other events, the Canadian Standards have been updated which are reflected in the most recent standards which are being adhered to in the Hydro One designs. The tower design prevents the cascading effects using the following loading conditions:

- Broken Wires at 75% unloaded tension (two ground wires or two conductors, one on each side of structure in opposite directions).

- Non-uniform ice loading conditions as per CSA 60826 – Wawa and Thunder Bay using 100% of ice on one side and 70% of ice on the other.

H. With a single mast guyed structure pinned at the base, the structure movement allows redistribution of the load, an important benefit in resisting longitudinal and torsional loading. A freestanding structure’s rigidity does not allow this movement and guy pretension is critical to support of the structure. Hydro One’s quad circuit proposal is more likely to be susceptible to a severe longitudinal cascade on the Hydro One system than the current double circuit design. However, given the limited information provided by Hydro One it is not possible to determine whether Hydro One tower design will or will not be at a high risk for a severe longitudinal cascade.

The tower has been designed to resist longitudinal loading in accordance with Hydro One robust design security loading (failure containment) and CSA 60826 longitudinal loading.

I. It is self-evident that any event on the Hydro One quad circuit structures akin to what occurred on the Hydro-Quebec system would result in a prolonged outage and restoration effort. Therefore, it is prudent to understand how Hydro One will design its quad circuit structures so not to result in a Hydro-Quebec type event, and, how Hydro One will timely restore its transmission line in the event of a single point of failure event on the quad circuit structures. To date, this information has not been provided by Hydro One for review by the OEB and stakeholders.

Refer to items F, G and H above. Hydro One design criteria have been proven to result in transmission lines that can resist ice storms as demonstrated during the 1998 ice storm. Hydro One transmission system suffered only minor damages and NO cascading failures.

Regarding the restoration in the case of remote possibility of failure, Hydro One has a robust restoration plan and an efficient double circuit bypass design (see Attachment 17).

J. Full-scale Test Structure: A full-scale tested structure provides validation of tower design assumptions, detailing, and structure performance. Any special foundation attachments should be included in the full-scale test. It would take at least 4-5 months for bidding the testing, development of the test plan, fabrication, prototype assembly, shipping to the test site, assembly, erection, rigging, and testing. Test site backlogs are on average 3-4 months at this time, thus it is unlikely Hydro One can accomplish full-scale testing in less than 8-9 months. If the testing shows design flaws, redesign of the tower and re-testing can take up to 2-3 months. Without a full-scale test of this new quad structure, Hydro One is not meeting an industry accepted approach for ensuring its tower design is safe and reliable.

See Item C above. The proposed timelines are more than sufficient to address the concerns expressed on this point.

K. Location and Installation of “new” Guy Anchors: It is likely that contrary to Hydro One’s plans, the newly installed guy anchors on the quad towers will require additional construction within the Park. There is no basis in Hydro One’s evidence (Exhibit C, Tab 1, Schedule 1, page 8), that the use of guy anchors will not result in a widening of the transmission corridor.

Proper and thorough engineering design and modelling suggest the contrary. The quad structures have been modelled using the LiDAR data of the ROW. This has determined that the current 150’

ROW is sufficient to locate the guy anchors, therefore no widening of the corridor is required. Unless Mr. Nickerson has properly modelled and analyzed the structures, which is unlikely with his admission that he had no design information, his conclusions are completely unfounded.

- L. Hydro One must provide fully designed and tested quad towers for each of the 87 locations to know whether it can implement its proposed design without widening the transmission corridor. If the anchors are installed outside of the right-of-way (ROW), land acquisition and additional clearing may be necessary. Sidehill variations can result in long guy leads and further clearing in the Park and a greater widening of the ROW.**

Refer to items C and K above. Testing a tower is not a requirement to understand the footprint of a required tower. Proper design and modelling provides the required information to assess these requirements. All the guyed structures have been designed to maintain the guy anchors inside the 150' ROW. In the section inside the park, the structures are located in terrain that is predominantly flat; however, where areas have very steep slopes, the guy anchors have been adjusted to remain inside the existing ROW.

- M. Of additional concern is impact to a guy from a tree falling which could result in a failure to the tower. To illustrate this point, attached to this memorandum is a depiction of how far from the tower the anchor guys will need to be placed because of the terrain in the Park.**

Hydro One has vegetation management programs to assess the condition of its ROWs. When danger trees are discovered, they will be removed or trimmed to mitigate the risk of trees falling into the line.

N. Second-order Effects on the Freestanding Structures

“Guyed” Structure with Regards to Structure Displacement: The interaction of the structure and guys are unknown without a review of the proposed structure model. However, as shown in the figure, the amount of torsional displacement for a pinned guyed structure shows the torsional effect on the structure. The rotational movement reduces the longitudinal loading with a “pinned” mast, but it must be resisted by a freestanding structure. Guy pre-tension in guyed pinned structures allows some variability as the structure is free to move until equilibrium is met. For freestanding guyed structures, it is critical that the guy pretension is maintained. If the pretension slacks off, the support at the guy location will not be effective, and, thus, it will not support the structure. Maintaining a proper pretension in the guy for freestanding towers requires an additional level of maintenance. Hydro One has not provided the information necessary to understand whether it has addressed these issues in its tower design.

Finite Element Computer model for the quad tower was created, and extensive analyses have been carried out to ensure the structural integrity and reliability is not compromised.

In addition, Hydro One has a maintenance program in place to inspect and measure the guy wire tension and adjust the tension as required. Hydro One has hundreds of kilometres of well-maintained 500kV guyed towers in Northern Ontario. There have been no failures reported due to premature guy breakage on any of these towers.

- O. The Lack of Any Failure Containment Structures Within the 35km (≈22 mile) Corridor: Utilizing the existing foundations and ROW limits the ability to install a containment structure in this line segment. Thus, if a cascade occurs, it is possible the entire section**

would be impacted. The installing of at least two failure containment structures would require additional effort, and, at this time, it does not appear that Hydro One has considered, analyzed, or will include containment structures in this section.

Refer to items F, G and H above.

P. Existing Foundation to Structure Connections:

The existing foundations need to be inspected. As indicated in the photo below of a typical structure on this line, the original design provided some flexibility for installation of the tower, but, also, resulted in large unbraced lengths of the stub angle.

During the design phase, a thorough engineering review of the as-built drawings of the existing foundation types was completed to assess their suitability for supporting the new quad circuit structures. It has been determined that the existing types of foundations utilized on the structures within the Park are suitable to support these new quad circuit structures provided that guy wires are added to the new structures. Following a detailed site survey, the existing foundations will be refurbished and reinforced to the new conditions, as required.

Q. A new guyed tower will develop much higher axial loads and likely the existing stub angles will be inadequate as currently braced. In addition, the concrete is starting to develop cracks that are propagating as seen in the lower left corner detailed view below. Without a more thorough investigation it is not clear if the stub angle or reinforcement is compromised. Below grade conditions are also unknown.

Hydro One will be conducting an extensive on site investigation to survey the existing foundations and their stub angles. The final quad circuit tower structure will be designed taking into account the results of this survey to ensure that the new structures are compatible with the existing foundation stubs. Further, as part of this investigation, any potential issues relating to the foundations can be found at the design stage and therefore engineered and implemented during the project scope within the project schedule.

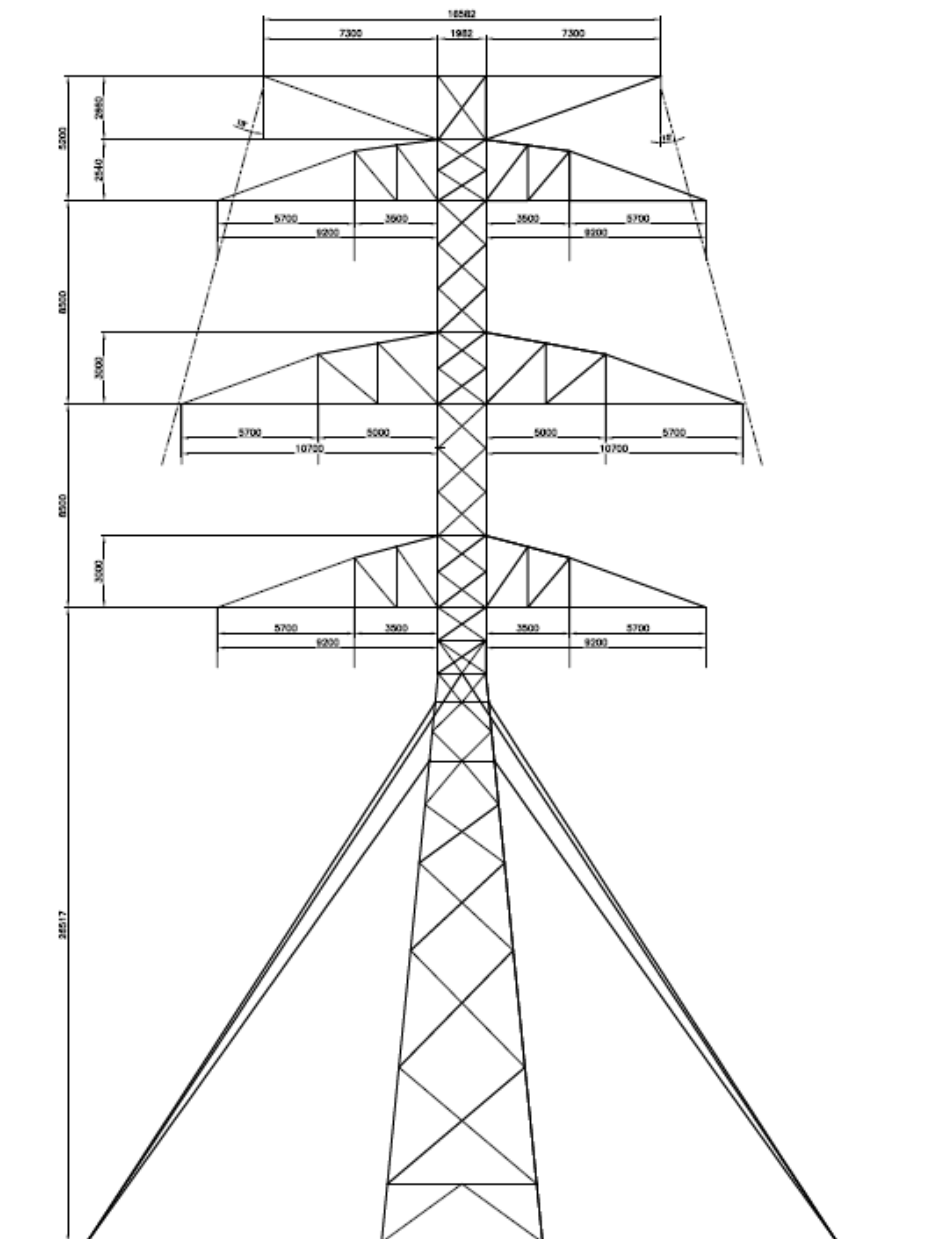
Hydro One periodically inspects the existing EWT, including the section through the Park. These inspections consist of visual surveys of the line including condition of the visible foundation structures. If foundations are seen to be in need of repair, the appropriate maintenance is performed to ensure continued integrity. To date no foundations have required any major repair.

R. The attached configuration presented by Hydro One at the open house does not meet the following requirements: (1) the OEB's shielding requirement of 15° (shown as 32°); (2) the OEB's galloping clearances of 1.02M between phases; and (3) the horizontal phase to phase separation between circuits as required by CSA 22.3 No. 1. Also, the conductor blow out will exceed the ROW limits under high wind conditions.

The memorandum refers to a picture of a sketch meant only to visually demonstrate the profile of the quad circuit towers through the Park. All the structures will be designed to meet the OEB requirement of 15°. In addition the phase separation between circuits is 5.7 meters which exceeds the requirements of CSA 22.3. Figure N° 1 below of the quad circuit towers below demonstrates the proper geometry.

All the structures will be designed to meet the following galloping clearances:

Load conditions	Conductor/overhead ground wire	Clearance (m)
Galloping U (12.7 mm ice, 130 Pa, 0 °C)	Phase to phase	1.02
	Phase to ground	0.60



S. In conclusion, using the Hydro One existing line section in the Park with guyed quad circuit structures and existing foundations poses high risks. For example, a thorough

review of all foundations above and below grade is critical. The stub angle design needs to be reviewed since, as detailed herein, it likely will not support the existing design loads, and with greater axial loads it would need to be modified.

Refer to items C and P above. The feasibility of being able to place towers on existing foundations has been determined through proper engineering design and review. The detailed designs for each of the 87 locations are well advanced; however, in line with typical EPC delivery practices, these will be completed after a thorough survey of each foundation. The foundations will be refurbished as required, and the foundation drawings will be stamped by Professional Engineers.

T. While it may appear expedient to use the existing line and foundations to reduce initial costs, future maintenance efforts and costs will likely be greater with forty year old foundations and existing conductors and insulators.

The fact is - it is more expedient and cost-effective to utilize existing infrastructure. It is not only cost-effective, but also, by avoiding 225 hectares of unnecessary deforestation, it is environmentally and socially prudent. The opportunity to assess and upgrade these 50-year old foundations assures their integrity and addresses any unknown deficiency, thereby actually reducing long-term maintenance and increasing longevity of the current EWT line through the Park.

U. Also, without a full understanding that the new quad circuit tower designs have been fully tested, it is questionable whether Hydro One has accurately accounted for the costs of the design, as it appears the design is far from final.

Refer to item C above. As should be known by Mr. Nickerson, testing is also done to optimize the structure design and prevent “over-engineering” of the towers. Testing will provide opportunities to optimize the final design and reduce the generous safety factors which would reduce the cost of required material and installation. As long as no specifications have changed, risks and costs to alter or reinforce the final design is borne by our EPC partner SNC-Lavalin and not subject to increased costs for the Project.

V. New guy anchor installation may require additional ROW. Acquisition of new ROW would impact the project by potentially delaying the installation of the guy anchors. Installation and testing of the guy anchors will also impact the Park.

Refer to items K, L and M above. The current modeling and engineering designs, which are based on field data and LiDAR, show that all 87 structures can be installed within the specified 150' ROW.

W. Further, the potential impact to the Park could be significant if a major failure such as a longitudinal cascade occurs. Without a failure containment structure, there is a significant risk associated with Hydro One's proposal.

Refer to item I above.

X. Since the guy system is critical to the support of the proposed quad tower, a failure of one guy could result in a transverse failure under high wind loading. A failure containment structure would not prevent this type of tower failure.

The guy system for the guyed self-support tower is less critical than the typical base pinned guyed tower, such as the NextBridge guyed tower design. With one guy failure, the guyed self-support tower will sustain higher wind loading than the pin-based tower.

Y. As mentioned, the IESO recognizes the significant impact of the loss of only one structure on the 35km section and states “[e]xtreme contingencies that result in the loss of the four 230 kV circuits of the East-West Tie such as failure of a quadruple circuit tower can result in separation between the Northwest transmission zone and the rest of the IESO-controlled grid.” The IESO acknowledges the risks of failure in the 35km section in the Park which would affect four circuits (two important lines) yet Hydro One is proposing to build a new quad structure on forty year old foundations.

The new line is designed for higher reliability (100-year return) than the existing line (50-year return). In addition we have robust contingency plan for double circuit emergency bypass (refer to Item I above)

Hydro One has many quad circuit tower lines and has never experienced tower failure with them.

Z. Hydro One has not provided information and evidence demonstrating that it has conducted industry accepted steps and tasks related to the consideration of a new tower design. As explained herein, there are fundamental processes, including industry accepted testing, that need to be completed prior to understanding the implications of Hydro One’s proposal on the ability of the designs to be constructed and operated reliably.

Refer to item C above. It is clear that Mr. Nickerson is focused on only one industry-accepted practice, which is tower testing. Utilizing additional safety factors and including them in the modern modelling software provides the designers with a high degree of understanding on the requirements to produce a tower design that is functional and reliable. This technique has been used by Hydro One for many years with considerable success.

INDIGENOUS CONSULTATIONS

In the NextBridge April 30 submissions, with respect to Indigenous consultation, NextBridge states:

In NextBridge’s experience, it is unrealistic to meaningfully engage and negotiate economic participation in relation to a new project with eighteen First Nations and Métis groups within the timelines proposed by Hydro One.

In Hydro One’s s. 92 application for the LSL, Hydro One references achieving agreements with Indigenous communities within 45 days from receipt of OEB approval of its Application. This 45-day timeframe is in relation to finalizing any terms and conditions that may be agreed upon between Hydro One and the six First Nation partners in Bamkushwada Limited Partnership (BLP) to establish mutually agreeable terms with regards to a limited partnership that will own the Lake Superior Link assets. The 45-day timeframe is contingent upon OEB approval of Hydro One’s Application to construct the LSL. Hydro One is prepared to immediately begin negotiations regarding a limited partnership opportunity with BLP and has already attempted to commence those consultation activities. Hydro One remains committed to reaching agreeable finalized terms within 45 days following OEB approval.

Hydro One’s consultation with Indigenous communities on this Project began immediately following its Application and will continue throughout the life of the Project and after project completion. Further details regarding Hydro One’s Indigenous consultation principles and accommodation measures are described above.

SYSTEM ASSESSMENT

Rich Bolbrock Memorandum

Within the NextBridge April 30, 2018, additional evidence, there is a memorandum from Rich Bolbrock detailing his views that from a transmission planning and operations perspective, Hydro One's quad circuit design is flawed as it increases a number of reliability risks and may cause violation of NPCC reliability standard. Assertions made by Mr. Bolbrock and Hydro One's evidence in response to those assertions are found below.

- A. In contrast to the IESO's Needs Assessments confirming the need for the EWT in 2020 for all of the above reasons, Hydro One is proposing an in-service date of December 2021. Hydro One, however, provides no technical analysis to support this proposed in-service date. From a transmission planning and operations perspective, the lack of technical analysis to support Hydro One's proposed in-service date of December 2021 is a fatal flaw.**

The IESO 2017 needs report did not "confirm" the need for the EWT in 2020: the IESO's need report says,

"The IESO continues to recommend an in-service date of 2020 for the E-W Tie Expansion project. Discussions with the transmitters confirmed their ability to meet this date, dependent on timely regulatory approvals. The IESO will continue to support the implementation of the project and monitor electricity supply and demand in the Northwest until the E-W Tie Expansion Project comes into service." [emphasis added]

The IESO, in this conclusion, acknowledged that the in-service date may not be met. This date was dependent on timely regulatory approvals, a matter outside the IESO's control. Knowing this, the IESO must have known that in case such delays materialized there were alternative solutions to ensure a safe supply of electricity in the Northwest.

As explained in the Hydro One's response to Question 2e of the Notice of Motion, the shortage in 2018 to 2020 is manageable without significant risk to supply adequacy. Similarly, the risk of a marginal 10MW increase in forecast capacity shortfall in 2021 is also manageable. The delay of up to one year in the in-service date offers significant cost savings without unmanageable risk to supply adequacy.

- B. Hydro One claims that a 2021 in-service date is appropriate because of ". . . the low probability of coincidental events resulting in a capacity shortfall, this delay [to December 2021] is manageable through existing operational practices." Exhibit B, Tab B, Schedule 1, Page 8. This statement is far from a technical analysis showing that it is acceptable to move the in-service date as Hydro One proposes. The significance of Hydro One's flawed position is magnified by the fact that IESO's Needs Assessments were undertaken with considerable technical acumen when deciding whether the EWT should be constructed by the end of 2020.**

Hydro One does not dispute the ultimate capacity need of this project or the Need Assessment completed by the IESO. Contrary to the above suggestion, Hydro One's proposed solution is based on its intimate understanding of the Ontario Northwest system and operating dynamics, as well as the facts reported in the IESO's 2017 Need Assessment which indicated a manageable shortfall of 100 to 240 MW in 2018 to 2020 and marginal 10MW increase to 250 MW in 2021. [Page 13, lines 23-28 and Figure 5]

- C. In addition, Hydro One’s proposal to use 87 quad circuit towers for approximately 35 kilometers through Pukaskwa National Park is not congruent with the IESO’s identification of the system and operational benefits associated with the proposed new two circuit EWT that was the subject of both the 2015 and 2017 Needs Assessments. Specifically, Hydro One’s design includes a single point of failure for the existing and new EWT for the 87 quad circuit towers. This design does not mitigate, but, rather, perpetuates the following reliability risks which were to be addressed by the new EWT having separate towers and corridors:**

This is incorrect. By virtue of the SIA issued by the IESO, the Hydro One-proposed solution meets all the requirements as set out by the IESO. In addition, the three quoted paragraphs following this statement by Mr. Bolbrock apply equally to both Hydro One’s Lake Superior Link and NextBridge’s EWT Line proposals, since in both cases, loss of all four circuits (either on common towers or on two adjacent 2-cct towers in the same corridor) is an extreme (rare) event and would have similar consequences.

- D. . . . this E-W Tie planning limit relies on support from Manitoba following contingencies on the E-W Tie, which cannot be counted on for more than 30 minutes. As a result, there must be sufficient capacity in the Northwest to not only adequately supply the expected demand in the Northwest while staying**

A 100 MW capacity need already exists today, and this need continues to grow to approximately 240 MW by the original 2020 in-service date. By 2022, the capacity need exceeds 260 MW and grows to approximately 400 MW by 2024. The need for additional capacity increases to about 500 MW by 2035 as demand continues to grow and as supply changes. (2017 IESO Needs Assessment, Page 13)

In this update, expected westbound flows exceed the existing E-W Tie capability approximately 5% of the time. This is based on application of the winter rating of 175MW throughout the year. Applying the more restrictive limit of 155 MW during the summer months would result in a higher level of westbound congestion. Eastbound congestion is expected to occur approximately 6% of the time in 2023. (2017 IESO Needs Assessment, Page 14)

Hydro One does not argue the ultimate capacity need of this project. Both Hydro One’s and NextBridge’s solutions will result in achieving the same 450MW in Stage 1 and 650MW in Stage 2.

- E. Hydro One’s proposal did not provide any technical analysis showing that it is acceptable for Northwest Ontario to be exposed to a single point of failure that could implicate these limits.**

This is incorrect. The reference to extreme contingencies applies to the Hydro One solution with four circuit towers as well as to NextBridge’s solution of a new line adjacent to the existing east-west tie line for a distance of approximately 200km. The “limits” are Planning limits that meet all NERC and ORTAC criteria and are the same for both LSL and NB’s EWT Line.

- F. From a transmission and operations perspective, the two double circuit design for all of the existing and new EWT is superior, because that design provides operational flexibility to address these limits in real-time.**

NextBridge’s design does not offer any additional “operational flexibility” relative to Hydro One’s design

- G. The IESO System Impact Assessment (“SIA”) report, (filed by Hydro One on 2018-03-29, Additional Evidence, EB-2017-0364, Exhibit F-01-01, Attachment 3) has, in my opinion, only marginally endorsed the interconnection of the LSL project.**

This is incorrect. There is no “marginal” endorsement in SIA and associated *Notification of Conditional Approval for Connection* (COLA). For both Hydro One’s and NextBridge’s proposed solutions, the SIA stated the very same following approval:

The project will not have a material adverse impact on the reliability of the integrated power system. It is therefore recommended that a *Notification of Conditional Approval for Connection* be issued for the project subject to the requirements listed in this report.

And in each transmitter’s SIA, the Executive Summary said:

The proposed modifications are expected to be adequate for the targeted westward transfer level of 450 MW across the East-West Tie.

- H. For example, the IESO indicates that the quadruple circuits on common towers creates single failure point as an extreme contingency that can result in the Northwest system shedding a minimum of 100MW load to keep the rest of the system reliable. Also, in the Additional Evidence at page 2, the IESO findings include concerns and suggest mitigation measures**

Extreme contingencies that result in the loss of the four 230 kV circuits of the East-West Tie such as failure of a quadruple circuit tower can result in separation between the Northwest transmission zone and the rest of the IESO-controlled grid. Following such events, timely system restoration is critical to avoid the risk of supply shortages to the customers in the zone;

NERC requires a deterministic assessment (rather than probabilistic) of contingencies, including extreme contingencies. Extreme contingencies are not limited to four circuits on a common tower. A contingency involving two double circuit towers on the same corridor, resulting in the loss of the same four circuits, has to be assessed equally from an extreme contingency perspective as required by the NERC standard. Hydro One will address the IESO SIA recommendation to consider integrating features for detecting and mitigation extreme contingencies within the NW Special Protection Scheme (“SPS”) 2.

The IESO’s LSL SIA suggested that for the extreme contingency event of the loss of four circuits the NW SPS 2 should be modified to include this contingency. This is applicable to both Hydro One’s and Nextbridge’s solutions to mitigate the impact of this extreme event.

- I. Outages to the existing East-West Tie circuits will be required to install the project, especially the 35 km section between Wawa TS and Marathon TS where the existing double circuit towers of W21M and W22M will be replaced with quadruple circuit towers to accommodate the new W35M and W36M circuits. An outage plan that contains the details of this replacement has not been presented to the IESO at the time of this report.**

The reference above is incomplete. In the same SIA, the IESO stated clearly, “At least twenty-four months before the commencement of any project related outages, the connection applicant

shall submit an outage plan acceptable to the IESO for the installation of the project”. (Requirement #3 of the SIA on Page 3) Hydro One plans to meet this requirement.

- J. The SIA at page 13 further discussed the possible frequency of the loss of the quadruple circuits, stating that “The Northwest zone is prone to thunderstorms from April 1st to October 31st.” Therefore, the IESO on this same page states that during this seven month period in a year it will have to prepare the system to withstand the loss of all four 230 kV circuits “either reducing the transfer pre-contingency or by arming load rejection”. The listing of these concerns shows that the IESO views the quad circuit design as one that presents additional reliability risks. This discussion in the SIA is also indicating that Hydro One has not presented the requisite plans for the IESO to understand if the risks can be adequately mitigated.**

This is an incorrect interpretation. Firstly, the IESO does not posture the system for storm conditions for seven months continuously: this additional posture is applied only during approaching storm conditions over specific areas and for short periods of time. Secondly, the IESO is referring to the loss of four circuits in the context of an extreme contingency. As noted in Paragraph H, Hydro One will adopt the IESO’s SIA recommendation to include features for detecting and mitigating extreme contingencies within the NW SPS 2. The modification of the NW SPS 2 to include the four circuit extreme contingency will eliminate the need for transfer reductions pre-contingency.

- K. In addition, as explained by the IESO on page 13, at the time of the SIA study, the load rejection scheme, referred to as NW SPS 2, did not provide features for detecting extreme contingencies involving more than 2 circuits – which is clearly an issue for a quad circuit configuration.**

Failure of a 4-cct tower (in a 35 km span) has the same consequence as the loss of two 2-cct tower (that are adjacent to each other over ~200 km).

The IESO’s SIA suggested that for the extreme contingency event, the loss of four circuits, the NW SPS 2 should be modified to include this contingency. This is applicable to both Hydro One’s and Nextbridge’s solutions to mitigate the impact of this extreme event.

- L. The feasibility and implementation of such a load shedding scheme notwithstanding, the arming for two double-contingencies in preparation for the loss of the four circuits can and will result in unnecessary load disconnection if this extreme contingency occurs.**

See paragraph K above. This applies to both the Hydro One and Nextbridge solutions.

- M. Further, the NW SPS 2 is already a very complex scheme. It becomes more complex with the modifications needed to accommodate the loss of a quad tower and its operation becomes more likely.**

The Ontario system has SPS’s that are more complex than the NW SPS 2, and the addition of two contingencies for extreme events does not add to the complexity of the scheme. As stated above, this SPS addition will be recommended for both Hydro One’s and NextBridge’s solutions.

- N. These schemes are usually employed only when there are no other reasonable options. Thus, from an operational perspective, proceeding with quad circuit design without a**

resolution of the NW SPS 2 issue adds an additional layer of risk that has not been addressed by Hydro One's evidence.

The SPS discussion pertains specifically to the extreme contingency event of the loss of four circuits. This is applicable to both Hydro One's and NextBridge's solutions (NextBridge has the same four circuits on the same corridor for 200km) to mitigate the impact of this extreme event. In this context, an SPS is a reasonable and cost-effective approach. The alternative to an SPS approach would require the construction of additional transmission facilities on a separate corridor for the entire length of the East West tie at much higher cost. SPS to mitigate extreme contingencies are currently used in Ontario as well as other jurisdictions.

O. The IESO's SIA at page 7 states:

... once the new SVC is installed at Marathon TS, the East-West Tie transfer capability can be increased to 650 MW westward. At this increased transfer level, Marathon TS, together with all of the 230 kV circuits that terminate at that station (existing: M23L, M24L, W21M and W22M, and new: M37L, M38L, W35M and W36M) are expected to fall within the NPCC's BPS definition. Additional tests will be required to determine the future status of the terminal transformer stations, once the model for the Marathon SVC becomes available.

This finding of the IESO is significant from a transmission planning perspective, because once the LSL project and its quad circuit design are classified as Bulk Power System (BPS) element, the Northeast Power Coordinating Council (NPCC) planning and operation reliability standards will apply.

This applies equally to both Hydro One's and NextBridge's proposals (i.e. not related to 4-cct design). In both cases, the facilities will comply with NPCC requirements.

P. NPCC standards do not favor quad circuit towers. In fact, NPCC states that "if multiple circuit towers are used only for station entrance and exit purposes, and if they do not exceed five towers at each station, then this condition is an acceptable risk and therefore can be excluded."

This interpretation is incorrect and incomplete. This critique suggest that the IESO has not assessed this application adequately in their Transmission Planner role or has misinterpreted the Directory #1 requirements.

Upon examining Directory #1 requirements relative to multiple circuit towers, one can conclude:

1. Directory #1 does not prohibit in any way the use of multiple circuit towers. In fact, the reference indicates otherwise (it is allowed).
2. The quoted sentence in Directory #1 states that if multiple circuit towers are used for up to five spans for station entrance, they do not need to comply with the performance requirements for "simultaneous fault on two adjacent transmission circuits on a multiple circuit tower."
3. If multiple circuit towers are used for **more than** five spans, it is implied that the proposed solution must meet the "simultaneous fault on two adjacent transmission circuits on a multiple circuit tower" test.

4. In addition, Directory #1 has a requirement for assessing Extreme contingencies, including “Loss of all transmission circuits emanating from a ... switching station, substation or ...” which will apply not only to multi-circuit towers proposed by Hydro One, but also for two 2-cct towers (existing and new) in NextBridge’s proposal.

Q. The LSL will not be consistent with this NPCC standard, since it will consist of 87 quad circuit towers, not 5, and the towers are not entering or exiting a station. Therefore, as a result of the Hydro One proposal to have 87 quad circuit towers, the East West transfer limit cannot be increased to 650 MW without possibly violating the NPCC planning criteria under TPL-001-4.

To begin with, the TPL-001-4 is a requirement of NERC, not NPCC. The NERC TPL-001-4 has comparable requirements for normal and extreme contingencies that equally apply to the Hydro One and NextBridge solutions.

If and when the Hydro One or the NextBridge line, along with other facilities at Marathon TS (and possibly other stations) become BPS, they both must, and will, comply with NPCC Directory #1, which for normal contingencies asks for “Simultaneous fault on two adjacent transmission circuits on a multiple circuit tower” (equally applies to LSL and NB proposal) and extreme contingencies of losing all lines at a station. If there were any question of being able to meet those requirements, IESO would not have issued COLA to either Hydro One’s or NextBridge’s proposal.

R. Again, Hydro One’s Application and evidence does not address this issue, and, therefore, I view this as another fatal flaw in the Application from a transmission planning perspective. To overcome this possible violation, NPCC must grant an exception for exclusion of the LSL as BPS, or a third EWT transmission line will need to be constructed and operated in parallel to for the whole entire length of the quadruple circuits.

This interpretation is incorrect. There is no exception required for the Hydro One solution to meet the Directory #1 requirements.

S. From a transmission planning and operations perspective, I view Hydro One’s quad circuit design as flawed. As stated herein Hydro One’s proposal increases a number of reliability risks and may cause a violation of NPCC reliability standard. In the face of these concerns, Hydro One has presented no technical analyses. Thus, I would recommend against the Ontario Energy Board proceeding with Hydro One’s LSL proposal as currently designed.

The interpretation and critique in many of the above sections is incorrect, and in fact the critique suggests that in the IESO assessment, the IESO did not adequately assess the Hydro One application in their Bulk System Transmission Planner role or that the IESO misinterpreted the Directory#1 requirements.

Charles River Associates Report

On April 30, 2018, NextBridge filed additional material to supplement its motion. The material included a Report from Charles River Associates (“CRA”), commenting that Hydro One’s proposal to replace 87 double circuit transmission towers with quad circuit transmission towers through the Park is consistent with the findings in the IESO’s Assessment of the Rationale for the East-West Tie (“EWT”) Expansion (Third Update Report) December 15, 2015, and the IESO’s December 1, 2017. Assertions made by CRA and Hydro One’s evidence in response to those assertions are found below.

- A. As I explain below, I conclude that Hydro One's quad circuit proposal is inconsistent with the IESO Needs Assessments and will pose a barrier to resource development in Northern Ontario**

Hydro One disagrees with the above observation as described in the answers to the specific arguments below.

- B. In other words, the Needs Assessment does not attempt to resolve a future violation of a North American Electric Reliability Corporation Reliability Standard, but, rather, the Assessments confirm the need in 2020 for a reliable source of electric to meet the unique needs of the loads in Northwest Ontario**

As explained in the Hydro One's response to the Question 2e of the Notice of Motion and paragraphs A and B in our response to Rich Bolbrock above, the capacity shortage in 2018 to 2021 is manageable without significant risk to supply adequacy.

- C. Mining in Ontario Needs**



Figure 1. Mines in Ontario

This figure serves to illustrate that there is a flurry of economic activity at the industrial level occurring in Northern Ontario. This is discussed in greater detail in the sections that follow.

The IESO, in ITS four separate need assessments from 2013 to 2017, used information and forecasts that resulted in their recommendation to expand the EWT to provide 650 MW transfer capability (starting with 450 MW transfer capability in the first stage of the project). Hydro One does not dispute the need. However, as stated in response to Mr. Bolbrock [re: response to 2020 vs 2021 ISD], in the absence of specific and concrete development plans of significant expansion of industrial (mining) activities, Hydro One considers that the delay of one year in ISD is justified when the project cost and its environmental impacts are considered.

- D. In contrast to removing barriers to resource development in the region and meeting the needs of Northwest Ontario as set forth in the LTEPs, OIC, and IESO Needs Assessments, the Hydro One proposed quad circuit tower design with a single point of**

failure is likely to create a disincentive to the mining and other industries to locate in the Northwest.

The Hydro One and NextBridge solutions will achieve the same outcome of 450MW in Stage 1 and 650MW in Stage 2. Hydro One's proposal is not adding a barrier for development, and the consideration for extreme events resulting in the EWT separation is the same for both the Hydro One and the NextBridge solutions. The majority of potential mining developments, as seen in the Map of Fig. 1 above, are in remote areas, far from the major bulk transmission facilities and almost always connect to the grid by long single transmission lines over rough terrain. As a result, they experience significantly more outages from the single supply connection than from infrequent interruptions caused by contingencies of the existing or new EWT. It is therefore a mischaracterization to say that the Hydro One 4-cct design has a single point of failure that would impede mining development in the entire Northwest.

E. In Hydro One's Additional Evidence at page 2 (the IESO System Impact Assessment ("SIA"), the IESO findings included concerns related to the single point of failure, stating:

Extreme contingencies that result in the loss of the four 230 kV circuits of the East-West Tie such as failure of a quadruple circuit tower can result in separation between the Northwest transmission zone and the rest of the IESO-controlled grid. Following such events, timely system restoration is critical to avoid the risk of supply shortages to the customers in the zone;

By virtue of the SIA issued by the IESO, the Hydro One proposed solution meets all the requirements therein. In both cases, loss of all four circuits (either on common towers or on two adjacent 2-cct towers in the same corridor) is an Extreme (rare) event and has similar consequences. This requirement must be met by both Hydro One and NextBridge.

F. Outages to the existing East-West Tie circuits will be required to install the project, especially the 35 km section between Wawa TS and Marathon TS where the existing double circuit towers of W21M and W22M will be replaced with quadruple circuit towers to accommodate the new W35M and W36M circuits. An outage plan that contains the details of this replacement has not been presented to the IESO at the time of this report.

The SIA said "details not presented" because the matter is in the planning stage. For this reason, the SIA stated (in requirement 3), "At least twenty-four months before the commencement of any project related outages, the connection applicant shall submit an outage plan acceptable to the IESO for the installation of the project." Hydro One plans to meet this requirement.

G. The SIA at page 13 further stressed the likelihood of the occurrence of loss of quadruple circuits, stating that: "The Northwest zone is prone to thunderstorms from April 1st to October 31st." During this seven (7) month period in a year, the IESO's system operators will have to prepare the system to withstand the loss of all four 230 kV circuits "either reducing the transfer pre-contingency or by arming load rejection."

This is an incorrect interpretation. Firstly, the IESO does not posture the system for storm conditions for seven months continuously. This additional posture is applied only during approaching storm conditions over specific areas and for short periods of time. Secondly, the IESO is referring to the loss of four circuits in the context of an extreme contingency. Hydro One will adopt the IESO SIA recommendation to include features for detecting and mitigating extreme

contingencies within the NW SPS 2. The modification of the NW SPS 2 to include the four circuit extreme contingency will eliminate the need for transfer reductions pre-contingency.

H. Hydro One's quad circuit tower approach cannot be squared with the needs of the Northwest region as set forth in the LTEPs, OIC, and IESO Needs Assessments, including the need to remove barriers to resource development. Therefore, I conclude that Hydro One's Application and Additional Evidence has not adequately addressed the identified need.

In contrast, as studied in the IESO Needs Assessments, a redundant new double circuit EWT provides a level of reliability that meets the needs of Northwest Ontario, including the mining and industrial sectors. By incentivizing resource development and investment, the region stands to also benefit from broader socio-economic benefits that arise from job creation and tax income.

IESO's Need Assessment, SIAs, and other reports assessed the need for redundancy in the transmission system design that is consistent with the requirements of the NERC and IESO Planning standards. "Redundancy" in the context of transmission planning means that the proposed transmission solution for providing the targeted transfer capability (650 MW after the second stage of EWT expansion) must meet the performance requirement under recognized normal contingencies (single and double circuit outage, not three or four circuit outages) and different requirements under extreme contingencies (more than two circuit outages). These Planning requirements apply equally to the alternatives of a 4-cct line and two (or more) 2-cct lines. The design redundancy does not require the new EWT line to be separated in any specific physical way as long as its meets the performance requirements. This applies equally to the Hydro One and NextBridge solutions.

CRA, in its interpretation and critique points of the IESO assessment, are suggesting that the IESO has not adequately assessed Hydro One's application in their role as Bulk System Transmission Planner or misinterpreted the planning requirements. On the contrary, Hydro One states that the IESO has appropriately applied and assessed NERC's transmission planning standards and criteria.

Andrew Pietrewicz Memorandum

On April 30, 2018, NextBridge filed additional material to supplement its motion application. The material includes a memorandum from Andrew Pietrewicz, reviewing Hydro One's application in the context of the IESO's System Impact Assessment Report (Additional Evidence), the IESO's December 15, 2015, Assessment of the Rationale for the East-West Tie Expansion (Third Update Report), and the IESO's December 1, 2017, Updated Assessment of the Need for the East-West Tie (EWT) Expansion (collectively, the IESO Needs Assessments), and applicable reliability standards and criteria. The following are assertions made by Mr. Pietrewicz, and Hydro One's evidence in response to those assertions.

A. A fundamental deficiency in Hydro One's claims that the new quad circuit transmission structures in the Park and 2021 in-service date are appropriate is neither was studied in the context of the IESO's Need Assessment for the EWT.

As explained in response to Mr. Bolbrock, 4-cct design is not contradictory to any aspects of the Need Assessments. This is proven by the SIAs.

Additionally, as previously explained, a delay of up to one year in the in-service date, in the context of offering significant cost savings without unmanageable risk to supply adequacy, is manageable. This is similar to the 2014 delay in the in-service date from 2018 to 2020.

B. I do not view Hydro One's proposed in-service date of December 2021 as compatible with addressing these issues identified in the 2017 IESO Needs Assessment.

Mr. Pietrewicz relisted the IESO findings, and Hydro One has addressed his statements in Hydro One's comments on Mr. Bolbrock's or the Charles River Associates submission.

Ontario Energy Board

EB-2010-0059

Board Policy:

**Framework for Transmission Project
Development Plans**

August 26, 2010

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1 Introduction

1.1 Purpose

This document sets out the policy of the Ontario Energy Board for a framework for new transmission investment in Ontario, in particular with regard to transmission project development planning. The policy describes how project development planning will work in conjunction with existing Board processes for licensed transmitters.

This policy is the end result of a consultation on facilitation of the timely and cost effective development of major transmission facilities that may be required to connect renewable generation in Ontario. The goal is the implementation of a process that provides, among other things, greater regulatory predictability in relation to cost recovery for development work. The Board believes that this policy will:

- allow transmitters to move ahead on development work in a timely manner;
- encourage new entrants to transmission in Ontario bringing additional resources for project development; and
- support competition in transmission in Ontario to drive economic efficiency for the benefit of ratepayers.

This introduction includes a background of the issue and history of the consultation. Section 2 of this paper describes principles and goals that the Board used to evaluate staff's proposal and the stakeholder comments in order to devise the final policy. Section 3 outlines the licensing process for transmitters intending to participate in the Board designation process. Section 4 outlines the process to be followed in designating a transmitter to undertake development work on enabler facilities and network expansions including: the method for identification of eligible projects; the trigger for the process; the decision criteria for designation and the filing requirements intended to solicit the information; and the implications of approval of a plan.

The Filing Requirements for Transmission Project Development Planning are published under separate cover on the Board's website¹.

1

<http://www.oeb.gov.on.ca/OEB/Industry/Rules+and+Requirements/Rules+Codes+Guidelines+and+Forms>

1.2 Background

As a consequence of the passage of the *Green Energy and Green Economy Act, 2009* (“GEA”), there has been enormous interest in connecting renewable generation to both distribution and transmission systems. However, the ability of existing or approved transmission facilities in Ontario to accommodate more generation is limited. Based in part on the number of applications for contracts under the Feed-in Tariff (“FIT”) program, the Board understands that significant investment in transmission infrastructure will be required to accommodate current FIT applicants as well as any future renewable generation projects.

Advance knowledge of the location and timing of new infrastructure should allow developers to site prospective generation projects along anticipated transmission corridors in order to reduce overall connection costs. Developers should be able to anticipate development of the system and plan its construction schedule to coincide with economic connection.

Board staff met with licensed transmitters to discuss how the transmission planning process might work. Transmitters have indicated the need for a clear process, including an articulation of the overall transmission planning, approval and rate recovery framework.

On April 19, 2010, the Board released a staff Discussion Paper² for comment by stakeholders. Board staff’s proposals built on earlier work by the Board with respect to transmission connection cost responsibility and in particular on the process that the Board has developed for “enabler” transmission facilities. Staff’s proposals focused specifically on development work for projects identified by the Ontario Power Authority (“OPA”) as it assesses transmission investments associated with the connection of generation under the FIT program.

The Board received 27 comments³ on staff’s proposals from entities representing a variety of stakeholder groups: current Ontario transmitters and those who would be new to Ontario; generator groups; ratepayer groups; special interest groups; one distributor; the IESO and the OPA.

² http://www.oeb.gov.on.ca/OEB/Documents/EB-2010-0059/Staff_paper_Tx_Project_Dev_20100419.pdf

³ Complete text of stakeholder comments is available at the Board’s website at: <http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Transmission+Project+Development+Planning/Transmission+Project+Development+Planning>

2 Board Principles

The Board's goal in developing a policy for transmission project development planning is to facilitate the timely development of the transmission system to accommodate renewable generation.

In developing this policy, the Board is guided by its objectives in relation to the electricity sector under the *Ontario Energy Board Act, 1998* (the "OEB Act"). Of particular relevance in this instance are the objectives of protecting the interests of consumers with respect to price, quality and reliability of electricity supply and facilitating economic efficiency in the development of the transmission system including the maintenance of a financially viable electricity industry. Also important in this instance is the new objective of the Board to promote the use of energy from renewable generation sources.

The Board has previously identified the principles it uses in fulfilling its objectives in transmission policy⁴: economic efficiency; regulatory predictability; and administrative efficiency. The Board has reviewed the staff proposal and the stakeholder comments with the goal of fulfilling its objectives and promoting these principles.

Within the context of transmission investment policy, economic efficiency can be understood to mean achieving the expansion of the transmission system in a cost effective and timely manner to accommodate the connection of renewable energy sources. The Board believes that economic efficiency will be best pursued by introducing competition in transmission service to the extent possible within the current regulatory and market system.

Regulatory predictability allows proponents to understand how and on what basis regulatory decisions are likely to be made. The Board achieves this through policy statements and guidance to the industry and through transparent processes leading to consistency in the determinations it makes and the orders that it issues. Transmission planning is an ongoing procedure. The Board intends to put in place a transmission investment policy and project development planning process that is robust enough to provide consistency of process through many cycles of planning.

Administrative efficiency relates to the level of effort required from the perspective of proponents and other interested parties for effective participation in processes. In

⁴ Most recently in the Staff Discussion Paper: Generation Connections for Transmission Connection Cost Responsibility Review (EB-2008-0003) available at: http://www.oeb.gov.on.ca/OEB/Documents/EB-2008-0003/Staff_Discussion_Paper_20080708.pdf

devising this process, the Board has sought to avoid duplication and unnecessary effort for transmitters, Board staff and other stakeholders.

Taken together, regulatory predictability and administrative efficiency should facilitate investment, planning and decision-making by transmission proponents and should help them to manage business risks.

These aims are consistent with broader movements in energy regulation around the world. In particular, the United Kingdom and the United States are both currently consulting on policy changes along similar lines.

Ofgem in the U.K. is proposing⁵ to evolve its regulatory framework to the RIIO model: Revenue set to deliver strong Incentives, Innovation and Outputs. Ofgem acknowledges that changes are needed to “meet the demands of moving to a low carbon economy...whilst maintaining safe, secure and reliable energy supplies”⁶. Ofgem’s new proposed framework to deliver long-term value for money for network services includes involving third parties in design, build, operation and ownership of large, separable enhancement projects. Third party participation is to be considered where long-term benefits, especially for new technologies, new delivery solutions and new financing arrangements, are expected to exceed long-term costs. Ofgem would be responsible for any competitive process.

FERC in the U.S. released a Notice of Proposed Rulemaking on June 17, 2010.

“With respect to transmission planning, the proposed rule would (1) provide that local regional transmission planning processes account for transmission needs driven by public policy requirements established by state or federal laws or regulations; (2) improve coordination between neighbouring transmission planning regions with respect to interregional facilities ; and (3) remove from Commission-approved tariffs or agreements a right of first refusal created by those documents that provides an incumbent transmission provider with an undue advantage over a nonincumbent transmission developer.”⁷

⁵ “Regulating energy networks for the future: RPI-X@20 Recommendations” available at: <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=RPI-X@Recommendations.pdf&refer=Networks/rpix20/ConsultDocs>

⁶ Ibid: Executive Summary.

⁷ The Notice of Proposed Rulemaking: Transmission Planning and Cost Allocation By Transmission Owning and Operating Public Utilities (Docket No. RM10-23-000) by the Federal Energy Regulatory Commission, pg 1. available at: <http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf> .

The Board sees this proposal to improve interstate planning and align it with state and federal policy drivers (particularly clean energy requirements) and to level the playing field between incumbent and nonincumbent transmitters to be analogous to its own goals for transmission in Ontario.

3 Licensing

Section 57 of the OEB Act prohibits persons from undertaking various activities in the electricity industry in Ontario, including owning or operating a transmission system, unless they are licensed to do so by the Board.

In the Discussion Paper, Board staff proposed that new entrant transmitters who want to participate in the designation process should be licensed by the Board as transmitters. Board staff stated that the licensing process could be used to ensure that a new entrant transmitter meets certain minimum requirements in relation to both financial and technical capability, and that this would provide comfort that the new entrant transmitter is both qualified and committed to doing business in Ontario should it be designated.

Many stakeholders, including the existing transmitters and most of the new entrant transmitters, agreed with Board staff's proposal. Others suggested that the licensing process was a barrier to entry by being onerous, time-consuming or expensive and suggested a separate, rigorous pre-qualification stage before any designation process. Some stakeholders noted that certain provisions of the transmitter licence, such as the Affiliates Relationship Code or the legislative provisions pertaining to the planning requirement or smart grid development, were too burdensome on a prospective basis. The IESO suggested that new entrants could have a more general form of licence.

The Board considers it reasonable to require that new entrant transmitters be licensed in order to participate in the designation process. The licensing process will allow the Board to evaluate the financial viability and technical capabilities of the new entrant transmitters. The Board would need to evaluate these items regardless of whether it was done in a licensing process or another type of pre-qualification process. The Board's licensing process is neither unduly onerous nor time consuming.

Licence applications to the Board are usually handled through a written process and may involve interrogatories from Board staff to clarify information. Other parties may intervene in the application. Licences are generally issued within 90 days of a complete

application being received by the Board. An application form and sample licence is available on the Board's website⁸.

The Board notes that some of the requirements in the transmission licence may not apply unless a transmitter has assets in Ontario. If a new entrant transmitter feels that there are particular requirements that should not apply to them, it may raise those issues as part of its application process.

Existing transmitters that are already licensed by the Board can participate in the designation process under their existing licence. No additional requirements or actions are needed.

Board Policy on Transmission Licensing

Transmitters will need a transmission licence from the Board to participate in the designation process.

Existing transmitters that are already licensed by the Board will participate in the designation process under their existing licence.

New entrant transmitters will need to apply for, and obtain, a transmission licence before being able to participate in the designation process.

4 Hearing to Designate a Transmitter

4.1 Identification of Facilities Requiring Designation

The staff Discussion Paper noted that one of the legislated objectives of the OPA is to conduct independent planning for electricity generation, demand management, conservation and transmission and to develop integrated power system plans⁹ (the "IPSP"). By regulation, an IPSP is to be filed with the Board every three years. The Board's role is to review and either approve the IPSP or to refer it back to the OPA for further consideration.

In addition, the OPA intends to assess transmission investments that in its view are required and economically justified to connect the FIT applications whose projects

⁸

<http://www.oeb.gov.on.ca/OEB/Industry/Licences/Apply+for+a+Licence/Apply+for+a+Licence+-+Electricity+Transmission>

⁹ *The Electricity Act, 1998* section 25.2(1)(b)

cannot be accommodated by existing transmission capacity i.e. those in the FIT production line and FIT reserve. The OPA's assessment process is known as the Economic Connection Test ("ECT") and is expected to be completed every six months.

Further, the Board is aware that on May 7, 2010¹⁰, the Minister of Energy and Infrastructure (as it was then known) asked the OPA to provide an updated transmission plan considering the sequencing necessary to meet the needs of the FIT program and the Korean Consortium.

The staff Discussion Paper proposed to use the results of the ECT as the inputs for a Board initiated process whereby interested transmitters would be designated to develop the enabler facilities and network expansions identified in the ECT. Staff proposed that the results of the ECT be accepted without prejudice and that a final determination of need for each project be deferred until the leave to construct hearing.

While most stakeholders accepted the ECT as a starting point, one ratepayer group noted that development funds would be spent by transmitters and recovered from ratepayers for projects that were subsequently found to be unnecessary or uneconomical. It argued that no approval should be given for any costs to be recovered from ratepayers until the economic feasibility of the projects could be fully tested, including the value of the energy being enabled. Some stakeholders suggested that the ECT must be fully tested in the designation process and others insisted that the only valid starting point is an IPSP.

The need for transmission projects may emerge in a number of different ways. New transmission is meant to achieve several purposes: increasing supply to new and existing load customers; facilitating interconnections; ensuring security, reliability and robustness of the system; and facilitating connection of FIT, non-FIT renewable, and non-renewable generation. The Board recognizes that, to the extent that the OPA's various planning tools and reports address differing combinations of these purposes, there is a hierarchy to the reports. An IPSP that considers all uses for transmission and all inputs from economic planning is preferable as a base for provincial transmission planning. However, an approved IPSP is not expected before the later half of 2011. The Board believes that waiting for an approved IPSP would be inconsistent with its statutory objective to promote timely expansion of the transmission system to facilitate connection of renewable generation. And while the hearing to approve an IPSP will be a thorough and comprehensive process, the evidence is not

¹⁰ The letter from the Minister can be found at:
http://www.powerauthority.on.ca/Storage/118/16599_MEI_Directive_to_update_H1_09_instruction_May_7_10.pdf

expected to be detailed enough over the three year planning cycle to allow final determination of need for any particular transmission project.

The Board agrees that the starting point for transmission project development planning should be an informed, effective plan from the province's transmission planner, the OPA. The Board believes that the ECT fits that description and is, therefore also a valid starting point for the process. Since the staff Discussion Paper was issued, the OPA has made progress in developing the process and substance of the ECT such as the announcement that the objective is 5% congestion of the system and an economic threshold of \$500 of anticipated project cost per kW of new generation enabled¹¹.

The designation process is intended to be a preliminary stage in an increasingly disciplined process. The ECT is expected to provide a preliminary analysis of need sufficient for approving funding of preliminary development budgets. As budgetary and technical information becomes available, the Board will test need and prudence with increasing vigor. The Board considers that ensuring recovery of development costs before a final determination of need will advance the development of projects compared to the current process. In this way, it will promote the timely expansion of the transmission system and the use of energy from renewable sources.

While the ECT is focused on two of the many purposes of transmission, designation is simply the beginning of the development process and the Board expects the selected transmitter to consult with the OPA and IESO regarding the purposes of the project in order to bring a full justification of need to a leave to construct hearing. Therefore testing of the more detailed information developed after designation will take place in the next stage of the process, likely a leave to construct hearing.

One stakeholder objected to the enabler screening criteria described in clause 3A of the Transmission System Code being replaced by the ECT. The Board sees no conflict as the OPA has used the requirement of the Transmission System Code (the "TSC") in defining and scoping enabler facilities within the ECT. The Board notes that the staff Discussion Paper clarified that the proposal dealt specifically with enablers identified by the OPA through the ECT but the process could also apply to enabler facilities identified in the other two ways set out in the TSC. i.e. a renewable resource cluster is identified in an IPSP or the enabler facility and associated renewable resource cluster is the subject of a direction by the Minister to the OPA. The Board agrees.

¹¹ A presentation by the OPA on the ECT can be found here: http://fit.powerauthority.on.ca/Page.asp?PageID=122&ContentID=10630&SiteNodeID=1137&BL_ExpandID=272

A few stakeholders commented that the Board's proposed approach presumes the approval of the IPSP in relation to transmission and, as such, the approach pre-empts the due process of an IPSP proceeding and aboriginal consultation and accommodation requirements. The same argument was made in the consultation on transmission connection cost responsibility, in which the Board stated that:

"The Board is not, through this process, determining whether [transmission] facilities will be identified in an IPSP, nor what those facilities might be nor when or on what conditions the Board might approval the IPSP once it has been re-filed with the Board. Any aboriginal consultation and accommodation requirements associated with the IPSP and/or with the siting and construction of any [transmission] facilities remain unaffected by the Board's proposals..."¹²

The Board maintains the view set out above and reiterates that the OPA remains responsible for independent transmission planning in Ontario. The Board's mandate is restricted to those review and approval authorities given in the legislation. Further, the Board notes that legislation grants to the Minister of Energy the authority to direct the OPA to implement procedures for consulting aboriginal peoples (among others) in relation to the planning and development of transmission systems and to establish measures to facilitate the participation of aboriginal peoples in the development of renewable generation facilities and transmission systems.

Board policy on project identification

When the Board receives the results of an ECT from the OPA, it will begin a process on its own motion to designate a transmitter to undertake development work on any incremental enabler facilities or network expansions identified. If a recently approved IPSP is available, its transmission recommendations may be used for the designation process.

4.2 Notice and Invitation to File a Plan

Under section 70 (2.1) of the OEB Act, every transmitter's license is deemed to have as a condition that the licensee is required to prepare plans, in the manner and at the times required by the Board regarding expansion or reinforcement of the system to accommodate the connection of renewable generation. Plans may also be required for the development of the smart grid in relation to the licensee's system.

¹² Notice of Revised Proposal to Amend a Code dated April 15, 2009:
http://www.oeb.gov.on.ca/OEB/Documents/EB-2008-0003/Notice_REVISED_Proposed_Amendments_TCCRR_20090415b.pdf

In order to promote the connection of renewable generation, the Board will use the planning provision to ensure that needed transmission projects are being actively developed. As existing transmitters undertake capital planning as part of their normal business operations and the Board already has the authority to require transmitters to build projects for reliability purposes, the Board does not, at this time, anticipate requiring general “Green Energy Plans” under this section. There may be a future requirement for smart grid plans, either specifically or as part of cost of service rate filings.

The staff Discussion Paper anticipated that the ECT would identify four types of projects.

1. Capacity enhancements;
2. Network reinforcement;
3. Enabler facilities; and
4. Network expansions.

Staff proposed that the Board give Notice of a Hearing (a “Notice”) on its own motion to designate a transmitter to develop projects of types 3 and 4. Staff proposed that the incumbent transmitter be directed and other licensed transmitters be invited to file plans in three months from the date of the Notice.

Several of the transmission companies pointed out that clarification was required with respect to the definition of network expansions, specifically if new lines in existing or widened transmission corridors were expansions or reinforcements. One transmitter noted that new entrants might harm the existing relationships between incumbent transmitters and landowners along corridors.

The Board notes that transmission corridors typically have multiple uses and therefore multiple companies have landowner agreements. The rights of way for most transmission corridors belong to the provincial government through the Ontario Realty Corporation¹³ and should not be considered a part of existing infrastructure or a transmission asset. The Board believes that introducing competition in transmission development will improve economic efficiency and lead to better outcomes for the consumer. It is, therefore, in the public interest to keep the definition of network

¹³ Pursuant to Part IX.1 of the *Electricity Act, 1998*, ownership of corridor land was transferred from Hydro One Inc. (and its subsidiaries) to Her Majesty in right of Ontario in 2002.

expansion as broad as possible and to classify new lines on existing or widened corridors as expansions subject to designation.

Several stakeholders requested clarification as to whether all transmitters who file a plan and/or the designated transmitter will be permitted to recover the costs of preparing plans. In addition some stakeholders commented that the ability of the incumbent transmitter to recover the cost of preparing the plan as directed by the Board could provide an unfair advantage for the incumbent.

The Board agrees and, similar to the situation regarding corridors above, the Board sees benefit in keeping the process as open and unbiased¹⁴ as possible. Also the Board does not consider it appropriate for consumers to fund a transmitter's efforts to expand its commercial business through preparation of a plan seeking designation.

Therefore, when the Board receives an ECT report from the OPA and issues Notice of a designation hearing, the Board will invite all licensed transmitters to submit plans in the form mandated by the filing requirements. The incumbent transmitter is not obligated to file a plan at this point. Only the transmitter that is successful in being designated will be able to recover the costs of preparing a plan. This is comparable to the more usual business model in which proponents prepare proposals or bids at their own cost and own risk. In this way, the Board seeks to ensure that all transmitters will be on equal footing when submitting plans and ratepayers will not pay for multiple plan preparation.

If there are no plans filed for a particular project, the Board will direct the incumbent to file a plan. The incumbent will then be able to recover the costs of plan preparation.

The staff Discussion Paper asked for comment on the period of time between a Notice and the filing deadline for plans. The paper gave examples of the Ofgem and Texas PUC contracting processes that allowed three months for an apparently similar stage of information. Some stakeholders questioned the comparison of plan preparation with either the Qualification to Tender for Ofgem or the statement of intent for Texas PUC. While many stakeholders felt that three months was an appropriate period for some projects depending on the level of detail expected in plans, some stated that larger or more complex projects would require more time to prepare adequately.

¹⁴ The Notice of Proposed Rulemaking: Transmission Planning and Cost Allocation By Transmission Owning and Operating Public Utilities (Docket No. RM10-23-000) by the Federal Energy Regulatory Commission states that neither incumbent nor nonincumbent transmission facility developers should...receive different treatment in a regional transmission planning process.
<http://www.ferc.gov/whats-new/comm-meet/2010/061710/E-9.pdf> .

The Board agrees. Therefore, the Notice will specify a deadline for filing of plans: the default period will be three months but will be as long as six months for some projects at the Board's discretion.

Some stakeholders also felt that the knowledge advantage of the incumbent transmitter with respect to the technical configuration of connections points created an unfair advantage and suggested that the Board create rules regarding the timing and information that must be provided to proponents. The TSC primarily references requirements for the incumbent transmitter to provide connection information to customers (loads); the IESO; and neighbouring transmitters and primarily for the purposes of connection impact assessments, system operations or third party design. The Board agrees that the incumbent could frustrate other transmitters by delay in providing technical information on the relevant potential connection points and thus gain a competitive advantage. The Board therefore intends to begin a process to amend the TSC in order to provide specific instruction to incumbent transmitters on the level and timing of information to be provided. Comment on these issues will be received in the Notice and Comment process for those TSC amendments.

Board policy on notice and invitation to file

Definitions

Enabler facilities (subject to designation and plan approval process): As defined in Board's Transmission System Code, these are transmitter-owned connection facilities designed to connect clusters of renewable resources to the existing network; and

Network expansions (subject to designation and plan approval process): Transmission work undertaken to expand the transmission network, in particular the major bulk transmission system, through construction of new network facilities. For clarity, this includes greenfield projects and new lines in existing or expanded transmission corridors.

When the Board receives an ECT report from the OPA, it will issue a Notice of a hearing to designate development of any enabler facilities and network expansions identified in the ECT report. In the Notice, the Board will invite all licensed transmitters to submit plans in the form mandated by the filing requirements. Only the transmitter that is successful in being designated will be able recover its costs of preparing a plan.

If no plans are submitted for a particular project, the Board will require the incumbent transmitter to file a plan.

The Notice will specify a deadline for filing of plans. The period will be at least three months but may be as long as six months for larger or more complex projects.

4.3 Decision Criteria

In the Discussion Paper, Board staff had suggested project decision criteria that built on the general threshold of licensing to look at specific project related issues: organization and experience; technical capability; schedule; costs; financing; and landowner and other consultations. Staff asked for comments on the proposed criteria and prospective weightings for each one.

Many stakeholders commented that the criteria were appropriate. A few stakeholders suggested that organization, technical capability and financial capacity should be threshold (pass/fail) criteria and that cost, schedule and consultation should be evaluated. Most stakeholders suggested that the Board should balance the criteria at their discretion on a case by case basis. Others suggested that cost or consultation should be the most important.

The Board agrees that it would be irresponsible to risk the ratepayers' money with an entity (either a single transmitter or an identified consortium) that does not have the ability to see a project through to completion and that the criteria of organization, technical capability and financial capacity are crucial. However, the Board's process is not the same as a procurement process. The Board's hearing process does not lend itself to threshold tests nor is the Board convinced that it will be possible to examine those three criteria without substantial reference to the evidence regarding cost, scheduling, and consultation plans for the project.

The decision criteria and filing requirements are in regard to a specific project and are all critical to the successful construction of the project. However, the Board acknowledges that depending on the size, complexity and location of a particular line, some criteria will be relatively more important than the others. Therefore, the criteria will be weighted by the Board, based on the evidence in the proceeding, taking into account the individual circumstances of the project.

In fact, a few stakeholders suggested that socio-economic benefits (local employment or First Nation ownership) or environmental sustainability interests should be included as specific criteria. The IESO suggested that by focusing only on the rate-regulated model of transmission, the Board was excluding other models such as merchant generation.

The Board notes that, while the environmental assessment is a separate process, the criteria listed were meant to emphasize the Board's priorities, not to be exclusive. The filing requirements include an allowance for "any other information that [the applicant] considers relevant to its plan." It is here that a transmitter could include information on local employment, community partnerships, innovative models, etc. Where projects were otherwise equivalent or close in the other factors, this information could prove

decisive. In particular, financial models that do not put the risk on ratepayers or increase rates would be of interest to the Board, although it is hard to see how these might arise in the context of FIT-associated transmission.

Board policy regarding decision criteria

Organization; technical capability; financial capacity; schedule; costs; landowner and other consultations; and other factors will be weighted by the Board, based on the evidence in the proceeding, taking into account the individual circumstances of the project.

4.4 Filing Requirements

Stakeholders were generally supportive of the filing requirements proposed by Board staff. Some suggested that they should be high level as befits the level of information available before development of a project begins. Others suggested that they should be as specific as possible to avoid ambiguity and wasted effort by the transmitters.

Where specific suggestions were made regarding the Filing Requirements, the Board has generally incorporated them. The general question regarding major risks and mitigation strategies has been bolstered by specific inquiries regarding permitting and consultations. The Board acknowledges that major projects may be in a very preliminary stage of plan development and has allowed transmitters to identify alternatives with a method for subsequent selection.

In addition, the Board has removed a question that implied that transmitters must undertake consultation as part of plan preparation.

The Filing Requirements published as G-2010-0059¹⁵ are adopted by the Board as the manner required for transmitters filing plans seeking designation for a project identified in a Notice by the Board. The Board considers them appropriate until it has gained more experience with the practice of transmission plans and the amount of information available.

The Board reminds prospective participants in the process that filing requirements are the starting point for the public record and additional information may be required as the hearing progresses.

¹⁵ Available on the Board's website at:
<http://www.oeb.gov.on.ca/OEB/Industry/Rules+and+Requirements/Rules+Codes+Guidelines+and+Forms>

In fact, the Board emphasizes that the designation hearing is an open, public process. Information that the transmitter considers to be commercially sensitive should be identified as such and confidentiality requested according to the Board's "Practice Direction on Confidential Filings"¹⁶. The Board will then make a determination of the degree of confidentiality to be provided to balance the competing interests of private intellectual property and commercially sensitive information with the public interest in a transparent process. Potential solutions include redacted evidence, *in camera* proceedings, and undertakings by counsel to maintain confidentiality.

4.5 Implications of Plan Approval

The staff Discussion Paper recommended that the budgeted development costs of the designated transmitter be determined to be recoverable in a future rate proceeding. Most stakeholders supported the recovery of budgeted development costs for the designated transmitter provided that normal Board practices apply, including material overages being at risk until subsequently approved. Some stakeholders requested greater clarity as to what costs are considered "development costs".

The Board accepts the premise that designation should carry with it the assurance of recovery of the budgeted amount for project development. When subsequent analysis by the OPA suggests that a project has ceased to be needed or economically viable (e.g. FIT applications have dropped out of the reserve such that the project falls below the economic threshold), the transmitter is entitled to amounts expended and reasonable wind-up costs. Threshold materiality for amounts beyond the approved budget could be established in the order and would likely be in relation to the total budget.

From the Board's perspective, the objective of the development phase is to bring a project to the point where there is sufficient information for the transmitter to submit a leave to construct application. Therefore development costs begin when a transmitter is designated and end when a leave to construct application is submitted. The Board expects, therefore, the development budget to include route planning, engineering, site/environmental reports and some (but not all) consultation.

Where a leave to construct is not required for a designated project¹⁷, the end point is when costs begin to be capitalized against the project.

¹⁶ Available on the Board's website at:

http://www.oeb.gov.on.ca/documents/practice_direction-confidentiality_161106.pdf

¹⁷ Ontario Regulation 161/99 clause 6.2 lists situations where Subsection 92(1) of the OEB Act does not apply. http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_990161_e.htm

In recent rate cases, Hydro One Networks Inc. (EB-2009-0416)) and Great Lakes Power Transmission LP (“GLPT”) (EB-2009-0409) received approval of deferral accounts for IPSP and other long term projects’ preliminary planning costs and GEA related planning expenses, respectively.

In its Decision and Order in each case, the Board stated that each company “is cautioned that this approval does not provide any assurance, either explicit or implicit, that the amounts recorded in the account will be recovered from ratepayers. No finding of prudence is being made at this time....A full test of prudence will be undertaken when [the company] applies for disposition of the account[s].”

The staff Discussion Paper also suggested that the Board’s order for designation might have conditions such as milestones or reporting requirements. The purpose of establishing the designation process is to promote timely expansion of the transmission system for connection of renewable generation by ensuring that identified projects are being developed. If a designated transmitter is failing to make progress on developing the project and is not making progress toward bringing a leave to construct application, the Board needs the ability to rescind the designation both to limit the exposure of the ratepayer and to allow a different transmitter to be designated. Therefore, the Board order of designation will have conditions such as performance milestones (in particular, a deadline for application for leave to construct) and reporting requirements on progress and spending that, if not met, will result in the designation being rescinded and will put further expenditures at risk. Designated transmitters who are having trouble meeting the milestones for any reason, but intend to carry through with the work may apply to the Board for an amended schedule.

In the Discussion Paper, Board staff asked for comments on the potential of two transmitters being designated to develop the same project. Some stakeholders did not feel that it would ever be appropriate to allow ratepayers to fund development of two projects when only one will need to be constructed. Others felt that there may be extraordinary conditions where it might be justified.

The Board agrees with stakeholders that designation of two transmitters should be an exceptional circumstance where the Board is persuaded that:

- Two proposed projects to meet the same need cannot be directly compared since they are so significantly different
 - o as to route, or
 - o as to technology to be employed; or
- The amount saved on construction cost could be more than the cost added by the funding of a second development project.

The staff Discussion Paper also noted limitations on the Board's ability to guarantee a transmitter the ability to construct and operate a particular project. Many stakeholders expressed concern over this issue and looked for further assurance that the successful transmitter would be able to construct and operate the facilities.

The designation process of the Board is not a procurement process where the end result is a contract. Neither the Board, the OPA, nor the IESO has statutory authority to procure transmission. Under normal circumstances, the Board would expect that the transmitter who is designated would construct and operate the facilities. There are two instances where this might not be the case.

One circumstance is where the designated transmitter makes arrangements to assign the project to another transmitter. A project designation, particularly once a leave to construct has been issued, could have commercial value. The Board would not preclude this option but would have to grant permission to assign the project and be assured that there was no adverse ratepayer impact of the transaction and that the assignee was also licensed and equally qualified to undertake the work.

The other possibility is that another transmitter brings a leave to construct application for a different project that meets the same need in a better way. The Board cannot prevent any person from submitting an application for any matter under its jurisdiction. However, the undesignated transmitter would have undertaken development at its own cost which would not be recoverable from ratepayers. The transmitter would also need to adequately explain why it had not taken part in the designation process. Once a leave to construct is granted, the Board would not grant another transmitter approval for duplicative facilities.

Board Policy regarding implications of plan approval

The transmitter designated for a particular project will be assured of recovery of the budgeted amount for project development. Material overages will be at risk until a future prudence review. Threshold materiality for amounts beyond the approved budget could be established in the designation order and would likely be in relation to the total budget. When subsequent analysis by the OPA suggests that the project has ceased to be needed or is no longer economically viable, the transmitter will be entitled to appropriate wind-up costs.

The Board order of designation will have conditions such as performance milestones based on the project schedules (in particular, a deadline for application for leave to construct) and reporting requirements on progress and spending that, if not met, will result in the designation being rescinded and will put further expenditures at risk.

Under exceptional circumstances, the Board may designate two transmitters to proceed to the development phase where the Board is persuaded that:

- Two proposed projects to meet the same need cannot be directly compared since they are so significantly different
 - o as to route, or
 - o as to technology to be employed; or
- The amount saved on construction cost could be more than the cost added by the funding of a second development project.

Final project selection will take place after application for leave to construct.

5 Hearing for Leave to Construct

Section 92 of the OEB Act prohibits any person from constructing, expanding or reinforcing a transmission line without an order of the Board granting leave. Clause 92(2) and Ontario Regulation 161/99 provide exceptions to this requirement including relocation or reconstruction of a line without new land requirements; lines that are less than 2 km in length; and interconnections between two adjacent transmission systems. Section 96 specifies the issues that the Board may consider in finding that proposed work is in the public interest. The GEA amended the OEB Act to include as one of those issues the use of energy from renewable resources, where applicable and in a manner consistent with the policies of the Government of Ontario.

A designated transmitter is ensured recovery of development costs with the objective of submitting a leave to construct application. The requirements of a leave to construct application are described in the Board's existing Filing Requirements for Transmission and Distribution Applications¹⁸.

The staff Discussion Paper included an illustrative flow chart of the Board's processes. One stakeholder stated that it did not show the Environmental Assessment approval process. Stakeholders should note that it does not include any stages of a project that are not under the Board's jurisdiction, such as the System Impact Assessment from the IESO that must be filed as part of the leave to construct application or the Connection Impact Assessment that must be completed by any transmitter to which the new project will connect.

The flow chart has been updated to show the Board's policy.

¹⁸ http://www.oeb.gov.on.ca/documents/minfilingrequirements_report_141106.pdf

The following is an illustrative flow chart of the OEB designation and transmission project plan approval process, and where it fits with leave to construct and rate proceedings. For convenience, the chart shows the recovery of cost flowing from a cost of service rate hearing. However, a rate rider could be approved at other points in the process.

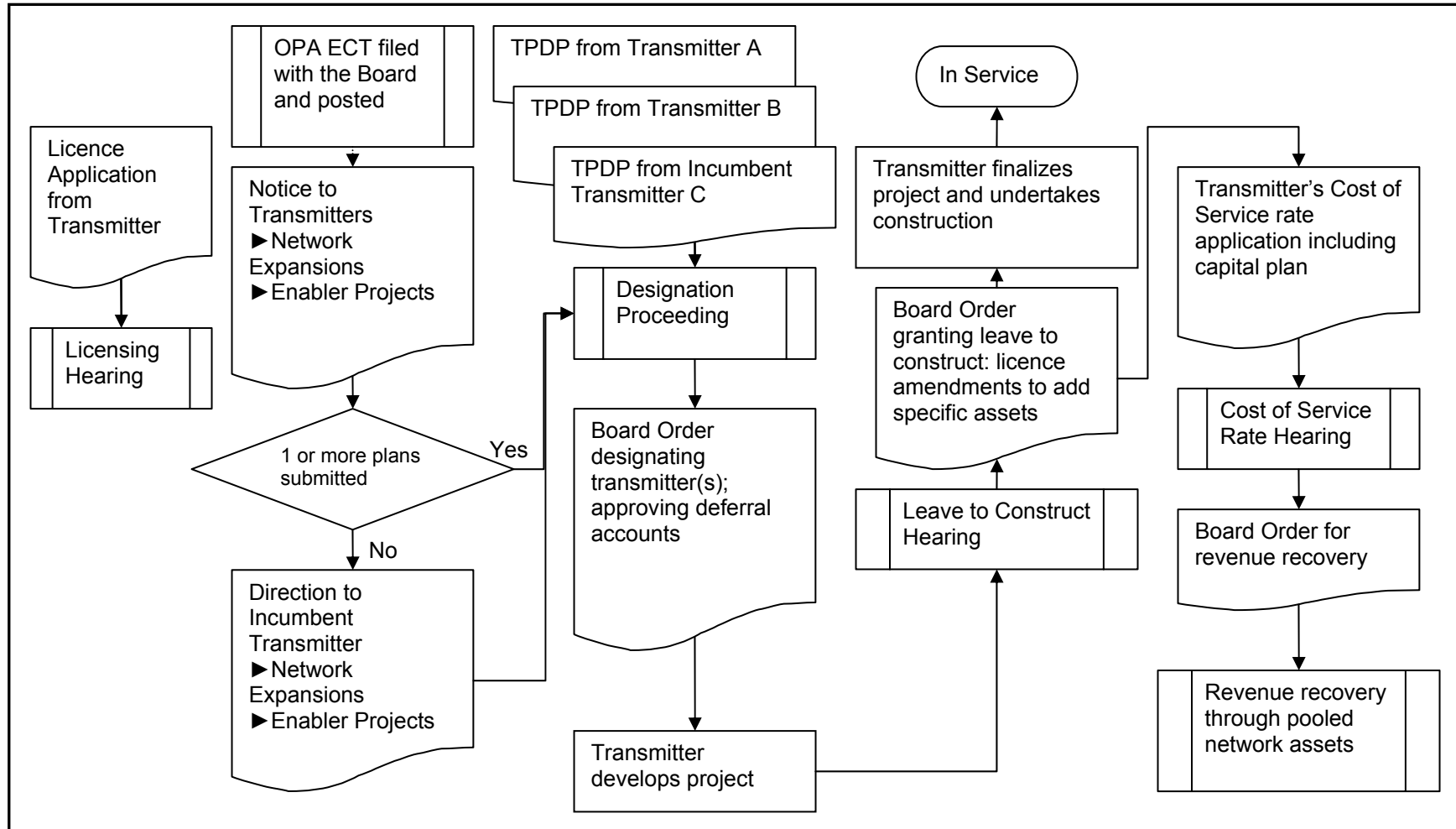


Figure 1: OEB Process for Transmitter Designation and Transmission Project Development Plan Approval

The ECT focuses on transmission needed to accommodate FIT applications and the projects of the Korean Consortium. As mentioned above, transmission serves other needs as well. The Board expects that during the development phase, the designated transmitter will consult with the OPA and the IESO regarding capacity, configuration and final routing that would support those other needs.

The Board expects that the OPA will support transmitters in preparing evidence of need for a transmission project.

There are two types of projects that could be identified in the ECT that would not be subject to designation: capacity enhancements and network reinforcements. As these types of projects are work on the incumbent transmitter's system, the incumbent will undertake them directly. It is highly likely that network reinforcements will require a leave to construct. The incumbent transmitter should develop these projects and prepare a leave to construct under the assurance that reasonable development costs will be recoverable from ratepayers at a future proceeding by reference to the ECT results. The Board expects that the OPA will support proof of need at this time.

6 Hearing for Rate Recovery

In the staff Discussion Paper, Board staff suggested that development costs by both incumbents and new entrants could be recovered through the Uniform Transmission Rates of Ontario (the "UTR"). Several stakeholders requested clarification of the workings of the Uniform Transmission Rate.

Section 78.(1) of the OEB Act prohibits a transmitter from charging for transmission of electricity except in accordance with an order of the Board. The UTR is a Board ordered schedule of tariffs charged to all transmission customers. There are 5 currently licensed transmitters that are rate regulated. Each one has a periodic hearing to determine its cost of service revenue requirement. After each Hydro One Networks Inc. hearing,¹⁹ these revenue requirements are summed to determine the total transmission revenue requirement in Ontario. This revenue requirement is then spread over the total transmission service in the province to determine appropriate postage stamp transmission rates. The IESO is tasked with charging out this rate, collecting it from transmission customers and then paying it out to the transmitters. The payments to

¹⁹ The most recent proceeding to set and allocate the Uniform Transmission Rate resulted in an Order released January 21, 2010 (EB-2008-0272). It is expected that the current Hydro One Networks Inc. case (EB-2010-0002), will result in a revised UTR.

transmitters are according to an allocation that has been predetermined by the Board based on each transmitter's percentage of the total transmission revenue requirement.

If a designated transmitter had development costs but did not construct the facilities²⁰, those costs could be converted into a regulatory asset for rate recovery. The regulatory asset would create a revenue requirement that would be added to the total provincial transmission revenue requirement and included in the calculation of the UTR. Then, the IESO would bill all transmission customers, collect the revenues and remit the appropriate amount to the designated transmitter.

Construction budgets would be part of the capital budget for a transmitter's cost of service rate hearing. Alternative mechanisms as set out in the "Report of the Board: The Regulatory Treatment of Infrastructure Investment in Connection with the Rate-regulated Activities of Distributors and Transmitters in Ontario" (EB-2009-0152)²¹ could be requested.

Some network reinforcement and many capacity enhancement projects (not subject to designation) may not require a leave to construct. The incumbent transmitter should proceed to develop the projects and include them in the capital budget for the appropriate cost of service application. The project's inclusion in an ECT is sufficient support for recovery of reasonable development costs. Approval of construction budgets is subject to a determination of need for the capital budget. The Board expects that the OPA will support proof of need at that time.

²⁰ E.g. the facilities were ultimately determined to be not necessary.

²¹ Available on the Board's website at http://www.oeb.gov.on.ca/OEB/Documents/EB-2009-0152/Board_Report_Infrastructure_Investment_20100115.pdf

CUSTOMER IMPACT ASSESSMENT

**LAKE SUPERIOR LINK
&
EAST-WEST TIE STATION PROJECTS**

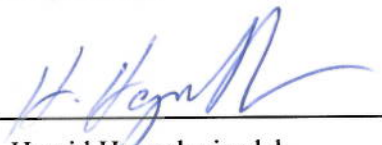
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DISCLAIMER

This Customer Impact Assessment was prepared based on preliminary information available about the proposed *East-West Tie Expansion* project, consisting of construction of 230 kV double-circuit, overhead transmission lines between Wawa Transformer Station (TS), Marathon TS and Lakehead TS (called *Lake Superior Link* project) and reconfiguration and enhancement of these three terminal stations (called *E-W Tie Station* project). This report is intended to highlight significant impacts, if any, to affected transmission customers early in the project development process and thus allow an opportunity for these parties to bring forward any concerns that they may have, including those needed for the review of the connection and for any possible application for Leave to Construct. Subsequent changes to the required modifications or the implementation plan may affect the impacts of the proposed connection identified in this Customer Impact Assessment. The results of this Customer Impact Assessment and the estimate of the outage requirements are subject to change to accommodate the requirements of the IESO and other regulatory or municipal authority requirements. The fault levels computed as part of this Customer Impact Assessment are meant to assess current conditions in the study horizon and are not intended to be for the purposes of sizing equipment or making other project design decisions. Many other factors beyond the existing fault levels go into project design decisions.

Hydro One Networks Inc. shall not be liable, whether in contract, tort or any other theory of liability, to any person who uses the results of the Customer Impact Assessment under any circumstances whatsoever for any damages arising out of such use unless such liability is created under some other contractual obligation between Hydro One Networks Inc. and such person.

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Executive Summary

The East-West Tie (E-W Tie) Expansion was identified as one of the priority transmission projects in the government of Ontario's [2010 Long-Term Energy Plan](#) and was included in the [2013 Long-Term Energy Plan](#). It consists of new 230 kV double-circuit lines that will be connected between Hydro One's existing Wawa Transmission Station (TS), Marathon TS and Lakehead TS, located near the cities of Wawa, Marathon and Thunder Bay, respectively.

Based on three Need Update reports by the IESO for to the Ontario Energy Board (OEB), confirming the need and preference for the project, the government's [2017 Long-Term Energy Plan](#) stated:

The East-West Tie Line would provide a long-term, reliable supply of electricity to meet the growth in demand and changes to the supply mix in Northwest Ontario.

There are two applications to the OEB for the construction of the new E-W Tie lines. Upper Canada Transmission (tradenname NextBridge) has proposed to build the new lines with a total length of approximately 450 km. The IESO's System Impact Assessments (SIA) and Hydro One's Customer Impact Assessment (CIA) for NextBridge's proposal were issued in 2016-2017. Hydro One has proposed to build the new lines with a total length of approximately 400 km by utilizing, to a great extent, the existing transmission corridors. The Hydro One's proposed E-W Tie lines, called Lake Superior Link (LSL), as well as the proposed station expansions and new facilities, are the subject of this CIA.

Hydro One's proposed E-W Tie Expansion project consists of:

- Construction of a new 168 km, 230 kV double-circuit transmission line between Wawa TS and Marathon TS, with one Optical Ground Wire and one regular skywire, 133 km will be on a new right-of-way (ROW) parallel to the existing Hydro One 230 kV transmission line and 35 km will be on the same ROW as the existing line where the new and existing 230 kV circuits will be on new four-circuit transmission towers.
- Construction of a new 235 km, 230 kV double-circuit transmission line between Marathon TS and Lakehead TS, with one Optical Ground Wire and one regular skywire, on a new ROW which for 178 km will parallel the existing Hydro One 230 kV transmission line
- Reconfiguration of the above three stations and addition of breakers and switches for connection of the new circuits and re-termination of some of the existing circuits
- Addition of the following reactive power sources:
 - Two new 230 kV shunt reactors, rated at 65 MVAR each, at Marathon TS
 - A new 230 kV shunt reactor, rated at 125 MVAR, at Lakehead TS
 - A new shunt capacitor bank, rated at 125 MVAR, at Lakehead TS
- Revision of the new Northwest Special Protection Scheme (NW SPS 2) for the new and reconfigured transmission lines and shunt capacitors and reactors, as well as addition of new contingencies at Marathon TS and Wawa TS

- Expansion and upgrade of the protection, control and telecommunication facilities

The IESO has carried out the System Impact Assessment (SIA) studies to assess the impact of the project as proposed by Hydro One on voltage performance, thermal loading and short-circuit currents in the area. The results and findings of the studies are reported in SIA report CAA ID 2017-628, “Lake Superior Link”. The SIA has confirmed that,

- The project provides 450 MW transfer capability between Northeast and Northwest regions of Ontario,
- Voltage performance in the area remains within the Market Rules requirements,
- Thermal loading of the facilities remains within their ratings, and
- The impact of the project on short-circuit currents is relatively small, and
- Transient response of the system (in particular, relay margin assessment) is acceptable.

This Customer Impact Assessment (CIA) report describes the potential impact of the E-W Tie Expansion project, consisting of Hydro One’s proposed Lake Superior Link project (new 230 kV transmission lines) and E-W Tie Station project (expansion of Wawa TS, Marathon TS and Lakehead TS) on short circuit current, voltage and power supply reliability of the customers in the affected area. The findings of this CIA are:

1. The project has relatively small impact on Short-Circuit Levels in the area since it does not significantly reduce the net (equivalent) impedance between the affected stations and the sources of short-circuit current (i.e., generators).
2. The project has no adverse impact on voltage performance in the area. The addition of new reactive power sources and NW SPS 2 will allow for effective control of the voltages within the planning and operating criteria under various contingencies and outage conditions. Switching of the new shunt reactors and capacitor bank will not cause voltage variations beyond the applicable criteria.
3. The project will improve the customer power supply reliability in the area. Addition of the new E-W Tie transmission line, reconfiguration of the E-W Tie stations, reactive power sources and revised NW SPS 2 ensure supply adequacy and reliability in Northwest under local generation shortages and various outages and contingencies.

**CUSTOMER IMPACT ASSESSMENT
LAKE SUPERIOR LINK
&
EAST-WEST TIE STATION PROJECTS**

1. Introduction

The Minister of Energy has recommended the East-West Tie (E-W Tie) Expansion project in the [2010 Long-Term Energy Plan \(LTEP\)](#), [2013 LTEP](#) and [2017 LTEP](#). The IESO, in its latest [Need update report](#) to the OEB, dated December 1, 2017, stated that:

“This report confirms the rationale for the East-West Tie (“E-W Tie”) Expansion project based on updated information and study results. This project 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.”

The proposed E-W Tie Expansion consists of:

- New 230 kV double-circuit transmission lines along the north shore of Lake Superior, connecting to Wawa Transformer Station (TS), Marathon TS and Lakehead TS
- Expansion of the three terminal station with the connection of the new circuits, retermination of some of the existing circuits, and installation of new circuit breakers, switching facilities, and protection, control and communication facilities
- Installation of new shunt reactors and capacitor bank to control the voltage and support the targeted power transfer capability

The initial plan (in 2014) was according to the [IESO’s Feasibility Study](#), which targeted 650 MW transfer capability between Northeast and Northwest regions of Ontario. In the 2015 Update Report, the IESO recommended two stages for the project. The first stage will provide 450 MW transfer capability between Northeast and Northwest regions of Ontario. In the future, when the need arises, the second stage of the project will increase this transfer capability to 650 MW by the installation of an SVC at Marathon TS and upgrading sections of the Marathon-Alexander 115 kV circuits.

Hydro One has proposed to build the new E-W Tie transmission lines, called Lake Superior Link (LSL), with a total length of approximately 400 km by utilizing, to a great extent, the existing transmission corridors.

As part of the Connection Assessment and Approval (CAA) process, the IESO has conducted the System Impact Assessment (SIA) for the proposed LSL and issued the report CAA ID 2017-628, “Lake Superior Link”. The SIA report confirms that with the proposed facilities, under the expected operating conditions (i.e., up to 450 MW East-West transfer), voltage performance in the area remain within the Market Rules requirements, the thermal loading of the facilities remain within their ratings, and the impact on short-circuit currents is relatively small.

This Customer Impact Assessment (**CIA**), carried out by Hydro One in accordance with the requirements of the OEB Transmission System Code, reviews the impact of the project on the existing customers in the area. Table 1 lists the transmission customers in the area from east of Wawa to west of Thunder Bay.

Table 1: Transmission Customers in the Project's Area

Stations / Junctions	Circuits	Customers
Mississagi TS – 230 kV	P21G, P22G	• Brookfield Renewable Power
Aubrey Falls – 230 kV	P25W, P26W	• Mississagi Power Trust
Chapleau Jct – 115 kV Chapleau DS – 115 kV	W2C	• Chapleau Public Utilities Corporation • Tembec Industries Inc. • Hydro One Distribution
Greenwich Jct – 230 kV	M23L, M24L	• Greenwich Windfarm LP
Pic Jct – 115 kV Marathon DS Jct - 115 kV	T1M	• Marathon Pulp Inc. • Hydro One Distribution
Terrace Bay SS - 115 kV AV Terrace Bay Jct – 115 kV	T1M, A1B	• AV Terrace Bay Inc.
Aguasabon SS – 115 kV	A1B, A5A	• Ontario Power Generation Inc. • Hydro One Distribution
Schreiber Jct – 115 kV	A5A	• Hydro One Distribution
Minnova Jct – 115 kV	A5A	• FQM (Akubra) Inc.
Pic DS - 115 kV	M2W	• Hydro One Distribution
Manitouwadge Jct - 115 kV Manitouwadge TS - 115 kV	M2W	• Kagiano Power • Haavaldsrud Timber Co. Ltd. • Glencore Canada Corporation • Hydro One Distribution
Black River Junction - 115 kV	M2W	• Cpot Title Corp
Umbata Falls Jct - 115 kV	M2W	• Umbata Falls LP
Hemlo Mine Jct - 115 kV	M2W	• Williams Operating Corp
Animki Jct – 115 kV	M2W	• Pic Moberg Hydro Inc.
White River DS - 115 kV	M2W	• Hydro One Distribution
Birch TS – 115 kV		• Thunder Bay Hydro
Port Arthur TS #1 – 115 kV		• Thunder Bay Hydro • Lac Des Iles Mines Ltd. • Ontario Power Generation Inc. • Hydro One Distribution
Alexander SS – 115 kV		• Ontario Power Generation Inc.
Pine Portage SS – 115 kV		• Ontario Power Generation Inc.
Nipigon Jct – 115 kV	56M1, 57M1	• Hydro One Distribution
Red Rock Jct – 115 kV	56M1	• Red Rock Mill Inc. • Hydro One Distribution
A.P. Nipigon Jct – 115 kV	A4L	• Atlantic Power LP
Beardmore Jct – 115 kV	A4L	• The Power Limited Partnership • Hydro One Distribution
Jellicoe DS #3 Jct – 115 kV	A4L	• Hydro One Distribution
Roxmark Jct – 115 kV	A4L	• Roxmark Mine Limited
Long Lac TS – 115 kV, 44 kV	A4L	• Hydro One Distribution
Murillo Jct – 115 kV	B6M	• Ontario Power Generation Inc. • Hydro One Distribution
Shabaqua Jct – 115 kV Sapawe Jct – 115 kV	B6M	• Hydro One Distribution

Stations / Junctions	Circuits	Customers
Fort William TS – 115 kV, 25 kV		• Thunder Bay Hydro
St. Paul Jct – 115 kV	Q5B	• Resolute FP Canada Inc.
James St. Jct – 115 kV	Q4B, Q5B	• Resolute FP Canada Inc.
Thunder Bay SS – 115 kV		• Resolute FP Canada Inc. • Ontario Power Generation Inc.
Moose Lake TS – 44 kV		• Atikokan Hydro Inc.

The Hydro One Sault Ste Marie (HO-SSM) system is connected to the grid at Hydro One's Wawa TS and Mississagi TS and covers an area south of Wawa. The HO-SSM's connected customers are not listed in the above table.

2. Proposed Facilities

The proposed new line and station facilities consist of the following (see also Figures 1 to 6)

- **New East-West Tie Transmission Lines**

A new 168 km 230 kV double-circuit transmission line between Wawa TS and Marathon TS¹ and a new 235 km 230 kV double-circuit transmission line between Marathon TS and Lakehead TS, as shown on the map in Figures 1 and schematic diagram in Figure 2, with:

- Single 1192.5 kcmil ACSR conductor per phase
- One Optical Ground Wire
- One Alumoweld skywire

- **Station Expansions with New Facilities**

Reconfiguration of Wawa TS, Marathon TS and Lakehead TS, as shown in schematic diagrams in Figures 3 to 5, with the addition of new bus work and new breakers and switches, for connection of the new circuits, re-termination of some of the existing circuits, and addition of the following reactive power sources:

- Two 230 kV shunt reactors, rated at 65 MVAR each, at Marathon TS
- A 230 kV shunt reactor, rated at 125 MVAR, at Lakehead TS
- A 230 kV shunt capacitor bank, rated at 125 MVAR, at Lakehead TS

- **Revised and Expanded Special Protection Scheme**

Revision of the Northwest Special Protection Scheme 2 (NW SPS 2) according to the new station configurations and addition of new contingencies and actions for the new and existing facilities, as shown in Figure 6, including:

- a. Addition of 14 new single and double contingencies (new East-West Tie circuits and existing circuits east/south of Wawa TS):

¹ For 35 km, the new and existing 230 kV circuits will be on new four-circuit transmission towers.

- W35M, W36M, W35M+W36M, W21M+W35M, W21M+W36M, W22M+W35M and W22M+W36M
- M37L, M38L and M37L+M38L
- P25W, P26W and P25W+P26W
- W23K
- b. Removal of 4 Marathon breaker failure contingencies
- c. Removal of 4 Lakehead breaker failure contingencies
- d. Addition of 2 new contingencies “Lakehead Reactor R1” and “Lakehead Capacitor SC21”
- e. Replacement of 2 Lakehead transformer (T7 and T8) contingencies with one “Lakehead T7 OR T8” contingency (i.e., trip of one of the two transformers)
- f. Addition of 2 new transformer contingencies “Marathon T11 OR T12” and “Wawa T1 OR T2” (i.e., trip of one of the two transformers at each station)
- g. Addition of 5 new actions to,
 - Trip Marathon 230 kV reactor R3
 - Trip Marathon 230 kV reactor R4
 - Trip Lakehead 230 kV reactor R1
 - Trip Lakehead 230 kV capacitor SC21
 - Trip Lakehead 115 kV capacitor SC11
- h. Removal of A5A cross-trip action

3. Customer Impact Assessment Scope

The purpose of this CIA is to assess the potential impacts of the proposed new and modified transmission facilities on the existing connected load and generation customers in the affected area.

A review of the following potential impacts on existing customers is conducted in this CIA:

- Short-circuit current
- Voltage
- Power supply reliability

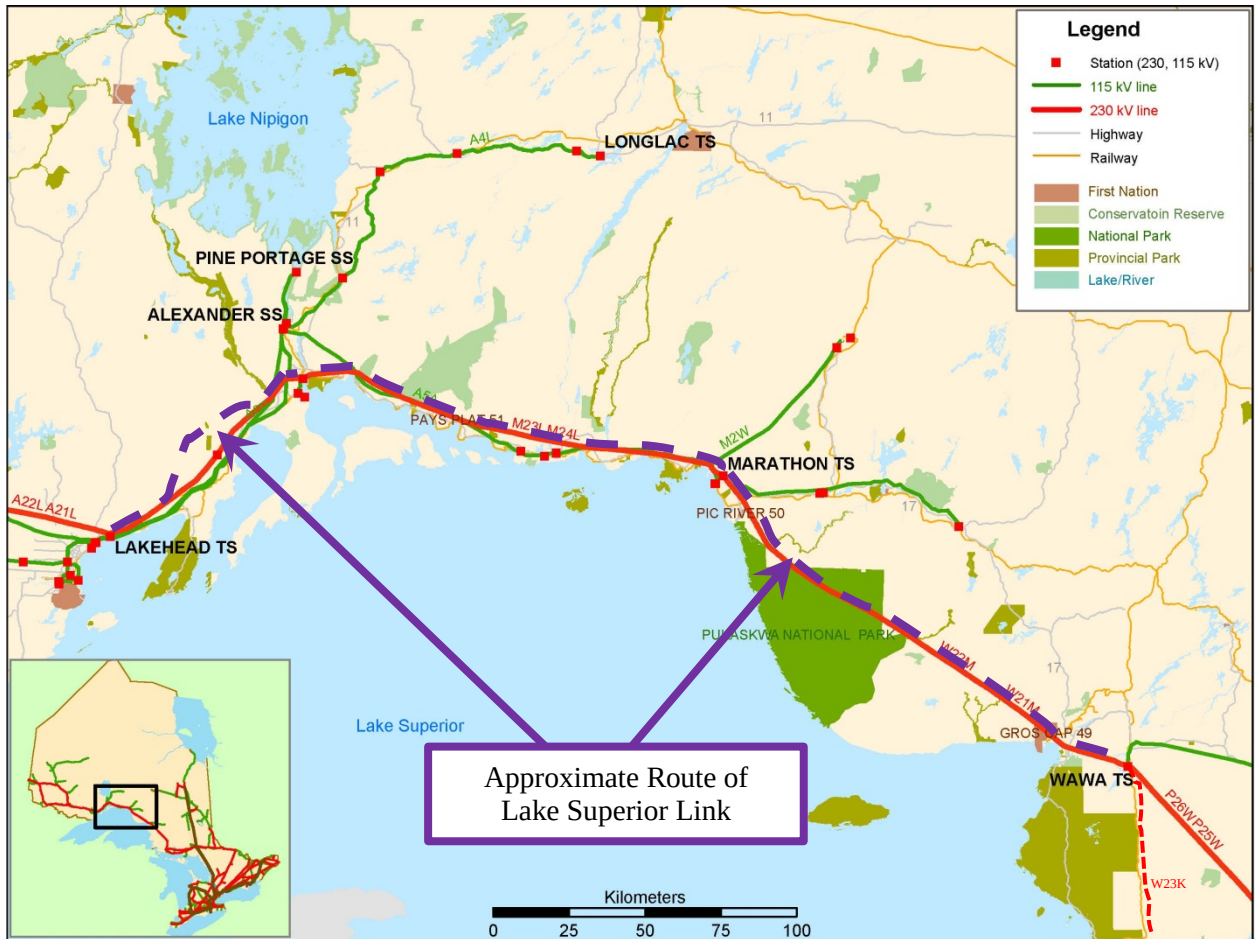


Figure 1: East-West Tie Expansion Area

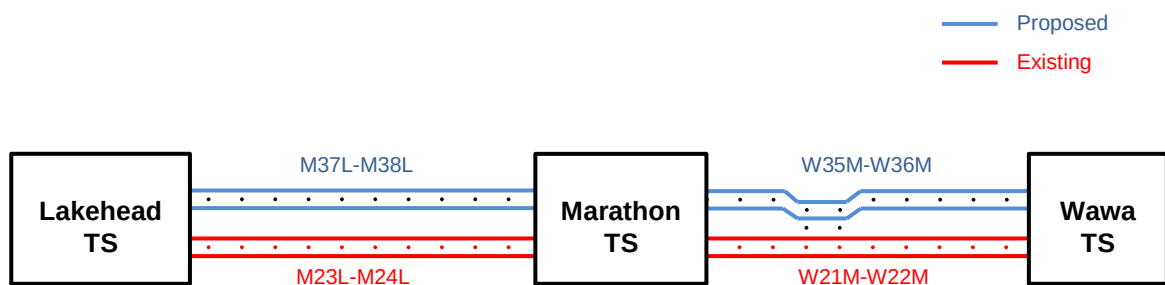


Figure 2: Schematic Diagram of the Proposed and Existing 230 kV Transmission Lines between Wawa TS and Lakehead TS

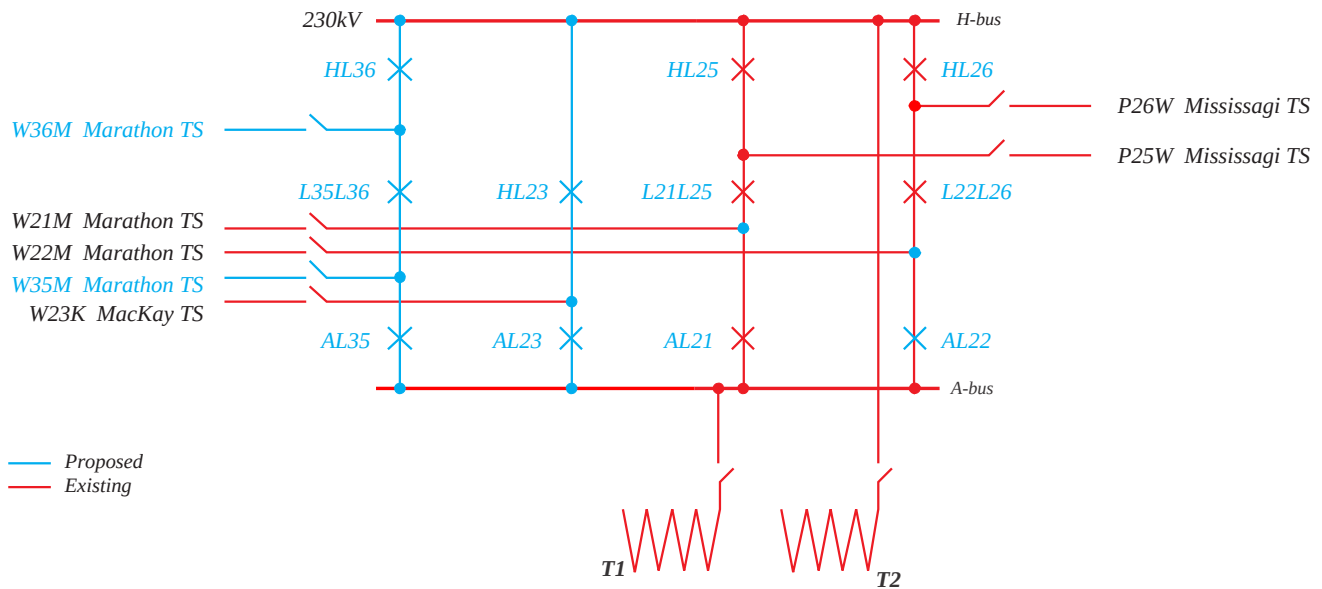


Figure 3: Schematic Diagram of Wawa TS (230 kV Facilities)

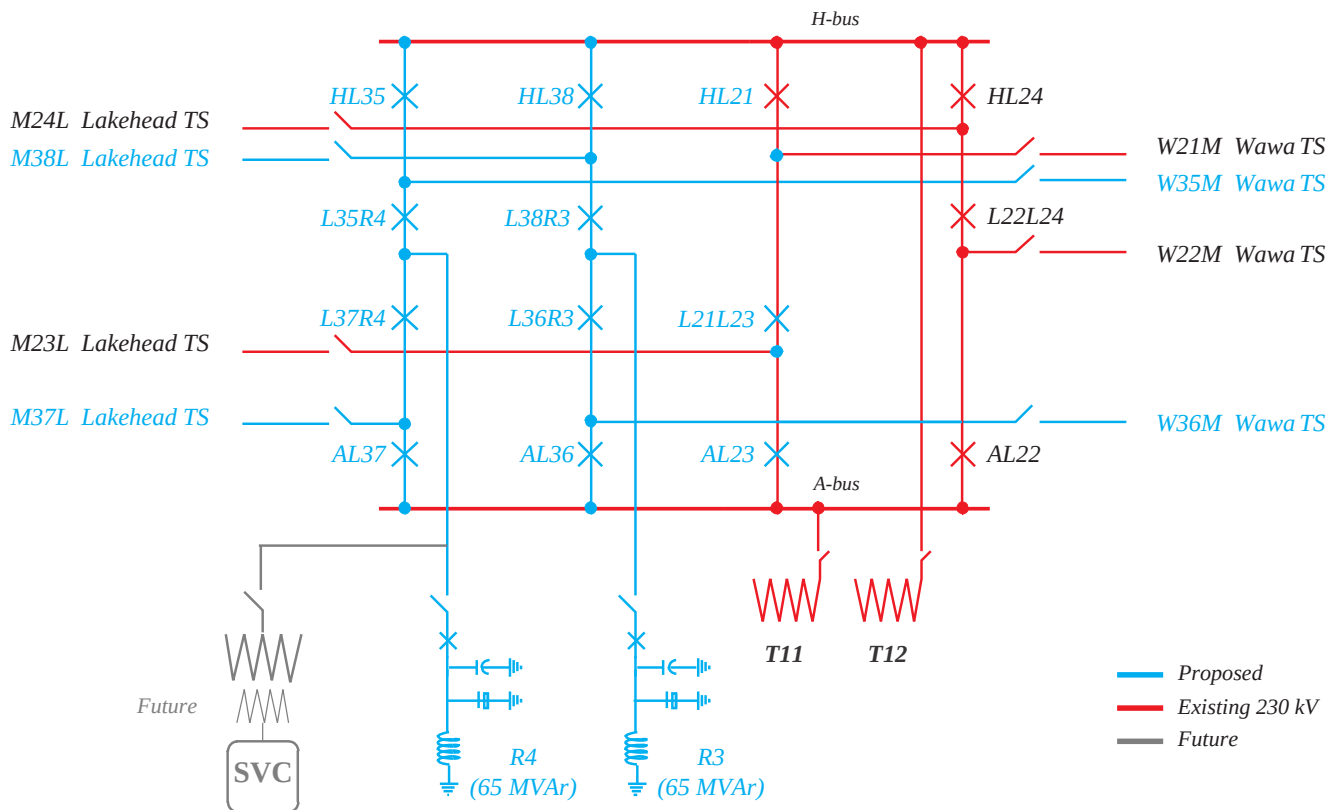


Figure 4: Schematic Diagram of Marathon TS (230 kV Facilities)

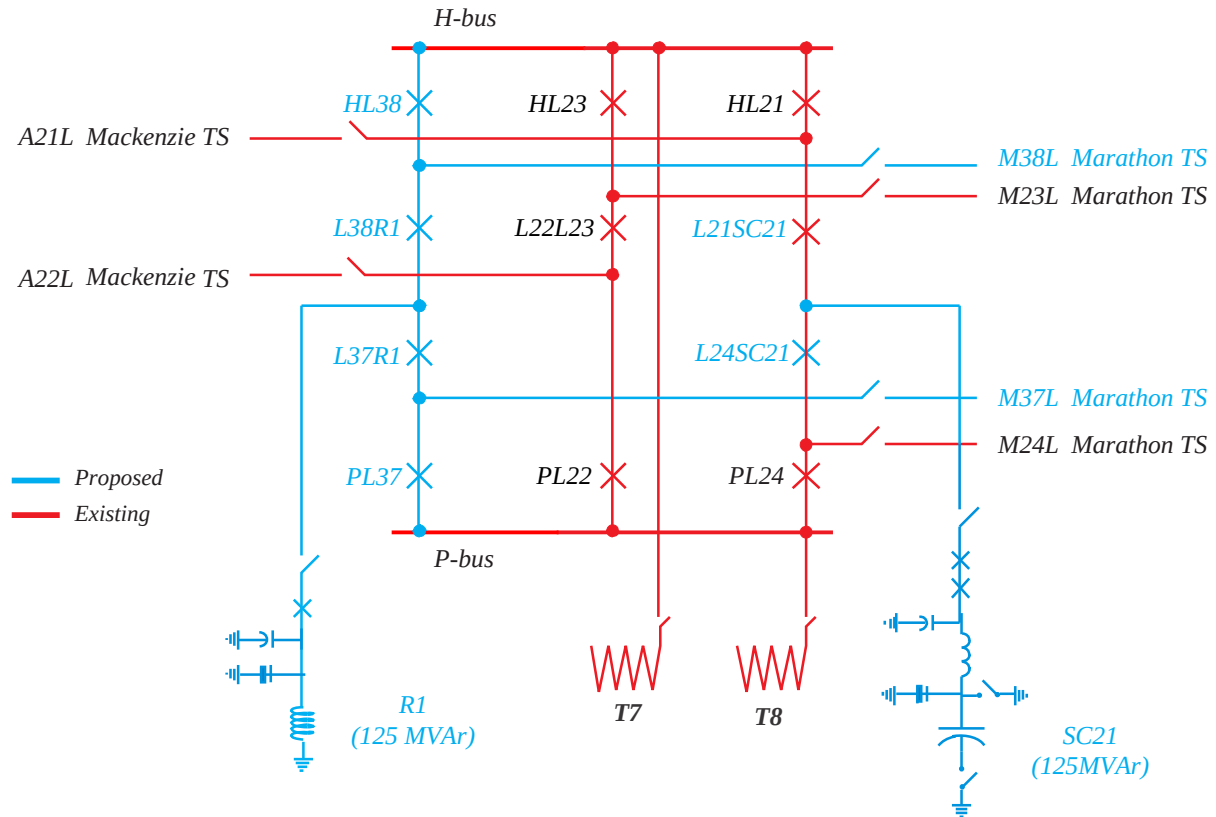


Figure 5: Schematic Diagram of Lakehead TS (230 kV Facilities)

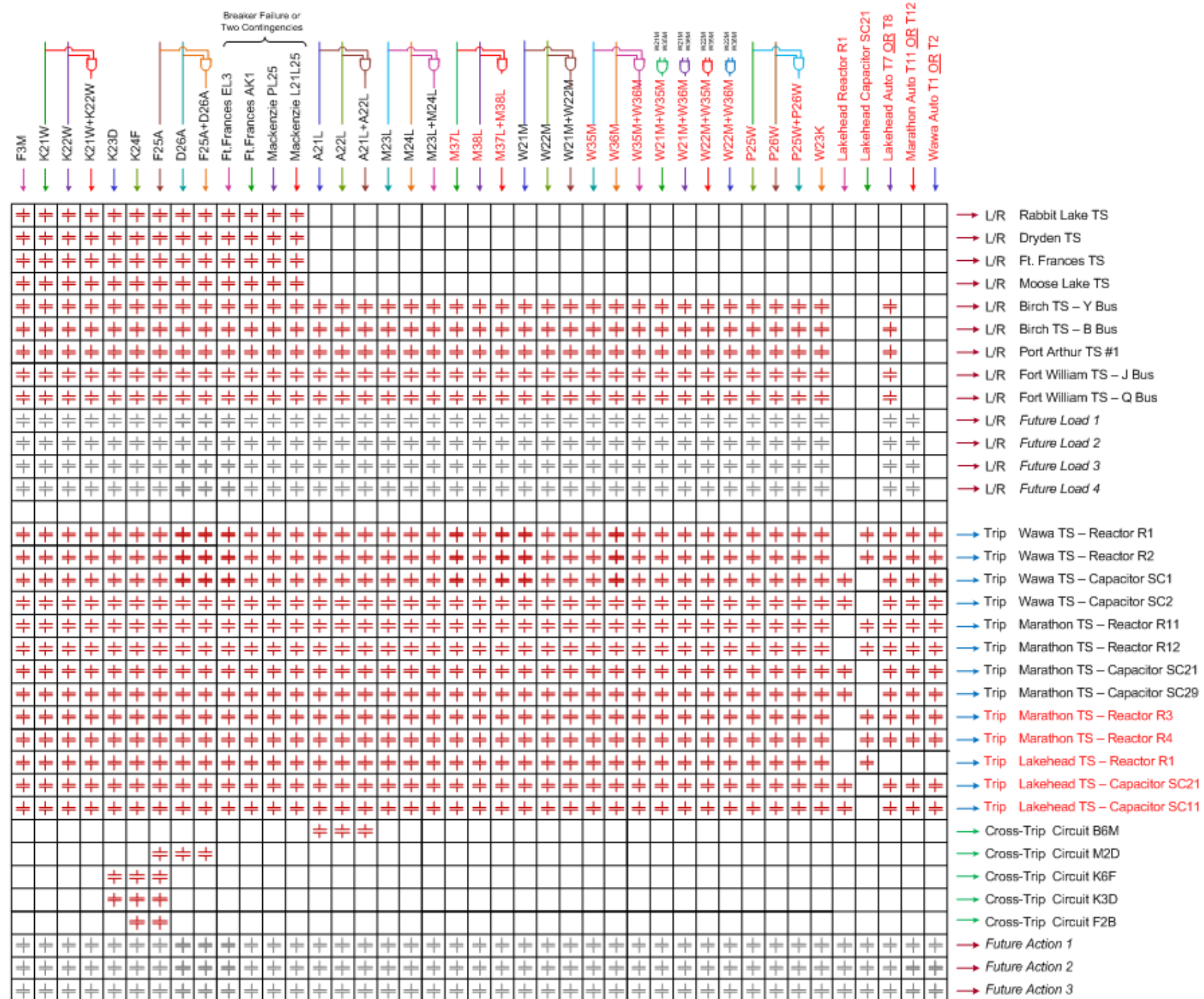


Figure 6: Revised Northwest SPS (NW SPS 2) Contingencies, Actions and Selection Matrix

4. Short-Circuit Impact

The proposed transmission reinforcement has a relatively small impact on Short-Circuit Levels in the area since, it does not significantly reduce the equivalent impedance between the existing sources of short-circuit current, i.e. generators, and the customer connection points.

Table 2 shows the short-circuit currents (Symmetrical and Asymmetrical; for three-phase faults and single-phase-to-ground faults) at the main buses in the area, before and after the E-W Tie Expansion, with the assumption of all existing and committed generators being in service, including Atikokan and one Thunder Bay unit. Table 3 shows the change in the short-circuit current as a result of the project.

As can be seen in Table 3, the increase in short-circuit currents at main buses are relatively small. The biggest increase, close to 2 kA, is at Marathon 230 kV bus, however as seen in Table 2, at this location at present the short-circuit current is relatively low (below 6 kA). At Lakehead 115 kV bus, where the short-circuit current approaches 23 kA at present, there will be an increase of less than 1.2 kA.

At Terrace Bay and Aguasabon the increase in short-circuit current is less than 100 A. The increase in short-circuit current at other locations in the area are similar or smaller than the change at the nearby buses shown in Table 3.

Table 2: Short-Circuit Currents at Main Buses

	Before E-W Tie Expansion				After E-W Tie Expansion			
	Three Phase SC Current (kA)		Line to Ground SC Current (kA)		Three Phase SC Current (kA)		Line to Ground SC Current (kA)	
Station / Bus	Symm	Asymm	Symm	Asymm	Symm	Asymm	Symm	Asymm
MacKenzie 230 kV	6.354	8.046	6.543	8.487	6.462	8.161	6.620	8.573
MacKenzie 115 kV	6.131	7.483	7.369	9.406	6.173	7.526	7.409	9.449
Lakehead 230 kV	7.335	9.140	7.530	9.871	8.198	10.164	8.218	10.734
Lakehead 115 kV	17.596	19.707	19.477	22.794	18.636	20.903	20.416	23.937
Marathon 230 kV	5.227	5.806	5.068	5.832	7.034	8.028	6.451	7.650
Marathon 115 kV	7.334	7.811	9.434	9.434	8.453	9.305	9.805	11.095
Wawa 230 kV	6.754	7.749	6.072	7.653	7.671	8.836	6.763	8.577
Wawa 115 kV	8.601	9.610	10.334	12.155	9.108	10.274	10.893	12.962
Terrace Bay 115 kV	4.907	5.925	3.846	4.510	5.002	6.023	3.885	4.549
Aguasabon 115 kV	4.738	5.490	4.108	5.120	4.817	5.568	4.148	5.163

Table 3: Increase in Short-Circuit Currents As a Result of East-West Tie Expansion

Station / Bus	Three Phase SC Current Increase (kA)		Line to Ground SC Current Increase (kA)	
	Symmetrical	Asymmetrical	Symmetrical	Asymmetrical
MacKenzie 230 kV	0.108	0.115	0.077	0.086
MacKenzie 115 kV	0.042	0.043	0.040	0.043
Lakehead 230 kV	0.863	1.024	0.688	0.863
Lakehead 115 kV	1.040	1.196	0.939	1.143
Marathon 230 kV	1.807	2.222	1.383	1.818
Marathon 115 kV	1.119	1.494	0.371	1.661
Wawa 230 kV	0.917	1.087	0.691	0.924
Wawa 115 kV	0.507	0.664	0.559	0.807
Terrace Bay 115 kV	0.095	0.098	0.039	0.039
Aguasabon 115 kV	0.079	0.078	0.040	0.043

5. Voltage Impact

Addition of the new facilities improves the voltage performance in the area as a result of the strengthened transmission system and the addition of new shunt reactors and capacitor bank. These reactive power devices will allow the existing SVC and the Synchronous Condenser (SC) at Lakehead TS to be utilized more effectively for maintaining acceptable voltages before and after contingencies and switching actions.

Switching Assessment

Table A.1 in the appendix shows the change of voltage at the main buses and customer connection points following the switching of the new capacitor bank at Lakehead TS and the new shunt reactor at Marathon TS.

The largest voltage change following Lakehead TS capacitor bank switching is 2.8% (at Lakehead 230 kV bus), which is below the 4% maximum voltage change criteria in the Ontario Resource and Transmission Assessment Criteria (ORTAC). Switching of the new shunt reactor at Lakehead TS will have similar effect on voltages. Normally, the capacitor bank will be switched in (out) when the SVC and SC at Lakehead TS are producing (absorbing) reactive power. In response, the SVC and SC will compensate and reduce (increase) their reactive power output which reduces the impact on voltages. Similarly the new Lakehead TS shunt reactor will be switched in (out) when the SVC and SC are absorbing (producing) reactive power and in response they will compensate and reduce the impact on voltages. This will allow more room for the SVC and SC to respond to contingencies.

The largest voltage change following the new Marathon TS shunt reactor switching is 2.2% (at Marathon 230 kV bus), which is also below the 4% maximum voltage change criteria in ORTAC.

Steady State Voltage Assessment

The pre-switching (base case) voltages shown in Table A.1, for a medium transfer scenario, are within the ORTAC criteria of,

$$\begin{aligned} 220 \text{ kV} &< \text{Voltage of 230 kV buses} < 250 \text{ kV} \\ 113 \text{ kV} &< \text{Voltage of 115 kV buses} < 127 \text{ kV} \end{aligned}$$

The IESO's SIA (CAA ID 2017-628) has examined the voltage performance of the main buses for double-circuit contingencies as well as single and double outage/contingency of transformers and shunt reactors. It has found that pre-contingency and post-contingency voltages of the main buses remain within the ORTAC criteria for low, medium and high transfer scenarios.

NW SPS 2 will allow the voltages to be controlled within the ORTAC criteria following contingencies under various East-West transfer conditions, by switching the shunt capacitor banks and reactors in the area, or even rejecting some of the loads, if necessary, for severe contingencies or outage conditions.

6. Supply Reliability Impact

Currently, the NERC and ORTAC criteria contingencies of simultaneous loss of the two existing E-W Tie circuits or loss of one circuit when the companion circuit is out of service, will result in the separation of Northwest Ontario from the rest of the system, or it could overload the only remaining 115 kV circuit connecting Marathon TS to the west. This limits the pre-contingency East-West transfer.

The IESO's SIA (CAA ID 2017-628) has determined that the addition of the new double-circuit lines and the station facilities and reconfigurations will allow up to 450 MW transfer between Northeast and Northwest Ontario, respecting all double-circuit and breaker fault/failure contingencies (which could result in simultaneous loss of two transmission elements) when all elements are in-service, or the loss of one circuit when another circuit is out of service.

Addition of the new circuits, reconfiguration of Wawa TS and Marathon TS from ring bus to bus-diameter arrangement and compliance with the planning and operating requirements of the NERC reliability standards will improve the security and reliability of supply for the affected customers.

Customer Impact during Construction

The outage schedule during the construction work will be developed during detailed engineering and execution phase of the project. The risk of interruptions will be managed with proper outage planning and co-ordination by Hydro One and the IESO. Construction will be staged by Hydro One with the goal of minimizing possible customer interruptions. The schedules will be communicated to the affected customers and stakeholders in advance of the outages.

7. Conclusions

This CIA report describes the impact of the proposed East-West Tie Expansion, consisting of the new 230 kV transmission lines, station reconfigurations and new station facilities, on the customers in the area.

The short-circuit levels at customer transmission connection points will not increase significantly as a result of this project.

The voltage assessments described in the SIA (CAA ID 2017-628) report and the switching studies described in this CIA report show that voltage performance remains within the Planning Criteria. The new reactive power sources and the Northwest Special Protection Scheme 2 (NW SPS 2) will support the 450 MW east-west transfer capability and maintain the pre and post-contingency voltages within acceptable limits.

The proposed transmission facilities have no material adverse reliability impact on existing customers in the area, on the contrary, the reliability will improve in Northwest Ontario.

Appendix

Switching Assessment Results

Table A.1 shows the voltage of main buses and customer connection points before and after,

- Switching off the new 230 kV capacitor bank at Lakehead TS, and
- Switching off the new 230 kV shunt reactor at Marathon TS

It also show the percentage change in voltages (delta-V) for the above switching actions.

Table A.1: Voltages Before and After Switching of New Capacitor Bank and Reactor

Name & Nominal kV Of Bus or Connection Point	Pre-Switching Voltage (kV)	After Lakehead Capacitor Switching		After Marathon Reactor Switching	
		Voltage (kV)	delta-V(%)	Voltage (kV)	delta-V(%)
ATIKOKAN_TGS, 230	235.69	231.82	-1.6	237.04	0.6
AUBRY_FLSJ25, 230	241.85	241.01	-0.3	243.13	0.5
DRYDEN_TS, 230	234.83	232.83	-0.9	235.61	0.3
FT_FRANCES, 230	238.82	236.72	-0.9	239.69	0.4
GRNW_LK_JM23, 230	225.25	219.54	-2.5	227.93	1.2
LAKEHEAD_TS , 230	223.08	216.84	-2.8	225.16	0.9
MACKENZIE_TS, 230	236.06	232.20	-1.6	237.40	0.6
MARATHON_TS , 230	226.67	223.31	-1.5	231.63	2.2
MISSISSAGI , 230	241.72	241.07	-0.3	242.72	0.4
WAWA_TS, 230	233.93	232.10	-0.8	236.74	1.2
ABITIBI_JQ4B, 115	121.82	120.25	-1.3	122.38	0.5
ABITIBI_JQ5B, 115	120.65	118.93	-1.4	121.26	0.5
AGUASABON_SS, 115	122.87	122.04	-0.7	123.91	0.8
ALEXANDER_SS, 115	125.75	125.02	-0.6	126.13	0.3
ANIMKI_JCT, 115	117.70	116.38	-1.1	119.74	1.7
AP_NIPIGON , 115	125.01	124.15	-0.7	125.41	0.3
BEARDMORE_J , 115	124.09	123.14	-0.8	124.52	0.3
BIRCH_TS , 115	121.01	119.27	-1.4	121.62	0.5
BLACK_R_JM2W, 115	121.60	120.28	-1.1	123.64	1.7
BOWATER_G6 , 115	122.16	120.64	-1.2	122.70	0.4
FT_WILLM_Q4B, 115	120.98	119.33	-1.4	121.57	0.5
FT_WILLM_Q5B, 115	120.32	118.60	-1.4	120.94	0.5
HEMLO_MINE_J, 115	117.81	116.49	-1.1	119.84	1.7
INCO_SHEB_J , 115	120.52	118.89	-1.4	121.08	0.5
JELICOE_#3J, 115	122.72	121.64	-0.9	123.16	0.4

Name & Nominal kV Of Bus or Connection Point	Pre-Switching Voltage (kV)	After Lakehead Capacitor Switching		After Marathon Reactor Switching	
		Voltage (kV)	delta-V(%)	Voltage (kV)	delta-V(%)
KASHABOWIE_J, 115	120.32	118.70	-1.4	120.88	0.5
LAC_DES_CSS, 115	120.89	119.87	-0.9	121.26	0.3
LAC_DES_ILSJ, 115	120.92	119.89	-0.9	121.29	0.3
LAKEHEAD_TS, 115	123.36	121.44	-1.6	124.02	0.5
LONGLAC_TS, 115	120.40	119.30	-0.9	120.85	0.4
MACKENZIE_A3, 115	118.54	116.86	-1.4	119.12	0.5
MANITOUWADGE, 115	124.60	123.02	-1.3	126.83	1.8
MARATHN_DS_J, 115	124.07	122.56	-1.2	126.29	1.8
MARATHON_TS, 115	124.26	122.71	-1.2	126.54	1.8
MINNOVA_J, 115	123.51	122.69	-0.7	124.44	0.8
MOOSE_LK_TS, 115	119.21	117.64	-1.3	119.75	0.4
MURILLO_J, 115	120.80	119.18	-1.3	121.36	0.5
NIPIGNON_J, 115	125.24	124.35	-0.7	125.68	0.4
PIC_J_M2W, 115	124.30	122.75	-1.2	126.57	1.8
PIC_J_T1M, 115	124.16	122.65	-1.2	126.37	1.8
PT_ARTH_#1A1, 115	122.41	120.57	-1.5	123.05	0.5
RED_ROCK_J, 115	125.16	124.28	-0.7	125.61	0.4
RESFP_KRFTQ4, 115	120.41	120.41	0.0	120.41	0.0
RESFP_KRFTQ5, 115	120.51	118.82	-1.4	121.12	0.5
RESFP_TB_Q5B, 115	120.54	118.84	-1.4	121.16	0.5
SAPAWA_J_B6M, 115	119.60	118.01	-1.3	120.14	0.5
SCHREIBER_J, 115	123.20	122.37	-0.7	124.18	0.8
SHABAQUA_JB6, 115	120.57	118.94	-1.4	121.14	0.5
SILVER_FALLS, 115	121.16	120.21	-0.8	121.50	0.3
STANLEY_JB6M, 115	120.77	119.15	-1.3	121.33	0.5
TCP_NIPIGN_J, 115	125.01	124.15	-0.7	125.41	0.3
TER_BAY_PU_J, 115	122.66	121.77	-0.7	123.79	0.9
TERRACE_BAY, 115	122.66	121.77	-0.7	123.79	0.9
THUN_BAY_Q9B, 115	120.99	119.25	-1.4	121.60	0.5
UMBATA_FLS_J, 115	120.57	119.29	-1.1	122.54	1.6
WAWA_TS, 115	124.49	123.80	-0.6	125.63	0.9
WHITE_RIVER, 115	116.48	115.14	-1.1	118.55	1.8
WILLIAMS_M_J, 115	117.90	116.58	-1.1	119.93	1.7
WILLROY_J, 115	124.60	123.02	-1.3	126.83	1.8

THIS LICENCE OF OCCUPATION made this 8th day of December, 2010

BETWEEN:

HER MAJESTY THE QUEEN, in right of Canada, represented herein by the Minister of the Environment for the purposes of the Parks Canada Agency, ("**Her Majesty**"),

OF THE FIRST PART,

AND:

HYDRO ONE NETWORKS INC., a body corporate, incorporated under the laws of the Province of Ontario and having its head office in the City of Toronto in the said Province, ("**Licensee**"),

OF THE SECOND PART.

WITNESS that in consideration of the fees, covenants and agreements herein reserved and contained on the part of the Licensee to be paid, observed, performed and kept, Her Majesty hereby gives permission to the Licensee to use and occupy on a non-exclusive basis for the purpose of operating and maintaining the existing 230 KV electrical transmission line hereinafter mentioned and subject to the terms and conditions hereinafter contained, the premises situate, lying and being in Pukaskwa National Park of Canada, in the Province of Ontario, being all that parcel or tract of land extending seventy five (75) feet on either side of a centre line on Ontario Hydro Plan TD 09595 ZOO dated August 31, 1970 attached hereto and forming part hereof as Schedule "A", for a period of Five (5) years commencing on the 8th day of November, 2009, and ending on the 7th day of November, 2014, ("**Period**").

YIELDING AND PAYING THEREFORE yearly and every year the Licensee shall pay unto Her Majesty at the office of the Park Manager, the following licence fee in the amount of SIX THOUSAND DOLLARS (\$6,000.00) + GST ("**Licence Fee**") for the first year of the Period and an amount of SIX THOUSAND DOLLARS (\$6,000.00) + HST in each subsequent year commencing on the 8th day of November, 2010, and ending on the 7th day of November, 2014. The Licensee shall pay the Licence Fee annually, in advance, on the 8th day of November in each and every year of the Period.

ARTICLE 1.00 DEFINITIONS

1.01 In this Licence of Occupation:

- (a) "Act" means the *Canada National Parks Act*, S. C. 2000, c. 32;
- (b) "Applicable Environmental Law" means:
 - (i) all applicable statutes and regulations, and all by-laws, declarations, directives, plans, approvals, requirements, guidelines, standards and orders made pursuant thereto by any competent authority concerned with environmental assessment, protection or remediation, health, chemical use, safety or sanitation; and
 - (ii) the applicable common law;
- (c) "Bankruptcy and Insolvency Act" means the *Bankruptcy and Insolvency Act*, R.S.C. 1985, c. B-3;
- (d) "Companies Creditors Arrangement Act" means *Companies Creditors Arrangement Act*, R.S.C. 1985, c. C-36;

(e) "Contaminant" means:

- (i) any pollutant or toxic, dangerous or hazardous substance or material as defined, listed, prohibited, controlled, or regulated by Applicable Environmental Law or any other formulation intended to define, list, prohibit, control, regulate or classify substances by reason of deleterious or harmful or potentially deleterious or potentially harmful properties such as ignitability, corrosivity, reactivity, radioactivity, or toxicity; or
- (ii) any substance that when released in to the natural environment causes or is likely to cause harm, adverse impact, damage or degradation to, or impairment of, or the use of the environment, risk to or an adverse effect on human safety or health, injure or materially discomfort any person, or the normal conduct of business;

(f) "Head, Contracts, Procurement and Real Property Management" means the Head, Contracts, Procurement and Real Property Management, Ontario Service Centre, Parks Canada Agency or any person authorized to act in that behalf;

(g) "Licence" means this Licence of Occupation;

(h) "Minister" means the Minister of the Environment or such Minister designated by the Governor in Council as the Minister for the purposes of the *Canada National Parks Act*, or any person authorized to act in that behalf;

(i) "Park" means Pukaskwa National Park of Canada, in the Province of Ontario;

(j) "Parks Canada Agency" means the Parks Canada Agency, a body corporate established under section 3 of the *Parks Canada Agency Act*, S.C. 1998, c.31;

(k) "Structures" means any buildings, erections, structures, fixtures and improvements existing on or under the Land from time to time; and

(l) "Park Manager" means the Park Manager of the Park or any person authorized to act in that behalf.

1.02 Any reference in this Licence to a statute, regulation, by-law, declaration, directive, policy, approval, requirement, standard or order means the statute, regulation, by-law, declaration, directive, policy, approval, requirement, standard or order now in force, as it may be amended, revised, consolidated or substituted from time to time.

THE PARTIES COVENANT AND AGREE AS FOLLOWS:

ARTICLE 2.00 USE OF LAND

- 2.01 (a) The Licensee acknowledges and agrees that it is a condition upon which this Licence is granted that the Land shall be used only for the purpose of operating, maintaining, inspecting, altering, renewing, replacing or repairing an electrical transmission line and equipment necessarily incidental thereto, together with the right of ingress and egress to and from the land for the employees, agents, vehicles, supplies and equipment of the Licensee for the purpose of inspecting, repairing and maintaining the transmission line and related equipment and all in accordance with applicable Park plans and guidelines.
- (b) The Licensee shall obtain all permits, licences and authorizations required under the Act, all regulations thereunder and any other applicable federal statutes and regulations.
- (c) The Licensee shall comply with, and the terms of this Licence shall be subject to, the provisions of the Act, all regulations thereunder and all other applicable federal statutes and regulations.

- 2.02 The Licensee shall not create or permit or suffer any act or thing on the Land which is a nuisance.
- 2.03 The Licensee shall not cause, permit or allow the commission of any waste on or in the Land.
- 2.04 The Licensee shall, at its own expense, collect and dispose of all garbage resulting from the use and occupation of the Land, in a manner satisfactory to the Park Manager.
- 2.05 a) The Licensee shall not cut down or permit the cutting down, interfere with or permit the interference with any timber, trees or other vegetation on the right-of-way or impair or permit the impairment of the natural beauty of the Land, except to the extent necessary for the reasonable exercise of the Licensee's rights hereunder, it being expressly understood that the Licensee shall not use any chemical defoliant on the Land. The use of Herbicides is subject to prior review and approval of the Park Manager.
- b) Where the Park Manager agrees that any tree adjacent to the Land endangers the electrical power transmission line, the Licensee shall, at its own expense, remove such tree.
- 2.06 The Licensee shall observe fire and safety precautions and shall comply fully with the instructions of the Park Manager in relation thereto.

ARTICLE 3.00 ACCEPTANCE AND EXCEPTIONS

- 3.01 The Licensee covenants and agrees that:
- (a) it has entered into this Licence on reliance on that inspection and not on reliance on any representation, whether oral, written or implied, by whomsoever made;
- (b) it will accept the Land in the condition existing on the date of this Licence on an "as is" basis, notwithstanding the existence of any Contaminant, known or unknown, on, in or under the Land;
- (c) it has satisfied itself of everything and of every condition affecting the Land and any Structures including the environmental condition of same;
- (d) that the use of the Land shall be consistent with the environmental condition of the Land; and
- (e) no representation, warranty or inducement has been given by Her Majesty or any of Her officers, servants, agents and contractors and relied upon by the Licensee respecting the condition of the Land.
- 3.02 This Licence operates solely as a licence and does not transfer any exclusive possessory right or interest to the Licensee.
- 3.03 The Licensee acknowledges and agrees that Her Majesty may issue other licences of occupation with respect to the Land, or any portion thereof, or use the Land for Park purposes.
- 3.04 The Licensee shall give immediate notice to the Park Manager if evidence of archaeological resources are encountered during any activity whatsoever on the Land, and await the Park Manager's written instructions before proceeding with the activity on the Land.
- 3.05 The Licensee acknowledges and agrees that all archaeological resources in, on or under the Land are the property of Her Majesty.



- 3.06 For greater certainty and clarity, the right granted herein does not include mines, minerals or any legal or equitable right to work or exploit any resource on or under the Land.
- 3.07 The Licensee shall permit all park visitors to pass freely at all times over any trail which may cross the Land.
- 3.08 a) Where the Land or any part thereof is required by Her Majesty for the purpose of administration of the Park or any other public purpose, Her majesty, Her officers, agents and servants may enter the Land and use the whole or any part of the Land on the expiration of such notice as the Minister may deem expedient.
- b) If Her Majesty requires that the transmission line or any part thereof be relocated or altered, Her Majesty shall pay the cost thereof.
- 3.09 Her Majesty will not construct any buildings or structures on the land during the Period of this agreement without the prior written consent of the Licensee.

ARTICLE 4.00 ACCESS TO THE LAND

- 4.01 The Licensee shall be permitted to gain access to the Land by way of the Umbata Road and Reagan Road until a new access is available at which time it shall use the new access road. The Licensee shall notify the Park Manager, in advance, of its intention to enter upon the Land for maintenance and operational purposes as set out in the 1991 Environmental Assessment Report.
- 4.02 In emergencies, including structural failure or outage on the transmission line, the Licensee shall have the right to use the quickest and most efficient means of access to the point of failure, it being expressly understood, however, that the Licensee will not, without prior approval of the Park Manager, use any means that involves the cutting or knocking down of timber or trees or other damage to any are of the Park outside of the Land.
- 4.03 The Licensee may, with the prior approval of the Park Manager, improve existing access roads within the Park and leading to the land, all at the expense of the Licensee.
- 4.04 a) To the extent that the use of aircraft by the Licensee in carrying out the purposes of this Licence is reasonable and proper, the Licensee may employ helicopters which shall land on and takeoff from the Land save that, in an emergency, the Park Manager may permit landing in the Park in an area outside of the Land.
- b) Notwithstanding Article 4.04 a) above, the Licensee, with the prior approval of the Park Manager, may use water based planes as required from time to time on official business and such planes may land and takeoff from waters within the Park.
- 4.05 Prior to accessing the Land with any equipment, the Licensee shall ensure that, it thoroughly inspect and clean all equipment of any seeds, vegetation or soil in order to prevent the transporting of non-native or invasive species of invertebrates or plants into the Park,

ARTICLE 5.00 TAXES AND OTHER CHARGES

- 5.01 The Licensee covenants and agrees to pay, in addition to the annual Licence Fee, all applicable taxes, rates, duties, assessments, levies, fees or other impositions whatsoever charged upon the Land in relation to the Licensee's use of the Land or upon the Licensee in respect thereof.

ARTICLE 6.00 ENVIRONMENTAL PROTECTION

- 6.01 The Licensee covenants and agrees that all activities on the Land shall be conducted in compliance with Applicable Environmental Law, or in accordance with generally accepted environmental practices if there is no Applicable Environmental Law.
- 6.02 The Licensee covenants and agrees that:
- (a) any required environmental assessments relating to its physical works and activities on the Land shall be conducted in accordance with the *Canadian Environmental Assessment Act*, S.C. 1992, c. 37, or any successor or similar legislation and regulations made thereunder, and all applicable federal policies and procedures; and
 - (b) it shall implement and comply with any specifications, mitigative measures and environmental protection measures as set forth in an environmental assessment referred to in (a) and such specifications, mitigative measures and environmental protection measures shall become covenants which form part of this Licence.
- 6.03 The Licensee covenants and agrees to ensure that no Contaminant shall be used, emitted, discharged, stored or disposed of as a result of its use of the Land except in strict compliance with Applicable Environmental Law, or in accordance with generally accepted environmental practices if there is no Applicable Environmental Law. The Licensee shall implement and comply with any specifications, mitigative measures and environmental protection measures as required by the Minister regarding the use, emission, discharge, storage or disposal of any Contaminant and such specifications, mitigative measures and environmental protection measures shall become covenants which form part of this Licence.
- 6.04 The Licensee covenants and agrees to provide the Minister with written notice of any anticipated or actual adverse environmental impacts attributable to its use of the Land immediately upon discovery by the Licensee, and if the Minister considers remedial action to be necessary, the Licensee hereby agrees to undertake remedial action immediately using the appropriate technology, design or repair to the satisfaction of the Minister and pay the costs of such remedial action. Furthermore, the Licensee agrees that all such remedial action shall be undertaken in accordance with Applicable Environmental Law, or in accordance with generally accepted environmental practices if there is no Applicable Environmental Law and in a manner so as to minimize any impact on the Land and elsewhere.
- 6.05 The Licensee covenants and agrees that should the Licensee fail to take any mitigative measures required by the Minister as set forth in Articles 6.02 and 6.03, fail to commence and diligently complete the remedial action required in Article 6.04, the Minister may, upon written notice to the Licensee, carry out the specifications, complete the required mitigative measures or remedial action and charge the costs thereof, including reasonable costs for administration, to the Licensee, and such costs shall constitute a debt due and owing to Her Majesty and shall be payable upon demand.

ARTICLE 7.00 DUTY TO MAINTAIN AND RIGHT OF INSPECTION

- 7.01 The Licensee covenants and agrees that in relation to the Licensee's use of the Land:
- (a) it shall maintain or cause to be maintained the Land including any Structures thereon in a good state of maintenance and repair. If the Licensee fails to commence and diligently proceed to make such repairs or remedy such condition after receiving thirty (30) days notice in writing from the Park Manager, the Park Manager may enter the Land including any Structures thereon, make the said repairs, or remedy such condition, and charge the costs thereof to the Licensee and such costs, including reasonable costs for administration, shall constitute a debt due and owing to Her Majesty and shall be payable upon demand; and

- (b) the Park Manager or his agents shall be entitled to enter and inspect the Land including any Structures thereon at all reasonable times, including normal business hours, for the purpose of inspecting and ascertaining the condition or state of repair thereof, or verifying that the covenants and other provisions of this Licence are being complied with.

ARTICLE 8.00 SUBMISSION OF PLANS AND SPECIFICATIONS

- 8.01 (a) The Licensee shall submit plans and specifications for any construction, additions and alterations to the Land including any Structures for the approval of the Park Manager, in accordance with but not limited to the current development review process, park management plans, community plans, by-laws, guidelines, approvals, requirements, standards, orders, directives, zoning and such other regulations that are applicable to the Land and such other requirements specified by the Park Manager.
 - (b) Upon approval by the Park Manager of the plans and specifications mentioned in (a), the Licensee shall obtain all necessary permits, licences and approvals and shall within one (1) year of the date of the issuance of all necessary permits, licences and approvals or such longer period of time as the Park Manager may deem warranted, complete the construction, additions and alterations to the Land and any Structures including the remedying of any deficiencies.
- 8.02 With respect to any development pursuant to Article 8.01, the Licensee shall, at the request of the Park Manager, obtain a performance bond and labour and material payment bond or other form of security, in a form and such amounts to be determined by the Park Manager. Such security shall remain in full force and effect for such reasonable period of time as the Park Manager may deem warranted.

ARTICLE 9.00 DESTRUCTION AND RECONSTRUCTION

- 9.01 If any Structures on the Land should be destroyed by fire or an Act of God or other calamity, or be demolished, or by reason of any other occurrence become incapable of being satisfactorily utilized for the purpose permitted in this Licence, then subject to Article 8.02, the Licensee shall:
- (a) (i) within sixty (60) days of happening of any such event, give to the Park Manager written notice whether or not it is the intention of the Licensee to rebuild, replace or reinstate any such Structures destroyed, demolished or rendered uninhabitable or unusable;
 - (ii) if it is the intention of the Licensee to rebuild, replace or reinstate any such Structures, the Licensee shall submit to the Park Manager, at the request of the Park Manager, within one (1) year of the written notice in (a) (i), plans and specifications therefore and obtain all necessary permits, licences and approvals in accordance with the provisions of Article 8.00;
 - (iii) with respect to any reconstruction pursuant to (a) (ii), the Licensee shall comply with the terms and conditions of Article 8.00; and
- (b) within one (1) year of the date of issuance of all necessary permits, licences and approvals to rebuild, replace or reinstate any such Structures destroyed, demolished or rendered uninhabitable or unusable, or to construct any new Structures in the place thereof, all as may be permitted under the Licence, or such longer period of time as may be permitted by the Park Manager, complete the construction of any such Structures in respect to which the Licensee has given notice under (a)(i), including the remedying of any deficiencies, including without limitation, landscaping deficiencies. The Park Manager may issue any subsequent permits, licences and approvals that may be required during the construction period.

- 9.02 In the event that the Licensee has not given notice under Article 9.01 (a)(i) to rebuild, replace or reinstate any such Structures destroyed, demolished or rendered uninhabitable or unusable, or to construct any new Structures in the place thereof or has indicated there is no intention to rebuild, replace or reinstate any such Structures, the Minister may terminate this Licence. In such a case, the Licensee shall, forthwith upon demand by the Park Manager, restore the Land to a good state of maintenance and repair to the satisfaction of the Park Manager and shall remove all damaged Structures and debris from the Land. Should the Licensee fail to effect clean up and restoration of the Land, then the Park Manager may do so at the Licensee's expense, including reasonable costs for administration, which expense shall be a debt due and owing to Her Majesty and shall be payable upon demand. The Park Manager shall permit the Licensee access to such Land to perform its obligations set forth herein.

ARTICLE 10.00 ALIENATION

- 10.01 The Licensee shall not, at law or otherwise, assign, transfer, sublicense or otherwise alienate this Licence or any of the rights hereunder.
- 10.02 A transfer or issuance of the shares of a corporate licensee which would have the result of transferring effective control of the corporate licensee, or any other change in the corporate structure of the corporate licensee which would have the same result, shall be deemed to be an assignment contemplated by Article 10.01 and shall be deemed a violation of Article 10.01 unless written consent of the Minister is first obtained.

In the case of a corporate licensee, the shares of which are publicly traded, the consent of the Minister shall be obtained forthwith upon the corporate licensee receiving written notice that a share transaction has occurred, or will occur, that has resulted, or will result, in a change of control of the corporate licensee. The corporate licensee shall provide the Minister with any additional information and documentation that the Minister may require in order to determine whether to consent to the deemed assignment.

- 10.03 The Licensee or a legal representative of the Licensee shall provide to the Park Manager, within thirty (30) days from the date of issuance, an original, duplicate original or certified true copy of any of the following documents relating to the Licensee or to the Land:
- (a) evidence of change of name;
 - (b) evidence of amalgamation or dissolution in the case of a corporate licensee; and
 - (c) any court orders affecting the Land.

ARTICLE 11.00 LIABILITY AND INDEMNITY

- 11.01 The Licensee shall not have any claim or demand against Her Majesty or any of Her servants, agents and all those for whom Her Majesty is responsible at law, for detriment, damage, accident or injury of any nature whatsoever or howsoever caused to the Land or to any person or property thereon, except in the case of the negligence of Her Majesty, Her servants, agents and all those for whom Her Majesty is responsible at law.
- 11.02 The Licensee shall at all times indemnify and save harmless Her Majesty or any of Her servants, agents and all those for whom Her Majesty is responsible at law, from and against all claims, demands, losses, costs, damages, actions, suits or proceedings by whomsoever made, brought or prosecuted in any manner based upon, arising out of, related to, occasioned by or attributable to:
- (a) the Licensee's use of the Land or the use of the Land by all those for whom the Licensee is responsible at law;

- (b) the existence of any Contaminant in, on or under the Land, as a result of the Licensee's use of the Land, or the use of the Land by all those for whom the Licensee is responsible at law;
- (c) the existence of any Contaminant in, on or under other lands that has migrated from the Land, as a result of the Licensee's use of the Land, or the use of the Land by all those for whom the Licensee is responsible at law;
- (d) the remediation of any Contaminant referred to in (b) or (c); or
- (e) any action taken or things done or maintained by virtue thereof, or the exercise in any manner of rights or fulfillment of any obligations arising hereunder.

ARTICLE 12.00 REMOVAL OF IMPROVEMENTS

- 12.01 Upon expiration or termination of this Licence, the Licensee shall sever and remove all Structures from the Land. If the Licensee fails to remove all Structures within thirty (30) days of the expiration or termination of this Licence, the Park Manager may remove the Structures and charge the costs thereof, including reasonable costs for administration, to the Licensee and such costs shall constitute a debt due and owing to Her Majesty and shall be payable upon demand.
- 12.02 Subsequent to the removal of all Structures in accordance with Article 11.01, the Licensee shall immediately rehabilitate the Land, at its expense, in accordance with instructions from the Park Manager and to the satisfaction of the Park Manager. If the Licensee fails to comply with this Article then the Park Manager may rehabilitate the Land and charge the costs thereof, including reasonable costs for administration, to the Licensee, and such costs shall constitute a debt due and owing to Her Majesty and shall be payable upon demand.

ARTICLE 13.00 CONDITION OF THE LAND UPON EXPIRATION OR TERMINATION

- 13.01 In relation to the Licensee's use of the Land, the Licensee covenants and agrees that upon the expiration or termination of this Licence, the Licensee shall at its own cost:
- (a) clean up any Contaminant in, on or under the Land resulting from the Licensee's use of the Land, or the use of the Land by all those for whom the Licensee is responsible at law, in accordance with Applicable Environmental Law, or in accordance with generally accepted environmental practices if there is no Applicable Environmental Law;
 - (b) leave the Land free from all garbage and debris; and
 - (c) restore the Land to a good state of maintenance and repair,
- all to the satisfaction of the Park Manager in their sole discretion.
- 13.02 If the Licensee fails to comply with the provisions of Article 13.01, the Minister may, upon written notice to the Licensee, complete the obligations of the Licensee and charge the costs thereof, including reasonable costs for administration, to the Licensee and such costs shall constitute a debt due and owing to Her Majesty and shall be payable upon demand.

ARTICLE 14.00 DEFAULT AND TERMINATION

- 14.01 In respect to this Licence in the event that:
- (a) any portion of the Licence Fee remains unpaid for more than thirty (30) days after becoming due, whether formally demanded or not;

- (b) the Licensee fails to continuously, regularly, duly and punctually perform, observe or keep any of the other covenants and provisions herein contained,

the Minister may, by notice in writing, require the Licensee to remedy any such default within such period of time as the Minister may deem warranted.

If in such case, the Licensee does not remedy such default within the time prescribed, the Minister may, by notice in writing, terminate this Licence and on the day specified in the notice of termination, this Licence will terminate, whether or not Her Majesty has re-entered the Land.

14.02 Notwithstanding anything herein contained, if the Licensee should at any time during the Period hereof:

- (a) make an assignment for the benefit of creditors pursuant to the *Bankruptcy and Insolvency Act*;
- (b) abandons the Land, or demonstrate an intention to abandon the Land; or
- (c) be adjudged bankrupt pursuant to the *Bankruptcy and Insolvency Act* provided that such order shall have remained in force for no less than thirty (30) days and shall not have been stayed;
- (d) file any petition or institute any proceedings under the *Bankruptcy and Insolvency Act*, *Companies Creditors Arrangement Act*, or similar legislation affecting the rights of creditors generally;
- (d) be subject to the appointment of a receiver or trustee who is not discharged within sixty (60) days from the date of such appointment;
- (e) shall attempt to sell, dispose of or remove its goods and chattels so that there would not, in the event of such sale, disposal or removal, be a sufficient distress on the Land for three (3) months' Licence Fee,

it will be lawful for the Minister, in the Minister's sole discretion, without notice to the Licensee, to declare the Period ended and this Licence terminated and thereupon, these presents and everything herein contained and will absolutely cease, terminate and be void without re-entry or any other act or any suit or legal proceedings to be brought or taken, provided Her Majesty will nevertheless be entitled to recover from the Licensee the annual Licence Fee then accrued or accruing.

14.03 Termination of this Licence pursuant to any of the provisions herein shall be wholly without prejudice to the right of Her Majesty to recover arrears of the annual Licence Fee or any other right of action by Her Majesty in respect of any antecedent breach of covenant or other provision herein contained, and the rights shall survive the termination of this Licence, whether by act of the parties or by operation of law.

ARTICLE 15.00 OFFICIAL LANGUAGES

15.00 The Licensee shall endeavour to provide services to the public in both official languages of Canada and to ensure that signs, notices and printed materials used for the purpose of informing the public are written in both official languages, and the Licensee will upon the request of the Park Manager obtain the approval of the Park Manager prior to their being displayed or distributed.

ARTICLE 16.00 DISPUTES

16.00 Any question or dispute that arises between the Parties hereto over any of the covenants, terms, obligations, or provisions of this License or the interpretation thereof, shall be referred to a court of competent jurisdiction for determination.

ARTICLE 17.00 MISCELLANEOUS

17.01 Any notice, request or other communication required by or affecting this Licence may be served upon the parties hereto by sending it by mail, facsimile or other electronic message which provide a hard copy, postage or charges prepaid addressed to:

(a) in the case of Her Majesty;

Minister of the Environment
c/o the Park Manager, Pukaskwa National Park of Canada
P.O. Box 212, Hwy 627
Heron Bay, ON P0T 1R0

and

(b) in the case of the Licensee;

Hydro One Networks
1800 Main Street East, P.O. Box 1500
Milton, ON L9T 5B9

or the Licensee's last known address, or to the Land itself, or by leaving it at that address, or by personally serving it upon the party referred to therein.

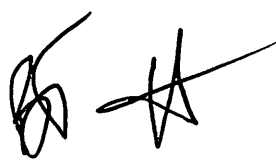
Any notice addressed by mail to Her Majesty or to the Licensee pursuant to this Article will be deemed to have been effectively given on the seventh (7th) business day following the date of mailing. Such addresses may be changed from time to time by either party giving notice as provided herein. In the event of any disruption of postal service, notices will be personally served upon the parties hereto.

17.02 A waiver, condonation, forgiveness or forbearance by either party hereto of the strict performance by the other of any covenant or provision of this License shall be in writing and shall not of itself constitute a waiver of any subsequent breach of that covenant or provision or any other covenant or provision thereof. The failure of Her Majesty to require the fulfilment of any obligation of the Licensee, or to exercise any rights herein contained shall not constitute a waiver or acquiescence or surrender of those obligations or rights.

17.03 If for any reason any covenant or provision contained in this Licence, or the application thereof to any party, is to any extent held or rendered invalid, unenforceable or illegal, then such covenant or provision shall be deemed to be independent of the remainder of this Licence and to be severable and divisible from this Licence. The invalidity, unenforceability or illegality shall not affect, impair or invalidate the remainder of this Licence or any part thereof. The intention of Her Majesty and the Licensee is that this Licence would have been executed without reference to any portion which may, for any reason and extent, be declared or held invalid, unenforceable or illegal. In the event that any covenant or condition is so determined, the Minister may, in the Minister's sole discretion, replace the covenant or condition with a new covenant or condition which would reflect the intention of the parties in the original covenant or condition.

17.04 The parties hereto specifically covenant and agree that no partnership, joint venture or any agency relationship is created or intended to be created between Her Majesty and the Licensee pursuant to this Licence. The only relationship is that of licensor and licensee.

17.05 The Licensee hereby confirms that it has not, nor has any person on its behalf, given, promised or offered to any official or employee of Her Majesty for or with the view to obtaining this Licence, any bribe, gift or other inducement and that it has not, nor has any person on its behalf, employed any person to solicit or secure this Licence upon any agreement for a commission, percentage, brokerage or contingent fee.



- 17.06 Whenever the provisions of this Licence, unless the text expressly states otherwise, require an approval of or consent to any action, request, document or plan by a party or require any party to be satisfied as to any of the foregoing, a party shall not arbitrarily or unreasonably withhold, delay or exercise such approval or consent. It shall be considered reasonable that in addition to anything set forth in this Licence, Her Majesty, the Minister and the Park Manager may consider applicable statutes and regulations thereunder, government policies, park management plans, and park community plans, as well as anything that may be necessary for the preservation, control or management of the Park or for the safety of the public. Furthermore, nothing herein shall limit any discretion of Her Majesty, the Minister or the Park Manager which discretion is set forth under any applicable statutes and regulations thereunder. In addition, the Licensee acknowledges and agrees that it shall be considered reasonable for Her Majesty, the Minister and the Park Manager to take the time for appropriate internal consultation as well as consultation with third parties as may be necessary for the granting of such approval or consent.
- 17.07 Time is of the essence of this Licence and all of the provisions hereof.
- 17.08 No implied terms or obligations of any kind on behalf of Her Majesty shall arise from anything in this Licence or any improvements effected by the Licensee, and the express covenants and agreements herein contained and made by Her Majesty are the only covenants and agreements upon which any rights against Her Majesty are to be founded.
- 17.09 No exercise of any specific right or remedy of Her Majesty shall prejudice or preclude Her Majesty from exercising any other right or remedy provided by this Licence or allowed at law or in equity. No right or remedy provided to Her Majesty by this Licence or at law or in equity shall be exclusive or dependent upon any other such right or remedy, and Her Majesty may, from time to time, exercise any one or more such rights or remedies independently or in combination.
- 17.10 The captions and headings throughout this Licence are inserted for convenience of reference only and are not intended to describe, define or limit the scope, extent or intent of this Licence, or any provision thereof.
- 17.11 Every provision herein contained shall enure to the benefit of and be binding upon Her Majesty, Her heirs, successors and assigns and the Licensee, its heirs, executors, administrators and permitted successors. Where there is more than one Licensee, all covenants and other provisions herein contained shall be construed as being joint and several, and when the context so requires or permits, the singular number shall be read as if the plural were expressed, and the masculine gender as if the feminine or neuter, as the case may be, were expressed.
- 17.12 No Member of the House of Commons shall be entitled to any share or part of this Licence or to any benefit to arise therefrom.

IN WITNESS WHEREOF, the Head, Contracts, Procurement and Real Property Management, Parks Canada Agency, on behalf of Her Majesty has hereunto set his hand and seal and Hydro One Networks has hereunto affixed its corporate seal attested to by its proper signing officers duly authorized in that behalf.

by the Head, Contracts, Procurement and Real
Property Management,
Parks Canada Agency, on behalf of
Her Majesty, in the presence of:

) 
) Brian Thompson
) Head, Contracts, Procurement and
) Real Property Management, OSC
) Parks Canada Agency

the


ROBERT S. THOMSON
SPECIAL PROTECTS AND ACQUISITION
SUPERVISOR
REAL ESTATE
HYDRO ONE NETWORKS INC.

I HAVE THE AUTHORITY TO
BIND THE CORPORATION

Parks Canada Pukaskwa National Park Licence Communication Timeline

December 1, 2015- Email Correspondence between Hydro One and Parks Canada- Licence Status

From: christine.chartrand@pc.gc.ca
To: [ROWLEY Marlise](#)
Cc: Julie.Provost@pc.gc.ca; Kristy.Oliva@pc.gc.ca
Subject: INVOICE - RIGHT OF WAY LICENCE AGREEMENT FOR TRANSMISSION LINE - LICENCE AGMT #8708/P53-2
Date: Tuesday, December 01, 2015 12:05:27 PM
Attachments: [hydro one networks inc.pdf](#)
[pic06868.gif](#)
[pic25547.gif](#)

Hi Marlise

We received the following cheque (see attached) in the amount of \$6780.00 for the period of November 8, 2015 to November 7, 2016. I went over our file and noticed that the licence agreement we had expired back on November 7th, 2014, therefore the invoice for the period of November 8, 2014 to November 7, 2015 has not been billed. I came to find out from our Senior Realty Advisor that this agreement is in over holding which means that both parties continue to operate on the same terms and conditions as the expired agreement until it is replaced.

(See attached file: hydro one networks inc.pdf)

I will proceed to do up an invoice for the period of November 8, 2014 to November 7, 2015 and we would take the cheque we received last week cheque #1320245013 dated 27/10/15 and use it towards this invoice and the invoice from November 8, 2015 to November 7, 2016 would still be owing. Please advise.

If you have any questions, or concerns please let me know.

Thank you
Christine

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image
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to
file:
pic06
868.g
if)

Christine Chartrand
Accounts Receivable Assistant, Comptrollership Branch / Adjointe
aux comptes débiteurs, direction de la fonction de contrôleur
Chief Financial Officer Directorate/Direction générale de la
Dirigeante principale des finances
Parks Canada / Parcs Canada
111 Water Street East/111 rue Water Est, Cornwall, ON K6H 6S3

christine.chartrand@pc.gc.ca
Telephone / Téléphone 613-938-5780
Télécopieur / Facsimile 613-937-1309

www.parkscanada.gc.ca/www.parcscanada.gc.ca
Government of Canada/Gouvernement du Canada

Conserve, Restore and Connect with Nature | Conserver, restaurer
et se rapprocher de la nature

Purpose:

Parks Canada informs Hydro One that licence period term has expired as of November 7th, 2014.

Result:

Parks Canada confirms Hydro One was not billed properly for licence payment but acknowledges receipt of payment as prescribed under the existing licence. Parks Canada states that previous licence agreement is in over hold until such time a new licence agreement is established between the parties.

May 13, 2016- Telephone Conversation between Hydro One Real Estate and Parks Canada- Licence

Purpose:

Hydro One Real Estate (Aaron Fair) initiates discussions with Parks Canada (Pam Hayhurst) to renew licence agreement which is currently in over hold.

Result:

Confirmation of meeting to discuss next steps to renew licence agreement between the parties scheduled for May 20th, 2016.

May 20th, 2016- Meeting between HONI Real Estate and Parks Canada Real Estate (via Conference Call)

Attendees:

Tony Seravalle, Manager, Hydro One Facilities and Real Estate Acquisitions
Aaron Fair, Senior Real Estate Coordinator, Hydro One Facilities and Real Estate
Pam Hayhurst, Senior Realty Advisor, Parks Canada Realty Services

Purpose:

The meeting was to facilitate a discussion surrounding the next steps to establish a new Licence term as well as an opportunity for HONI to discuss Parks Canada approval process for the Licence and any contemplated maintenance/expansion of the assets within the park.

Result:

Parks Canada confirmed that a licence is the preferred form of agreement utilizing Parks Canada's standard template. Both parties were in agreement that the latest Licence term of five years was far too short given the permanency of the Line and the frequent administrative burden to renew. Parks Canada commented that a ten year term at minimum would be more appropriate, but lack of familiarity with this type of occupation and the Park in general required a policy investigation and consultation with key stakeholders and senior management. Hydro One indicated that given the permanency of the Line and its general static character a term of 20+ years would should be considered.

Parks Canada advised that the annual licence fee would need to be investigated. There was a shift in the most recent agreements to higher fees with lack of apparent framework and/or methodology.

Parks Canada identified the potential need for an environmental evaluation for the renewal. Parks Canada was to investigate the sufficiency of this evaluation for renewal, perhaps only with updates to current conditions and practices. The evaluation addressed HONI maintenance activities, which included transmission line maintenance, access road repairs/upgrades and forestry work.

Parks Canada indicated the current renewal process is not fully defined, including timelines. The expectation is this may take several months to complete, with an expected minimum timeframe of 4 to 6 months. Key stakeholders in the process would be Pukaskwa Park/Site Manager and the Resource Conservation department, the latter responsible for ensuring environmental investigation. Ultimately, the Field Unit Superintendent (Director) for Northern Ontario would be the approval authority.

May 20th, 2016- Email Correspondence between HONI Real Estate & Parks Canada Realty

From: FAIR Aaron
To: pamela.heyhurst@pc.gc.ca
Cc: [SERAVALLE Tony](#)
Subject: Hydro One Transmission Line- Pukaskwa National Park
Date: Friday, May 20, 2016 1:43:00 PM
Attachments: [Pukaskwa Environmental Evaluation Feb 2004.pdf](#)
[Pukaskwa.pdf](#)

Hi Pam,

We appreciate the time today and the information you were able to provide regarding Parks Canada's land agreement process and big picture Corporate hierarchy in decision making. As discussed find attached the following:

1. Pukaskwa National Park- Environmental Evaluation Report, February 2004. Prepared by Hydro One
2. Mapping of Hydro One's Transmission Occupation within Pukaskwa National Park

I trust the attached is sufficient, please let me know if you require anything further. We look forward to finalizing this matter over the coming months.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

Purpose:

Hydro One to share information requested by Parks Canada during May 20th, 2016 meeting.

Result:

Hydro One supplied most recent Environmental Evaluation completed in February 2004 and mapping of Hydro One's current transmission occupation in Pukaskwa National Park.

September, 6th, 2016- Email Correspondence between HONI Real Estate & Parks Canada Realty

From: FAIR Aaron
To: pamela.hayhurst@pc.gc.ca
Cc: [SERAVALLE Tony](#)
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park
Date: Tuesday, September 06, 2016 9:09:00 AM

Hi Pam,

I hope you have enjoyed your Summer and are easing into the Fall.

I was hoping you could provide an update regarding the renewal of these rights. Feel free to give me a call if you would like to discuss.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: FAIR Aaron
Sent: Friday, May 20, 2016 1:44 PM
To: pamela.hayhurst@pc.gc.ca
Cc: SERAVALLE Tony
Subject: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

We appreciate the time today and the information you were able to provide regarding Parks Canada's land agreement process and big picture Corporate hierarchy in decision making. As discussed find attached the following:

1. Pukaskwa National Park- Environmental Evaluation Report, February 2004. Prepared by Hydro One
2. Mapping of Hydro One's Transmission Occupation within Pukaskwa National Park

I trust the attached is sufficient, please let me know if you require anything further. We look forward to finalizing this matter over the coming months.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

Purpose:

Hydro One Real Estate (Aaron Fair) seeking update as to renewal of the licence agreement and Parks Canada's (Pam Hayhurst) next steps for issuance.

Result:

No Response from Parks Canada.

March 14, 2017- Email Correspondence between Hydro One Real Estate & Parks Canada Realty

From: FAIR Aaron
To: ["Pamela.Hayhurst@pc.gc.ca"](mailto:Pamela.Hayhurst@pc.gc.ca)
Cc: randy.brown@pc.gc.ca
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park
Date: Wednesday, March 22, 2017 6:02:00 PM

Hi Pamela,

Thanks for the response.

Randy, I will reach out to you tomorrow to discuss next steps.

Cheers,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: Pamela.Hayhurst@pc.gc.ca [mailto:Pamela.Hayhurst@pc.gc.ca]

Sent: Wednesday, March 22, 2017 1:24 PM

To: FAIR Aaron

Cc: randy.brown@pc.gc.ca

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Aaron,

Thanks for the e-mail and sorry for not touching base. I did also receive your voicemail from Monday.

Randy Brown will your point of contact for this file. Randy started with us a month ago and this is one of the files that will now be his responsibility. Randy can be reached at 902-426-7266 or

Randy.Brown@pc.gc.ca

Thank you,
Pamela

Pamela Hayhurst
Senior Realty Advisor | Conseillère principale de biens immobiliers
Realty Services | Services immobiliers
Strategic Policy and Investment Directorate | Direction générale des politiques stratégiques et des investissements
Parks Canada Agency | Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201,
Halifax (Nouvelle-Écosse) B3J 1S9

pamela.hayhurst@pc.gc.ca

Telephone | Téléphone 902-426-6260

www.parkscanada.gc.ca | www.parcscanada.gc.ca

Government of Canada | Gouvernement du Canada

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From: <Aaron.Fair@HydroOne.com>
To: <pamela.hayhurst@pc.gc.ca>
Date: 14/03/2017 11:39 AM
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

I hope all is well.

I am reaching out on this item to get an update on the status of the renewal agreement. You will recall we reached out to you on this item last summer and we were to complete an updated agreement.

Last week, our Forestry Manager from Thunder Bay met with Sharon Hayes, Park Manager-Pukaskwa National Park, to discuss our upcoming brush control program planned for the coming months. During the meeting, it came to light that the most current occupancy agreement had expired.

We are hoping to finalize this matter ASAP so we can ensure that our rights within the Park are current and that there is no disruption to our planned brush program this year.

Please feel free to give me a call if you wish to discuss.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Tuesday, September 06, 2016 9:09 AM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

I hope you have enjoyed your Summer and are easing into the Fall.

I was hoping you could provide an update regarding the renewal of these rights. Feel free to give me a call if you would like to discuss.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Friday, May 20, 2016 1:44 PM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

We appreciate the time today and the information you were able to provide regarding Parks Canada's land agreement process and big picture Corporate hierarchy in decision making. As discussed find attached the following:

1. Pukaskwa National Park- Environmental Evaluation Report, February 2004. Prepared by Hydro One
2. Mapping of Hydro One's Transmission Occupation within Pukaskwa National Park

I trust the attached is sufficient, please let me know if you require anything further. We look forward to finalizing this matter over the coming months.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) seeking status update from Parks Canada (Pam Hayhurst) as to the licence agreement renewal process and to discuss completion of the agreement prior to the scheduled brush clearing for Hydro One's Transmission line in Pukaskwa National Park.

Result:

Parks Canada identifies new contact to discuss licence agreement with between the parties moving forward (Response recieved March 22, 2017).

March 24, 2017- Email Correspondence between Hydro One Real Estate & Parks Canada Realty

From: FAIR Aaron
To: "randy.brown@pc.gc.ca"
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park
Date: Friday, March 24, 2017 1:43:00 PM

Thursday at 2:00pm EST work for you?

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aron.fair@hydroone.com
From: randy.brown@pc.gc.ca [mailto:randy.brown@pc.gc.ca]
Sent: Friday, March 24, 2017 1:42 PM
To: FAIR Aaron
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Sounds good. At this point, Tuesday and Thursday of next week is wide open.

Randy Brown
Senior Realty Advisor / Conseillère principale de biens immobiliers
Realty Services / Services immobiliers
Strategic Policy & Investment Directorate / Direction générale des politiques stratégiques et des investissements
Parks Canada Agency / Agence Parcs Canada
1869 Upper Water St., suite AH210, Halifax, NS /1869, rue Upper Water, pièce AH210, Halifax, NE
B3J 1S9

randy.brown@pc.gc.ca
Telephone/Téléphone 902-426-7266
www.parkscanada.gc.ca / www.parcs canada.gc.ca
Government of Canada / Gouvernement du Canada
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From: <Aaron.Fair@HydroOne.com>
To: <randy.brown@pc.gc.ca>
Date: 24/03/2017 02:40 PM
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Randy,

My apologies on not reaching out yesterday.

Yes that is the agreement in question. Should we organize a conference call in the next week or so to discuss next steps?

Please advise.

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: randy.brown@pc.gc.ca [<mailto:randy.brown@pc.gc.ca>]

Sent: Friday, March 24, 2017 12:25 PM

To: FAIR Aaron

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Aaron. I did pull the file on this one to get myself up-to-speed. I see an agreement that has expired Nov., 2014 (attached) I assume this is the agreement in question that is in the process of being updated?

Randy Brown
Senior Realty Advisor / Conseillère principale de biens immobiliers
Realty Services / Services immobiliers
Strategic Policy & Investment Directorate / Direction générale des politiques stratégiques et des investissements
Parks Canada Agency / Agence Parcs Canada
1869 Upper Water St., suite AH210, Halifax, NS /1869, rue Upper Water, pièce AH210, Halifax, NE
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randy.brown@pc.gc.ca

Telephone/Téléphone 902-426-7266

www.parkscanada.gc.ca / www.parcsCanada.gc.ca

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From: [<Aaron.Fair@HydroOne.com>](mailto:Aaron.Fair@HydroOne.com)

To: [<Pamela.Hayhurst@pc.gc.ca>](mailto:Pamela.Hayhurst@pc.gc.ca)

Cc: [<randy.brown@pc.gc.ca>](mailto:randy.brown@pc.gc.ca)

Date: 22/03/2017 07:02 PM

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pamela,

Thanks for the response.

Randy, I will reach out to you tomorrow to discuss next steps.

Cheers,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: Pamela.Hayhurst@pc.gc.ca [<mailto:Pamela.Hayhurst@pc.gc.ca>]

Sent: Wednesday, March 22, 2017 1:24 PM

To: FAIR Aaron

Cc: randy.brown@pc.gc.ca

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Aaron,

Thanks for the e-mail and sorry for not touching base. I did also receive your voicemail from Monday.

Randy Brown will your point of contact for this file. Randy started with us a month ago and this is one of the files that will now be his responsibility. Randy can be reached at 902-426-7266 or

Randy.Brown@pc.gc.ca

Thank you,
Pamela

Pamela Hayhurst
Senior Realty Advisor | Conseillère principale de biens immobiliers
Realty Services | Services immobiliers
Strategic Policy and Investment Directorate | Direction générale des politiques stratégiques et des investissements
Parks Canada Agency | Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201,
Halifax (Nouvelle-Écosse) B3J 1S9

pamela.hayhurst@pc.gc.ca

Telephone | Téléphone 902-426-6260

www.parkscanada.gc.ca | www.parcscanada.gc.ca

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From: <Aaron.Fair@HydroOne.com>
To: <pamela.hayhurst@pc.gc.ca>
Date: 14/03/2017 11:39 AM
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

I hope all is well.

I am reaching out on this item to get an update on the status of the renewal agreement. You will recall we reached out to you on this item last summer and we were to complete an updated agreement.

Last week, our Forestry Manager from Thunder Bay met with Sharon Hayes, Park Manager-Pukaskwa National Park, to discuss our upcoming brush control program planned for the coming months. During the meeting, it came to light that the most current occupancy agreement had expired.

We are hoping to finalize this matter ASAP so we can ensure that our rights within the Park are current and that there is no disruption to our planned brush program this year.

Please feel free to give me a call if you wish to discuss.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Tuesday, September 06, 2016 9:09 AM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

I hope you have enjoyed your Summer and are easing into the Fall.

I was hoping you could provide an update regarding the renewal of these rights. Feel free to give me a call if you would like to discuss.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Friday, May 20, 2016 1:44 PM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

We appreciate the time today and the information you were able to provide regarding Parks Canada's land agreement process and big picture Corporate hierarchy in decision making. As discussed find attached the following:

1. Pukaskwa National Park- Environmental Evaluation Report, February 2004. Prepared by Hydro One
2. Mapping of Hydro One's Transmission Occupation within Pukaskwa National Park

I trust the attached is sufficient, please let me know if you require anything further. We look forward to finalizing this matter over the coming months.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) wishes to continue licence agreement renewal discussions with newly identified contact Randy Brown, Senior Realty Advisor at Parks Canada.

Result:

Both parties agree to continue conversations and have a follow up conference call on March 30th, 2017 to discuss next steps.

April 3, 2017- Email Correspondence and ensuing Telephone Conversation between Hydro One Real Estate & Parks Canada Realty

From: randy.brown@pc.gc.ca
To: [FAIR Aaron](#)
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park
Date: Monday, April 03, 2017 11:05:04 AM
Attachments: [PUK - Hydro One.pdf](#)
[Pukaskwa.HydroOne.TransmissionLines.Licence.2015.DRAFT.docx](#)

Hi Aaron. Sorry for the delay in getting back to you. I pulled the file on this one, hoping it will bring me up to date, but the trail runs cold. I see an agreement dated Dec, 2010 which expired Nov, 2014. I also see a draft agreement, which is pretty much the same as the 2010 agreement with dates and \$ amounts taken out, and that's where the trail stops. I have attached both agreements I referred to. As far as you know, has there been any movement on this since the draft 2015 agreement?

Do you know if the original agreement pretty much covers what you want? Are we just updating the existing agreement with new dates/amounts or do you know if significant editing is required?

Randy Brown
Senior Realty Advisor / Conseillère principale de biens immobiliers
Realty Services / Services immobiliers
Strategic Policy & Investment Directorate / Direction générale des politiques stratégiques et des investissements
Parks Canada Agency / Agence Parcs Canada
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From: <Aaron.Fair@HydroOne.com>
To: <Pamela.Hayhurst@pc.gc.ca>
Cc: <randy.brown@pc.gc.ca>
Date: 22/03/2017 07:02 PM
Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

Hi Pamela,

Thanks for the response.

Randy, I will reach out to you tomorrow to discuss next steps.

Cheers,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: Pamela.Hayhurst@pc.gc.ca [<mailto:Pamela.Hayhurst@pc.gc.ca>]

Sent: Wednesday, March 22, 2017 1:24 PM

To: FAIR Aaron

Cc: randy.brown@pc.gc.ca

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Hi Aaron,

Thanks for the e-mail and sorry for not touching base. I did also receive your voicemail from Monday.

Randy Brown will your point of contact for this file. Randy started with us a month ago and this is one of the files that will now be his responsibility. Randy can be reached at 902-426-7266 or

Randy.Brown@pc.gc.ca

Thank you,
Pamela

Pamela Hayhurst
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To: <pamela.hayhurst@pc.gc.ca>

Date: 14/03/2017 11:39 AM

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Please feel free to give me a call if you wish to discuss.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Tuesday, September 06, 2016 9:09 AM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: RE: Hydro One Transmission Line- Pukaskwa National Park

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Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

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Email: aaron.fair@hydroone.com

From: FAIR Aaron

Sent: Friday, May 20, 2016 1:44 PM

To: pamela.hayhurst@pc.gc.ca

Cc: SERAVALLE Tony

Subject: Hydro One Transmission Line- Pukaskwa National Park

Hi Pam,

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Thanks in advance,

Aaron

Aaron Fair

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(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Parks Canada (Randy Brown, Realty Services) follows up with next steps to proceed with licence renewal further to conference call of March 30th 2017.

Result:

Parks Canada seeks clarification as to what agreement form Hydro One wishes to proceed with for the licence renewal. A further phone discussion on April 3rd 2017 between Hydro One (Aaron Fair) and Parks Canada (Randy Brown) resulted. During conversation, Hydro One Real Estate highlighted the initial renewal discussions between the parties of May 20, 2016 as to the refined terms of the renewal licence agreement being pursued by Hydro One. Parks Canada to follow up with next steps in renewal process and determination of the agreement form.

December 21, 2017- Telephone Conversation between Hydro One Real Estate (Aaron Fair) and Parks Canada (Annique Maheu)

Purpose:

Given inaction of Parks Canada Realty to follow up with further information regarding Park Licence renewal; Hydro One (Aaron Fair) contacted the Acting Park Superintendent of Pukaskwa National Park (Annique Maheu) to get an update whether Parks Canada Realty group had engaged Park representation directly.

Result:

Confirmation from Parks Canada (Annique Maheu) that Parks Canada Realty was still considering the matter and that early in the New Year (2018) an update would be provided to Hydro One.

January 12, 2018- Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada (Annique Maheu)

From: FAIR Aaron
To: ["annique.maheu@pc.gc.ca"](mailto:annique.maheu@pc.gc.ca)
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Friday, January 12, 2018 2:07:00 PM

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [mailto:annique.maheu@pc.gc.ca]
Sent: Friday, January 12, 2018 12:53 PM
To: FAIR Aaron
Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

Directrice du parc p.i., parc national Pukaskwa
Parcs Canada / Gouvernement du Canada
CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@nc.gc.ca>
Date: 10/01/2018 04:35 PM
Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) following up to get update as to Licence renewal status from Parks Canada (Annique Maheu).

Result:

Parks Canada to provide an update once Annique Maheu contacted Pamela Hayhurst, Parks Canada Realty in the ensuing week.

January 16, 2018- Telephone Conversation between Hydro One Real Estate (Aaron Fair) and Parks Canada (Annique Maheu)

Purpose:

Hydro One Real Estate (Aaron Fair) to receive an update as to the status of the Licence renewal from Parks Canada (Annique Maheu)

Result:

Discussion between the parties surrounding next steps in the licence renewal process which included: appraisal valuation required to update the licence fee, length of agreement term, projection of annual licence rate and site specific Environmental Assessment required for replacement licence. Annique Maheu to circulate discussion items to Parks Canada Realty for immediate response and clarity to Hydro One.

January 24, 2018- Email Correspondence between Parks Canada Realty (Jason Crockett, Parks Canada Realty Advisor) and Hydro One Real Estate (Aaron Fair); CC: Annique Maheu

From: jason.crockett@pc.gc.ca
To: [FAIR Aaron](#)
Cc: annique.maheu@pc.gc.ca
Subject: Re: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Wednesday, January 24, 2018 11:35:21 AM

Hello Aaron,

My name is Jason Crockett and I work in Parks Canada's realty division. I have recently been delegated the Pukaskwa transmission line file and Annique has forwarded me some questions from you which I am happy to respond to. My answers are in blue in Annique's email below.

Thank you,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca
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Facsimile | Télécopieur 902-426-2728
www.parkscanada.gc.ca | www.parcsCanada.gc.ca
Government of Canada | Gouvernement du Canada

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

As mentioned, Aaron Fair from Hydro One had a few questions regarding the replacement licence for the hydro transmission corridor:

- Could they see the terms under which the appraisal will be completed (what they are looking at in terms of valuation)?

Once I have a copy of the terms of reference I can provide a copy to you. It is currently being drafted.

- Could we explore the option of having a longer term for the licence, recognizing that we would still review the fee after 5 years?

We could enter into a 10 year agreement for the transmission line. My manager Pamela Hayhurst advised that a 10 year term had been previously discussed and was agreeable to both parties. There

would be a clause in the licence agreement where a rental review may take place at the 5 year mark to determine value of the lands at that time.

- Could we provide him with the rate per year in advance of the appraisal?

Unfortunately, I cannot provide a rate per year in advance of the appraisal as the appraisal will provide a market value of the lands which will be used to calculate the annual licence fee. The licence fee (or rate per year) will be a percentage of the market value of the lands.

I should also state that I mentioned to Hydro One that we will be doing an environmental assessment for this replacement licence, as the CEAA has changed since the previous version. We are waiting on Hydro One's environmental management plan for their corridors to proceed with the EA. If and when Hydro One submits a construction plan for the upgrades they are exploring, we will then work with them again to complete an separate EA for this project.

Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

Directrice du parc p.i., parc national Pukaskwa
Parcs Canada / Gouvernement du Canada
CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

***** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
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CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>

To: <annique.maheu@pc.gc.ca>

Date: 10/01/2018 04:35 PM

Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Parks Canada Realty (Jason Crockett) responding to discussion items of telephone conversation of January 16, 2018 between Parks Canada (Annique Maheu) and Hydro One Real Estate (Aaron Fair).

Result:

Parks Canada Realty guidance provided specific to: appraisal terms of reference to be used to establish renewal licence fee, increase in agreement term and comments surrounding licence fee calculation.

NOTE: Parks Canada Realty (Jason Crockett) answers in blue font within body of email.

January 25, 2018- Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada Realty (Jason Crockett); CC: Annique Maheu

From: FAIR Aaron
To: ["jason.crockett@pc.gc.ca"](mailto:jason.crockett@pc.gc.ca)
Cc: annique.maheu@pc.gc.ca
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Thursday, January 25, 2018 4:22:00 PM

Jason,

Thanks for your note; see my responses below in red. Looking forward to working with you to bring this matter forward.

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

As mentioned, Aaron Fair from Hydro One had a few questions regarding the replacement licence for the hydro transmission corridor:

- Could they see the terms under which the appraisal will be completed (what they are looking at in terms of valuation)?

Once I have a copy of the terms of reference I can provide a copy to you. It is currently being drafted.

Understood we will await the draft TOR.

- Could we explore the option of having a longer term for the licence, recognizing that we would still review the fee after 5 years?

We could enter into a 10 year agreement for the transmission line. My manager Pamela Hayhurst advised that a 10 year term had been previously discussed and was agreeable to both parties. There would be a clause in the licence agreement where a rental review may take place at the 5 year mark to determine value of the lands at that time.

Is there any possibility to have a term longer than 10 years with regular rent reviews at 5 year intervals? Given that transmission infrastructure typically has a life cycle of 75 years; to reduce administrative burden on both parties is it possible to enter into a longer term?

- Could we provide him with the rate per year in advance of the appraisal?

Unfortunately, I cannot provide a rate per year in advance of the appraisal as the appraisal will provide a market value of the lands which will be used to calculate the annual licence fee. The licence fee (or rate per year) will be a percentage of the market value of the lands.

**How will the rent be calculated? Will it be along the lines of a standard licence/lease arrangement?
i.e. Total Acreage x Price Per Acre x Discount on Fee Simple x Discount Rate %?**

I should also state that I mentioned to Hydro One that we will be doing an environmental assessment for this replacement licence, as the CEAA has changed since the previous version. We are waiting on Hydro One's environmental management plan for their corridors to proceed with the EA. If and when Hydro One submits a construction plan for the upgrades they are exploring, we will then work with them again to complete an separate EA for this project.

Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

Directrice du parc p.i., parc national Pukaskwa
Parcs Canada / Gouvernement du Canada
CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

***** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

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CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>

To: <annique.maheu@pc.gc.ca>

Date: 10/01/2018 04:35 PM

Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) responding to Parks Canada Realty (Jason Crockett) regarding guidance provided in January 24, 2018 email.

Result:

Further clarity requested surrounding agreement length and request to increase the term beyond the Parks Canada suggested 10 year term and how the rent will be calculated moving forward for the licence fee. *NOTE: Parks Canada Realty (Jason Crockett) in blue font, Hydro One Real Estate (Aaron Fair) in red font, within body of email.*

February 9, 2018- Email Correspondence between Parks Canada Realty (Jason Crockett) and Hydro One Real Estate (Aaron Fair)

From: jason.crockett@pc.gc.ca
To: [FAIR Aaron](#)
Cc: Pamela.Jalak@pc.gc.ca
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Friday, February 09, 2018 7:26:04 AM

Hi Aaron,
Thanks for getting back to me. Further responses are in blue below.

Have a good day,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca
Telephone | Téléphone 902-407-8104
Facsimile | Télécopieur 902-426-2728
www.parkscanada.gc.ca | www.parcsCanada.gc.ca
Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <annique.maheu@pc.gc.ca>
Date: 25/01/2018 05:21 PM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Thanks for your note; see my responses below in red. Looking forward to working with you to bring this matter forward.

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

As mentioned, Aaron Fair from Hydro One had a few questions regarding the replacement licence for the hydro transmission corridor:

- Could they see the terms under which the appraisal will be completed (what they are looking at in terms of valuation)?

Once I have a copy of the terms of reference I can provide a copy to you. It is currently being drafted.

Understood we will await the draft TOR.

- Could we explore the option of having a longer term for the licence, recognizing that we would still review the fee after 5 years?

We could enter into a 10 year agreement for the transmission line. My manager Pamela Hayhurst advised that a 10 year term had been previously discussed and was agreeable to both parties. There would be a clause in the licence agreement where a rental review may take place at the 5 year mark to determine value of the lands at that time.

Is there any possibility to have a term longer than 10 years with regular rent reviews at 5 year intervals? Given that transmission infrastructure typically has a life cycle of 75 years; to reduce administrative burden on both parties is it possible to enter into a longer term?

We would be willing to issue a 20 year licence to reduce the administrative burden. In this scenario there would still be rent reviews at each 5 year interval to determine rent in accordance with applicable legislation and Parks Canada policy.

- Could we provide him with the rate per year in advance of the appraisal?

Unfortunately, I cannot provide a rate per year in advance of the appraisal as the appraisal will provide a market value of the lands which will be used to calculate the annual licence fee. The licence fee (or rate per year) will be a percentage of the market value of the lands.

How will the rent be calculated? Will it be along the lines of a standard licence/lease arrangement? i.e. Total Acreage x Price Per Acre x Discount on Fee Simple x Discount Rate %?

In accordance with PCA policy on rent setting, the rent for the first 5 years of the term will be 10% of the appraised land value (i.e. the entire transmission line RoW - approx. 150ft wide x 35kms long). As mentioned above, I cannot determine what the rental rates would be beyond that initial 5 year period.

I should also state that I mentioned to Hydro One that we will be doing an environmental assessment for this replacement licence, as the CEAA has changed since the previous version. We are waiting on Hydro One's environmental management plan for their corridors to proceed with the EA. If and when Hydro One submits a construction plan for the upgrades they are exploring, we will then work with them again to complete an separate EA for this project.

Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

Directrice du parc p.i., parc national Pukaskwa
Parcs Canada / Gouvernement du Canada
CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:08 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

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annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 10/01/2018 04:35 PM
Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

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Purpose:

Parks Canada Realty (Jason Crockett) responding to Hydro One Real Estate (Aaron Fair) regarding guidance provided in January 25, 2018 email.

Result:

Further clarity provided by Parks Canada Realty surrounding the following:

- Willingness to issue a 20 year term licence with 5 year rent reviews;
- Specifics surrounding prescribed licence fee

NOTE: Parks Canada Realty (Jason Crockett) in blue font, Hydro One Real Estate (Aaron Fair) in red font, within body of email.

February 12, 2018 - Email Correspondence between Parks Canada Realty (Jason Crockett) and Hydro One Real Estate (Aaron Fair)

From: jason.crockett@pc.gc.ca
To: [FAIR Aaron](#)
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Monday, February 12, 2018 11:37:46 AM
Attachments: [TOR Appraisal Pukaskwa Park Jan 25 2018.pdf](#)

Hi Aaron,
Attached is the Terms of Reference for the appraisal of the hydro transmission line. I have confirmed that the ToR and appraisal can be shared with you.
Note that the appraisal report is not due until March 28, 2018.

Thank you,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca
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Facsimile | Télécopieur 902-426-2728
www.parkscanada.gc.ca | www.parcsCanada.gc.ca
Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <Pamela.Jalak@pc.gc.ca>
Date: 09/02/2018 11:45 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Thanks for the responses Jason; this is very helpful.

We will await the draft TOR for the appraisal; look forward to taking the next steps in this matter.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Friday, February 09, 2018 7:24 AM

To: FAIR Aaron

Cc: Pamela.Jalak@pc.gc.ca

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

Thanks for getting back to me. Further responses are in blue below.

Have a good day,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers

Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

Parks Canada Agency, Agence Parcs Canada

1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca

Telephone | Téléphone 902-407-8104

Facsimile | Télécopieur 902-426-2728

www.parkscanada.gc.ca | www.parcsCanada.gc.ca

Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Cc: <annique.maheu@pc.gc.ca>

Date: 25/01/2018 05:21 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Thanks for your note; see my responses below in red. Looking forward to working with you to bring this matter forward.

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

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I should also state that I mentioned to Hydro One that we will be doing an environmental assessment for this replacement licence, as the CEAA has changed since the previous version. We are waiting on Hydro One's environmental management plan for their corridors to proceed with the EA. If and when Hydro One submits a construction plan for the upgrades they are exploring, we will then work with them again to complete an separate EA for this project.

Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
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----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [mailto:annique.maheu@pc.gc.ca]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

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annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>

To: <annique.maheu@pc.gc.ca>

Date: 10/01/2018 04:35 PM

Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

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Purpose:

Parks Canada Realty (Jason Crockett) responding to Hydro One Real Estate (Aaron Fair) regarding appraisal report terms of reference for report to establish rental rate for Hydro One's Licence renewal.

Result:

Parks Canada Realty (Jason Crockett) provided terms of reference for appraisal to Hydro One Real Estate (Aaron Fair) with the anticipated delivery date of the licence fee valuation for March 28, 2018.

April 9, 2018 – Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada Realty (Jason Crockett)

From: FAIR Aaron
To: "jason.crockett@pc.gc.ca"
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Monday, April 09, 2018 11:58:00 AM

Jason,

Thanks for the update; I will await the delivery of the report for our review in the coming weeks.

AF

Aaron Fair
Real Estate
Hydro One
(416) 919-6962
Email: aron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [mailto:jason.crockett@pc.gc.ca]
Sent: Monday, April 09, 2018 11:35 AM
To: FAIR Aaron
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
The appraisal has been prepared and is currently being reviewed by Public Works and Procurement Canada.
Once the final report is available I will ensure you are provided a copy. I anticipate that to be within the next 2 weeks.

Thanks for checking in,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca
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www.parkscanada.gc.ca | www.parcsCanada.gc.ca
Government of Canada | Gouvernement du Canada

Parks Canada - 450 000 km² of memories / Parcs Canada - 450 000 km² de souvenirs

From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>

Date: 09/04/2018 12:21 PM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

I hope all is well.

Just reaching out to see if Parks Canada had received the resulting appraisal and when we might be able to review for discussion moving forward.

Thanks in advance,

Aaron

Aaron Fair
Real Estate
Hydro One
(416) 919-6962
Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]
Sent: Monday, February 12, 2018 11:36 AM
To: FAIR Aaron
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
Attached is the Terms of Reference for the appraisal of the hydro transmission line. I have confirmed that the ToR and appraisal can be shared with you.
Note that the appraisal report is not due until March 28, 2018.

Thank you,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

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jason.crockett@pc.gc.ca

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Facsimile | Télécopieur 902-426-2728

www.parkscanada.gc.ca | www.parcsCanada.gc.ca

Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <Pamela.Jalak@pc.gc.ca>
Date: 09/02/2018 11:45 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Thanks for the responses Jason; this is very helpful.

We will await the draft TOR for the appraisal; look forward to taking the next steps in this matter.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Friday, February 09, 2018 7:24 AM

To: FAIR Aaron

Cc: Pamela.Jalak@pc.gc.ca

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

Thanks for getting back to me. Further responses are in blue below.

Have a good day,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers

Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

Parks Canada Agency, Agence Parcs Canada

1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca

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Facsimile | Télécopieur 902-426-2728

www.parkscanada.gc.ca | www.parcscanada.gc.ca
Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <annique.maheu@pc.gc.ca>
Date: 25/01/2018 05:21 PM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Thanks for your note; see my responses below in red. Looking forward to working with you to bring this matter forward.

Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

As mentioned, Aaron Fair from Hydro One had a few questions regarding the replacement licence for the hydro transmission corridor:

- Could they see the terms under which the appraisal will be completed (what they are looking at in terms of valuation)?

Once I have a copy of the terms of reference I can provide a copy to you. It is currently being drafted.

Understood we will await the draft TOR.

- Could we explore the option of having a longer term for the licence, recognizing that we would still review the fee after 5 years?

We could enter into a 10 year agreement for the transmission line. My manager Pamela Hayhurst advised that a 10 year term had been previously discussed and was agreeable to both parties. There would be a clause in the licence agreement where a rental review may take place at the 5 year mark to determine value of the lands at that time.

Is there any possibility to have a term longer than 10 years with regular rent reviews at 5 year intervals? Given that transmission infrastructure typically has a life cycle of 75 years; to reduce administrative burden on both parties is it possible to enter into a longer term?

We would be willing to issue a 20 year licence to reduce the administrative burden. In this scenario there would still be rent reviews at each 5 year interval to determine rent in accordance with applicable legislation and Parks Canada policy.

- Could we provide him with the rate per year in advance of the appraisal?

Unfortunately, I cannot provide a rate per year in advance of the appraisal as the appraisal will provide a market value of the lands which will be used to calculate the annual licence fee. The licence fee (or rate per year) will be a percentage of the market value of the lands.

How will the rent be calculated? Will it be along the lines of a standard licence/lease arrangement? i.e. Total Acreage x Price Per Acre x Discount on Fee Simple x Discount Rate %?

In accordance with PCA policy on rent setting, the rent for the first 5 years of the term will be 10% of the appraised land value (i.e. the entire transmission line RoW - approx. 150ft wide x 35kms long). As mentioned above, I cannot determine what the rental rates would be beyond that initial 5 year period.

I should also state that I mentioned to Hydro One that we will be doing an environmental assessment for this replacement licence, as the CEAA has changed since the previous version. We are waiting on Hydro One's environmental management plan for their corridors to proceed with the EA. If and when Hydro One submits a construction plan for the upgrades they are exploring, we will then work with them again to complete an separate EA for this project.

Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park

Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

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CP 212, Heron Bay (On), P0T 1R0
annique.maheu@pc.gc.ca / Tél: (705) 427-1956

----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

***** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

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annique.maheu@pc.gc.ca / Tél: (705) 427-1956

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From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 10/01/2018 04:35 PM
Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) obtaining update as to the status of the licence fee valuation appraisal report from Parks Canada Realty (Jason Crockett).

Result:

Parks Canada Realty had received the draft Appraisal Report; the content which is being reviewed by Public Works and Procurement Canada. It was anticipated that Hydro One would receive a copy of the appraisal report in the next two weeks.

April 26, 2018- Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada Realty (Jason Crockett)

From: jason.crockett@pc.gc.ca
To: [FAIR Aaron](#)
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Thursday, April 26, 2018 4:11:57 PM

Hi Aaron,
I'm waiting on the park to get back to me. Once I can discuss, I'll be in touch. Hopefully tomorrow.

Thanks,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
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Government of Canada | Gouvernement du Canada

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From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Date: 26/04/2018 11:42 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Reaching out on this.... Do you have any availability to discuss on the phone today? I would like to get some further information from you regarding this and timelines.

Thanks in advance,

Aaron

Aaron Fair
Real Estate
Hydro One
(416) 919-6962
Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]
Sent: Monday, April 09, 2018 11:35 AM
To: FAIR Aaron
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
The appraisal has been prepared and is currently being reviewed by Public Works and Procurement Canada.
Once the final report is available I will ensure you are provided a copy. I anticipate that to be within the next 2 weeks.

Thanks for checking in,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
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From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Date: 09/04/2018 12:21 PM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

I hope all is well.

Just reaching out to see if Parks Canada had received the resulting appraisal and when we might be able to review for discussion moving forward.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Monday, February 12, 2018 11:36 AM

To: FAIR Aaron

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

Attached is the Terms of Reference for the appraisal of the hydro transmission line. I have confirmed that the ToR and appraisal can be shared with you.

Note that the appraisal report is not due until March 28, 2018.

Thank you,

Jason Crockett

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Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

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Government of Canada | Gouvernement du Canada

From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Cc: <Pamela.Jalak@pc.gc.ca>

Date: 09/02/2018 11:45 AM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Thanks for the responses Jason; this is very helpful.

We will await the draft TOR for the appraisal; look forward to taking the next steps in this matter.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Friday, February 09, 2018 7:24 AM

To: FAIR Aaron

Cc: Pamela.Jalak@pc.gc.ca

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

Thanks for getting back to me. Further responses are in blue below.

Have a good day,

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Realty Advisor | Conseiller en biens immobiliers

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From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Cc: <annique.mahieu@pc.gc.ca>

Date: 25/01/2018 05:21 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

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Thanks,

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

As mentioned, Aaron Fair from Hydro One had a few questions regarding the replacement licence for the hydro transmission corridor:

- Could they see the terms under which the appraisal will be completed (what they are looking at in terms of valuation)?

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Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
annique.maheu@pc.gc.ca / Tel: 705-427-1956

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Parcs Canada / Gouvernement du Canada
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annique.maheu@pc.gc.ca / Tél: (705) 427-1956

----- Forwarded by Annique Maheu/NOTES/PC/CA on 18/01/2018 12:59 PM -----

From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

***** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
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From: <Aaron.Fair@HydroOne.com>
To: <annique.mahieu@pc.gc.ca>
Date: 10/01/2018 04:35 PM
Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair
Real Estate

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(416) 919-6962
Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) obtaining update as to the status of the licence fee valuation appraisal report from Parks Canada Realty (Jason Crockett).

Result:

Parks Canada Realty (Jason Crockett) confirms that Pukaskwa Park is reviewing the appraisal report.

April 27, 2018- Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada Realty (Jason Crockett)

From: jason.crockett@pc.gc.ca
To: [FAIR Aaron](#)
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Friday, April 27, 2018 2:51:56 PM

Hi Aaron,
My apologies for cutting our call short earlier. The park is reviewing the report and I should be in a position to respond early next week.

Thank you very much for your patience,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J 1S9

jason.crockett@pc.gc.ca
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From: Jason Crockett/NOTES/PC/CA
To: <Aaron.Fair@HydroOne.com>
Date: 26/04/2018 05:05 PM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
I'm waiting on the park to get back to me. Once I can discuss, I'll be in touch. Hopefully tomorrow.

Thanks,

Jason Crockett

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From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Date: 26/04/2018 11:42 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

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Thanks in advance,

Aaron

Aaron Fair
Real Estate
Hydro One
(416) 919-6962
Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]
Sent: Monday, April 09, 2018 11:35 AM
To: FAIR Aaron
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
The appraisal has been prepared and is currently being reviewed by Public Works and Procurement Canada.
Once the final report is available I will ensure you are provided a copy. I anticipate that to be within the next 2 weeks.

Thanks for checking in,

Jason Crockett

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From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Date: 09/04/2018 12:21 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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Thanks in advance,

Aaron

Aaron Fair

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Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Monday, February 12, 2018 11:36 AM

To: FAIR Aaron

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

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Note that the appraisal report is not due until March 28, 2018.

Thank you,

Jason Crockett

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From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <Pamela.Jalak@pc.gc.ca>
Date: 09/02/2018 11:45 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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Thanks in advance,

Aaron

Aaron Fair

Real Estate

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Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Friday, February 09, 2018 7:24 AM

To: FAIR Aaron

Cc: Pamela.Jalak@pc.gc.ca

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
Thanks for getting back to me. Further responses are in blue below.

Have a good day,

Jason Crockett

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From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Cc: <annique.maheu@pc.gc.ca>

Date: 25/01/2018 05:21 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Thanks for your note; see my responses below in red. Looking forward to working with you to bring this matter forward.

Thanks,

AF

Aaron Fair

Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: Annique Maheu/NOTES/PC/CA
To: Jason Crockett/NOTES/PC/CA@PC
Date: 18/01/2018 02:03 PM
Subject: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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Aaron's contact info can be found in the emails below.

Thanks,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
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From: <Aaron.Fair@HydroOne.com>
To: <annique.maheu@pc.gc.ca>
Date: 12/01/2018 02:06 PM
Subject: RE: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Annique,

Thanks for the update; that works fine. I have availability between 9-11am on Tuesday to discuss. Feel free to give me a call then; if that doesn't work you can catch me most of the day on Wednesday.

Thanks and have a great weekend!

AF

Aaron Fair
Real Estate

Hydro One Networks Inc.

(416) 919-6962

Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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Hello Aaron,

Thank you for your email. I have a meeting with my colleague Pamela in our Realty team on Monday, and will be able to provide you with an update then. I could call you on Tuesday if you're available.

Thanks and I hope you had a wonderful holiday season,

Annique Maheu

A/Park Superintendent, Pukaskwa National Park
Parks Canada / Government of Canada
PO Box 212, Heron Bay, ON, P0T1R0
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From: <Aaron.Fair@HydroOne.com>

To: <annique.maheu@pc.gc.ca>

Date: 10/01/2018 04:35 PM

Subject: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Annique,

Happy New Year! I trust you had an enjoyable holiday season.

Further to our discussion late last year, you were to circle back with me on the licence renewal matter once you had touched base with the Realty folks in Halifax. I am just looking for an update on this item and whether you have any direction on your end as to next steps.

Feel free to give me a call if you wish to discuss.

Thanks Annique.

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com

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Purpose:

Hydro One Real Estate (Aaron Fair) obtaining update as to the status of the licence fee valuation appraisal report from Parks Canada Realty (Jason Crockett). Correspondence is a result of a phone conversation seeking an update made on April 26, 2018.

Result:

Pukaskwa Park reviewing the appraisal report; Parks Canada Realty in a position to respond week of April 30, 2018.

April 27, 2018- Email Correspondence between Hydro One Real Estate (Aaron Fair) and Parks Canada Realty (Jason Crockett)

From: FAIR Aaron
To: ["jason.crockett@pc.gc.ca"](mailto:jason.crockett@pc.gc.ca)
Bcc: [SERAVALLE Tony](#)
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence
Date: Friday, April 27, 2018 5:01:00 PM

Jason,

Thanks for the follow up. I appreciate your update regarding Pukaskwa Park officials requirement to review the appraisal report prior to issuance to Hydro One for review. I look forward to receiving the appraisal next week with the intention we can accept the rent results.

To summarize our discussions to date, we are working towards completing a superseding renewal licence which will replace the current licence agreement. Until such time, the current licence is in over hold and remains enforceable by both parties.

As we move forward to finalise the renewal licence, I assume all previously discussed agreements terms have been resolved and will be included in a draft agreement for Hydro One's review. This includes the inclusion of a 20 year term length with regular 5 year rent reviews. Please confirm when Hydro One will have this draft licence agreement for review.

Lastly, please let me know your remaining process and anticipated timelines to bring this matter to a conclusion.

Thanks in advance,

Aaron

Aaron Fair
Real Estate
Hydro One
(416) 919-6962
Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [mailto:jason.crockett@pc.gc.ca]
Sent: Friday, April 27, 2018 2:52 PM
To: FAIR Aaron
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
My apologies for cutting our call short earlier. The park is reviewing the report and I should be in a position to respond early next week.

Thank you very much for your patience,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

Parks Canada Agency, Agence Parcs Canada
1869 Upper Water Street, Suite AH201, Halifax, Nova Scotia | 1869, rue Upper Water, pièce AH201, Halifax (Nouvelle-Écosse) B3J
1S9

jason.crockett@pc.gc.ca

Telephone | Téléphone 902-407-8104

Facsimile | Télécopieur 902-426-2728

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From: Jason Crockett/NOTES/PC/CA

To: <Aaron.Fair@HydroOne.com>

Date: 26/04/2018 05:05 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

I'm waiting on the park to get back to me. Once I can discuss, I'll be in touch. Hopefully tomorrow.

Thanks,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers

Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et
des investissements

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From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Date: 26/04/2018 11:42 AM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Jason,

Reaching out on this.... Do you have any availability to discuss on the phone today? I would like to get some further information from you regarding this and timelines.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Monday, April 09, 2018 11:35 AM

To: FAIR Aaron

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

The appraisal has been prepared and is currently being reviewed by Public Works and Procurement Canada.

Once the final report is available I will ensure you are provided a copy. I anticipate that to be within the next 2 weeks.

Thanks for checking in,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers

Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

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From: <Aaron.Fair@HydroOne.com>

To: <jason.crockett@pc.gc.ca>

Date: 09/04/2018 12:21 PM

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Jason,

I hope all is well.

Just reaching out to see if Parks Canada had received the resulting appraisal and when we might be able to review for discussion moving forward.

Thanks in advance,

Aaron

Aaron Fair

Real Estate

Hydro One

(416) 919-6962

Email: aaron.fair@hydroone.com

From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]

Sent: Monday, February 12, 2018 11:36 AM

To: FAIR Aaron

Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,

Attached is the Terms of Reference for the appraisal of the hydro transmission line. I have confirmed that the ToR and appraisal can be shared with you.

Note that the appraisal report is not due until March 28, 2018.

Thank you,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers

Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements

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From: <Aaron.Fair@HydroOne.com>
To: <jason.crockett@pc.gc.ca>
Cc: <Pamela.Jalak@pc.gc.ca>
Date: 09/02/2018 11:45 AM
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Thanks for the responses Jason; this is very helpful.

We will await the draft TOR for the appraisal; look forward to taking the next steps in this matter.

Thanks in advance,

Aaron

Aaron Fair
Real Estate

Hydro One Networks Inc.
(416) 919-6962
Email: aaron.fair@hydroone.com
From: jason.crockett@pc.gc.ca [<mailto:jason.crockett@pc.gc.ca>]
Sent: Friday, February 09, 2018 7:24 AM
To: FAIR Aaron
Cc: Pamela.Jalak@pc.gc.ca
Subject: RE: Fw: Pukaskwa National Park- Hydro One Transmission Corridor Licence

Hi Aaron,
Thanks for getting back to me. Further responses are in blue below.

Have a good day,

Jason Crockett

Realty Advisor | Conseiller en biens immobiliers
Realty Services, Strategic Policy and Investment Directorate | Services immobiliers, Direction générale des politiques stratégiques et des investissements
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Email: aaron.fair@hydroone.com

From: annique.maheu@pc.gc.ca [<mailto:annique.maheu@pc.gc.ca>]

Sent: Friday, January 12, 2018 12:53 PM

To: FAIR Aaron

Subject: Re: Pukaskwa National Park- Hydro One Transmission Corridor Licence

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To: <annique.maheu@pc.gc.ca>
Date: 10/01/2018 04:35 PM
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Aaron

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Purpose:

Hydro One Real Estate (Aaron Fair) reaffirming progress of the licence renewal to date with Parks Canada Realty (Jason Crockett).

Result:

Awaiting follow up confirmation from Parks Canada Realty



East West Tie
Hydro One/SNC-Lavalin

Project Overview
Potential Infrastructure Alteration and Renewal
Pukaskwa National Park

October 13, 2017
Confidential



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Appendix A – General Park Overview Map and Tower Locations Within Park (Tiles 1-5)

1.0 Introduction

1.1 Project History

In 2012 the Ontario Energy Board (OEB) released a Request for Proposal (RFP), requesting bids for the development, construction, ownership and operation of a high voltage transmission line to increase the transmission capacity between Wawa Transformer Station (TS), Marathon TS and Lakehead TS in Northern Ontario. The line is required to be double circuit, 230 kilovolts (kv) and have a total transfer capacity of 450 Megawatts (MW) by 2021 rising to 650MW by 2024. This project is known as the East-West Tie.

In 2013 NextEra and Enbridge partnered and bid as Upper Canada Transmission (UCT) (now referred to as NextBridge) and were selected as the preferred bidder. Both Hydro One and SNC-Lavalin (via subsidiary Altalink) bid the RFP independently and tied as runners-up. NextBridge proceeded with preparation and completion of an Individual Environmental Assessment (IEA) under the Ontario *Environmental Assessment Act*. Currently the final IEA is undergoing review by the Ontario Ministry of Environment and Climate Change (MOECC).

In parallel, NextBridge has applied with the regulator, the OEB, for Leave to Construct (LTC) pursuant to Section 92 of the *Ontario Energy Board Act*. Upon receipt of the NextBridge Section 92 application, due to an unanticipated cost exceeding original estimates, the Ontario Minister of Energy directed the Independent Electricity System Operator (IESO) to conduct a review of both the cost estimate and the needs assessment. The IESO has been asked to return to the Minister what options the organization believes to be most appropriate to fulfill the electricity needs in Northern Ontario.

1.2 Hydro-One/SNC Lavalin Intent

In anticipation of an opportunity to submit a competing application for LTC for the East-West Tie, Hydro One and SNC-Lavalin Inc. have formed a partnership (H1/SNC) to jointly pursue LTC with a slightly modified corridor routing than that proposed by NextBridge. Figure 1-1 shows the preferred NextBridge routing (identified in the IEA) compared to the existing East-West tie route, proposed for use by Hydro One and SNC-Lavalin.

The key differences between the proposed H1/SNC project to that of NextBridge, is that the proposed corridor will:

- Be shorter in length (approximately 400 km compared to 450 km);
- Run through Pukaskwa National Park within the existing Hydro One right of way (compared to NextBridge going around the Park boundary);
- Have fewer environmental impacts; and,
- Result in a lower capital cost to construct.

With lower environmental impacts and capital costs compared to the recent LTC filed by NextBridge, the Hydro One/SNC-Lavalin solution is considered to offer better overall value to the Ontario Ratepayer. Technical details of the proposed Hydro One/SNC-Lavalin solution are discussed in Section 2.0.

1.3 Existing Infrastructure

The existing Hydro-One corridor extends approximately 35 km through Pukaskwa National Park near the northeastern extent of the Park area. The existing Right of Way (ROW) is approximately 43 m wide and includes 87 lattice steel structure (Figure 1-2). Appendix A includes drawings showing the General Park Overview, as well as five detail maps showing the tower locations within the Park.

Figure 1-1 H1/SNC Proposed Transmission Route (Existing East-West Tie) Compared to “New” Nextbridge Route



Figure 1-2 Existing Structures and ROW within Pukaskwa National Park



2.0 Overview of Tower Alteration and Renewal

The ROW of the existing transmission line is in a well maintained condition. However, the existing towers are approaching 60 years of age and components are starting to need extensive maintenance and potential replacement. H1/SNC propose to both upgrade the line's power transfer capability and renew the life of the existing transmission line by carrying out the refurbishment works detailed below and in Figure 2-1. There are a total of 87 structures presently located within Pukaskwa National Park.

Our proposed method of renewing the existing towers within the park involves delivering all manpower, materials and machinery to site by helicopter. The extensive use of helicopters will keep the disturbance to the park to a minimum as no new access routes will have to be installed – everything required for the project will be delivered and removed from the existing easement clearing from the air.

The steel for the tower alterations will be delivered in bundles, lowered by helicopter onto the ROW and assembled adjacent to each of the existing structures. Prior to the replacement of the structures, ahead of the tower erection teams, a tracked drilling machine will be delivered by air to the easement. There are several options for tower support, including altered foundations, wider bases, and guy wires. It is likely that guy wires represent the least environmental impact due to the minimal associated ground disturbance, however, other options will be explored with respect to associated environmental effects. In the case of guy wires, the machine will drill four holes per tower into the native rock and install an eye-bolt in each hole. Please refer to Figure 2-2 for further details. These eye bolts will be used to anchor the guy wires on each renewed structure.

Following the drill team, the transmission line team will follow – again delivered by air. This team will switch the electricity off and prepare the old structures for removal by lowering all eight of the wires they support to the ground.

Once a section of structures have had the wires they support removed, the tower will be lowered in a controlled manner onto the ROW, dismantled and bundled for removal via helicopter to offsite recycling areas.

The renewed four circuit structures will be lifted into position by helicopter and located onto their foundations. The aforementioned guy anchors will be used to tension the new tower's guys against. Figure 2-3 shows a comparison of the altered structures compared with the existing structures, assuming the guy wire scenario.

The wires that were lowered to ground will now be raised and clipped into location by crews and the towers will now be ready for stringing with new conductors and shieldwires to accommodate the third and fourth circuits. Helicopters will be utilized to install the new pilot wire to permit stringing to be conducted – please refer Figure 2-4 for further details.

The preferred time of year to perform this work are from mid-summer to early winter. Works will be performed with smaller crews to execute guy wire anchor installation and tower assembly along the ROW. Once the line is de-energized and the circuits lowered to the ground, erection of the new towers, installation of the existing circuits and re-energization would be performed within a few weeks.

Figure 2-1 Proposed Alterations to Towers

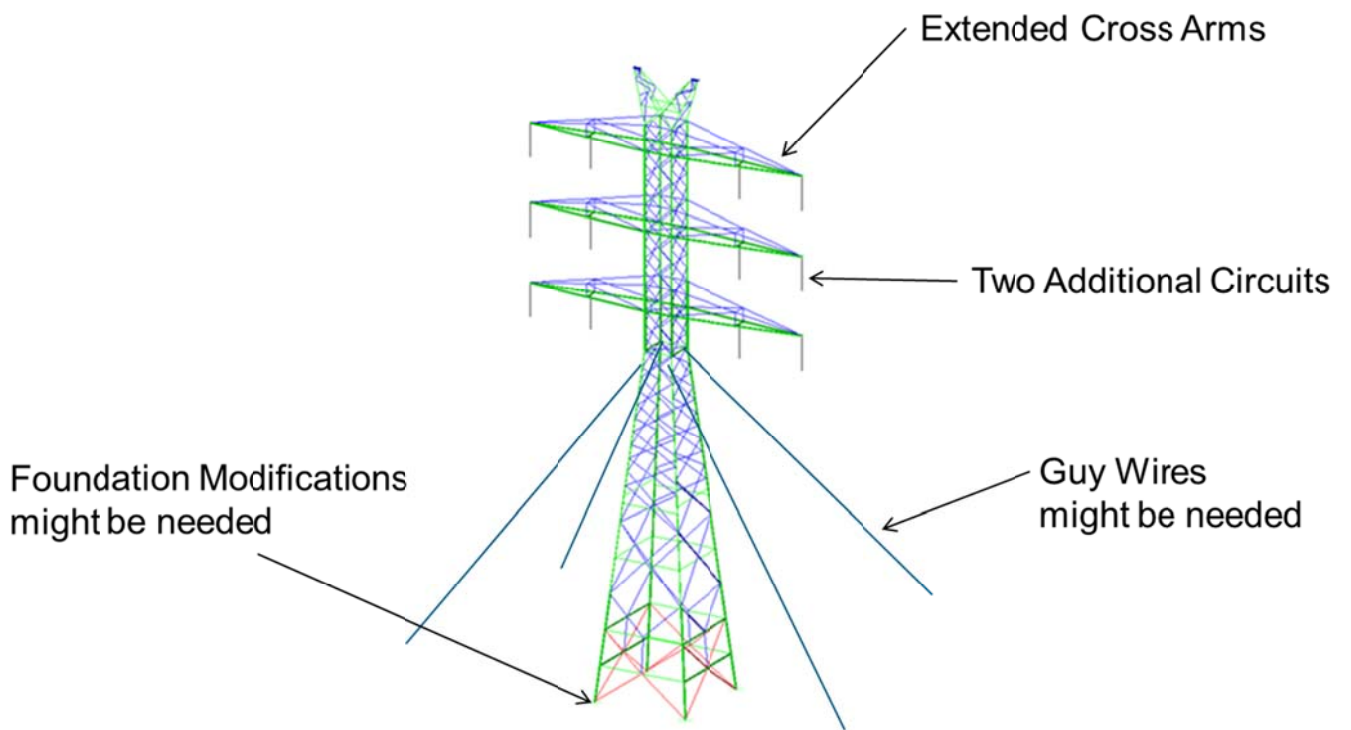


Figure 2-2 Example of Drilling Equipment



Figure 2-3 Comparison of Altered Structure and Existing Structure

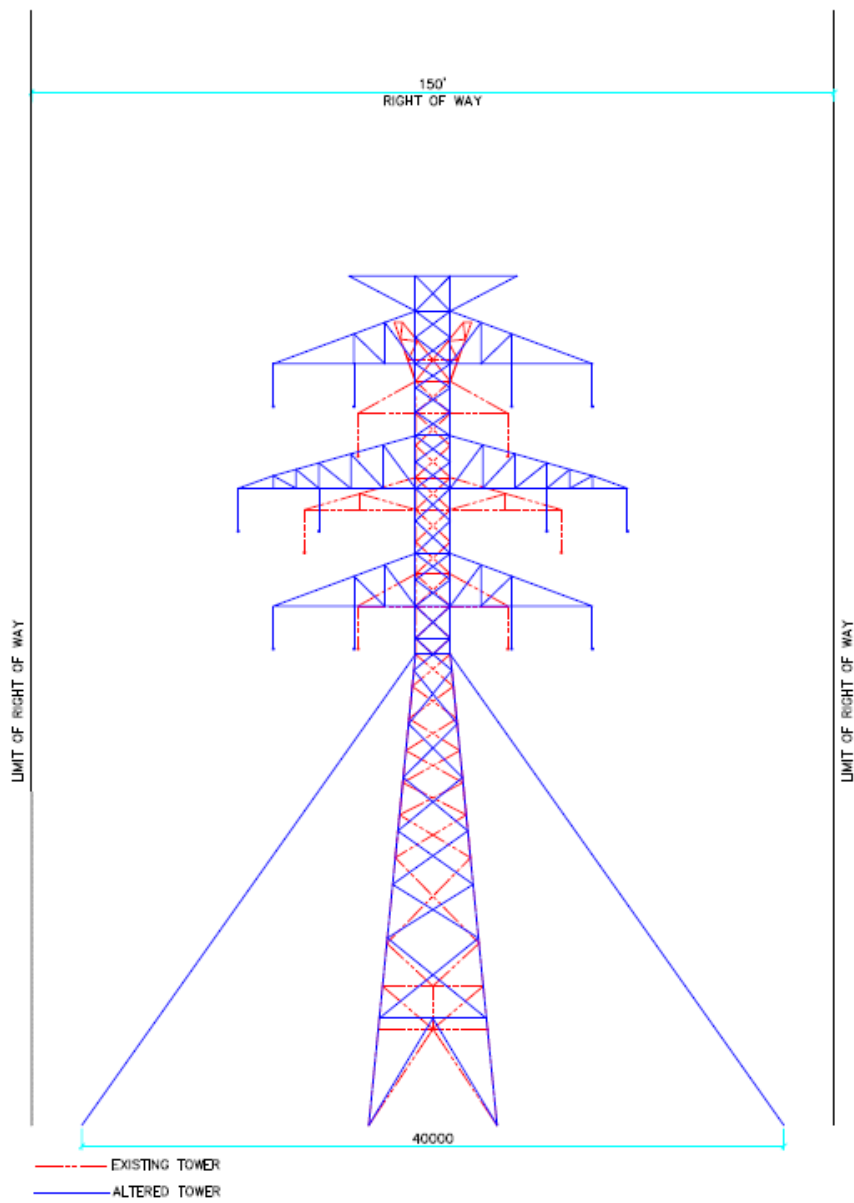


Figure 2-4 Helicopter Installation of Pilot Wire for Stringing Operations



3.0 Environmental Effects of the Project

The proposed transmission line upgrade requires regulatory approvals, including, but not limited to approval under Ontario's *Environmental Assessment Act*. NextBridge has filed an IEA, which is currently being reviewed by the MOECC. Their IEA covers their proposed route from Wawa to Thunder Bay, including a by-pass around Pukaskwa National Park. The H1/SNC proposed corridor varies from the NextBridge corridor, primarily by utilizing the existing Hydro One corridor inside the Park. We are aware that these small deviations will lead to some additional *Environmental Assessment Act* requirements to be met by Hydro One.

3.1 Anticipated Benefits of the Proposed Method

The H1/SNC proposed corridor will utilize the existing right of way through Pukaskwa National Park. There is no need to widen the existing ROW to accommodate the renewed structures. Therefore, there are very minor impacts during construction and significant reduction of overall net effects due to a smaller footprint of new corridor within the Park, as compared to the corridor proposed by NextBridge. This primarily results from a corridor deviation that would allow H1/SNC to go through the Pukaskwa National Park within the existing ROW compared to the NextBridge corridor which traverses the outer boundary of the Park and creates a new ROW.

It is anticipated that no additional access will be required to accommodate the route along the existing ROW. H1/SNC will make the use of lightweight equipment and materials that can be flown to the site by helicopter. Further, the manpower to complete the works can also be delivered to site by helicopter. It must still be verified that sufficient landing clearance is available for helicopters, so it is possible that some isolated areas would require clearing for aerial access. This proposed method will remove the need to construct new access routes. Any ground access required can be gained by the use of the existing Hydro One access routes and all-terrain vehicles.

There will be minimal ground breaking activities to accommodate the route. There are several options available to complete the renewed structures and H1/SNC will complete additional study and work closely with Parks Canada to select the least intrusive method. Minimal disturbance will occur from anchor bolts drilled into the existing rock if it is deemed necessary to reinforce the existing foundations or install guy wires. Any excavation of overlying soil would be minimal and impacts carefully considered.

3.2 General Environmental Effects of Overall Route Deviation – Marathon to Wawa Section

Figure 1-1 shows the proposed route change from Marathon to Wawa. H1/SNC proposes deviating from the NextBridge route and proceeding through the Park instead of turning north to White River on a new corridor around the Park. Given the early stage of project development by H1/SNC, no formal impact studies have been completed for the proposed use of the existing towers within the Park.

However, in order to evaluate at a high level the reduction in negative environmental impacts of the route change, a review of the information provided in the Nexbridge IEA Report – Appendices 3-1 was completed. In this section of the IEA, Nextbridge compared the environmental effects of the Nextbridge reference route (through the Park) to their revised route around the Park (white section in Figure 1-1).

It should be noted that the NextBridge data cited in the report cannot directly be used to compare the impacts of the NextBridge reference route around the Park to the proposed H1/SNC route within the Park. This is because the NextBridge route through the park assumed that the corridor would be

twinned. The H1/SNC Park solution will utilize the existing ROW, therefore eliminating these impacts within the Park area. The impacts in the H1/SNC solution would be limited to those outside the Park, on the approaches from Marathon and Wawa.

Therefore, the data in the Nextbridge report has been interpreted to better reflect the H1/SNC scenario. The comparison below is based solely on the information collected by NextBridge and has been interpreted by H1/SNC as it pertains to our proposed route.

Marathon to Wawa Section – Use of Park Route vs Around the Park Route

Advantages:

- Shorter, more direct route (approximately 42 km shorter)
- Potential for less dwelling displacements (0 compared to 12) – data likely still applicable, assuming none of these dwellings were within the Park boundaries
- Greenfield route not required (less potential effects on natural/socio-economic environment)
- Crosses less:
 - Woodland Caribou discontinuous habitat (Nextbridge original route affected to 667 ha; more study required to determine affected areas outside the Park; 0 ha affected inside the Park)
 - First Nation reserves (0 ha compared to 25 ha) – data likely still applicable, assuming none of these were within the Park Boundary
 - Roads (3 compared to 24) – data likely still applicable, assuming none of these were within the Park Boundary
 - Areas of high potential for aggregate resources (Nextbridge original route affected 510 ha; more study required to determine affected areas outside the Park; 0 ha affected inside the Park)
 - Area with mines (0 ha compared to 3) and also fewer mining claims/claim areas – data likely still applicable, assuming none of these were within the Park Boundary

Disadvantages:

- Uses existing route through the Park and does not avoid the Park

There is also a potential that some Woodland Caribou continuous habitat is affected in areas outside the Park. There would be 0 ha of affected Woodland Caribou continuous habitat inside the Park, given the use of the existing corridor. Until more study is completed, it is uncertain how many ha are potentially affected on the approaches to the Park given the new route. The original NextBridge route around the Park crossed approximately 63 ha of Woodland Caribou continuous habitat.

3.3 Specific Environmental Effects - Within Park Interior Only

Although it is clear that there is a net reduction of overall negative impacts associated with the route change, Hydro One is aware that the specific priority of Parks Canada is to protect the interests of the Park. This includes three key considerations:

- Conserving ecological and cultural resources;
- Fostering public appreciation and understanding of protected heritage places in its care; and,
- Facilitating meaningful visitor experiences.

These considerations were paramount in the creation of a technical solution to utilize the existing ROW within the Park.

Based on existing information, H1/SNC generally expect the proposed structure renewal to result in minimal environmental effects within Park. Again, no specific studies have been completed, but the following effects are anticipated based on our knowledge of projects of a similar nature.

Long term effects:

It is not anticipated that any negative long term effects will result from the renewal. The project utilizes the existing corridor footprint, which has been present since the 1960s.

There are some expected positive effects of the structure renewal. These structures have been present on the corridor for over 50 years and require regular maintenance. The long term energy plan includes the use of this corridor into the foreseeable future and therefore the structures will eventually reach end of life, requiring replacement regardless. The proposed renewal of the structures extends the lifespan of the towers and components. Current design requirements adhere to higher standards compared to the existing towers, which improves resiliency. For example, the towers would be more stable in extreme weather events such as heavy wind and precipitation requiring less repair and maintenance work. The result is a reduction in longer term impacts to the Park.

Short term effects:

The short term negative effects of the renewal are associated with construction and have mitigation methods available (Table 3-1). Construction activities are anticipated to be less than six months in total duration. This includes a few months of tower assembly and foundation and/or guy wire preparation. It also includes the two to three week outage duration for erecting the towers.

The positive short term effects related to the introduction of new components on the renewed towers. The new components on the towers will reduce maintenance and emergency response requirements as they will not require replacement for up to 25 years. The result is the need for less access the park therefore reducing short-term impacts.

Table 3-1 Park Interior – Mitigable Environmental Effects

Potential Effect	Mitigation (in collaboration with Parks Staff)
Access to Remote Areas	No new access created; helicopters to deliver equipment/crew; small track-mounted equipment restricted to ROW and established routes
Noise from helicopters and machinery	Effects temporary (construction period only); maintain equipment to ensure conforms to normal parameters
Disturbance to Wildlife and Plants	Studies required to avoid species at risk and sensitive habitats; ensure project specific Environmental Specs and Development plans; Hydro One crews/contractors trained to understand significance; work within prescribed seasonal windows
Introduction of Invasive Species	Low risk; area remote; but any identified in ROW will be avoided to ensure no further spread; equipment clean upon arrival
Vegetation clearing	Not anticipated, other than standard clearances around tower bases (no additional effects); likely sufficient helicopter clearance to land on ROW but must be verified; potential for isolated areas near tower bases requiring some clearing
Erosion and sedimentation	No erosion anticipated; if unforeseen effects arise, control measures will be implemented
Air emissions from vehicles and dust generation	Equipment used on site during construction and operation is maintained to minimize exhaust.
Potential incidental spills during construction	Crews trained in spill response and cleanup; spill response plan in each vehicle and clean-up material will be on the work-site. Refueling of all vehicles and equipment will be done at designated locations away from wetlands and watercourses.
Waste	All waste generated by the project/crews will be removed from site

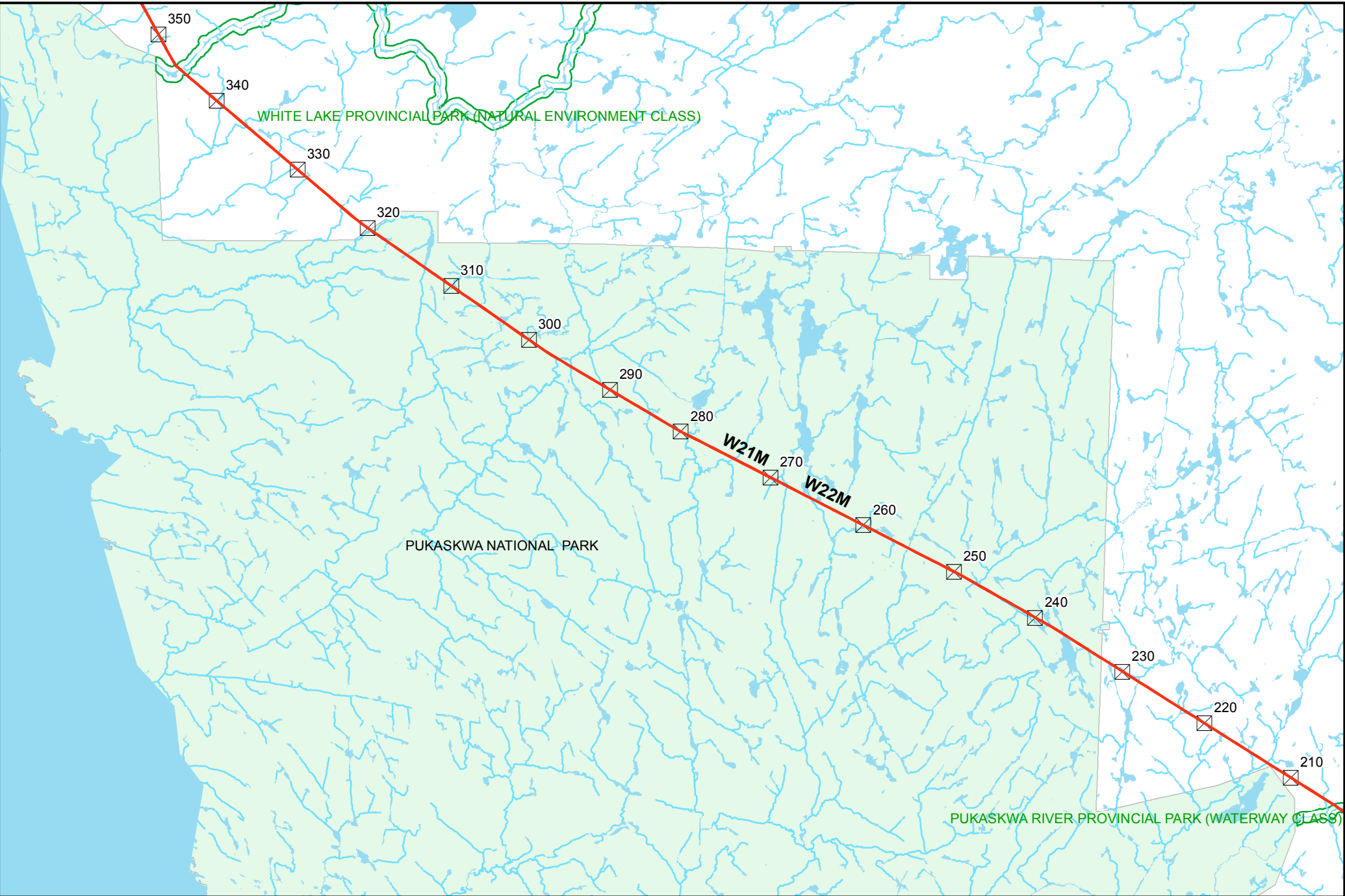
In considering the implications to the management objectives of the Park, the proposed renewal is compatible with these principles. Proposed construction and access solutions maintain the ecological integrity of the Park and its cultural resources.

The hydro corridor is not in an area that is formalized for visitors. There are no camping areas nearby or areas used for interpretation or recreation, based on the 2014 Pukaskwa National Park Management Plan. This is key to maintaining a meaningful visitor experience and avoiding disruption to visitor areas.

APPENDIX A

GENERAL PARK OVERVIEW MAP

AND TOWER LOCATIONS WITHIN PARK







hydroOne Produced by Environmental Services
Date: Oct 12, 2017
W21M & W22M
Tile 2

- DMTI.ONhrd (Major Roads)
- LANDBASE.HYDROGRAPHY_LINES
- LANDBASE.HYDROGRAPHY_POLY
- MNR.Prov_Park_Reg_Poly

- NATIONAL_PARK
- TL_LINE_SECTION
 - In-Service

W21M & W22M
Scale 1:25,000

1:25,000

0

325

650

975

1,300

Mt

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hydroOne Produced by Environmental Services
Date: Oct 12, 2017
W21M & W22M
Tile 3

- DMTI.ONhrd (Major Roads)
- LANDBASE.HYDROGRAPHY_LINES
- LANDBASE.HYDROGRAPHY_POLY
- MNR.Prov_Park_Reg_Poly

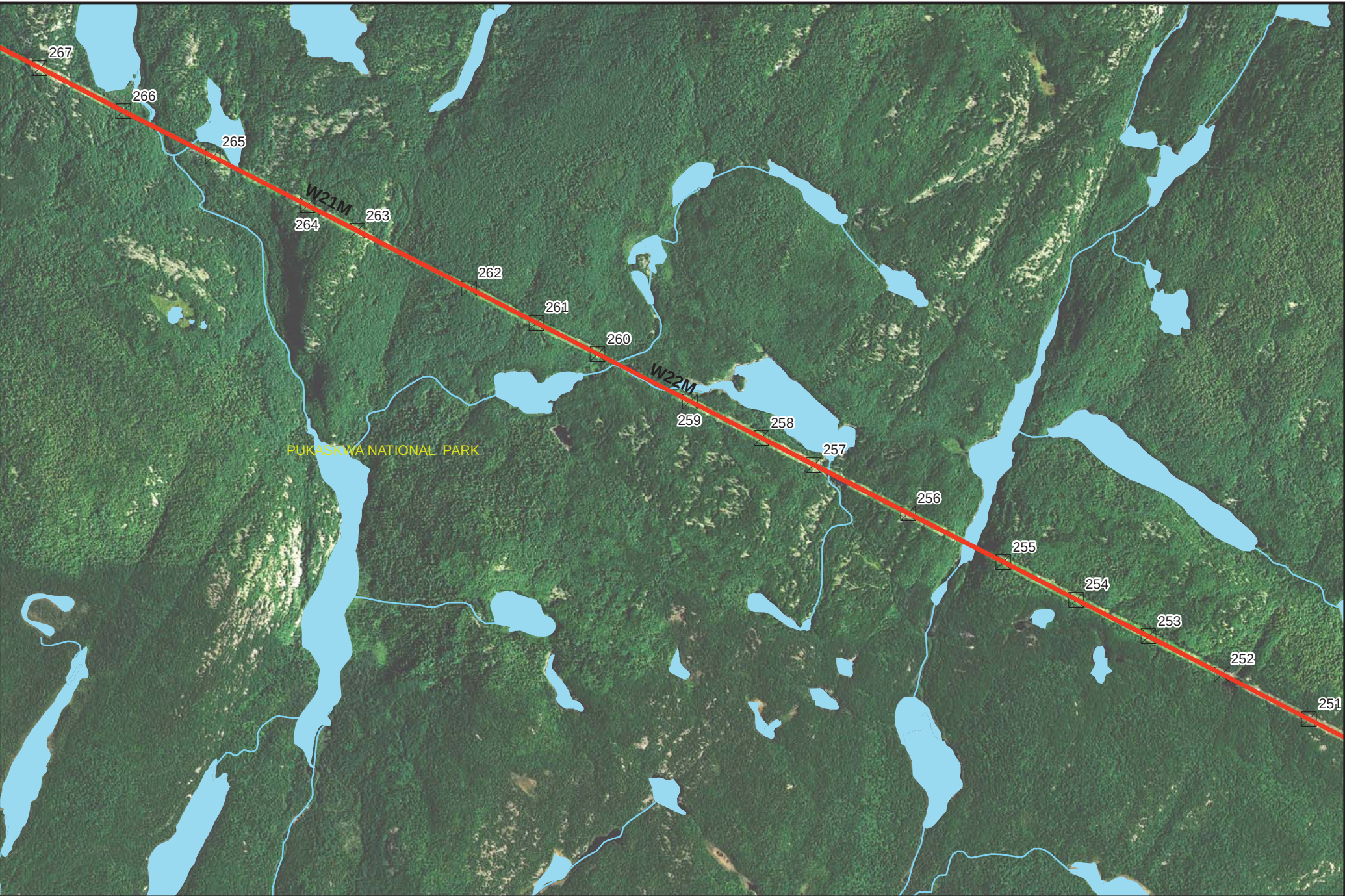
- NATIONAL_PARK
- TL_LINE_SECTION**
 - In-Service

W21M & W22M
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Page 18 of 20

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hydroOne Produced by Environmental Services
Date: Oct 12, 2017
W21M & W22M
Tile 4

- DMTI.ONhrd (Major Roads)
- LANDBASE.HYDROGRAPHY_LINES
- LANDBASE.HYDROGRAPHY_POLY
- MNR.Prov_Park_Reg_Poly

NATIONAL_PARK

TL_LINE_SECTION
In-Service

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PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

HYDRO ONE RIGHT-OF-WAY MAINTENANCE ACTIVITIES



PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

Revision 1: January 24, 2018

Revised by: Environmental Services, Hydro One Networks Inc.

Original: February 2004

Prepared by: Provincial Lines and Forestry, Hydro One Networks Inc.

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PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

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Appendix II: Maps

1 Introduction

This report presents an environmental evaluation of the proposed maintenance activities required on the 230,000 Volt (230 kV) transmission line owned and operated by Hydro One Networks Incorporated (Hydro One), which passes through Pukaskwa National Park.

Hydro One's license of occupation with Parks Canada was most recently renewed on November 8, 2010 . This report is an update to the original environmental evaluation completed for the first license of occupation in 1991 and a revised report for the license renewal in 2004. This report is intended to cover the period of the new license.

2 Background Statement

Hydro One's 230 kV transmission line from Wawa TS (Transformer Station) to Marathon TS passes through the northeast corner of Pukaskwa National Park. The multi-circuit steel tower line, commonly known as the East-West Tie Line, was constructed in the late 1960's and came into service in 1970. The line is a link between Hydro One's east system and northwestern Ontario and as such is of critical importance.

Pukaskwa was established as a park reserve in 1972, and in 1978 a land transfer agreement was signed between the Province of Ontario and the Federal Government creating Pukaskwa National Park. The Provincial/Federal agreement provided that Hydro One would be granted the right by Parks Canada for the continued operation of the transmission line. The occupation has been covered by a series of licenses, normally each for a period of 5-10 years, the latest being signed into effect on November 8, 2010, covering the period from November 8, 2010 to November 7, 2014. Parks Canada has confirmed and both parties agreed that the most recent license agreement is in over hold; the terms and conditions as agreed upon are enforceable until such times both parties finalize a new license agreement. In short, the license allows Hydro One to occupy the previously established right-of-way and to maintain and operate the existing line.

The right-of-way width is forty-six meters; twenty-three meters each side of the center line. There are 88 tower spans commencing near structure #232 (east park boundary at Bremner River) to structure #320 (near the park boundary at Willow Creek) a distance of 34.6 km. The area occupied by the right-of-way consists of 158 hectares, the Park occupies 183,909 hectares.

The line was constructed in late 1960's, by a network of access trails along the corridor. To reach the access trail along the right-of-way, Hydro One historically used access roads off Highway #17. The Umbata Falls road starts 14.8 km east of Hwy 627 and winds its way for 23.5 km before entering onto the right -of-way some 6-km west of the Pukaskwa National Park boundary. On right-of-way access then leads inside the Park. The South Regan road exits off Hwy 17 and winds for 54.5 km to the park boundary then another 11 km to the right-of-way, emerging at Louie Lake.

3 Description of Required Maintenance Activities

There is an essential need to continue to maintain and operate the 230 kV transmission line situated in Pukaskwa National Park. To ensure continued safe and reliable operation, periodic maintenance and in some instances major upgrading is undertaken on the facilities.

The operations and maintenance activities which typically take place include Transmission Line Maintenance, Access Road Repairs/Upgrading and Forestry Work.

Prior to Hydro One-work programs being initiated Pukaskwa Park staff will be contacted and permits/permissions acquired.

3.1 Transmission Line Maintenance

The transmission line is inspected regularly by line staff to identify conditions which could cause outages such as sagging lines, damaged conductors, bad insulators, and deteriorating concrete at tower footings. Inspections are completed by helicopter or on the right-of-way by staff supported by a helicopter.

If defects are found repairs are scheduled based on degree of urgency and the type of repair dictates what equipment will be required. Major repairs and upgrades are normally planned well in advance as they entail large-scale operations, acquisition of materials and manpower. The large-scale line operations will be planned in conjunction with staff from Pukaskwa Park to ensure all activities are completed in an acceptable manner taking into account any environmental concerns.

3.1.1 Helicopter Line Patrols

Helicopter Patrols are used to identify defects. Visual observations are made from the helicopter to detect cracked or bent structural components, loose bolts, broken insulators or other defective parts. The patrols may also make use of thermo vision technology consisting of a camera mounted on the side of a helicopter, which uses infrared photography. This method can locate defective connections (hot spots) on transmission lines, which could cause line burn down or component failure if not corrected. Normally at least one helicopter patrol is scheduled and completed each year.

3.1.2 Line Patrols

Patrols are conducted from the ground to inspect the physical condition of tower footings, guy wires and related apparatus associated with the transmission towers. Patrols may be accomplished using ATV's or on foot depending on access conditions. Helicopter support is used to bring crews to the work site and as required to leapfrog personnel. Line patrols are scheduled on an as need basis.

3.2 Transmission Right-of-Way (ROW) Maintenance

Transmission right-of-way maintenance programs focus on control of vegetation growing on the established right-of-way and trees growing along the edge. Due to the capacity of electricity to "flash" from conductors to grounded objects, minimum clearances for various voltages must be maintained. Safe clearances established for vegetation relate to the insulating space required around conductors and their distance to the ground. These clearances have been calculated to reflect the fact that conductors swing in the wind and may expand due to heat and electrical flows and sag closer to the ground. Clearances are established on each span of the corridor as determined by maximum loading versus actual conductor heights at the time any maintenance activities take place.

3.2.1 Brush Control

Incompatible vegetation must be controlled to prevent growing within the established safe clearances to conductors. Incompatible vegetation is defined on the 230 kV system as any species that at mature height will reach a height that will be closer than 4.5 meters to the overhead conductors at maximum sag. Maximum sag is pre-determined for every span and takes into account emergency loading. On a 230 kV double circuit line, normally loads are shared between each circuit. In the event of a fault to one of the circuits, the other circuit will carry the entire load. Increased loading causes the conductors to heat and expand which is defined as sag. Hydro One staff completing brush control have an up to date condition survey and therefore make allowances for each span and locations within each span when determining what vegetation must be removed and that which can be retained. On some spans such as over steep valleys most species can be retained, on other spans where the mid-point between structures is the lowest clearance then only low growing shrubs are retained.

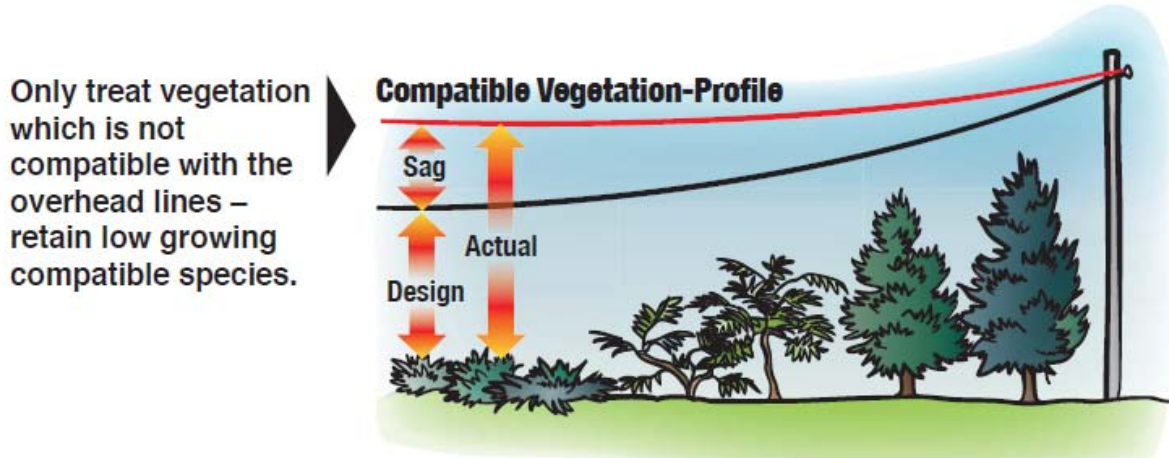


Figure 3-1: Compatible Vegetation Profile

Brush control activities also encompass the concept of wire zone and border zone. The wire zone is that portion of the right-of-way that is located immediately under the conductors; the border zone is the area from the outside of the conductors to the adjacent right-of-way edge. Somewhat taller species can be retained in the border zone.

Brush control is also undertaken at the base and perimeter of each tower to provide adequate working space for personnel to carry out emergency or planned maintenance work, including inspection of tower foundations. Access trails on and off the right-of- way may require clearing of brush. In both these situations all shrubs and trees are removed.

Through a selective brush control program, Hydro One eliminates vegetation, which has the potential to interfere with the safe operation of the transmission line. Grasses, ferns, low growing shrubs and in some instances trees, which due to growth characteristics and/or location do not constitute a hazard to reliability or safety are retained.

Brush control activities are normally carried out on a six-year cycle, in some cases the cycles are extended depending on brush conditions encountered. Brush control activities scheduled for the Park will include manual cutting and the use of herbicides. The herbicide of choice for Hydro One operations is Garlon RTU (Triclopyr). This Federally Registered product can be applied to the lower portions of the individual stems or cut surfaces of undesirable vegetation. Brush controlled in this manner will not re-sprout, which allows compatible low growing vegetation to become the predominate vegetation on the right-of-way. This ground cover provides excellent habitat, good

erosion control and an effective means to biologically limit the ability of non-compatibles to grow back on the right-of-way. This reduces the amount of brush that requires treatment, lengthens treatment cycles and minimizes the time crews have to work inside the Park.

3.2.2 Line Clearing

The Program is undertaken to treat trees, which infringe on clearance specifications. Two types of clearances are specified: standing and falling. These clearances represent the minimum distance tolerated between a tree and an energized line. Standing clearances relate to the trees directly beneath the line on the right-of-way. Falling clearance refers to trees growing along the edge of the right-of-way which if they break off or are blown towards the line could either cause an electrical arc or physically knock the conductors to the ground. Trees growing along the edge of the 230 kV right-of-way will be inspected for soundness by qualified forestry staff. Trees, which are found to be in good health, even if tall enough to strike the line if blown over are not treated. Trees that have died, show signs of disease and decay or appear to be shallow rooted and thus determined to be a hazard will be removed. Topping of adjacent trees is possible but involves climbing, which in an isolated location such as Pukaskwa, poses difficulties.

Line Voltage	Standing Clearance	Falling Clearance Adjacent to RoW	
		<u>Sound Tree</u>	<u>Danger Tree</u>
230kV	4.5 m (15 ft)	Not Required	2.0 m

Table 1: Standing and Falling Clearance Requirements for a 230 kV Transmission Line

Line clearing is undertaken in Pukaskwa National Park normally every six years during the winter months. Forestry staff on snowmobiles patrol the entire length of the right-of- way for approximately a two-week period. Helicopter support is available throughout.

3.3 Access Road Upgrading/Maintenance

The access road system to and along the right-of-way that was established during line construction has continued to deteriorate to a point where access for large vehicles is very limited. There is no significant upgrading planned for the existing access trails and water crossings. Helicopter access will continue to be the primary means of moving forestry and lines staff along with equipment and materials to work locations, however, maintenance activities

may require opening existing access trails in some instances.

3.4 Emergency Work Activities

There are a number of situations, which classify as emergency activities where immediate action would be necessary. Such situations consist of skywire breaks, conductor breaks, insulator string breaking, hardware failure, conductor falling to the ground, tower arm failure or one or more towers falling down. Lines staff will make every effort to contact Pukaskwa Park staff and advise of emergency conditions and actions required to restore power. In all cases Hydro One makes every effort to restore disturbed sites to as close to original conditions as possible and will work with Parks Canada staff to mitigate any negative impacts of emergency restoration activities.

4 Identification of Potential Environmental Impacts of Hydro One Maintenance Activities And Mitigating Actions

In the identification and discussion of environmental impacts it needs to be established that impacts under investigation are those which relate to the maintenance of the transmission line hardware and associated right-of-way. It is not intended to assess those impacts associated with the presence of an existing right-of-way in the park.

The potential impacts are identified and discussed relevant to the primary operations and maintenance, which will most likely be occurring over the period covered by the existing license of occupation. In order to understand each maintenance component and possible environmental impacts an attempt has been made to assess each major component. In addition, some general environmental concerns are addressed that may apply to any scheduled activity.

Mitigation measures are proposed to avoid, rectify or reduce the identified adverse impacts of the proposed undertaking. It should be recognized that the defined work activities, as a whole represent a mitigation strategy to minimize impacts. Additional actions required are therefore not extensive. Hydro One will endeavor to provide the Park Warden Service with 24 hours' notice prior to commencement of field operations. Should major maintenance activities be necessary above routine maintenance described, more input from Park staff will be requested in

order to ensure that any concerns are addressed.

4.1 General Impacts

4.1.1 Invasive Species

Invasive species continue to be extremely damaging to the environment. Invasive species have the ability to rapidly expand in numbers and displace native species. Parks Canada remains very concerned with the introduction of non-native plants and animals into the Pukaskwa environment. In order to ensure that no foreign species are accidentally introduced during Hydro One maintenance activities, all equipment used will be power washed to remove all mud and plant materials on each entry to the park.

4.1.2 Access Road Upgrading

There are at present no plans for upgrading of the access roads to the Park from Highway #17 or the series of trails along the corridor. Should future work programs require access road upgrading to accommodate large equipment consultation between Park staff and Hydro One will take place. Hydro One uses proper construction techniques to minimize sedimentation of water bodies, compaction or other possible adverse environmental impacts. In addition, Hydro One will work with Park staff to ensure that road upgrading doesn't cause problems with unauthorized access activities to areas now off limits.

4.1.3 Waste Disposal

All garbage and wastes created will be collected and removed including chemical and petroleum containers and domestic garbage.

4.1.4 Refueling, Equipment Maintenance and Hazardous Material Handling

At present, most maintenance activities are completed on foot or snow machines. Limited all-terrain vehicle (ie. Argo or Side by Side) usage is also a possibility. Any equipment used will be specified to be mechanically sound to avoid leaks of oil and gas. Many of these products including gasoline, diesel, lube oil and aviation fuel can contaminate ground and surface water at relatively low volumes.

No fueling or servicing of equipment will be permitted within 30 meters of a watercourse. This

is a minimum distance and will be increased if equipment is being serviced on a slope. Fuels, oils, gasoline and other hazardous materials will be stored as far away as possible, preferably in an area, which does not drain toward a stream, lake or wetland.

Spill containment and clean up materials will be available on site. As a minimum, this material should include enough spill absorbent material to contain the maximum spill potential on the worksite.

4.1.5 Impacts to Soils:

Some minor compaction and rutting may occur from movement of vehicles along the right-of-way. It is anticipated that any disturbed areas will quickly return to natural state through natural succession and re-vegetation. Selective application of herbicides retains good ground cover and sufficient plant cover will remain to stabilize slopes and other vulnerable sites. No serious erosion sites are known to exist on the right-of-way that require special protection. Should erosion sites become a concern, Hydro One will work with Parks Canada to ameliorate any sites or to design special treatments to avoid future problems.

4.1.6 Interactions with Wildlife

Hydro One maintenance activities will be conducted in a fashion that will minimize impacts on wildlife. Wildlife will not be harassed, disturbed or otherwise impacted. Staff working in the park will not feed wildlife

4.1.7 Special Treatment Areas/Species at Risk

At present no species at risk are known to occur on the right-of-way. Should this change, Hydro One will incorporate special treatment into maintenance activities.

Hydro One has committed to special treatment of specific spans within the park. The locations and treatments are identified in Appendix I.

4.2 Transmission Line Maintenance - Potential Impacts

4.2.1 Helicopter Patrols

The main possible impact is sensor disturbances to wildlife arising from noise generated by

PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

helicopter use. Normally helicopter use at any given site is limited to a short duration stop at each structure. The patrols are normally scheduled for late spring (May/June) and early fall (September). The helicopter patrols are of short duration and infrequent. The environmental impact is expected to be negligible.

The helicopter pilot prior to entering the park air space will contact Pukaskwa National Park.

4.2.2 Line Patrols

Foot patrols are carried out during the summer at which time any disturbance to wildlife would not be at a critical stage of their life cycle. Impacts to soils are minimal given that the work is carried out on foot or all-terrain vehicle. Helicopter support is available to transport men and equipment across watercourses where ground access is not suitable.

The environmental impact of this activity is considered negligible, given the short duration (two weeks), infrequent occurrences (every other year) and passive nature of the work involved.

Pukaskwa National Park will be contacted by the crews prior to entering the Park and advised of when work will be initiated. This will include notification when any helicopter will be in Park air space. On occasions all-terrain vehicles' may be used by crews, vehicles are restricted to access trails and will not result in significant damage. Nature of work activities has low potential for impact and no further mitigation is necessary.

4.2.3 Line Facility Repair

Potential impacts are sensory disturbance to wildlife arising from noise generated by helicopter use, concrete mixer, compressor, pneumatic hammer and human activity. Potential impacts to soil in the form of soil displacement, and soil compaction. Impacts include removal of localized vegetation on the right-of-way for helicopter and equipment placement.

Line repair impacts are localized (specific tower sites), short in duration (two weeks total), infrequent and of low magnitude.

4.3 Transmission Right-Of-Way Maintenance - Potential Impacts

4.3.1 Forestry Line Clearing

Potential impacts are sensory disturbance to wildlife on account of operating helicopters, snowmobiles, chainsaw work and human activity. In addition it is likely trees that pose a hazard to the line will be found and will require removal

The noise associated with the work will be localized, temporary (two weeks), transient and infrequent. The disturbance to wildlife will be minimal.

The number of trees that are required to be removed is normally small. Trees that are removed are in advance states of decay or are structurally weak. Sound healthy trees are retained. Trees, which are felled, are dropped parallel to or away from the line. Limbs are removed from the trunk and cut into smaller sections so they lie flat. This will minimize the amount of slash and will enhance the natural decay process.

4.3.2 Brush Control

Work programs for the treatment of brush on the right-of-way are designed to reduce the amount of brush that has to be treated on each successive cycle and this in turn reduces potential impacts. All brush control activities are planned in conjunction with Park staff well in advance to ensure that any changes to special buffers or new findings involving the right-of-way lands are incorporated into the planned operations.

There will be localized and transitory disturbance to wildlife any time Hydro One staff are working on the right-of-way. Cutting of brush and the use of power tools create noise disturbance. These activities are not carried out every year, are restricted to a very small area of the park and are anticipated to diminish through time as herbicide application reduces the brush density changing the right-of-way composition to compatible vegetation that does not require treatment.

4.3.2.1 Potential Impacts from Brush Control Activities

4.3.2.1.1 Aesthetics

Brush control operations will result in dead standing brush and cut brush. The visual impacts are

primarily noticed the year the right-of-way is treated and is significantly reduced the following year(s) as leaves and needles fall off. Heavy snowfall results in any dead standing brush being knocked to the ground.

The area crossed by the Hydro One right-of-way is in a very secluded portion of the park and rarely will be visited. The minimum buffers to water of 30 meters for herbicide use, and use of condition survey data to maintain maximum vegetation in valleys will minimize aesthetic impacts along rivers and lakes that may be used by the public. Brush that is cut is further cut into smaller lengths and in a fashion that will allow contact with the ground to facilitate natural decay processes. This reduces the visual impact of the brush control operation and reduces the amount of slash.

No burning of brush is allowed inside the park boundary.

4.3.2.1.2 Ecosystem Changes

The right-of-way environment may change slightly with the removal of brush. Potential impacts include an on-going alteration in the microclimate conditions as the vegetation cover is initially reduced and subsequently re-grows. The right-of-way due to successive brush control operations including the selective application of herbicides has become an open area vegetated by low growing species of compatible shrubs and the removal of non-compatible brush will have a minimal impact.

When brush is being cut there is the potential to disturb nesting birds. Selective vegetation management and use of herbicides will allow for retention of many compatible shrubs that will provide good nesting cover and will not be disturbed by Hydro One activities. This disturbance will be localized and of a transient nature to allow birds to return to nest quickly. It is anticipated this disturbance will be minimal. Should park staff become aware of the presence of rare or unique avian communities Hydro One will work with Park staff to time brush control activities to minimize disturbance.

4.3.2.1.3 Water Quality

Impacts to water will be minimized by retention of stream buffer zones. The brush control operations now used are completed on foot with helicopters to ferry staff, equipment and

PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

materials to work locations. Vehicles will not be crossing watercourses.

Should vehicles be used for future operations in all likelihood they would be ATV's that by nature will have minimal impact on water crossings.

In many cases alder (*Alnus incana* ssp. *Rugosa*) a common riparian plant will be compatible along watercourses. There are also numerous other low growing shrubs that prefer stream and lake edges that will provide good erosion control and shade. The 30-m buffer for the use of low volume herbicide will ensure that no watercourses are impacted by herbicide product.

The Hydro One operation as designed will not result in adverse environmental impacts to water.

4.3.2.1.4 Herbicides

Herbicide applications are restricted to cut stumps of deciduous species and to small conifers and deciduous brush. The herbicides of choice, Garlon RTU (Triclopyr) and EZ-Ject capsules (Glyphosate) are registered federally for control of vegetation on Hydro One rights-of-way. These products are applied selectively by trained and licensed staff. Since the EZ-Ject capsules are applied to the stems the herbicide is completely contained in the plant system and not applied to soils. The Garlon RTU half-life in soils is relatively short and bio-accumulation will not occur.

5 Conclusions and Recommendations

Based on the review of files, field surveys, work program design, environmental assessments of previous work in Pukaskwa National Park and specified mitigation measures it is concluded that the proposed work activities will not result in significant adverse environmental effects.

It is recommended that this Environmental Evaluation meets Park Canada requirements for an environmental assessment as set out under the Canadian Environmental Assessment Act. (CEAA). The work programs should proceed as described in conjunction with the implementation of mitigation, surveillance and monitoring measures as set out in this environmental evaluation.

Hydro One has agreed that future Environmental Evaluations will include preparation of a Parks Canada Integrated Pest Management Plan submission form to cover off the use of herbicides within the park boundaries.

PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

APPENDIX I

Special Treatment Locations-Pukaskwa National Park

PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

The following locations have been identified in the CEAA as requiring special protection and environmental management:

Span	Existing Condition	Management Plan
#279-#278	High use wolf area, possible den site and area where wolves are routinely observed or sign of presence noted.	Avoid working in this area, do not store materials in this location and ensure time spent doing any maintenance kept to a minimum.
#294-#295	There is an area near structure# 294, which has been maintained using selective brush control. The remainder of the valley has been retained in forested cover.	Retain the trees and remove tallest if they pose a hazard before the next planned maintenance. Routine brush control for remainder of the span.
#295-#296	Most of the right-of-way maintained using selective brush control. There is a forested area on part of the span.	Retain the trees and remove tallest if they pose a hazard before next planned maintenance. Routine brush control for remainder of the span.
#296-#297	Most of the right-of way maintained using selective brush control. There are two small conifer sites in the valleys.	Retain the trees and remove tallest if they pose a hazard before the next planned maintenance. Routine brush control for remainder of the span.
#303-#304	Part of the right-of-way has been maintained using selective brush control. There is an area of coniferous trees on the upslope to structure # 303.	Retain trees in established buffer; remove only those that would pose a hazard to the overhead lines over the next planned maintenance cycle. Routine brush control activities for remainder of the span.
#304-#305	There is a small treed buffer around a wetland.	Retain buffer; remove only those trees that would pose a hazard to the overhead lines over the next planned maintenance cycle. Routine brush control activities for remainder of the span.
#305-#306	Most of the span has been cleared and maintained using routine selective brush control. There is a stream with a treed buffer.	Retain trees in established buffer; remove only those that would pose a hazard to the overhead lines over the next planned maintenance cycle. Normal brush control activities for remainder of the span.
#309-#310	Area near structure #310 has been brush controlled, remainder of valley trees have been retained.	Retain trees in the valley; remove only those that would pose a hazard to the overhead lines before the next planned maintenance cycle. Normal brush control activities for remainder of the span.

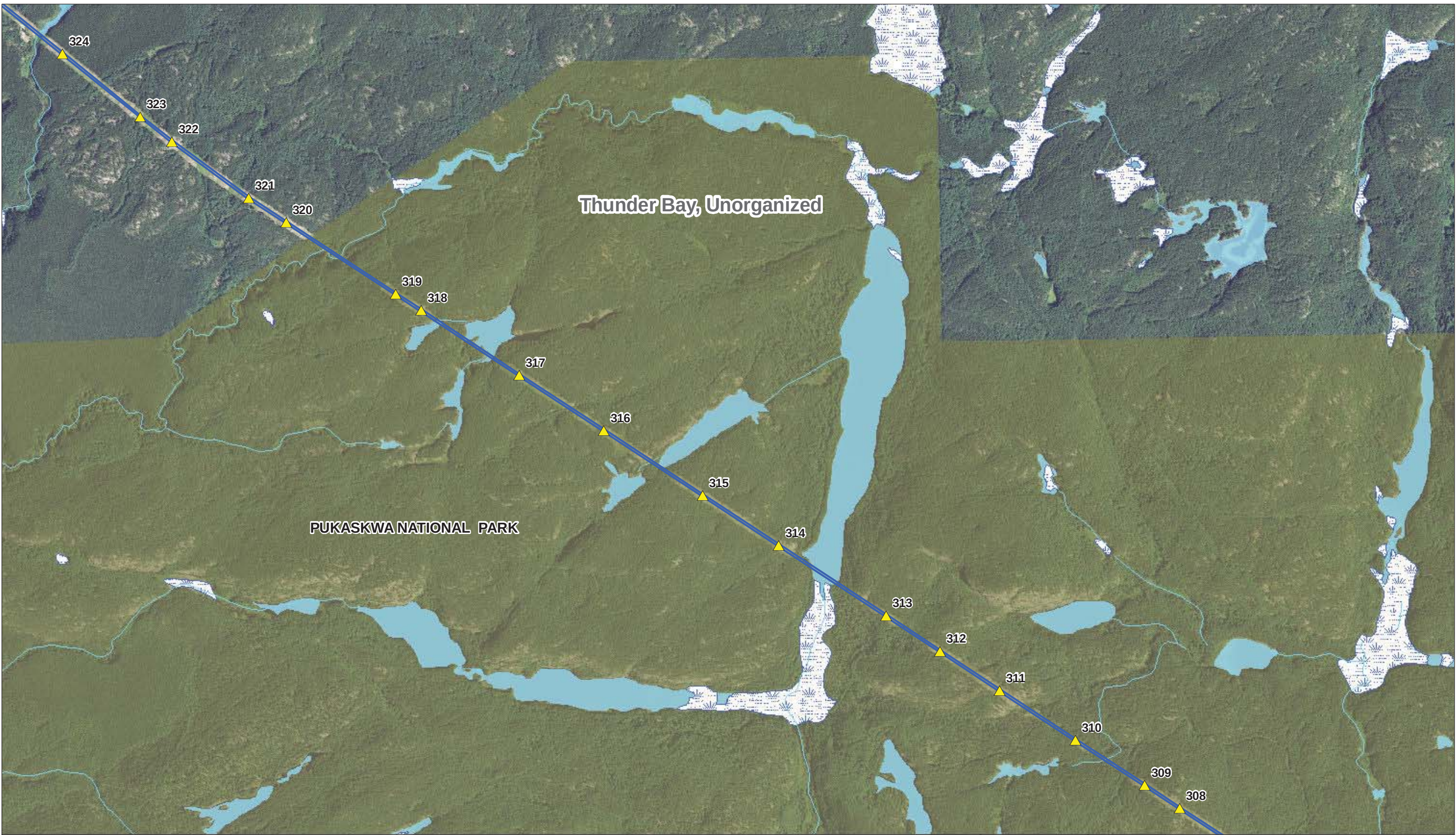
PUKASKWA NATIONAL PARK ENVIRONMENTAL EVALUATION

Hydro One Right-of-Way Maintenance Activities

#310-#311	Steep valley slope from structure #311, area from structure to crest of slope has been brush controlled. Remainder of the valley trees remain.	Retain trees in the valley; remove only those that would pose a hazard to the overhead lines before the next planned maintenance cycle. Normal brush control activities for remainder of the span.
#312-#313	Steep valley, most of the trees will never be tall enough to be of concern. Brush is controlled at top of slope near structure #312	Retain trees in the deep valley; remove only those that would pose a hazard to the overhead lines before the next planned maintenance cycle. Normal brush control activities for area near Structure# 312.
#313-#314	Buffer of trees on slopes and in valley along lake. Remainder of the span is normal right-of-way maintained as compatible vegetation through selective vegetation control.	Retain the buffer adjacent to small lake; remove any trees that will encroach on safe limits to overhead conductors before next planned maintenance cycle. Normal brush control on remainder of the span.
#315-#316	Buffer of trees on slopes either side of small lake crossing, remainder of the span maintained using selective vegetation management.	Retain the buffer adjacent to small lake; remove any trees that will encroach on safe limits to overhead conductors before next planned maintenance cycle. Normal brush control on remainder of the span.
#317-#318	Shoreline of lake, except for slope near Tower #317 most vegetation in the valley has been retained.	Remove any trees that will encroach on safe limits to overhead conductors before next planned maintenance cycle. Normal brush control on slope near structure # 317.
#319-#320	Willow River floodplain, mature vegetation has been retained in the valley and on slopes for most of the span.	Remove any trees that will encroach on safe limits to overhead conductors, retaining remaining vegetation.

APPENDIX II

Maps



Produced By: Inergi LP, GIS Services
Date: Dec 7, 2017
Map 17-113_PukaskwaNationalPark

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	230 kV Transmission Line		Wetland
	Existing Structure		Watercourse
	National Park		Waterbody

25

Tile 1

Pukaskwa National Park
Circuit W21M/W22M

1:15,000

0

300

600

m



Produced By: Inergi LP, GIS Services
Date: Dec 7, 2017
Map 17-113_PukaskwaNationalPark

230 kV Transmission Line

Existing Structure

National Park

Wetland

Watercourse

Waterbody

26

Tile 2

**Pukaskwa National Park
Circuit W21M/W22M**

1:15,000



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Date: Dec 7, 2017
Map 17-113_PukaskwaNationalPark
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230 kV Transmission Line

Existing Structure

National Park

Wetland

Watercourse

Waterbody

27

Tile 3

Pukaskwa National Park
Circuit W21M/W22M

0300600
m

1:15,000



Produced By: Inergi LP, GIS Services
Date: Dec 7, 2017
Map 17-113_PukaskwaNationalPark

230 kV Transmission Line

Existing Structure

National Park

Wetland

Watercourse

Waterbody

28

Tile 4

Pukaskwa National Park
Circuit W21M/W22M

1:15,000

0300600

m



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Map 17-113_PukaskwaNationalPark
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230 kV Transmission Line

Existing Structure

National Park

Wetland

Watercourse

Waterbody

29

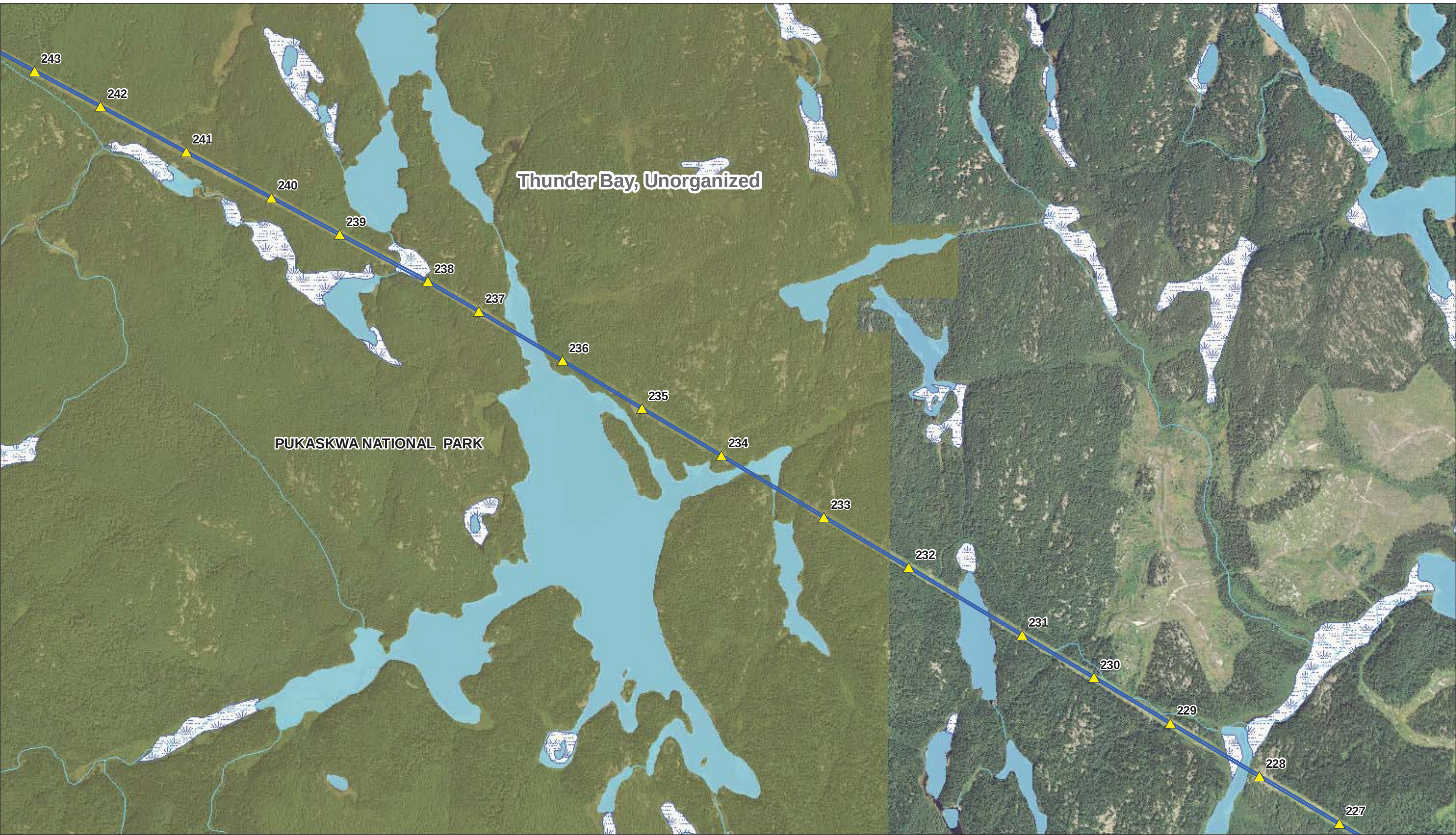
Tile 5

Pukaskwa National Park
Circuit W21M/W22M

1:15,000

0300600

m



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Date: Dec 7, 2017
Map 17-113_PukaskwaNationalPark

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	230 kV Transmission Line		Wetland
	Existing Structure		Watercourse
	National Park		Waterbody

30

Tile 6

**Pukaskwa National Park
Circuit W21M/W22M**

1:15,000

0 300 600 m



SNC • LAVALIN

Building what matters

CONSTRUCTION EXECUTION PLAN

Hydro One Lake Superior Link Project

Pukaskwa National Park

Preliminary

644399-2011

February 9th, 2018

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Glossary

- > Sockline – The initial wire that is flown out by helicopter and installed between the towers and is used to pull the new conductor / shieldwire / OPGW into place
- > Traveller – Rollers mounted on the arms of the towers that allow the sockline and conductor to roll through – similar to a pulley wheel
- > OPGW – Optical Ground Wire – a shieldwire that has a fibre optic core for the transmission of data
- > Shieldwire – A wire that is mounted above the conductors that protects the line from lightning strikes sometimes referred to as Overhead Shield Wire (OHSW) or Optical Ground Wire (OPGW)
- > Conductor – A wire that carries electrical current

1) Purpose

This document has been extracted from SNC-Lavalin Inc.'s ("SNC-Lavalin") main Construction Execution Plan of Hydro One Networks Inc.'s ("Hydro One") Lake Superior Link Project (the "Project") documents and tailored to provide additional detail specifically for the Pukaskwa National Park ("PNP") scope. The document should be considered preliminary as the final document will be revised after completion of the Environmental Assessment (EA) requirements and in conjunction with the chosen constructors incorporating their specific equipment and methodologies within the plan.

2) Project Overview

The proposed new Lake Superior Link Project will consist of the installation of a double-circuit 230 kilovolt (kV) transmission line generally paralleling Hydro One's existing double-circuit 230 kV transmission corridor (the existing East-West Tie). The route is approximately 400 km long connecting the Wawa Transformer Station (TS) to the Lakehead TS near Thunder Bay, with a connection approximately mid-way at the Marathon TS. The Project generally parallels Hydro One's existing corridor on a widened Right-of-Way ("ROW"). The cleared area for the proposed ROW where corridor widening is required will typically be approximately 37 m. An exception is the 35 km section through Pukaskwa National Park (PNP) where the new line will share the same structures as the existing line. This section through PNP will require a replacement of the existing structures to accommodate the new double-circuit 230 kV line. For areas within PNP, no new access roads or corridor widening is required and the width of the corridor will remain unchanged.

In order to minimize impacts to PNP and eliminate the need for access roads, it is anticipated that the work within PNP will be completed by helicopter and any required equipment can be delivered by helicopter. Helicopter fly yards will be located outside PNP boundaries.

Due to the length of the line and its varying complexities, the Project was divided into four distinct execution sections:

- Section 1: Lakehead TS to Nipigon (90 km)
- Section 2: Nipigon to Marathon TS (145 km)
- Section 3: Marathon TS to Wawa TS (133 km)
- Section 4: Pukaskwa National Park (35 km)

This report focuses on construction plans associated with Section 4.

3) Construction Drivers

SNC-Lavalin is confident that the chosen Construction Methodology exceeds the requirements of Hydro One and will ensure that the Project is executed with the highest regard for Safety, Quality and Scheduling requirements. The major drivers for SNC-Lavalin's chosen methodology are to ensure the Safety of the crews and public while achieving the schedule milestones at the same time mitigating challenges associated with accessing the ROW and the resultant impact to the environment.

To assist in the planning and execution of the Project, the Construction Execution Plan has been broken down into major construction activities detailed below. Each of these activities will also follow its own set of environmental mitigations and assurances which are detailed under Appendix A.

4) Pre-Job Meetings & Training

SNC-Lavalin will initiate the following pre-job activities:

- > Participate in kick off meeting with our supply chain representatives to communicate expectations, discuss pre-work deliverables, and establish communicate channels for the Project.
- > A pre-job safety orientation.
- > A pre-job environmental orientation (hosted by SNC-Lavalin's Environmental Department) will be held detailing environmentally sensitive sites on the Project, environmental mitigation procedures and key elements of SNC-Lavalin's Best Management practices.
- > Hold morning safety meetings and job planning with all employees.
- > Conduct a tailboard at job site. If there are any changes to the Work Procedure, they shall be documented on the tailboard document and discussed with the entire crew.
- > Describe the work to be performed and discuss job procedures to be followed, associated hazards, and subcontractor assignments and tasks. Focus on ensuring all workers are well versed in the requirements for working in an energized corridor.
- > Designate a safety observer and field coordinator as required by the work tasks.

5) Early Site Access

It is anticipated that access will be required to the work areas within PNP prior to the construction mobilisation. The activities that could be required during this phase are, but not limited to:

- > Site Visits
- > Existing foundation assessments
- > Environmental monitoring
- > Staking
- > Surveying

It is anticipated at this stage that access can be achieved by air or all-terrain vehicle which can be delivered by air to carry out these activities. SNC-Lavalin will inform Hydro One and PNP with sufficient, agreed upon notice prior to accessing areas within the Park.

6) Project Mobilization

SNC-Lavalin will begin project mobilisation as per the proposed date in the preliminary Project Schedule. During this phase all material laydown yards, fly yards and site compounds and camps will be established.

Upon establishment of the yards and compounds SNC-Lavalin will:

- > Set up office and camp facilities at convenient locations outside the PNP
- > Start receiving materials
- > Ensure all required environmental and real estate permits are in place and understood

- > Mobilise subcontract labour and machinery

Hydro One will work collaboratively with PNP to ensure required Licence Agreements and any other federal EA requirements are in place.

7) Preparatory Works Within Pukaskwa National Park

As the existing ROW is being utilized, ROW widening and tree clearing will not be required for the portions within the PNP. Ground clearing of brush around the existing foundations and associated workzones will be required, all of which are located within the existing ROW. These workzones will be around the existing tower locations and at the sites where conductor will be staged for installation. Access routes within the PNP will not be required as access of personnel and equipment will be done by helicopter and along the existing ROW.

8) Foundation Installation Within Pukaskwa National Park

Existing Foundations

Through the early site access assessments, foundations which require restoration will be repaired to necessary engineering standards. The extent of the repairs will be determined once the condition of each foundation is assessed on site. The current design allows the use of existing foundations, unless the condition is not suitable for continued use. The locations of any required foundation work will be discussed with PNP representatives and mitigation measures followed to manage any anticipated environmental effects.

Rock Anchor Foundations

The surveyor will work ahead and stake the guy anchor locations for each tower. Upon completion of the anchor staking, the foundation crew will remove all loose material to expose rock. Crews will ensure rock surface is smooth. Using templates to ensure the location, direction, angle and depth of the holes are as per the drawings, the crew will drill holes (around 50-100mm in diameter) and use an air jet to remove all loose material. Prior to grouting, any fractures or voids in holes will be sealed. Using a template the crew will place mechanical anchors in holes and torque and grout them in place. The grout is a fluid that seals and acts as an adhesive to secure the anchor in place. Each anchor will require a small amount of grout – in the region of 2-5 litres. Once the grout has cured, the template will be removed and anchors will be pull-tested. Drilling equipment will be mobilized to work areas by helicopter.

9) Structure Assembly & Erection

All of the tangent structures (typical towers used to suspend the line in a straight line) within the PNP will be assembled in fly yards at strategic locations around the PNP. Once assembled in two sections they will be flown by helicopter to the ROW and erected using a helicopter and ground personnel. Crews will have an experienced foreman with them during assembly to ensure a high quality of work. Tower hardware (ie insulators) and stringing equipment (i.e. travellers) will be installed prior to erection to increase work efficiency. The insulators will be tied off to ensure no damage is done during erection.

Upon completing the erection of the new structure, each crew will perform a quality check and fill out the appropriate quality documentation.

10) Working Within Pukaskwa National Park

SNC-Lavalin believes that one (1) 2-week, double circuit outage period (turning off of the electricity flowing through the transmission lines) with no Emergency Return to Service (ERTS) requirements is sufficient to replace the structures within the Pukaskwa National Park.

As well as the double circuit outage for structure replacement SNC-Lavalin will require two (2) single circuit outages (one on each existing circuit) to carry out the stringing of new conductor wires on the two new - circuits. Each single circuit outage operation will need to be 40 consecutive days in length.

Tower Replacement

Ahead of the double circuit outage, the anchor foundation installation will be completed by a 4-man crew. To meet the outage requirements proposed, seven 10-man crews will be mobilized to carry out the replacement of the existing tangent and dead-end structures. These crews will be mobilized by helicopter to site and begin preparation works. Crews will begin the process by utilizing flyable winch systems to lower existing conductor from the tower wing to the ground. This will be completed for each tower, for all 6 conductor wires and the two shieldwires. Crews will then proceed to attach slings from the top of the towers to the base of the tower such that they can be hooked to the helicopters long line without having to climb the tower. The helicopter long line will be sufficiently long so that it can be attached to the slings without any risk of interference with the tower. Crews will have prepared the base of the tower for quick removal by the helicopter during the tower removal process. The tower will be flown away to the closest fly yard outside the PNP (see Figure 2). A 10-man catching crew will be waiting in the fly yard to receive the old tower.

Next the new quad circuit towers will be flown to the existing tower foundation with guy wires installed for final erection; these towers will be flown in two picks. After bolting the tower to the foundation, the existing conductor will be re-installed on the new towers using the same method that was used to remove it.

Installation of the New Conductors

To complete the installation of the new conductor wires two electrical shutdowns will be sought on the existing two circuits (one shutdown per circuit.) All stringing sites will be setup and all reels and machinery flown to site and setup prior to the shutdown. Upon commencement of the outage, the tower will be rigged and travelers installed

SNC-Lavalin intends to use a helicopter for the installation of sockline. Upon installing the sockline through the travelers, the crew will attach the end of the sockline to the new conductor wire and continue to pull the conductor wire through the travelers. This installation technique will be used to install all six conductors, the shieldwire and the OPGW

Immediately after the wires are installed the “back-end” crews will be following behind the main stringing operation to sag the conductor (apply proper tension) and complete the installation by performing the final installation of the wire, tightening of fasteners and final quality audit.

11) Project Schedule

SNC-Lavalin Activity definition will identify the specific work tasks which must be performed to complete each identified deliverable. Activity sequencing will be used to determine the order of work tasks, to assign relationships between project activities and delegate authority or responsibility over such activities. Activity duration estimating will be used to calculate the number of work periods required to complete

work tasks. SNC-Lavalin will also monitor the schedule for creep or slippage of any tasks completed by others that could impact the overall construction schedule.

The Construction Project Manager will be responsible for facilitating work task definitions, sequencing, scheduling and other estimating tasks with the Project Team.

The Project Team is responsible for participating in work task definition, sequencing, duration, and resource estimating. The Project Team will also review and validate the proposed schedule and perform assigned activities once the schedule is approved.

SNC-Lavalin will schedule, track, and monitor the Project in Primavera P6 to ensure that the Project achieves established key milestone targets. SNC-Lavalin's field representative will provide progress reports to the scheduler for inputting who will consolidate in a master schedule. Updated schedules will be provided to the SNC-Lavalin Project Manager on a weekly basis in both PDF and Primavera version. In addition to the schedule, a variance report will also be submitted detailing delays and actions being taken to get back on schedule.

The schedule will be communicated to the Hydro One Project team who will ensure updates are provided to PNP staff.

Schedule Milestones

	PNP Milestones	Milestone Dates
1	Construction Mobilization	01-Feb-2020
2	Clearing and Access Start	05-Feb-2020
3	Foundations Start	06-Mar-2020
4	Tower Assembly Start	08-Jun-2020
5	Pukaskwa National Park Outage Start (2 weeks)	01-Aug-2020
6	Tower Erection Start	02-Aug-2020
7	Single Circuit Outages Start (12 weeks)	16-Jun-2021
8	Stringing Start	17-Jun-2021
9	Construction Substantial Completion	10-Sep-2021
10	EPC Substantial Project Completion	25-Oct-2021

12) Project Management Methodology

The proposed Project organizational chart can be seen below (Figure 1). The Project Manager has the overall authority and responsibility for managing and executing the individual work package projects according to the Project Plan, its Subsidiary Management Plans and Construction Baseline Schedule for the Work Package they are tasked with. The Project Team will consist of personnel from the Transmission Operations, Health, Safety and Environmental and Finance Departments within SNC-Lavalin and our nominated Sub-contractors. The Project Manager will work with the requisite divisions within SNC-Lavalin to perform project planning, scheduling, materials handling, resourcing and other activities. All project and subsidiary management plans prepared by or for the Project Manager as well as funding decisions will be reviewed and approved by the Program Director and Program Sponsors (The

SNC-Lavalin GP Board of Directors) as required. Any delegation to or variation of authority of the Project Manager will be in writing and be signed by both the Program Director and Project Manager.

A unique cost control structure will be created and performance will be managed and tracked. Performance of the Project will be measured through units of measure pertaining to the work to be completed. Where required the Commercial Manager will be assigned and responsible for assisting the Project Manager in the planning, management direction, project completion, client satisfaction, and financial outcome of the awarded construction project. The Commercial Manager will be required to support the Project Manager in coordinating project specifications that include, but not limited to the following: on-site project management, project coordination, project controls, project estimating, construction billings, cost tracking, job cost analysis, project schedule adherence, project monthly report generation, and contract administration.

The Project Manager will be responsible for managing and reporting on the Project's performance throughout the duration of the project and upon project completion. The Project Manager will provide daily, weekly, monthly and ad hoc progress reports and will provide updates on performance and established KPI's during SNC-Lavalin's internal monthly Project status meetings. Additionally, reporting requirements and schedules will be developed in conjunction with SNC-Lavalin and the Project Director to ensure that all expectations around performance management and reporting needs are met or exceeded by SNC-Lavalin in the execution of project work for SNC-Lavalin. The Project Manager is responsible for programme and scope deviations and mitigating these in order to keep the project on budget and on schedule. The Project Manager is required to provide internal weekly schedule forecasts to ensure schedule scope creep or slippage does not occur and to identify potential issues before they become a reality and to mitigate those identified risks.

The Project Manager at site will also manage the communications to Hydro One which in turn will communicate with the PNP representatives. Going forward the point of contact within Hydro One is:

Bruce Hopper
Environmental Planner
Environmental Services
Hydro One Networks Inc.
416-779-0257
bruce.hopper@hydroone.com

Details of on-site management and supervision will be provided to Parks Canada prior to construction mobilization.

13) Roles and Responsibilities

Project Manager

This individual is the single point of contact for the project field management staff. The Project Manager delegates tasks to the following managers to meet project deliverables. The project manager works in conjunction with the Commercial Manager to manage the day to day operations of the Project.

- > Construction Managers – PM receives status report from Construction Manager on productivity, concerns in the field and relays it to other facets of management affected.
- > HSE Advisor – Brings to the PM Safety incidents and suggests mitigation measures to prevent future incidents. If required the PM will escalate further. Notifies the PM of any major environmental incidents where reports need to be sent to the client and provincial/federal

regulatory body. Escalates issues of employee non-conformance with environmental management items.

- > Project Coordinator – Notify the PM if the Quality of any material or service does not meet the pre-determined standards of quality. Reports to the PM receipt, shortages, and material quality issues which the PM will relay to the Scheduler and Construction Manager.
- > Project Scheduler – Reports and changes to the project schedule to the PM. PM relays information to the affected parties to take advantage of early completion or to mitigate delays. PM is also responsible of reporting any changes in schedule received from other project management team members for the scheduler to update.
- > Administration Support – These individuals will support the Project Management Reporting function, recording communications between managers and the Project Manager, and collecting the required information for daily, weekly and monthly reporting requirements.

Construction Manager

The Construction Manager will manage the in-field day to day operations of civil construction of the project as well as the transmission line construction component (Tower Assembly & Erection, Conductor Stringing, Yards & Materials Management, and Operations Support). The Construction Manager will provide status reports and escalate issues beyond their level of authority to the Project Manager throughout the project duration.

Quality Management

Quality is involved in all facets of the project, from the selection of employees, subcontractors and materials to the construction and installation of the final product. It will remain independent of project construction activities to ensure the quality evaluation is unbiased and a true reflection of the quality of work being produced.

Site Quality Control Representatives

These individuals are responsible for performing quality tests and filling in the project quality forms as identified in the Inspection and Test Plan. Weekly Quality Assurance Reports are generated by these representatives and are evaluated by the quality Control Manager before submission to the Client.

- > Field Coordinators
- > Access Coordinators
- > Environmental Coordinators

14) Helicopter Management Plan

Various models and helicopter suppliers will be used for tasks such as material and worker transport, setting of all structure types, facilitating stringing operations and most importantly this significant amount of work was completed without incident. In addition, SNC-Lavalin has refined and developed a deep understanding of the logistics and detailed management required to safely and efficiently carry out construction with helicopters on large scale transmission line projects. This extensive experience had allowed SNC-Lavalin to develop a helicopter utilization strategy that maximizes the efficiency of the several helicopter types required to execute the work.

SNC-Lavalin proposes to use helicopters to reduce the requirement for building access to structure locations. For this project, SNC-Lavalin anticipates on utilizing the following models:



- > S64-F Sky Crane
- > A Star B3
- > Bell 205
- > Hugh MD500
- > Bell 212

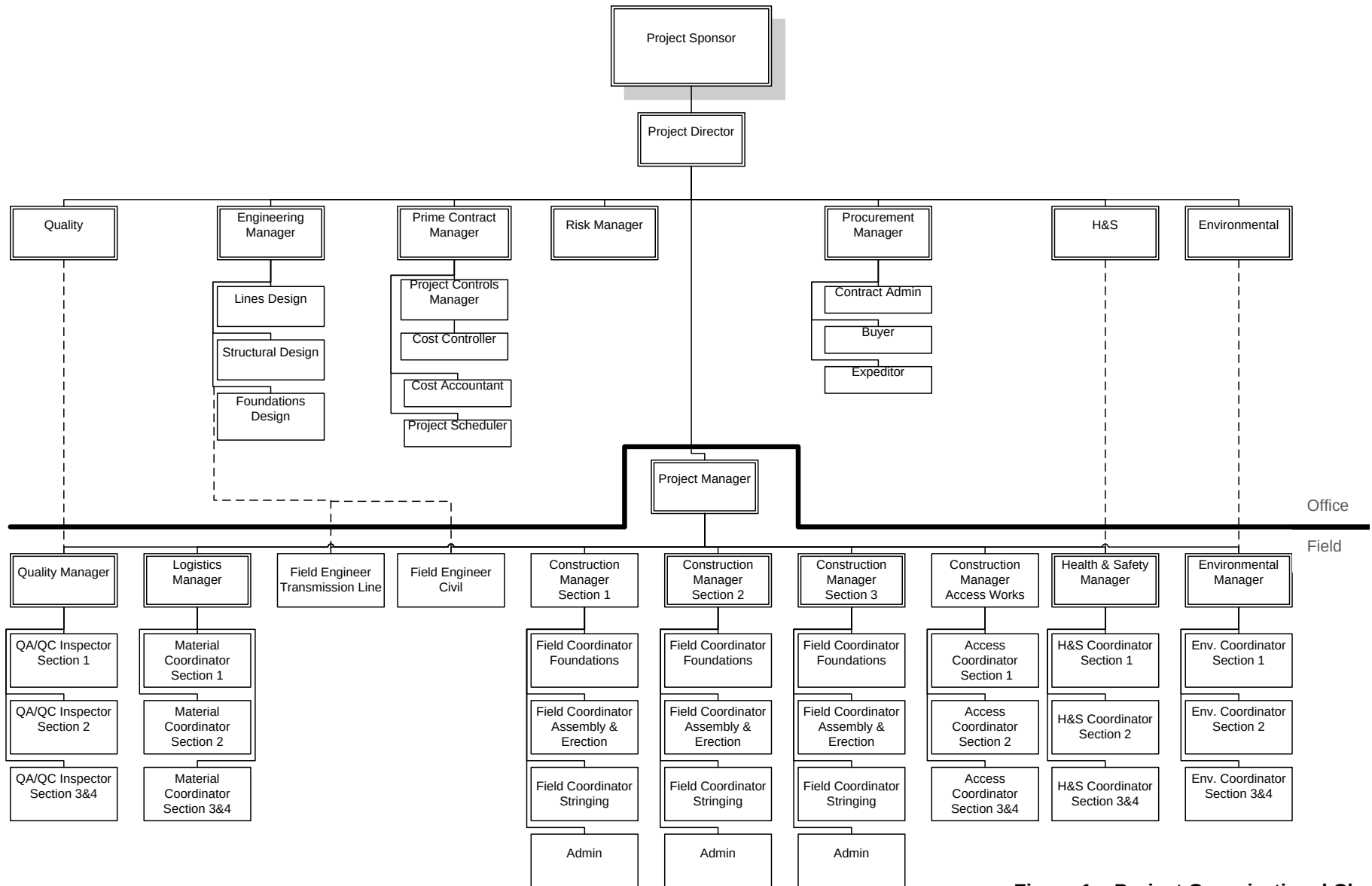


Figure 1 – Project Organizational Chart

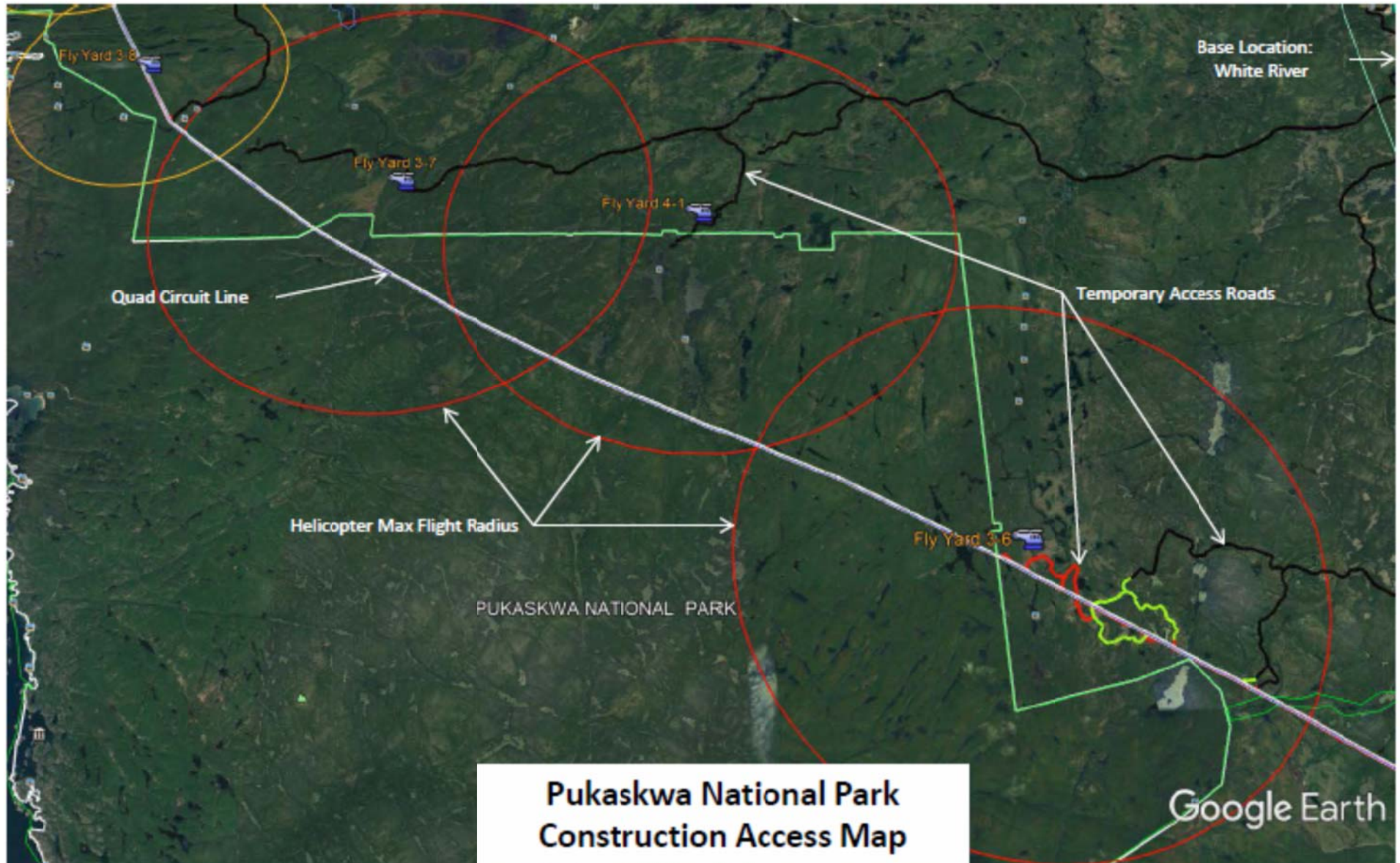


Figure 2 – Helicopter Yards

APPENDIX A - SUMMARY OF ENVIRONMENTAL MITIGATION AND ASSURANCES

The following is a summary of the mitigation measures, best management practices and operating procedures for the transmission line construction works in Pukaskwa National Park (PNP). The compilation of these environmental mitigation and contingency measures are intended to address known and anticipated environmental conditions that could occur during the tower replacement and renewal works within the park. The section does not include environmental management and/or mitigation during post-construction or the operation phase.

Construction anticipated to occur in PNP includes the following key activities:

- Site preparation at tower structures;
- Access within the corridor around and between tower structures;
- Geotechnical investigations to support detail design;
- Laydown and storage areas;
- Transmission foundation and anchor construction;
- Transmission structure assembly, erection and setting;
- Conductor stringing and tensioning; and
- Site cleanup and restoration.

The mitigation and protection measures identified are intended to provide guidance to Hydro One's employees and its subcontractors for environmentally responsible working procedures and standards. Mitigation measures identified are consistent with industry standards and guidelines, and more specifically Hydro One's *Environmental Guidelines for the Construction and Maintenance of Transmission Facilities*.

Hydro One will appoint Environmental Inspectors to oversee implementation of the environmental protection measures and mitigation described in this section of the Construction Plan. Environmental Inspector(s) will guide implementation, monitor and report on the effectiveness of the construction procedures and mitigation measures for minimizing potential impacts. In the event that unforeseen environmental issue arises for which no mitigation measures is identified at this time, or for which new or innovative mitigation measures are deemed appropriate, Hydro One will consult with the Parks Canada and other regulatory agencies as required.

The following table describes potential environmental effects/concerns and corresponding mitigation measures to be implemented during construction of the transmission line in PNP.

ENVIRONMENTAL ISSUE/CONCERN	PROPOSED MITIGATION/ COMMITMENTS DURING CONSTRUCTION
NATURAL ENVIRONMENT	
Erosion and Sediment Control	
Based on the proposed construction activities involved for tower replacement and renewal works there is low potential for erosion and sedimentation. However, it is possible that erosion of exposed soils and transport of sediment could enter and affect nearby watercourses and adjacent sensitive features during the works.	• Standard erosion and sediment control measures will be implemented. These may include silt control fences, silt soxx/filter rolls, erosion control blankets, seed and cover/mulch to prevent erosion and/or control sediment from entering waterways. • Where required, all erosion and sediment controls (ESCs) are to be installed prior to construction and left in place until the site is fully stabilized and will meet Ontario Provincial Standard Specification (OPSS) 805 - Construction Specification for Temporary Erosion and Sediment Control Measures. • ESCs are to be routinely inspected after each storm event, and cleaned out as required, to ensure that controls remain effective.

ENVIRONMENTAL ISSUE/CONCERN	PROPOSED MITIGATION/ COMMITMENTS DURING CONSTRUCTION
Fish and Fish Habitat The watercourse crossings in the study area support fish and/or fish habitat. Potential effects to fish or their habitat include grading and/or excavation works in close proximity to waterbodies or within riparian habitats which may result in potential discharge of deleterious substances or alterations to habitat.	• Install temporary erosion and sediment control measures prior to construction, and maintain throughout construction to prevent erosion of exposed soils and migration of sediment to watercourses. • No temporary watercourse crossings are anticipated at this time. However, if determined to be needed the following will be implemented. - o In-water construction will adhere to the fisheries timing window as determined by DFO and/or MNRF to protect fish during the spawning and rearing periods. - o Construction near watercourses will be minimized to the greatest extent possible and completed quickly and efficiently to minimize disturbances to fish or fish habitat. - o Native woody riparian vegetation and groundcover will be installed to restore the site to pre-construction conditions or better. - o All applicable permits/approvals will be secured for temporary waterbody crossings. - o For any in-water work fish isolated in the work area will be rescued and transferred during construction using appropriate capture, handling and release techniques to prevent harm. - o Where in-water work is required the flow will be isolated during construction through a temporary flow passage system (e.g., by-pass pumping, cofferdam diversion channel) to maintain flow around the work zone at all times. • Store, handle and dispose of all excess materials in a manner that prevents their entry to a watercourse, and as minimum 30 m away from a waterbody. • Operate, maintain and store (e.g., fuel, lubricates) all equipment and materials in a manner that prevents the entry of any deleterious substances to the watercourse. • Where blasting operations are required they will follow DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat Including Aquatic Species at Risk (DFO 2016) and Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (Wright and Hopky 1998) for setback distances from fish-bearing water bodies and wetlands.
Water Quality Impacts to water quality will be limited to the water crossings that intercept the existing Hydro One right-of-way. Impacts are expected to be minimal but could include: • Sedimentation of streams due to erosion and earth disturbance within the transmission corridor (right-of-way). • Ponding or impedance of surface waters caused by unsecured/poorly managed construction debris. • Contamination of surface and ground waters if spills or leaks occur from equipment or refuelling activities. • Increase in stream temperatures due to riparian vegetation removal.	• Retain buffers around streams where machinery is prohibited and minimize operating equipment on slopes next to streams. • Schedule activities near waterbodies to drier times of the year if possible, or where short term weather forecast predicts minimal precipitation. • Have spill kits available on site and train workers on spill response procedures. • Refueling of all vehicles and equipment will be done at designated locations at least 50 m away from wetlands and watercourses. If re-fuelling within 50 m of a water body cannot be avoided, the Contractor is to provide and implement a location specific spill prevention plan. • Install, monitor and manage appropriate erosion and sedimentation control measures to minimize or avoid sediment mobilization from the disturbed area to drainages, or water bodies. Adequate and appropriate erosion and sedimentation control materials shall be on site and available prior to commencement of construction.

ENVIRONMENTAL ISSUE/CONCERN	PROPOSED MITIGATION/ COMMITMENTS DURING CONSTRUCTION
• Reductions in water absorption capabilities due to vegetation removal.	
Vegetation Impacts to vegetation will be primarily limited to the existing right-of-way area around the existing tower locations and at the pull sites. There is no need to widen the existing right-of-way with the proposed Hydro One construction methodology and new access routes will not be required as helicopters and existing access routes will be used to access the corridor. Therefore, no removal of trees are anticipated, however some localized brush (shrub, groundcover) may require removal. Although unlikely, there is potential for the introduction of invasive species from equipment used within the corridor. There is potential for changes in vegetation due to soil disturbance (topsoil subsoil mixing) and/or soil compaction from equipment. Overall impacts to existing vegetation within the corridor will be low based on the proposed scope of work.	• Install tree protection fencing in select areas along corridor, where required, to protect root zone of trees abutting the work zone. • If vegetation clearing is required within the right-of-way it will be restricted to minimize effects on nesting birds during the reproductive period (i.e., April 15 to August 30). • Dispose of brush through mechanical chipping or off-site disposal, where applicable. • Construction equipment will arrive on the site clean (i.e., free of soil and vegetative debris that may introduce invasive species) in accordance with the Clean Equipment Protocol for Industry (Halloran et al. 2013) and in good working order (i.e., no oil or hydraulic fluid leaks). Machinery and equipment will be inspected for leaks routinely throughout the duration of construction. • All disturbed areas will be restored and stabilized with native vegetation. • Time construction to take advantage of stable soil conditions, where feasible, and de-compact/loosen subsoils where soil compaction occurs.
Wildlife Potential effects to wildlife or their habitat as a result of the proposed works include: • Direct removal of available habitat and food sources within the corridor for resident species due to vegetation removal (shrubs/brush) or a change in composition of vegetation. • Potential for incidental killing or harm to local and resident wildlife species.	• Minimize habitat removal through minimizing access, staging, storage and grading footprints. Access will be minimized by using helicopters to fly all workers and equipment to and from the site. • • • Avoid harassment to wildlife species during all stages of construction. • Workers will be trained on the potential for mammal species to move through the project area and procedures to follow if wildlife is encountered. • Stabilize and re-vegetate exposed surfaces as soon as possible. Construction activities will adhere to the <i>Migratory Birds Convention Act</i> which states that no tree cutting can take place from April 15 to August 30 in any given year. If tree removals are required and cannot occur outside of the time period specified above, undertake a pre-clearing nest search along the right-of-way by a competent avian biologist. If any active nests or nesting activities are found, contact the Canadian Wildlife Service for appropriate action. • Construction in identified amphibian and reptile habitat during the breeding period (March 1 to September 30) may require exclusion fencing. Installation and maintenance of amphibian or reptile exclusion fencing will be done by the Contractor under the supervision of Hydro One's Environmental Inspector(s) and/or specialist(s). • Hunting and fishing on the site by project personnel is prohibited. • Retain snags (standing or partially fallen dead trees) to provide wildlife habitat, where practicable.

ENVIRONMENTAL ISSUE/CONCERN	PROPOSED MITIGATION/ COMMITMENTS DURING CONSTRUCTION
Air Quality There is potential for minor localized impacts to air quality with respect to air emissions from vehicles and equipment and dust generation.	- Where reasonable and practicable, vehicles and equipment will be turned off when not in use, unless weather and/or safety conditions dictate the need for them to remain turned on and in a safe operating condition. - The Contractor will keep equipment well-maintained. - Burning of slash of brush will not be permitted, unless approved by Parks Canada. - Dust control practices (e.g. wetting with water) may be implemented within the work area as advised by the Environmental Inspector(s), where required. - Minimize dust-generating activities, as practicable and where required, during periods of high wind to limit dust emissions and spread.
SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT	
Temporary and Permanent Access The sites will be accessed by helicopter within the PNP so no new access will be created. If ground access is required, existing Hydro One access routes and all-terrain vehicles will be used.	Disturbance to the PNP will be kept to a minimum by accessing the site by helicopter which will eliminate the need to cut trees and construct new access routes. All workers and lightweight equipment and materials will be delivered and removed from the existing corridor via helicopter.
Noise The primary sources of noise during construction will be helicopters, equipment and the use of implosive connectors during line stringing operations. There are no nearby noise sensitive receptors (residences, park users, etc.) to the park and therefore no adverse effects are anticipated. However, noise during construction has the potential to impact wildlife in the immediate vicinity of the work zone.	- Construction and maintenance vehicles must be kept in good working conditions to ensure they conform to normal operational parameters. - Operate equipment such that impulsive noises are minimized where practicable. - For the most part construction activities will occur during the daytime period from 07:00 to 19:00. In the event construction will occur beyond the daytime period, Hydro One in consultation with Parks Canada will re-evaluate the potential effects and if required, review mitigation requirements.
Archaeology and Built Heritage Resources	
There are no adverse direct or indirect effects to built heritage and archaeological resources or cultural heritage landscapes that will occur as part of the construction works within the park.	- Should previously unknown or un-assessed deeply buried archaeological resources be uncovered this may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. Hydro One and/or its Contractor discovering the archaeological resources will cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - In the event that human remains are encountered during construction, Hydro One will immediately contact the Ministry of Culture, Tourism and Sport and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Government Services, Consumer Protection Branch. - Should the project work extend beyond the existing Hydro One right-of-way, further archaeological assessment will be undertaken to delineate the areas of archaeological potential in accordance with MTCS guidelines. - No mitigation actions or measures in regards to built heritage resources and cultural heritage landscapes are deemed applicable for the works within the park.
MANAGEMENT OF EXCESS MATERIALS/WASTE	
The waste to be generated from the work includes the old transmission line tower structures that will be replaced,	All waste generated by the project and crews will be removed from the site via helicopter.

ENVIRONMENTAL ISSUE/CONCERN	PROPOSED MITIGATION/ COMMITMENTS DURING CONSTRUCTION
dismantled, and bundled for off-site removal via helicopter.	• All excess waste generated during construction will be managed (stored, handled, transported) for off-site disposal to a licensed waste facility as non-hazardous solid industrial waste, or to a recycling facility. • Opportunities to minimize waste generation through salvage and re-use will be identified. • There will be no burning of waste generated on the site. • Discharges of wastewater (i.e., groundwater dewatering) will be carried out in compliance with the conditions and requirements of Environmental Activity and Sector Registry (EASR) or a Permit to Take Water (PTTW).
CONTINGENCY AND OTHER MEASURES	
Environmental Incidents	In the event of an environmental incident, work will be suspended in the vicinity of the incident and the Contractor will report it to Hydro One and Parks Canada as soon as it is safe to do so. Work will be suspended until a solution that is compliant is established. Environmental incidents include, but are not limited to: • any release or leak to the ground, on or off site, directly related or attributable to the Project greater than 10 L in volume; • any release to water, on or off site, directly related or attributable to the Project; • any activity conducted that is not in compliance with environmental regulations or permits, or Hydro One's environmental procedures; and • any incident that results or could result in an impact to fish, wildlife or the environment (air, land, or water) that does not include a release or a non-compliance. After the verbal incident reporting, spills, release or leaks will be reported to Hydro One and Parks Canada via a spill report form within 24 hours of the incident.
Environmental Emergency Response Plan	• Hydro One's Contractor will develop an Environmental Emergency Response Plan for review and approval by Hydro One that describes response procedures to potential environmental incidents or emergencies (e.g., spills, fire, erosion or sedimentation), clearly indicates responsibilities for communication and reporting, and provides contact names and details for individuals to be contacted in case of emergency.
Project Training and Orientation	• Hydro One's Contractor will deliver general environmental and safety orientation training to project personnel. The Contractor will provide orientation records to Hydro One.
Fire Prevention	• Project personnel will dispose of cigarette butts, welding rods, and other hot or burning items appropriately for off-site disposal. • Smoking will only be permitted in designated areas. • Hydro One's Contractor shall have the necessary fire-fighting equipment on hand that is capable of controlling fire that may occur as a result of their activities, as regulated by provincial regulations and government agencies. • In the event of a fire or high fire hazard conditions, Hydro One will follow the measures outlined in the Environmental Emergency Response Plan developed by the Contractor for this work within the park.

Ministry of the Environment
and Climate Change

Environmental Assessment and
Permissions Division

135 St. Clair Avenue West
1st Floor
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax: 416 314-8452

Ministère de l'Environnement et
de l'Action en matière de
changement climatique

Direction des évaluations et des
permissions environnementales

135, avenue St. Clair Ouest
Rez-de-chaussée
Toronto ON M4V 1P5
Tél : 416 314-8001
Télééc. : 416 314-8452



April 10, 2018

Elise Croll, Director, Environmental Services
Hydro One Networks Inc.
483 Bay Street, South Tower, 1st Floor
Toronto ON M4V 1P5

Dear Ms. Croll:

Attached are the Ministry of the Environment and Climate Change's (the ministry) revisions to the meeting minutes provide by Hydro One based on the meeting between Hydro One, Ministry of Energy and this ministry on March 26, 2018.

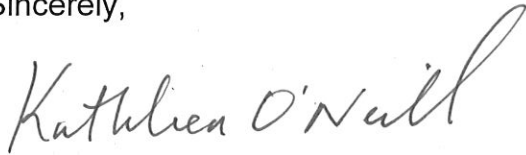
The ministry would like to emphasize that as outlined in our November 14, 2017 letter to Hydro One and reiterated in the March 16, 2018 correspondence; based on information provided to date, Hydro One's proposed Lake Superior Link project is considered a new undertaking for the purpose of the *Environmental Assessment Act*. As such, to initiate the Individual Environmental Assessment process, Hydro One will need to submit a Notice of Commencement for a Terms of Reference to the Director of the Environmental Assessment and Permissions Branch. For further details regarding this process please visit the Preparing Environmental Assessments website (<https://www.ontario.ca/page/preparing-environmental-assessments>) specifically Section 3 where it outlines the Individual Environmental Assessment process.

Once the ministry receives this Notice of Commencement for the proposed project, ministry staff would be happy to meet with Hydro One to discuss next steps in the development of its Terms of Reference.

If Hydro One chooses to pursue an alternative regulatory mechanism instead of completing the Individual Environmental Assessment process for the proposed project, Hydro One is encouraged to refer to the ministry's website for more information on these processes. Specifically, for information relating to Declaration Orders please visit the Environmental Assessment: Declaration Orders webpage (<https://www.ontario.ca/page/environmental-assessment-declaration-orders>).

Should you have any questions, please feel free to contact Annamaria Cross by email or phone (416-314-7967).

Sincerely,

A handwritten signature in cursive script that reads "Kathleen O'Neill". The signature is written in dark ink and is positioned below the word "Sincerely,".

Kathleen O'Neill
Director, Environmental Assessment and Permissions Branch

cc: Dolly Goyette, Assistant Deputy Minister (Acting), Environmental Approvals and
Permissions Division
Annamaria Cross, Manager, Environmental Assessment Services

Attachment: Nov. 14 2017 response letter

Ministry of Energy

77 Grenville Street
6th Floor
Toronto ON M7A 2C1

Tel: (416) 314-2599

Ministère de l'Énergie

77 rue Grenville
6^e étage
Toronto ON M7A 2C1

Tél: (416) 314-2599



Indigenous Energy Policy

VIA EMAIL

March 2, 2018

Daniel Charbonneau
Senior Manager, Indigenous Relations
Hydro One Networks Inc.
483 Bay Street
Toronto, Ontario M5G 2P5

Re: East-West Tie Line

Dear Mr. Charbonneau:

Thank you for your letter dated November 7, 2017 requesting clarification from the Ministry of Energy on the Duty to Consult requirements for the East West Tie Line (Lake Superior Link).

Your letter states that the preliminary scope of the project consists of a new 398 kilometer, 230 kilovolt double-circuit transmission line along the northern shore of Lake Superior between Wawa and Thunder Bay. The proposed project would parallel the existing Hydro One tie between Lakehead Transmission Station and the Wawa Transmission Station.

The Ministry of Energy has reviewed the information provided relative to its current understanding of the interests of First Nation and Métis communities in the area and has determined that it may have the potential to affect First Nation and Métis communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982.

The Ministry of Energy is delegating the procedural aspects of consultation and the Ministry of Energy expects that Hydro One will undertake the procedural aspects of consultation, consistent with the responsibilities outlined in the Memorandum of Understanding (MOU) signed between Ontario, represented by the Minister of Energy, and Hydro One, in September 2016. Please note that these consultation obligations are in addition to the consultation requirements imposed under the *Environmental Assessment Act* and further

clarified in the 'Consultation in Ontario's Environmental Assessment Process' Code of Practice as well as the 'Preparing and Reviewing Environmental Assessments in Ontario' Code of Practice.

Per section 8.1 of the MOU, the MOU and Schedule 'A' may be amended in writing at any time by the agreement of the Parties. The Ministry of Energy proposes an amendment to the MOU to include the following project description:

2. East West Tie Transmission Line (Lake Superior Link)

The East West Tie Transmission Line Project is added to this schedule consistent with the 2013 Long-Term Energy Plan, the Order in Council 326/2016 and the December 2017 Updated Assessment of the Need for the East-West Tie Expansion conducted by the IESO, which confirms the East-West Tie, a new transmission line roughly parallel to the existing transmission line that extends between Wawa and Thunder Bay, as the recommended option for maintaining a reliable and cost-effective supply to Northwest Ontario for the long term.

Per Sections 2.2(c) and 3 of the MOU, the Ministry of Energy also wishes to clarify that for the purposes of the Environmental Assessment under Part II of the *Environmental Assessment Act*, the Ministry of the Environment and Climate Change assumes primary responsibility, on behalf of the Crown, for items (c), (d), (e), (g), (h) under Section 3.2 of the MOU.

Based on the Crown's assessment of First Nation and Métis community rights and project impacts, the following Aboriginal communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely affected by the Project:

Community	Mailing Address
Animbiigoo Zaagii'igan Anishnaabek First Nation (Lake Nipigon Ojibway)	204 Main Street, PO Box 120 Beardmore, ON P0T 1G0
Biinjitiwaabik Zaaging Anishinaabek First Nation (Rocky Bay)	General Delivery MacDiarmid, ON P0T 2B0
Biigtigong Nishnaabeg	PO Box 193, 78 Pic River Road Heron Bay, ON P0T 1R0
Bingwi Neyaashi Anishinaabek (Sand Point First Nation)	146 S. Court Street Thunder Bay, ON P7B 2X6
Fort William First Nation	90 Anemki Place, Suite 200 Fort William First Nation, ON P7J 1L3
Ginoogaming First Nation	PO Box 89, 101 Poplar Crescent Long Lac, ON P0T 2A0
Long Lake #58 First Nation	209 Otter Street, PO Box 609 Long Lac, ON P0T 2A0
Michipicoten First Nation	107 Hiawatha Drive, Box 1, Site 8, RR#1 Wawa, ON P0S 1K0
Missanabie Cree First Nation	174B, Hwy. 17E, Bell's Point Garden River, ON P6A 6Z1
Ojibways of Batchewana	236 Frontenac Street, Rankin Reserve 15D

	Sault Ste. Marie, ON P6A 5K9
Ojibways of Garden River	7 Shingwauk Street Garden River, ON P6A 6Z8
Pays Plat First Nation	10 Central Place Pays Plat, ON P0T 3C0
Pic Mobert First Nation	PO Box 717 Mobert, ON P0M 2J0
Red Rock Indian Band (Lake Helen)	Box #1030 Nipigon, ON P0T 2J0
MNO Greenstone Métis Council*	PO Box 825, 211-401R 4th Ave Geraldton, ON P0T 1M0
Red Sky Métis Independent Nation	406 East Victoria Ave Thunder Bay, ON P7C 1A5
MNO Superior North Shore Métis Council*	26 Princess Street Terrace Bay, ON P0T 2W0
MNO Thunder Bay Métis Council*	226 May Street South Thunder Bay, ON P7E 1B4

** Please copy MNO head office on correspondence to MNO regional councils:

Métis Consultation Unit
Métis Nation of Ontario Head Office
500 Old St. Patrick Street, Unit D, Ottawa, Ontario, K1N 9G4
Fax: (613) 725-4225

This rights-based consultation list is based on information that is subject to change. First Nation and Métis communities may make new rights assertions at any time, and other developments (e.g. the discovery of Aboriginal archaeological sites) can occur that may require additional First Nation and/or Métis communities to be notified and/or consulted. If you become aware of potential rights impact on communities that are not listed above at any stage of the consultation and approval process, kindly bring this to the attention of the Ministry of Energy with any supporting information regarding the claim. The Ministry of Energy will then assess whether it is necessary to include the community on the rights-based consultation list above.

If you have any questions about this letter or require any additional information, please contact Shannon McCabe at 416-212-6704 or shannon.mccabe@ontario.ca

Sincerely,



Samir Adkar
Director
Energy Networks and Indigenous Policy

C: Elise Cross Director, Environmental Services Hydro One Networks Inc.

Hydro One Networks Inc. Tel. No. 416-345-5463
483 Bay Street
TCT6, South Tower
Toronto, Ontario M5G 2P5
www.HydroOne.com
Derek.Chum@HydroOne.com



Derek Chum
Vice President, Indigenous Relations

February 16, 2018

Chief Peter Collins
Fort William First Nation
90 Anemki Dr- Suite 200
Fort William First Nation, ON P7J 1L3

Dear Chief Collins:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

With this in mind, and given our long history of service and ongoing commitment to northern Ontario, Hydro One has submitted an application to the Ontario Energy Board (OEB) seeking approval to construct a new transmission line between Lakehead Transformer Station (TS) and Wawa TS, as shown on the attached map. This new transmission line is needed to ensure an adequate, safe, and reliable supply of power to enable future growth and development in northwestern Ontario.

Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter and can be constructed on a narrower corridor than the current proposal. This reduces the amount of undisturbed land that would need to be cleared, thereby minimizing environmental impacts and disturbance to local communities. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor.

We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to both Indigenous and non-Indigenous communities in the project area. Hydro One's Indigenous Relations

team will be following up with you shortly to schedule a meeting with you. We look forward to discussing community benefits and partnership opportunities with you.

For your information, I have attached a copy of a newspaper ad that will run in local papers in the coming weeks to let people know about our Lake Superior Link project. Hydro One and its project construction partner, SNC-Lavalin, are also planning to host a series of public drop-in information sessions in March in communities within the project area. We will advise you once the dates and locations have been booked, and they will be advertised in local newspapers and on our website at www.HydroOne.com/LakeSuperiorLink. Hydro One is open to having similar information sessions in your community and would be happy to discuss this opportunity further with you.

In the interim, I would be pleased to answer any questions you may have. Please also feel free to contact Christine Goulais, Senior Manager, Indigenous Relations, at 416-345-4390 or Tausha Esquega, Senior Advisor, Indigenous Relations, at 807-346-3830.

Sincerely,

A handwritten signature in black ink, appearing to read "Derek Chum", with a stylized flourish at the end.

Derek Chum
Vice President, Indigenous Relations

Attachments (2)

Hydro One Networks Inc.

Tel. No. 416-345-5463

483 Bay Street

TCT6, South Tower

Toronto, Ontario M5G 2P5

www.HydroOne.com

Derek.Chum@HydroOne.com



Derek Chum

Vice President, Indigenous Relations

February 16, 2018

Chief Johanna Desmoulin

Pic Mobert First Nation

PO Box 717

Mobert, ON POM 2J0

Dear Chief Desmoulin:

Hydro One seeks approval to construct new East-West Tie transmission line

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Derek Chum
Vice President, Indigenous Relations

Attachments (2)

Hydro One Networks Inc.

Tel. No. 416-345-5463

483 Bay Street

TCT6, South Tower

Toronto, Ontario M5G 2P5

www.HydroOne.com

Derek.Chum@HydroOne.com



Derek Chum

Vice President, Indigenous Relations

February 16, 2018

Chief Duncan Michano

Ojibways of Pic River First Nation

3 Beaver Crescent

PO Box 193

Heron Bay, ON P0T 1R0

Dear Chief Michano:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

With this in mind, and given our long history of service and ongoing commitment to northern Ontario, Hydro One has submitted an application to the Ontario Energy Board (OEB) seeking approval to construct a new transmission line between Lakehead Transformer Station (TS) and Wawa TS, as shown on the attached map. This new transmission line is needed to ensure an adequate, safe, and reliable supply of power to enable future growth and development in northwestern Ontario.

Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter and can be constructed on a narrower corridor than the current proposal. This reduces the amount of undisturbed land that would need to be cleared, thereby minimizing environmental impacts and disturbance to local communities. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor.

We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to both

Indigenous and non-Indigenous communities in the project area. Hydro One's Indigenous Relations team will be following up with you shortly to schedule a meeting with you. We look forward to discussing community benefits and partnership opportunities with you.

For your information, I have attached a copy of a newspaper ad that will run in local papers in the coming weeks to let people know about our Lake Superior Link project. Hydro One and its project construction partner, SNC-Lavalin, are also planning to host a series of public drop-in information sessions in March in communities within the project area. We will advise you once the dates and locations have been booked, and they will be advertised in local newspapers and on our website at www.HydroOne.com/LakeSuperiorLink. Hydro One is open to having similar information sessions in your community and would be happy to discuss this opportunity further with you.

In the interim, I would be pleased to answer any questions you may have. Please also feel free to contact Christine Goulais, Senior Manager, Indigenous Relations, at 416-345-4390 or Tausha Esquega, Senior Advisor, Indigenous Relations, at 807-346-3830.

Sincerely,

A handwritten signature in black ink, appearing to read "Derek Chum". The signature is fluid and cursive, with a long horizontal stroke at the end.

Derek Chum
Vice President, Indigenous Relations

Attachments (2)

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Derek Chum

Vice President, Indigenous Relations

February 16, 2018

Chief David Mushquash

Pays Plat First Nation

10 Central Place

Pay Plat, ON P0T 3C0

Dear Chief Mushquash:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

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Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter and can be constructed on a narrower corridor than the current proposal. This reduces the amount of undisturbed land that would need to be cleared, thereby minimizing environmental impacts and disturbance to local communities. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor.

We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to both Indigenous and non-Indigenous communities in the project area. Hydro One's Indigenous Relations

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Toronto, Ontario M5G 2P5

www.HydroOne.com

Derek.Chum@HydroOne.com



Derek Chum

Vice President, Indigenous Relations

February 16, 2018

Chief Patricia Tangie

Michipicoten First Nation

Box 1, Site 8, R.R. #1

Wawa, ON P0S 1K0

Dear Chief Tangie:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

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Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter and can be constructed on a narrower corridor than the current proposal. This reduces the amount of undisturbed land that would need to be cleared, thereby minimizing environmental impacts and disturbance to local communities. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor.

We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to both Indigenous and non-Indigenous communities in the project area. Hydro One's Indigenous Relations

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Derek Chum
Vice President, Indigenous Relations

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www.HydroOne.com

Derek.Chum@HydroOne.com



Derek Chum

Vice President, Indigenous Relations

February 16, 2018

Chief Edward Wawia

Red Rock Indian Band

PO Box 1030

Nipigon, ON P0T 2J0

Dear Chief Wawia:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

With this in mind, and given our long history of service and ongoing commitment to northern Ontario, Hydro One has submitted an application to the Ontario Energy Board (OEB) seeking approval to construct a new transmission line between Lakehead Transformer Station (TS) and Wawa TS, as shown on the attached map. This new transmission line is needed to ensure an adequate, safe, and reliable supply of power to enable future growth and development in northwestern Ontario.

Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter and can be constructed on a narrower corridor than the current proposal. This reduces the amount of undisturbed land that would need to be cleared, thereby minimizing environmental impacts and disturbance to local communities. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor.

We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to both Indigenous and non-Indigenous communities in the project area. Hydro One's Indigenous Relations

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In the interim, I would be pleased to answer any questions you may have. Please also feel free to contact Christine Goulais, Senior Manager, Indigenous Relations, at 416-345-4390 or Tausha Esquega, Senior Advisor, Indigenous Relations, at 807-346-3830.

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Derek Chum
Vice President, Indigenous Relations

Attachments (2)

Hydro One Networks Inc.

483 Bay Street
TCT6, South Tower
Toronto, Ontario M5G 2P5
www.HydroOne.com
Derek.Chum@HydroOne.com



Derek Chum
Vice President, Indigenous Relations

April 30, 2018

Chief Jason Gauthier
Missanabie Cree First Nation
174B Hwy 17 B
Garden River, ON P6A 6Z1

Dear Chief Gauthier:

Hydro One seeks approval to construct new East-West Tie transmission line

Designing, building, and operating transmission infrastructure has been a core competency of Hydro One for many decades. Our teams bring their best each day and are working to deliver a transmission capital portfolio that has more than 200 projects at any given time.

With this in mind, and given our long history of service and ongoing commitment to northern Ontario, Hydro One has submitted an application to the Ontario Energy Board (OEB) seeking approval to construct a new transmission line between our Lakehead Transformer Station (TS) and our Wawa TS, as shown on the attached map. The new line will provide the additional power transfer capability to ensure the future electricity needs and growth of northern Ontario can be met.

Our proposed project, which we are calling the Lake Superior Link, is a 400 kilometre double-circuit 230 kilovolt transmission line that would primarily be built on or adjacent to Hydro One's existing East-West Tie transmission corridor. Hydro One's proposal is the most cost-effective solution for Ontario electricity consumers.

By maximizing use of existing infrastructure, our route is approximately 50 km shorter than the other proponent's proposal, reducing the amount of relatively undisturbed land that would need to be cleared. A major benefit of our project would be realized in Pukaskwa National Park, where Hydro One's existing transmission line can be upgraded without widening the corridor. Outside of the Park, our project can be constructed on a narrower corridor; overall, the Lake Superior Link will require approximately 50% less corridor land than the other proponent's route, thereby minimizing environmental impacts and disturbance to local communities.

Hydro One received a letter from the Ministry of Energy delegating procedural aspects of Consultation to Hydro One regarding its proposed Lake Superior Link Project. Hydro One recognizes the importance of consultation with Indigenous communities. We are very excited about our proposal and its ability to maximize value for Ontario electricity customers, and look forward to discussing how this project can deliver tangible benefits to Indigenous communities in the project area. These tangible benefits include, but are not limited to, capacity funding, contracting and employment opportunities.

Hydro One together with its engineering and construction partner SNC-Lavalin not only recognizes the importance of having involvement and participation of Indigenous communities and businesses in the execution of the Lake Superior Link Project, we also have a proud history of inclusion through employment and procurement of our projects. For the Lake Superior Link Project, we will actively procure goods and services from qualified Indigenous suppliers and with companies who have strong relationships with local Indigenous communities and businesses. We will continue these relationships offering participation throughout the construction phase. Similarly, we will seek to maximize the employment of members from local/regional Indigenous communities, including additional skills training for those enrolled in the Anishinabek Employment and Training Services (AETS) program, which would be beneficial to the Lake Superior Link Project as well as future projects and employment with Hydro One.

Hydro One is prepared to begin the consultation process immediately and would like to begin scheduling meetings with you and your community as soon as possible. Hydro One's Indigenous Relations team will be following up with you shortly to schedule a meeting. In the interim, I would be pleased to answer any questions you may have. Please also feel free to contact Christine Goulais, Senior Manager, Indigenous Relations, at 416-345-4390 or Tausha Esquega, Senior Advisor, Indigenous Relations, at 807-346-3830.

Sincerely,

A handwritten signature in blue ink, appearing to read "Derek Chum". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Derek Chum

Attachment



Hydro One Networks Inc.
483 Bay Street
South Tower – 6th floor
Toronto, Ontario M5G 2P5
www.HydroOne.com
Derek.Chum@HydroOne.com

Derek Chum
Vice President
Indigenous Relations

April 12, 2018

Kate Kempton
Olthuis, Kleer, Townshend LLP
250 University Avenue, 8th Floor
Toronto ON
M5H 3E5

Dear Kate,

Re: Hydro One meeting with Bamkushwada LP

I am writing to follow up on our April 6, 2018 meeting in Thunder Bay with Bamkushwada LP (BLP) regarding Hydro One's recent submission to the Ontario Energy Board (OEB) to construct its proposed Lake Superior Link Project between the Lakehead and Wawa Transformer Stations. Thanks for your time and the opportunity for Hydro One to provide an overview of our proposal.

In fall 2017, the Ontario government cited concerns about the construction cost of the proposal put forward by the development phase proponent, and asked the Independent Electricity System Operator to review all possible options and provide an updated assessment on the need for the expansion. In response, Hydro One submitted a s.92 (leave to construct) application to build and operate this project significantly more economically than the project proposed by NextBridge, while providing superior longer-term benefits to the First Nation communities that make up BLP.

At our April 6, 2018 meeting you asked Hydro One to address the following specific issues in writing.

Issue 1: Hydro One's estimated project schedule.

Response: Should Hydro One receive all required regulatory approvals to proceed with construction of the Lake Superior Link Project, the estimated construction timelines are from July 2019 to November 2021.

Issue 2: Hydro One's Indigenous Consultation approach and timeline.

Response: On February 16, 2018, Hydro One sent a letter to the six First Nation partners in BLP, introducing its Lake Superior Link Project submission to the OEB. As indicated in that letter, we are prepared to begin the consultation process immediately and, in fact, would like to begin scheduling meetings with each First Nation as soon as possible. Hydro One will need to undertake some Environmental Assessment related studies in the coming months, including a geotechnical investigation to be performed by our construction partner SNC Lavalin, and we will inform and work with each First Nation regarding each study.

Our approach to consultation and engagement with the BLP communities will be to meet with Chiefs and Councils and community members on a reasonably frequent basis during the early months through July. We also propose to hold workshops in each community to provide interested community members an opportunity to understand and comment on the technical details with Hydro One and SNC-Lavalin representatives and to provide as much information as required to inform community members. We will also be seeking traditional knowledge information from the communities and intend to compensate for the use of this information.

Our objective is to hire a Community Engagement Coordinator in each of the six BLP communities. The Community Engagement Coordinator will help to organize and execute community meetings, and coordinate the provision of information to Hydro One from the community, such as traditional knowledge information. We expect the Community Engagement Coordinator will be our day-to-day liaison person.

At the same time, we will also be engaging with the First Nations and Métis communities that are less directly affected including the Métis Nation of Ontario. Although the frequency of meetings will be less than with the BLP communities, their input is valuable and informative.

Issue 3: Hydro One's approach to Accommodation given the existing limitations posed as a result of what you have told us is an exclusivity agreement between BLP and NextBridge.

Response: Hydro One has no knowledge of any exclusivity terms, or the scope of such terms, in the contract(s) between NextBridge, BLP and/or each of the six First Nations. Hydro One's approach to accommodation will be a package of benefits similar to the benefits identified in the Designated Transmitter submission filed with the OEB¹ in 2013 by East-West Tie LP, which included Hydro One and BLP as partners. Our offer includes capacity funding, contracting and employment opportunities, and an ownership opportunity in the project.

Should the OEB award Hydro One leave to construct the Lake Superior Link Project, we are committed to offering BLP an opportunity to own 34% in a limited partnership that will own the Lake Superior Link assets, thus offering substantially higher net income and dividends to the BLP communities as compared to the NextBridge project. For illustration purposes, we estimate that our First Nation partners will receive close to \$6M in annual dividends. Based on the leave to construct applications submitted to the OEB by each of Hydro One and NextBridge, the estimated returns on investment for each proposal are as follows:

¹ EB-2011-0140

Proponent	Project Cost	FN Equity Share	FN Investment	Annual Net income attributable to Bamkushwada LP	Annual Dividend to Bamkushwada LP of Net Income	Total estimated Dividends Over 30 Years*
Hydro One	\$636M	34%	\$86.5M	\$7.7M	\$5.4M	\$115M
NextBridge	\$777M	20%	\$62.2M	\$5.5M	\$3.9M	\$83.1M

Note: the numbers above are based on estimated project costs and current OEB allowed return on equity. Actual equity ownership will be based on the final cost to construct the project.*

Hydro One and SNC-Lavalin recognize the importance of having involvement and participation of Indigenous communities and businesses in the execution of the Lake Superior Link Project. We have a proud history of inclusion through employment and procurement of our projects. For the Lake Superior Link Project we will actively procure goods and services from qualified Indigenous suppliers and with companies who have strong relationships with local Indigenous communities and businesses. Similarly, we will seek to maximize the employment of members from local Indigenous communities, including those who have received or who are currently completing project related skills training. Hydro One and SNC-Lavalin would also consider additional skills training prior to construction of the Lake Superior Link Project. Additionally, Hydro One is able to provide lasting employment opportunities throughout its network across the province for skilled Indigenous workers beyond the construction of the Lake Superior Link Project.

Issue 4: Hydro One's contingency plan should it not receive required approvals from Parks Canada to go through Pukaskwa National Park and modify its existing transmission asset.

Response: As the owner of the existing East-West Tie line which crosses through Pukaskwa National Park, Hydro One has the unique ability to meet the requirements of the *Canada National Parks Act* and Parks Canada policies. No new electrical transmission lines are permitted within National Parks; however modifications to existing transmission lines are permitted. Hydro One has engaged in discussions with Park Canada for several months and has obtained conditional support to modify its existing east-west tie line through Pukaskwa National Park. Details regarding the implementation and delivery of the construction program to ensure identification and mitigation of any potential impacts to protect the integrity of the Park have also been vetted with Parks Canada. This contributes significantly to Hydro One's ability to minimize impacts on the environment and to deliver the project at a significantly lower cost.

Issue 5: Hydro One's contingency plan should it not receive approval to utilize NextBridge's proposed Individual Environmental Assessment (EA).

Response: Hydro One is currently communicating with government ministries and agencies regarding the use of the existing EA in relevant portions of the route and means available to meet additional EA obligations. In order for Hydro One to deliver the project in 2021 at the cost included in its s.92 application, we rely on and trust that collaborative discussions with the Ontario government will provide the regulatory support necessary to allow Hydro One to meet its EA obligations in a manner that is reasonable and cost effective to rate payers.

We understand that several regulatory decisions have yet to be confirmed with respect to our s.92 submission. Hydro One can build the Lake Superior Link at a significantly lower cost than the proposed NextBridge project, while providing superior long-term benefits to its First Nation partners.

I trust the information provided above will be helpful to you and your clients. We would welcome a further discussion on how Hydro One can begin engagement on our proposed project and other opportunities.

Sincerely,

A handwritten signature in blue ink, appearing to read "Derek Chum". The signature is fluid and cursive, with a long horizontal stroke at the end.

Derek Chum

From: CHUM Derek
Sent: Wednesday, May 02, 2018 1:46 PM
To: 'ppchief@tbaytel.net'
Cc: Lindley, Stephen (Stephen.Lindley@sncclavalin.com)
Subject: Technical Conference - EB-2017-0364 Hydro Network Inc.'s Section 92 – Lake Superior Link Project

Chief Mushquash,

I am writing to advise that Hydro One will be submitting evidence with respect to the Technical Conference on the matter referenced above. The evidence is directly relevant to your community. Specifically, our evidence will include the following:

1. Hydro One's estimated project schedule: should Hydro One receive all required regulatory approvals to proceed with construction of the Lake Superior Link Project, the estimate construction timelines are from July 2019 to November 2021.
2. Hydro One's Indigenous Consultation and timeline: Hydro One is prepared to begin the consultation process immediately and has reached out to the First Nations and Metis communities identified by the Ministry of Energy. We expect to meet regularly with communities, hold open houses, workshops, seek traditional knowledge (and compensate for same), and hire a community engagement coordinator in your community.
3. Hydro One's approach to accommodation: If the OEB awards Hydro One leave to construct the Lake Superior Link Project, we are committed to offering Ojibways of Pic River First Nation, Pic Mobert First Nation, Pays Plat First Nation, Fort William First Nation, Michipicoten First Nation, and Red Rock First Nation an opportunity to own 34% in a limited partnership that will own the Lake Superior Link assets. With our partner SNC Lavalin we will also offer employment and procurement opportunities for members from these communities and also consider further training opportunities and lasting employment opportunities throughout Hydro One's network for skilled Indigenous workers beyond the construction of the Lake Superior Link Project.

The full package of evidence will be filed on Monday May 7. We would appreciate an opportunity to meet with you to discuss the LSL project and opportunities for your community to be involved.

Regards,

Derek

Derek Chum
VP, Indigenous Relations
Customer Care & Corporate Affairs
Hydro One
Tel: 416-345-5463
Cell: 416-302-2842
Email: Derek.Chum@HydroOne.com

From: Kate Kempton [<mailto:KKempton@oktlaw.com>]
Sent: Wednesday, May 02, 2018 2:24 PM
To: CHUM Derek; stephen.lindley@snclavalin.com
Cc: Duncan Michano (chiefpicriver@picriver.com); Sharon Ostberg; pcollins@fwfn.com; ppchief@tbaytel.net; 'Chief Pat Tangie' (ptangie@michipicoten.com); 'Johanna Desmoulin' (johannadesmoulin@gmail.com) (johannadesmoulin@gmail.com); Edward Wawia; Liora Zimmerman; Julie-Anne Pariseau; Oliver MacLaren
Subject: FW: Technical Conference - EB-2017-0364 Hydro Network Inc.'s Section 92 – Lake Superior Link Project

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Derek: Chief Michano asked me to respond to your email below on his behalf, and to cc the other BLP First Nations.

First, we had advised HONI both in person at the April 6 meeting in Thunder Bay, and by email thereafter, that there was to be no sharing of information with the BLP First Nations, or discussions with them, about any aspects of a possible economic deal between them and HONI. This places them in potential breach of the agreement with Nextbridge and this is unacceptable. We were clear and unambiguous when we stated this already. Yet your email below proceeds to do just that. Please do not do this again.

Second, as you know, the BLP First Nations are intervening in and actively participating in the motion before the OEB to dismiss HONI's LTC application. This motion will be heard in a few short weeks, and decided shortly thereafter due to the time pressures involved. Biigtigong does not have unlimited time or resources. Some are already being allocated to this motion. It is more appropriate to wait the very short period of time until this motion is concluded, before commencing any engagement with HONI. The OEB might decide to dismiss HONI's application in which any engagement in the interim would have been a waste of too-valuable time and resources. If the OEB does not dismiss HONI's application, then a few short weeks will not make a substantive difference.

Please address any further correspondence of this nature to the Chief but copy me.

Thank you. Kate

From: Duncan Michano [<mailto:chiefpicriver@picriver.com>]
Sent: May 2, 2018 1:58 PM
To: Kate Kempton; Sharon Ostberg
Cc: Duncan Michano
Subject: FW: Technical Conference - EB-2017-0364 Hydro Network Inc.'s Section 92 – Lake Superior Link Project

From: Derek.Chum@HydroOne.com <Derek.Chum@HydroOne.com>

Sent: May 2, 2018 1:46 PM

To: Duncan Michano <chiefpicriver@picriver.com>

Cc: Stephen.Lindley@snclavalin.com

Subject: Technical Conference - EB-2017-0364 Hydro Network Inc.'s Section 92 – Lake Superior Link Project

Chief Michano,

I am writing to advise that Hydro One will be submitting evidence with respect to the Technical Conference on the matter referenced above. The evidence is directly relevant to your community. Specifically, our evidence will include the following:

1. Hydro One's estimated project schedule: should Hydro One receive all required regulatory approvals to proceed with construction of the Lake Superior Link Project, the estimate construction timelines are from July 2019 to November 2021.
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The full package of evidence will be filed on Monday May 7. We would appreciate an opportunity to meet with you to discuss the LSL project and opportunities for your community to be involved.

Regards,

Derek

Derek Chum
VP, Indigenous Relations
Customer Care & Corporate Affairs
Hydro One
Tel: 416-345-5463
Cell: 416-302-2842
Email: Derek.Chum@HydroOne.com

Assessment of the Rationale for the East-West Tie Expansion

Second Update Report

May 5, 2014



ONTARIO
POWER AUTHORITY



1.0 EXECUTIVE SUMMARY

The East-West Tie (“E-W Tie”) expansion project continues to be the OPA’s recommended alternative to maintain a reliable and cost effective supply of electricity to the Northwest for the long term.

This report provides the Ontario Power Authority’s (“OPA”) second updated assessment of the rationale for the E-W Tie expansion project, as ordered by the Ontario Energy Board (“Board”). It builds upon and updates two previous OPA E-W Tie reports: i) the OPA’s original June 2011 Report, titled “Long Term Electricity Outlook for the Northwest and Context for the East-West Tie Expansion” (“June 2011 Report”); and ii) the OPA’s first need update report, submitted to the Board in October 2013, titled “Updated Assessment of the Rationale for the East-West Tie Expansion” (“October 2013 Report”).

Changes in this update include: a more moderate outlook for electricity demand growth in Ontario’s Northwest (“the Northwest”), with assessments of higher and lower demand scenarios; increased capability of the existing E-W Tie; and refinements to the cost assumptions for gas-fired generation in the Northwest.

Under the Reference assumptions, the E-W Tie expansion results in a net benefit of approximately \$220 million when compared with a no-expansion alternative. Based on the sensitivities tested, the E-W Tie expansion ranges from a net benefit of over \$700 million to a net cost of approximately \$350 million, associated with the Low demand forecast.

The E-W Tie expansion would provide additional benefits, beyond meeting the reliability requirements of the Northwest: system flexibility, removal of barriers to resource development, reduced congestion payments, reduced losses, and improved operational flexibility. These benefits are additive to the economic benefits and form an important part of the rationale for the project. The OPA expects to provide a more detailed discussion of these benefits in its final assessment of needs and alternatives, as supporting evidence in a Leave to Construct application for the E-W Tie expansion.

2.0 INTRODUCTION

The E-W Tie expansion continues to be the OPA’s recommended alternative to maintain a reliable and cost-effective supply of electricity to the Northwest for the long term.

The Ontario Government’s 2010 Long-Term Energy Plan (“2010 LTEP”), published in November 2010, identified the E-W Tie expansion as a priority transmission project needed for maintaining system reliability, enabling renewable energy connections and accommodating increasing electricity demand in the Northwest. The new E-W Tie would expand the existing E-W Tie, a transmission line running between Wawa and Thunder Bay. On March 29, 2011, the Minister of Energy wrote to the Board to

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express the government's interest in the Board undertaking a designation process to select the most qualified and cost-effective transmitter to develop the E-W Tie project.

In response to the Minister's letter, the Board initiated a process to designate a transmitter to undertake development work for the E-W Tie project. The Board requested that the OPA provide a report documenting the preliminary assessment of the need for the E-W Tie expansion. In response, the OPA provided the June 2011 Report. The Board then proceeded with the designation process, which concluded on August 7, 2013, when the Board issued its Phase 2 Decision and Order, identifying Upper Canada Transmission Inc. (o/a "NextBridge Infrastructure") as the designated transmitter. In its decision, the Board also ordered the OPA to provide two further need updates, one in the early stages of NextBridge Infrastructure's development schedule and one at the mid-point. The OPA committed to providing these need update reports to the Board by October 8, 2013 and May 5, 2014, respectively. On September 26, 2013 the Board issued a Decision and Order which requires the OPA to file its need update reports by these dates.

Since the filing of the October 2013 Report, the Government of Ontario has released its 2013 Long-Term Energy Plan ("2013 LTEP"), published on December 2, 2013. The 2013 LTEP continues to identify the E-W Tie expansion as an important source of electricity supply for Northwestern Ontario.

This report constitutes the second need update report (i.e. May 5, 2014) requested by the Board. It builds upon and updates the June 2011 Report and October 2013 Report. It focuses on major changes that have occurred since the October 2013 Report and, based on these changes, provides an updated statement of the need for the E-W Tie expansion.

Section 3 of this report provides an updated conservation and demand forecast for the Northwest. It reflects changes since October 2013 and identifies major drivers for future electricity demand. Sections 4 and 5 analyze current and future internal and external resources that supply the Northwest and provide an update on Northwest capacity and energy supply needs. Section 6 provides an updated analysis of two alternatives that would form the backbone of an integrated plan for reliable electricity supply to the Northwest: a case with no E-W Tie expansion, in which gas generation addresses the incremental Northwest supply needs; and the E-W Tie expansion with additional resources as needed to address remaining supply gaps. Section 7 concludes with the OPA's recommendation.

3.0 NORTHWEST CONSERVATION AND DEMAND

Since the October 2013 Report, the OPA has maintained regular discussion with stakeholders and customers in the Northwest and has continued to monitor activities which may affect electrical demand in the region. The updated forecast presented in this report reflects updated information and provides a range of electrical demand forecasts that are based on scenarios of industrial development. As noted in the OPA's previous two need update reports, Northwest demand is dominated primarily by large,

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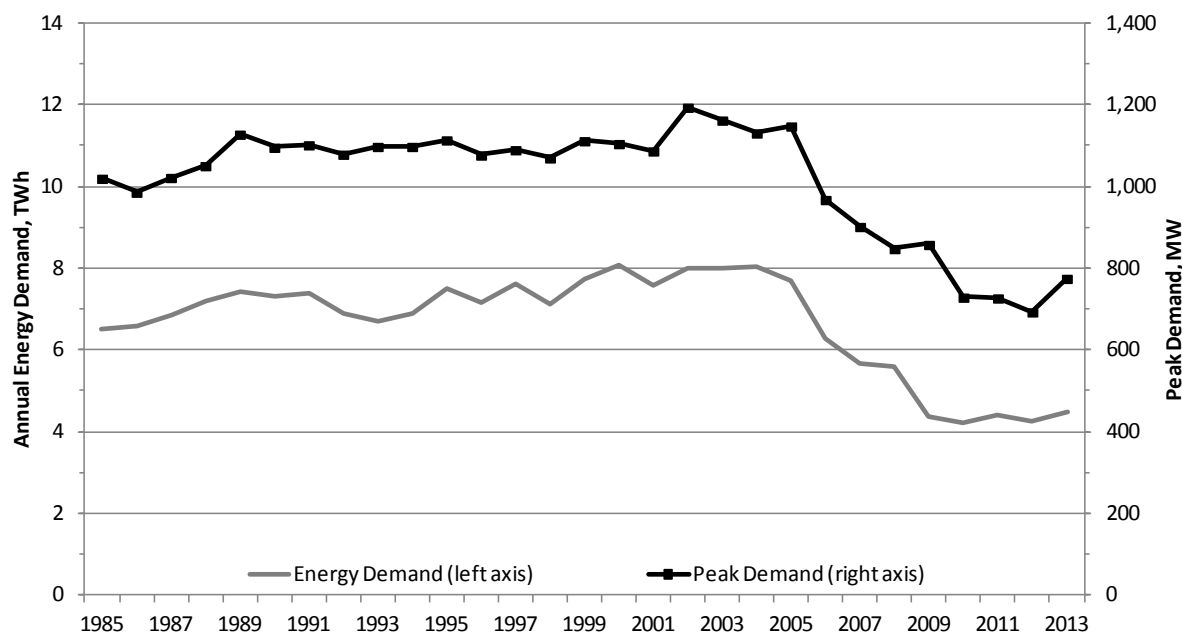
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industrial consumers, and can therefore fluctuate significantly in response to changing economic and market conditions. This forecast was developed to capture this fluctuation in order to develop economically prudent options to serve demand and maintain grid reliability.

3.1 Historical Northwest Demand

Historical electricity demand in the Northwest is presented in Figure 1 below. This update includes finalized actual energy and demand data from 2013, which was not available when the October 2013 Report was prepared. The winter of 2013 saw an increase in demand and energy consumption in the Northwest, driven primarily by the residential sector due to a combination of extreme temperatures and economic factors, as well as modest growth in the industrial sector. The same pattern is expected for the winter months of 2014 based on preliminary data. The Northwest electricity system has performed well under the higher load conditions of 2013 and 2014.

Figure 1. Historical Northwest Electricity Demand



3.2 Drivers of Northwest Demand

The OPA continues to work together with interested parties to understand the drivers for demand in the Northwest, including engagement with stakeholders such as Common Voice Northwest, mining companies and an industry association, and discussions with the Ontario Ministry of Northern

1 Development and Mines. The updated forecast reflects changes in the outlook for industry, as well as
2 other developments in the Northwest.

3 In comparison to the October 2013 Report, drivers of Northwest demand that have changed include:
4 more gradual and moderate expansion in the mining sector; updated scenarios for TransCanada
5 PipeLine's ("TCPL") proposed "Energy East" project; and a slower recovery of the pulp and paper
6 industry.

7 **Mining sector and Ring of Fire**

8 To produce an informed update to the Northwest load forecast, the OPA engaged a number of mining
9 companies with developments in Ontario and reviewed available technical documents to understand
10 the feasibility, likelihood and timing of various mining developments, which are reflective of factors such
11 as commodity prices, and access to capital and human resources. The result is a more gradual and
12 moderate outlook for mining development in the Northwest compared to the expectations underlying
13 the October 2013 forecast. Nonetheless, growth in the mining sector continues to account for the vast
14 majority of the forecast demand growth in the Northwest.

15 **Pulp and Paper sector**

16 Since the October 2013 Report forecast was prepared, electricity consumption in the pulp and paper
17 sector has continued to decline. This trend, coupled with the expectation of more behind-the-meter
18 generation installations by pulp and paper customers, combine to produce a relatively flat outlook for
19 this sector, with potential for modest growth in the long term.

20 **TransCanada Energy East Pipeline**

21 This updated forecast considers current information on the effects of the Energy East pipeline project on
22 Northwest electrical demand. As there are uncertainties in the demand from pumping stations in the
23 Northwest, a range of outcomes was considered.

24 **Other forecast components**

25 Minimal or no change has been made to the assumptions for the remaining components of the
26 Northwest demand forecast since the October 2013 report:

- 27 • forestry sector
- 28 • connection of remote communities
- 29 • residential, commercial and other industrial sectors
- 30 • conservation

31 The OPA is engaged in ongoing work with local distribution companies to develop a Conservation First
32 framework, consistent with the 2013 LTEP and the March 31, 2014 Conservation First Directive from the

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Ministry of Energy to the OPA, and will continue to update the conservation assumptions for the Northwest accordingly in future need assessments.

3.3 Northwest Demand Scenarios

An updated demand forecast for the Northwest was developed, taking into account the impacts of the various drivers described above. Consistent with the October 2013 Report, the OPA developed three demand scenarios to explore the robustness and flexibility of transmission and supply options under a range of outcomes. Key aspects of the scenarios are as follows:

- **Reference scenario.** In this scenario, mining sector demand includes proposed mines that have passed significant development milestones, as well as a portion of additional proposals. Mining loads are assumed to persist for the expected lifetime of the proposed developments. This scenario includes a relatively flat outlook for the pulp and paper industry, with some moderate growth occurring in the long term, as well as moderate growth in forestry sector in the short and medium term. Residential and commercial sector demand growth is consistent with the economic/demographic view of this scenario. This scenario assumes a likely scenario for Energy East demand.
- **High Scenario.** This scenario assesses stronger development of the mining and forestry sectors and also reflects moderate growth in the pulp and paper sector beginning in the short term. Higher residential and commercial sector growth is also forecast, consistent with these higher levels of industrial activity. This scenario assumes a maximum demand scenario for the Energy East project.
- **Low Scenario.** This scenario describes the impact of a more restrained outlook in the mining sector, continued decline of electricity demand in the pulp and paper industry, and moderately declining demand in the forestry sector. This scenario assumes that the Energy East project does not proceed. Residential and commercial sector demands are the same as in the Reference scenario.

The demand assumptions for Remote Community connections and other industrial sectors (other than mining, forestry, pulp and paper) are the same in all three scenarios. Conservation varies across the scenarios in accordance with the different gross demand levels.

The resulting Northwest peak and annual energy demand scenarios, net of savings from planned conservation, are shown in Figure 2 and Figure 3. The Reference demand scenario shows the Northwest forecast increasing quickly in the midterm, due to advanced mining developments which are expected to come online, with more gradual growth in the long term, driven primarily by expected future growth in the mining sector. The wide range between the High and Low scenarios reflects uncertainty in the assumptions underlying the forecast.

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For comparison, the reference scenario prepared for the October 2013 Report is also included in Figures 2 and 3. The current Reference case forecast is lower than the October 2013 forecast. It increases more slowly, and the long-term outlook is reduced by approximately 125 MW and 1.25 TWh. The current Reference forecast is of similar magnitude to the low October 2013 scenario.

Figure 2. Net Northwest Peak Demand Forecast Scenarios

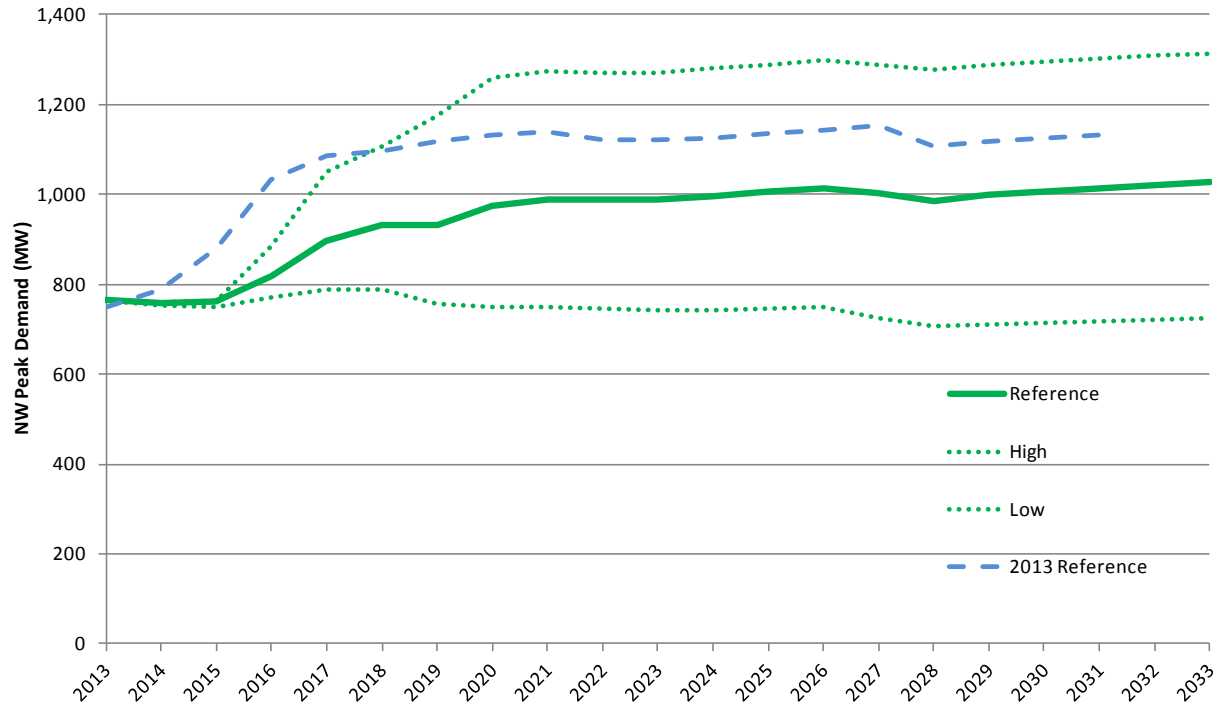
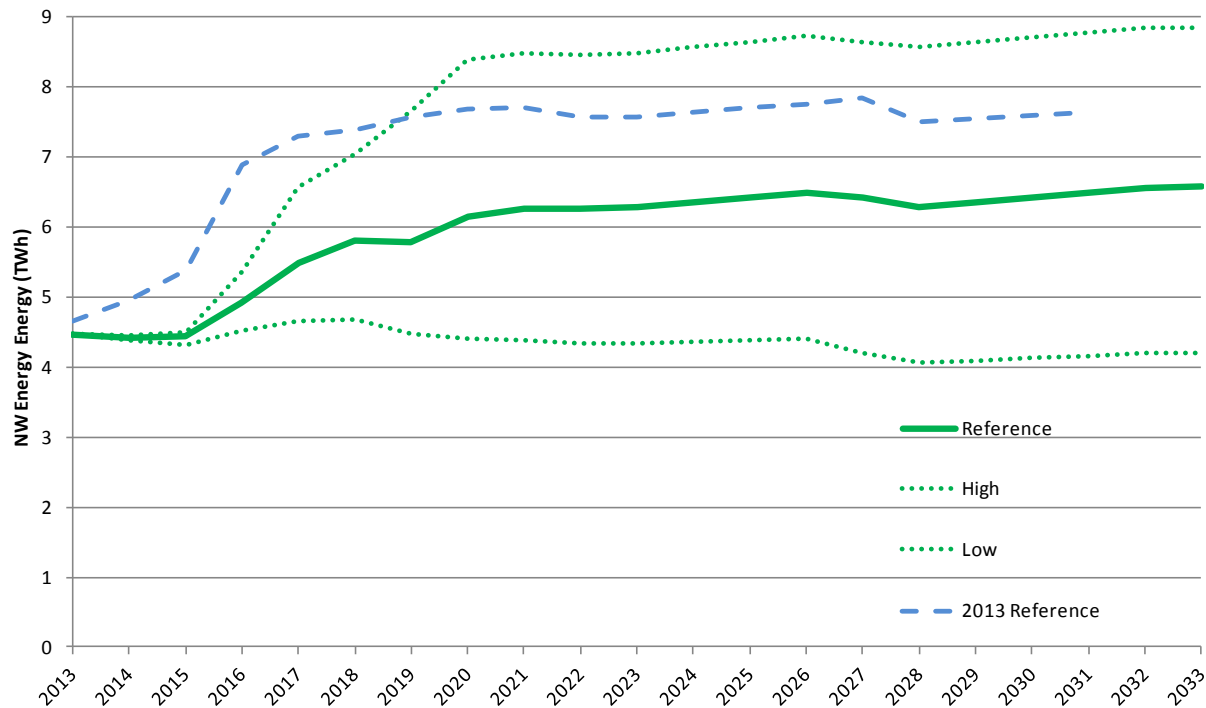


Figure 3. Net Northwest Energy Demand Forecast Scenarios



4.0 EXISTING RESOURCES TO SUPPLY NORTHWEST DEMAND

The Northwest relies upon both internal resources (generation located in the Northwest) and external resources (generation outside the Northwest accessed through existing ties) to meet its electricity supply requirements. An update on the Northwest supply outlook since the October 2013 Report is provided below.

4.1 Internal Resources in the Northwest

The OPA has updated its assumptions regarding supply resources in the Northwest, where new information is available. The following changes have been made since the October 2013 Report:

- The availability of the Thunder Bay Generating Station (“Thunder Bay GS”) has been updated to reflect the decision to convert one of the units to operate using advanced biomass fuel beginning in 2015. Consistent with the Ministerial Directive to the OPA dated December 16, 2013, Thunder Bay GS is assumed to operate for five years with a rated capacity of 150 MW. Given the timeframe of the conversion, it does not have a large impact on the E-W Tie project.
- A 60 MW generator at Fort Frances is not included as a resource in this update. It is an embedded generation facility and its output is accounted for in the customer’s net load.

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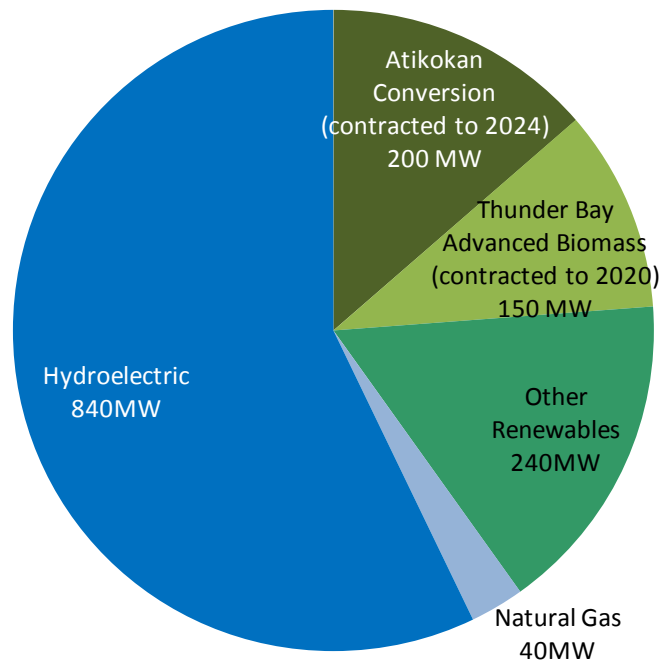
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- 30 MW of non-hydroelectric renewables (wind, solar and biomass) have come into service since the previous analysis was completed, bringing the total installed capacity of non-hydroelectric renewables to 170 MW. An additional 70 MW of contracted renewables is expected to come into service over the next several years.

The updated installed capacity of Northwest internal resources in the year 2015 is shown in Figure 4.

Figure 4. Northwest Internal Resources by Type in 2015 (Installed Capacity)



4.2 External Resources Supplying the Northwest

Additional supply is provided to the Northwest through the existing E-W Tie, a double-circuit transmission line that links Ontario's Northeast at Wawa TS to the Northwest at Lakehead TS. To date, the westbound E-W Tie transfer capability used by the OPA in its planning studies has been 175 MW. This limit was based on the prevailing System Control Order ("SCO"), a technical document developed and used by the Independent Electricity System Operator ("IESO") to govern system operation.

Recently, the IESO updated the Northwest SCO, with the new version coming into effect in the fall of 2013. Under the new SCO, the westbound transfer capability of the existing E-W Tie has increased to 240 MW. This change effectively provides an additional 65 MW of existing resources supplying the Northwest. The eastbound limit for the existing E-W Tie was also updated to 155 MW. This represents a

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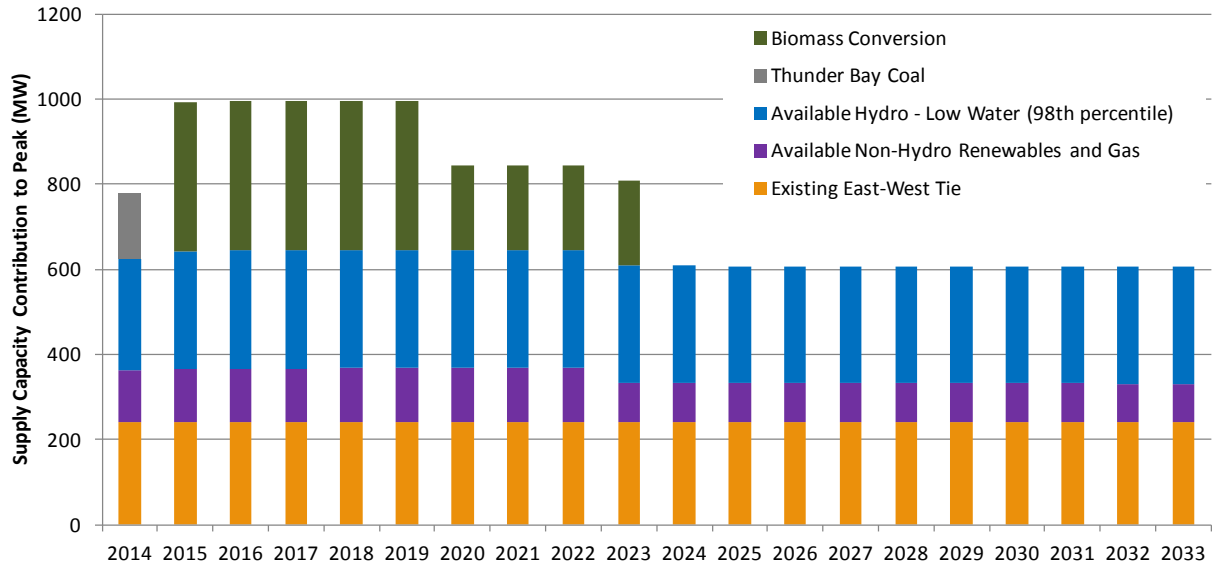
decrease of 20 MW compared to the previous limit. These changes are recognized in the technical and economic analysis described in this report.

4.3 Summary of Existing Resources

The existing internal and external resources assumed to be available to supply the Northwest in this planning analysis are shown in Figure 5. The figure reflects the available capacity of internal resources to meet Northwest peak demand under low water conditions. It also includes the westbound capability of the existing E-W Tie.

As Figure 5 indicates, available peak supply capacity is expected to be reduced at two points in the planning horizon: in 2020, corresponding to the expiry of the contract for Thunder Bay GS advanced biomass; and in 2024, when the contract for Atikokan biomass generation expires.

Figure 5. Northwest Supply Capacity under Low Water Conditions



5.0 THE NEED FOR ADDITIONAL SUPPLY FOR THE NORTHWEST

As described in the 2011 and 2013 Reports, the Northwest's forecast supply needs consist of both capacity and energy components. Based on the current outlook for Northwest demand and supply, the OPA updated the assessment of the reliability and adequacy of the Northwest system. The updated capacity and energy requirements are described below.

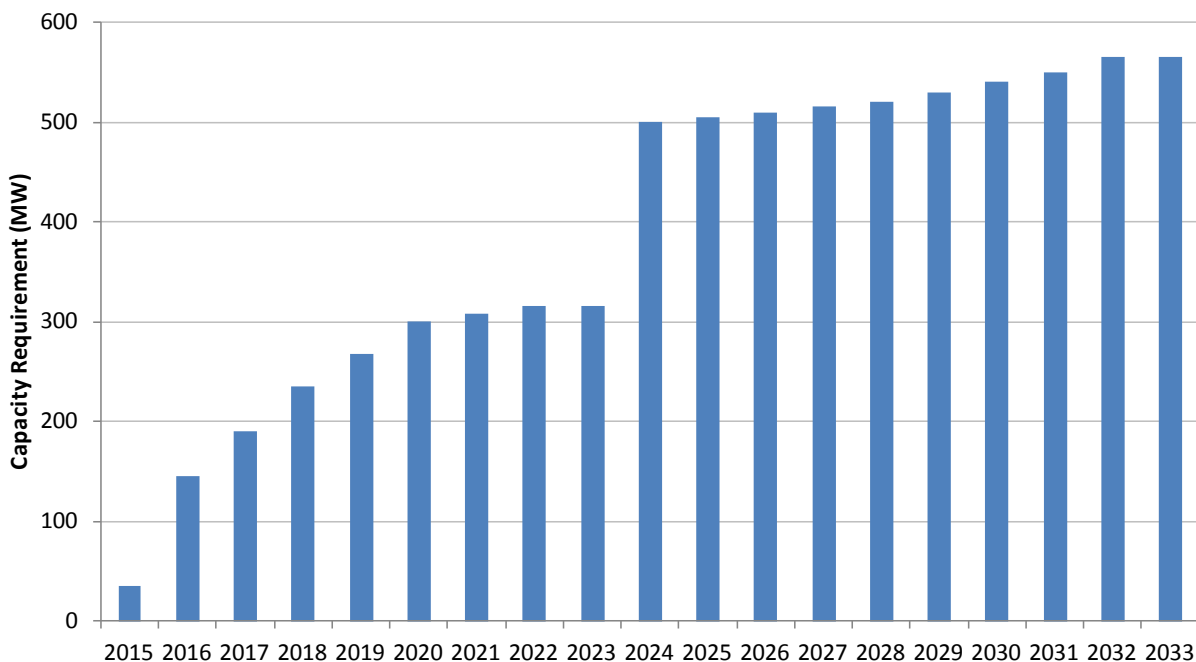
5.1 Expected Capacity Requirement

Consistent with the October 2013 Report, the OPA conducted a reliability assessment using a probabilistic approach to determine capacity requirements in the Northwest. As water conditions have a strong impact on overall supply availability in the Northwest, a range of water conditions was analyzed.

The updated capacity shortfall, based on the Reference peak demand scenario and assuming no E-W Tie expansion or additional generation development, is shown in Figure 6. Between 2018 and 2023, the Northwest capacity shortfall is expected to be in the 200-300 MW range. With the expiry of the Atikokan biomass contract in 2024, the shortfall increases to around 500 MW, and then continues to climb gradually with continued forecast load growth.

As noted in the October 2013 Report, a capacity shortfall in the interim years before the E-W Tie expansion would come into service is forecast. The shortfall is still expected to begin in 2015, however, with the lower Reference demand forecast and the advanced biomass operation of Thunder Bay GS, the expected interim capacity need is now smaller than in the October 2013 Report. The OPA and IESO will monitor the situation in the coming years and, if needed, deploy measures to address the supply gap. The OPA has issued a Request for Information which may provide additional information on resources that could address this gap.

Figure 6. Expected Incremental Northwest Capacity Requirement



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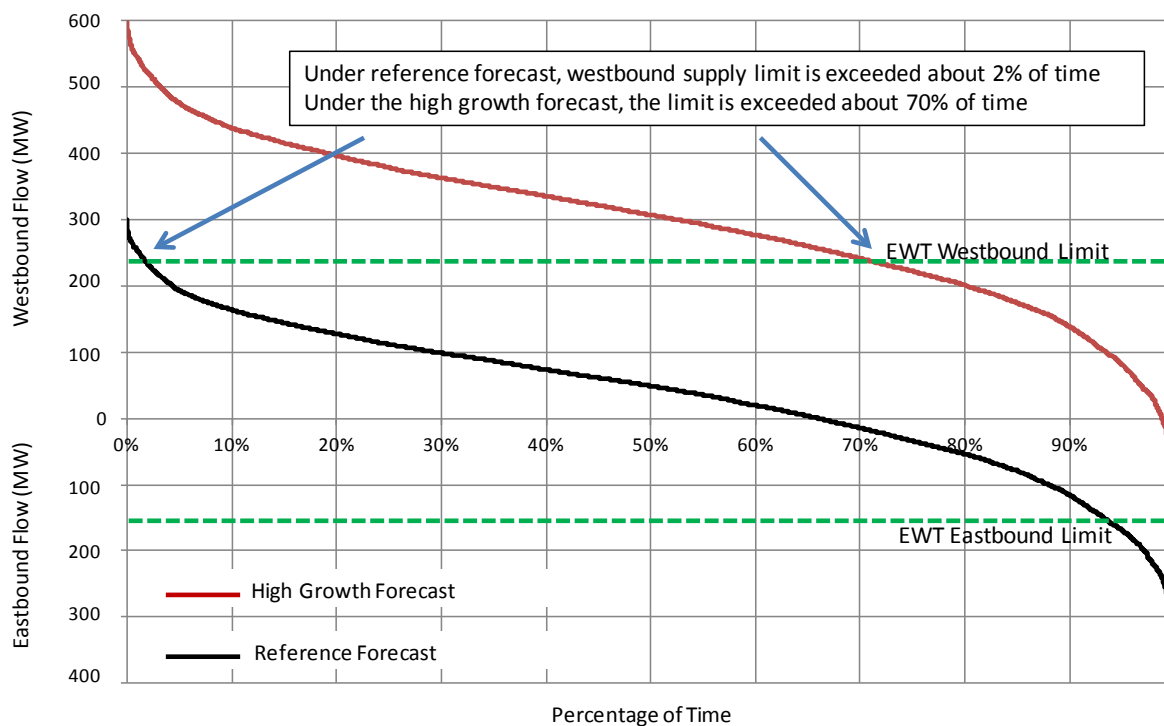
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5.2 Expected Energy Requirement

The expected energy requirement in the Northwest is defined by the demand forecast, as well as the supply capabilities of local generation and the existing E-W Tie. Figure 7 provides an updated illustrative duration curve based on assumptions consistent with the curve provided in the October 2013 Report: Reference forecast demand, median water conditions, in the year 2020. For comparison, a similar curve based on the High demand forecast is also included. For the Reference demand forecast, the expected westbound flow exceeds the E-W Tie capability about 2% of the time, indicating a lower energy requirement than was reported in the October 2013 Report. This is due not only to the lower demand forecast, but also the increased capability of the existing E-W Tie. Under the High forecast, the westbound flow is exceeded about 70% of time. It should also be noted that in both cases the energy requirement grows with the load forecast over the planning horizon.

Figure 7. Unconstrained Flow and Planning Limits on the Existing E-W Tie for the Year 2020



6.0 ANALYSIS OF ALTERNATIVES TO MEET NORTHWEST SUPPLY NEEDS

As in the October 2013 report, two alternatives to meet the Northwest capacity and energy needs were evaluated. Both reflect variations on an integrated plan for the Northwest, and are defined in terms of

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the primary “backbone” around which the system in the Northwest would be planned. The alternatives are defined as follows:

(1) **No E-W Tie expansion.** In this alternative, all of the forecast capacity and energy needs are met through the staged addition of new gas-fired generation in the Northwest. In the Reference scenario, this involves the installation of a total of 565 MW of gas-fired generation by the end of the planning period.

(2) **E-W Tie expansion.** In this alternative, the E-W Tie expansion project provides a foundation for meeting the Northwest’s needs, with additional generation installed to meet any incremental supply requirements that arise by the end of the planning period. The new line would bring the combined transfer capability of the E-W Tie interface from 155 MW to 650 MW eastbound and from 240 MW to 650 MW westbound. In the Reference scenario, a minor need for additional supply beyond the capability of the expanded E-W Tie emerges in the later years of the forecast; the cost of this supply is included in the analysis.

In both alternatives, local generation is assumed to consist of new-build natural gas-fired generation. Continuing to operate the Atikokan and Thunder Bay conversions beyond their contemplated expiry dates was not assumed in the alternative analysis as these resources would be more costly than new-build gas generation due to: the expected need for additional capital investment to sustain their operation; higher operating costs; higher fuel costs for continued biomass operation; and location considerations.

In the June 2011 and October 2013 Reports, the OPA compared these two alternatives in terms of their cost-effectiveness and other benefits. Based on the updated outlook for the Northwest, the cost-effectiveness analysis has been revised and is described below.

The other benefits discussed in the June 2011 Report – system flexibility, removing barriers to resource development, reduced congestion payments, reduced losses, and improved operational flexibility – are still applicable. As there has been no change to these benefits, which are largely qualitative (or in some cases difficult to quantify), an update is not provided in this report.

6.1 Cost-Effectiveness Comparison of Generation and Transmission Alternatives

Consistent with the October 2013 Report, an economic analysis of the two alternatives was conducted and their relative net-present-value (“NPV”) was compared. A sensitivity analysis was also performed to test the impact of a variety of factors on the result.

In addition to reflecting the updated capacity and energy needs, the economic analysis includes refined assumptions for natural gas-fired generation costs to reflect the expectation of higher costs in the Northwest.

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Changes to the economic analysis assumptions since the October 2013 Report are as follows:

- The updated Reference demand forecast was used in the Reference case. Sensitivities to test the impacts of the updated Low and High load growth scenarios on the NPV were performed.
- The updated existing supply resources described in Section 4, including the updated eastbound and westbound ratings for the existing E-W Tie, are reflected in the analysis.
- Higher costs of building and operating a natural gas-fired generating facility in the Northwest are assumed in the current analysis. Factors contributing to higher costs include: longer transportation distances for equipment and construction materials, a shorter construction season, and more limited access to gas management facilities. Furthermore, facilities built in the Northwest would likely be sized smaller to meet local requirements and therefore be unable to take advantage of economies of scale. All costs, including capital, fixed operations and maintenance (“FOM”), and gas delivery and management (“GD&M”) are subject to these factors and there is a wide range over which they can vary, depending on how and where the facilities are ultimately built. The GD&M costs are a particular challenge to estimate since dispatchable gas-fired generators have not previously been constructed in the Northwest, and the understanding of these costs is evolving. In the October 2013 Report, a higher GD&M cost for Northwest gas-fired generation was used, but capital and FOM costs were assumed to be equivalent to the South. In this analysis, a mid-range assumption consisting of 25% premiums on capital and FOM costs and a 100% premium on GD&M costs, relative to a similar gas-fired power plant in southern Ontario, was adopted for the Reference case. A range of sensitivities from 25% to 100% cost premiums on all three cost factors was also evaluated.

The remaining economic analysis assumptions remain unchanged from the October 2013 Report:

- The study period extends from 2018 to 2062 in order to capture the full lifetime of the station upgrades associated with the E-W Tie expansion. For planning purposes, the expanded E-W Tie was assumed to come into service by early 2018. The life of the station upgrades was assumed to be 45 years, and 70 years for the line.
- The NPV of the cash flows is expressed in 2015\$CDN.
- Median-water hydroelectric energy output was used for energy simulation purposes.
- New capacity in the Northwest and the rest of Ontario was added, as required, to satisfy reliability criteria. These capacity needs were determined as described in Section 5.1. A sensitivity to determine the impact of adding 100 MW of gas-fired generation in the Northwest was performed.

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- The NPV analysis was conducted using a 4% real social discount rate. Sensitivities of 2% and 6% real discount rates were performed.
- For planning purposes, capital cost estimates of \$100 million for the E-W Tie station facilities and \$500 million for the line were used. As costs are expected to be refined through project development work, the OPA employed the same cost estimates used in the June 2011 and October 2013 Reports in this update.
- Natural gas prices were assumed to be an average of \$5.50/MMBtu throughout the study period. A sensitivity was performed with average gas prices of \$8.50/MMBtu.

Under the Reference assumptions, the E-W Tie expansion results in a net benefit of approximately \$220 million when compared with the no-expansion alternative. Based on the sensitivities tested, the E-W Tie expansion ranges from a net benefit of over \$700 million to a net cost of approximately \$350 million, associated with the Low demand forecast.

The E-W Tie expansion would provide additional benefits, beyond meeting the reliability requirements of the Northwest: system flexibility, removal of barriers to resource development, reduced congestion payments, reduced losses, and improved operational flexibility. These benefits are additive to the economic benefits and form an important part of the rationale for the project. The OPA expects to provide a more detailed discussion of these benefits in its final assessment of needs and alternatives, as supporting evidence in a Leave to Construct application for the E-W Tie expansion.

7.0 CONCLUSION AND RECOMMENDATION

Since the October 2013 Report was published, the major developments affecting Northwest electricity demand and supply include a more modest load forecast outlook, an increase in the rating of the existing E-W Tie, and the conversion of Thunder Bay GS to advanced biomass operation. In addition, this analysis has factored in an assessment of the potential region-specific costs associated with natural gas-fired generation. These factors combine to indicate a wider range in the estimated economic benefit of the E-W Tie expansion, with the majority of sensitivities resulting in a positive net benefit. The OPA continues to recommend the E-W Tie as the preferred alternative to maintain a reliable and cost-effective supply of electricity to the Northwest over the long term.



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COURIER AND E:MAIL

September 30, 2014

Ms. Rosemarie Leclair
Chair and Chief Executive Officer
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4

Dear Ms. Leclair:

Re: East-West Tie Expansion Project – Development Schedule
Ontario Energy Board File No. EB-2011-0140

I am writing to provide an update on the East-West Tie expansion project. The OPA believes that there is merit in extending the current in-service date of 2018 in order to allow for additional time to develop the East-West Tie Expansion project, with a focused aim of reducing its cost. The OPA believes that allowing for this additional time will not impact the overall benefits of the project or impact reliability, as mining and other infrastructure developments have been progressing at a slower than expected pace in Northwestern Ontario ("the Northwest"). The IESO, in its latest 18-Month Outlook, confirms that at current demand levels the Northwest can be reliably supplied with existing infrastructure.

The current schedule for the East-West Tie expansion project has Upper Canada Transmission Inc. (OA NextBridge Infrastructure), the designated transmitter, applying for Board Leave to Construct ("LTC") approval in early 2015 in order to meet an in-service date of 2018. NextBridge Infrastructure ("NextBridge") has been pursuing a compressed development schedule in order to meet this accelerated in-service date.

Extending the 2018 in-service date requirement would provide additional time for developing the East-West Tie Expansion project, with a focused aim of reducing its cost. Some of the areas where costs could be reduced include: pursuing a shorter line routing option; optimizing equipment and system design, including staging of station facilities; and having a less compressed schedule for the development and implementation of the project.

With regard to line routing, NextBridge was advised in February 2014 by the federal government that a route through Pukaskwa National Park, adjacent to the existing East-West Tie line, would not be considered. As a result, NextBridge has been focusing on developing a longer, alternate route around the park. In addition to being more costly due to the added distance, this route could require the creation of a new linear corridor. On July 9th, The

Honourable Bob Chiarelli, Ontario Minister of Energy, wrote to The Honourable Leona Aglukkaq, Federal Minister of the Environment, requesting that the federal government reconsider its position to avoid adding significant incremental costs to ratepayers. If a decision by the federal government allows consideration of the route through the park, the OPA understands that NextBridge would need additional time to gather data on that route in order to complete its Environmental Assessment ("EA"). The OPA believes that there is value to Ontario ratepayers in pursuing this route, which has the potential for cost savings and lower environmental impact.

Extending the timeframe for development work could also allow the LTC and EA approvals to be sought sequentially, rather than in parallel. If feasible, this could reduce the risk that the outcome of the EA process could change the assumptions on which an LTC decision is based.

In the last few years, the OPA has updated its forecasts as indicators of mining development have changed. In 2013, based on several mines and other loads reaching important milestones, the OPA published a higher forecast for the Northwest than it had previously (See *Updated Assessment of the Rationale for the East-West Tie Expansion* filed under EB-2011-0140 on October 8, 2013). In 2014, based on the most recent available information, the OPA revised its forecast downwards in recognition that the pace of mining and other infrastructure developments in the Northwest had slowed (See *Assessment of the Rationale for the East-West Tie Expansion - Second Update Report* filed under EB-2011-0140 on May 5, 2014). Since May, there has been no indication that this slowing trend will change in the next while. Given the current forecast outlook, the OPA believes that a delay of up to two years in the in-service date would not adversely impact reliability in the Northwest. Should demand ramp up more quickly than planned, the OPA is aware of a number of short-term options, from responses to its recent Request for Information, that it could procure to bridge any gaps that may develop. The OPA will continue to monitor developments in the Northwest and adjust its plans accordingly.

The OPA continues to support the East-West Tie as the long-term alternative to supply the Northwest and maintains that development work should continue. The OPA recognizes that due to the nature of the loads in the Northwest, demand growth can develop quickly and in large blocks. Continuing with development work will allow the East-West Tie expansion project to come into service quickly should the pace of demand growth change. To this end, the OPA is prepared to continue to support NextBridge in its development activities. In addition, the OPA supports the initiation of development work on the Northwest Bulk Transmission line, another Northwest priority project identified in the 2013 Long-Term Energy Plan. The Northwest Bulk Transmission line would supply demand growth in the West of Thunder Bay and North of Dryden areas. Due to the long lead time required for new transmission line projects, proceeding with development work on both of these projects will allow for scoping of these transmission alternatives, and shorter lead times if the projects are to proceed.

On October 2, the OPA is hosting a full-day meeting with stakeholders in Northwest Ontario to discuss electricity planning including demand, supply and transmission developments and forecasts. As part of this meeting, the OPA will update stakeholders on the status of the East-West Tie project. A similar electricity planning meeting will be held with First Nation and Métis representatives, including an update on the East-West Tie project. The OPA will also

continue to communicate with stakeholders and communities in the Northwest, and to monitor load growth and developments that may impact the need for the East-West Tie project.

Given the potential benefits of extending development work and the current slower pace of mining development in the Northwest, the OPA recommends that work to focus on reducing the overall cost of the project be accommodated, including consideration of paralleling the existing route through Pukaskwa National Park, and that accordingly, the development schedule for the East-West Tie expansion be extended to work toward a 2020 in-service date. The OPA continues to support the East-West Tie as the long-term alternative to supply the Northwest.

Sincerely,



Colin Andersen
Chief Executive Officer

cc:

Eric S. Gleason, *President of Upper Canada Transmission, Inc. the sole general partner of NextBridge Infrastructure, LP*

Carmine Marcello, *President and Chief Executive Officer, Hydro One*

Bruce Campbell, *President and Chief Executive Officer, IESO*



SNC • LAVALIN

ABDEL NASSER HAIDAR, M.Eng., P.Eng.

Mr. Haïdar is a Civil Engineer with 30 years' experience in technical studies, engineering, preparation of detailed engineering and tender documents for high voltage transmission lines and substations. His experience also includes suburban electrical railway systems, as well as structural analysis and design for a variety of hydroelectric projects, industries, buildings and bridges.

SECTORS OF EXPERTISE

- | | |
|----------------|--|
| Transportation | › Mass Transit Systems |
| Power | › Hydroelectric Power; Power Transmission and Distribution |

EDUCATION

- | | |
|------|---|
| 1987 | M. Eng., Structures, Polytechnique Montreal, Montreal, Quebec, Canada |
| 1983 | B. Eng, Civil Engineering, Polytechnique Montreal, Montreal, Quebec, Canada |

EXPERIENCE

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| SINCE 1991 | SNC-LAVALIN INC., MONTREAL, QUEBEC, CANADA
Power Transmission & Distribution - Montreal
Project Manager |
| Since 2001 | <i>Hydro-Quebec's Network, Hydro-Quebec, Quebec, Canada (2001 - present)</i>
› Responsible for numerous projects of tower design, tower testing and foundation designs for Hydro Quebec's high voltage transmission lines network.

<i>DREIN Project, Development of Niger Interconnected Network, Niger (2001 - 2005)</i>
› Responsible for all civil aspects for a 66 kV, 240 km long transmission line, including establishing design criteria; finalization of line route and substations configurations, preparation of detailed technical and tender documents, as well as tender analysis and design approval. |
| Since 1991 | Senior Project Engineer
<i>Extension of the Substations of Bay D'Espoir and Western Avalon, Nalcor, Newfoundland and Labrador, Canada (2015 - present)</i>
For the extension of these substations in order to connect them with a new 230 kV transmission line design of associated structures and foundations.
› Responsible for the preparation of the technical specifications.

<i>Cooper's Mill Statcom , CMP, Maine, United States (2015 - present)</i>
› Responsible for the preparation of the technical specifications for the EPC Works related to the implementation of a statcom at the Coopers

<i>Maritime LinkSS , EMERA, Canada (2014 - present)</i> |

Years of Experience

- › 33 years

Years with SNC-Lavalin

- › 30 years

Key Positions

- › Engineer - Civil
- › Engineer - Structure
- › Engineering Design Lead

Languages

- › English
- › Arabic
- › Spanish
- › French



- › Responsible for all aspects of the structural discipline including gantries and equipment supports for two 230 kV substations in Newfoundland / Labrador (Bottom Brook and Granite Canal) and Woodbine 345/230 kV in Nova-Scotia.

Blackspring Ridge, Steel Tubular structures 240 kV TL, Altalink, Alberta, Canada (2013)

- › Design criteria review, scope of work preparation for all types of foundation works, coordination and drawings preparation for various foundation types.

Underwood 138 kV wood pole TL, Altalink, Alberta, Canada (2013)

- › Verification of wood pole structures, foundation loads, anchor types selection, preparation of foundation scope of work.

Dawson Creek Area 230 kV TL, BC Hydro, British Columbia, Canada (2013)

- › Design criteria review, new tower head configuration, tower loading, coordination and verification of work for towers types D and KG.

Hansman Lake 240 kV Latticed Tower TL, Altalink, Alberta, Canada (2013)

- › Verification of design criteria, clearances, tensioning, tower loads, hardware, spotting, obstacles.

St-Césaire/Bedford QP1A project, Hydro-Québec, Quebec, Canada (2012 - 2013)

- › Design of steel grillage foundation for towers DQA & DQB.

Lower Matagani Hydroelectric project, Ontario Power Generation, Ontario, Canada (2011 - 2012)

- › Design of the 230 kV gantries for the Smoky Falls Substation as well as the gantries for the line between the powerhouse and the substation. Preparation and finalization of suppliers specs and structures drawings.

240 kV single circuit towers, Altalink, Alberta, Canada (2011)

- › Finalizing design criteria and design requirement drawings.

Navigation aide, Fisheries and oceans Canada, Quebec, Canada (2010)

- › Design of special foundation for Navigation Aide signs on the Saint-Lawrence River, Navigable ways shores.

138 kV single circuit wood pole transmission line, Altalink, Alberta, Canada (2010)

- › Finalizing design criteria, hardware, pole selection, pole spotting, stringing etc.

240kV Tower development Tubular, Altalink, Alberta, Canada (2009)

Site Experience

- › Canada
- › India
- › Oman

Computer Applications

- › PLS-CADD
- › STAAD III
- › TOWER
- › Sframe
- › Wframe
- › Wpole
- › Pframe
- › Caisson
- › Visual Design

- › Finalizing various loading zone's ruling spans and tensioning criteria, Preliminary caisson foundation analysis and cost estimation.

500 kV Double Delta Transmission line, Altalink, Alberta, Canada (2009)

- › Finalizing various loading zone's design criteria; Tensioning criteria, Galloping analysis; tower outline definition, unbalanced and general tower loads establishment; Design requirements drawings (DRD) finalization.

Hadjret en Nouss 1227 MW Thermal Combined Cycle Plant - SKH Project, Shariket Kahraba Hadjret en Nouss SPA (SKH SPA), Algeria (2006 - 2007)

- › Responsible for the design of the substation's structures, equipment supports and their foundations.

Areva De-icer at Lévis Substation, Areva T&D Canada Inc., Canada (2005 - 2006)

Responsible for substation structural works, including the design of latticed structures and equipment supports and their foundations.

Gulf Cooperation Council Interconnection Project Tendering Process for Phase I, Gulf Cooperation Council Interconnection Authority, Bahrain (2004 - 2005)

- › Responsible for the preparation and finalization of the tender documents civil/structural aspects for a 830 km overhead transmission line along the east coast of the Arabian peninsula.

Bécancour Combined Cycle Cogeneration Power Plant 230 kV Switchyard, TransCanada Energy Ltd., Quebec, Canada (2004 - 2005)

- › Responsible for the design of the substation's structures and equipment supports and their foundations.

Skikda Combined Cycle Power Plant 400 kV Switchyard, Shariket Kahraba Skikda SKS SPA, Algeria (2004)

- › Responsible for the design of the substation's structures, equipment supports and their foundations.

Hydro-Québec Network, Hydro-Québec, Quebec, Canada (1995 - 2001)

- › Lines: Design and verification of various types of tubular and lattice tower foundations (on pile, grillage, reinforced concrete, rock). Responsible for the verification, reinforcement and design of new brackets for the stringing of the optical fiber guard wires to be installed on various tower types in Hydro-Québec's network.
- › Substations: Design of a large number of equipment supports and foundations for various substation in Hydro-Québec's network.

Omushkego Ishkotayo, Five Nations Energy Inc., Canada (2000)

138 kV Transmission Line on wood poles in Western James Bay area.

- › Responsible for establishing design criteria for the 270 km long transmission line and all four substations structures and foundations, design of substations and transmission line, and finalization of drawings.



500 kV Cheekye-Malaspina and Cheekye-Meridian Transmission Line, British Columbia Hydro, British Columbia, Canada (1999)

- › Responsible for the analysis of the towers damaged by abnormal snow accumulation and snow creep, design of reinforcement for towers and rock-anchored foundations, establishment of reinforcing procedures and finalization of drawings.

Line for the Alma Plant, Alcan Smelters and Chemicals Ltd, Canada (1998 - 1999)

- › Responsible for design of a temporary wood poles supply line; verification of available towers; tower reinforcement/modification; design of foundations for the reinforced/modified towers

Electrical Distribution Lines for the Togo and Benin Networks, Compagnie Énergie Électrique du Togo and the Société Béninoise d'Électricité et d'Eau, Togo (1998 - 1999)

- › Responsible for the development and finalization of all aspects of the design criteria documents for the medium voltage (20 and 30 kV) and low voltage (220 and 380 V) electrical distribution lines. Also responsible for the development and finalization of these lines erection standards and production of all technical drawings.

Kuttiyadi Hydroelectric Project 50 MW Extension, Kerala State Electricity Board (KSEB), India (1997)

50 MW Extension to the Kuttiyadi Power Station, India, for the Kerala State Electricity Board.

- › Responsible for the design, carried out on site according to Indian standards, and finalization of drawings for all structural components of the new powerhouse building, and control building including steel beams for the 110-ton crane, roof trusses, columns, beams, slabs, walls and anchors.

General Santos City Transmission Line, Tomen Power (Singapore) Pte. Ltd., Samar, Philippines (1996 - 1997)

138 kV transmission line

- › Responsible for the design of the various foundations of this 15-km line.

66 kV System Upgrading Project, Kerala State Electricity Board (KSEB), India (1995 - 1997)

Responsible for the structural aspects of the upgrading of the Shoranur-Kotanad-Edappal double circuit 66 kV, 32.5 km long, as well as the Malappuram-Edarikode-Tirur single circuit 66 kV, 26.5 km long transmission lines to 110 kV lines, including:

- › Defining obstacles, conductors and ground survey information required; supervising surveying in progress.
- › Site investigation assessing towers, foundations and site condition.
- › Analysis of collected survey information using PLS-CADD to verify clearances and establish new conductors tensions.
- › Analysis of towers under new loadings; selection of required tower members reinforcement; establishing reinforcement procedure; drawings finalization, quantities.
- › Verification of existing foundations, selection of reinforcements, and design of a new family of foundations.
- › Initiation of KSEB personnel to PLS-Cadd and Tower Softwares use and main features.

El Coyolar Mini Hydro Project, Secretaría de Recursos Naturales, Honduras (1996)

34.5 kV Line



- › Responsible for the establishing design criteria, verification of topographic pegs, checking of electrical clearances, design of structures and foundations, as well as the preparation of drawings and specifications for the 12 km line on wood poles between the El Coyolar power station and the city of Los Mangos.

345 kV Yulgu Transmission Line, Samsung Engineering & Construction Co., Ltd., South Korea (1995)

- › Responsible for the foundation design for the 180 m high tangent towers, as well as the dead end towers, including: geotechnical report analysis, selection of suitable type of foundation, design of rock anchored as well as pile foundations, drawing finalization, quantities.

220 kV Bakreswar Line, West Bengal, India (1995)

- › Responsible for the design of the foundations of the tower family used on this line.

Montréal/Deux-Montagnes 32 km suburban railway line, Ministère des Transports du Québec, Quebec, Canada (1992 - 1995)

- › Responsible for all conceptual civil engineering and catenary work associated to the replacement of the existing 3000 V DC overhead catenary system by a 25 kV AC voltage tension regulated one, including: collection of existing information on the catenary and supports, inspection tours, selection of additional site information required, budget and schedule of activity, establishment of loadings, analysis of catenary and existing structures, finalization of temporary modifications to existing structures, design of new structures and foundations, finalization of drawings, quantities, preparation of technical tender documents.

1988 - 1991

LAVALIN - SHAWINIGAN CONSULTANTS INC., MONTREAL, QUEBEC, CANADA
Design Engineer

Various transmission lines, Hydro-Québec, Quebec, Canada (1988 - 1991)

- › Responsible for the design of various foundations (pile, grillage and rock) for a number of electric transmission lines (735, 450, 315 and 230 kV) towers. Analysis and verification of a large number of transmission line towers.

Sungai Piah, Hydroelectric Power Station, Malaysia (1988 - 1991)

Responsible for the design of all structural elements of the station. Detailed verification of manufacturers' design for all steel structures related to both switchyards. Updating and finalization of drawings according to the latest modifications

The structural elements included :

- › The 80 T crane rail beams and their concrete supporting columns.
- › Generator and turbine floors, including slabs with large openings and trenches, beams, heavy grating, columns and walls.
- › Slabs, beams, and columns for the control building.
- › Roof trusses, columns and slabs on grade for the relay building.
- › Footings for all towers and other related structures of both upper and lower scheme switchyards and accommodation of piping and electrical conductors trenches.

Electrolytic Plant, CEZinc, Quebec, Canada (1988 - 1991)

- › Responsible for the design and corresponding drawing finalization of a large part of the electrolytic hall no. 3 of the plant. Design of multi-slope, multi-trench, acid resistant, heavily loaded reinforced concrete slab panels, supporting a number of stripping and brushing machines and resisting acid circulation on floor. Design of supporting beams and columns.

Crack analysis in dams, Hydro-Quebec, Quebec, Canada (1988 - 1991)

- › Analysis of cracks in existing dams based on the results of visual inspection and bore hole reports, and on the results of other means of sounding recommended for diagnosing the origin of these cracks and provide solutions and repair techniques.

La Gabelle Power Plant, Hydro-Québec, Quebec, Canada (1988 - 1991)

- › Preliminary analysis with STAAD-III of two access bridges, including optimization of a proposed steel truss, analysis of a composite beam option, as well as a causeway on fill with a retaining wall option.

1987 - 1988

J.J. BARRETTE & ASSOCIÉS INC., MONTREAL, QUEBEC, CANADA
Engineer

Chemin de la Côte Saint-Louis overpass over Highway 50, Mirabel, Quebec, Canada (1987 - 1988)

Responsible for the design of the Chemin de la Côte Saint-Louis overpass over Highway 50 in the municipality of Mirabel, Quebec.

- › Preliminary analysis, structure selection and preliminary drawings.
- › Design of all components for the 65-m-long bridge, using prefabricated prestressed concrete beams.
- › Completion of architectural and nonstructural aspects of the project.
- › Preparation of all data and sketches required for project drawings and verification of final design.
- › Material take-off, bill of materials and specifications.

Customs and Excise College, Government of Canada, Rigaud, Quebec, Canada (1987 - 1988)

- › Responsible for construction supervision of structural work carried out at the Customs and Excise College.

1987

ÉCOLE DE TECHNOLOGIE SUPÉRIEURE, MONTREAL, QUEBEC, CANADA
Lecturer

- › Data management course: Responsible for teaching dBase III+ and for supervising and evaluating students work.

1986

ÉCOLE POLYTECHNIQUE, MONTREAL, QUEBEC, CANADA
Master's Degree Studies

- › Design of an interactive computer system for analyzing continuous beams of variable inertia.



ABDEL NASSER HAIDAR, M.Eng., P.Eng.

1985	LE MAÎTRE BRICOLEUR INC., BROMONT, QUEBEC, CANADA Engineer › Design of a computer software for analyzing wood latticework and selection of member lengths and angle cuts, based on Canadian standards for wood and the National Building Code. › Preparation of proposals, follow-up of time and manufacturing costs.
1984 - 1985	GEORGES STATEN & ASSOCIATES, MASQAT, OMAN Site Engineer › Construction supervision of the main building, comprising five floors, for the Department of Industry and Commerce. Responsibilities included the verification of formwork and reinforcement, concrete placing, inside and outside finishing, coordination of architectural and structural plans, etc.

PROFESSIONAL ASSOCIATIONS

SINCE 2015	Professional Engineers & Geoscientists of Newfoundland & Labrador (PEGNL)
SINCE 2015	Association of Professional Engineers of Nova Scotia (APENS), Membership no. 10855
SINCE 2014	Engineers & Geoscientists British Columbia , Membership no. 40090
SINCE 2000	Professional Engineers Ontario (PEO)
SINCE 1986	Ordre des ingénieurs du Québec (OIQ)
SINCE 1983	Association des diplômés de l'École Polytechnique de Montréal

ACADEMIC POSTS

1987	Lecturer: Data management course - Responsible for teaching dBase III+ and for supervising and evaluating students work., École de Technologie Supérieure, Montreal, Quebec, Canada
1986	Master's Degree Studies: Design of an interactive computer system for analyzing continuous beams of variable inertia., Polytechnique Montreal, Montreal, Quebec, Canada

PROFILE

Over 35 years of broad industrial, research, and teaching experiences. Have extensive experience in managing large projects and leading large group of professionals. Have extensive experience in transmission lines designs; failure investigations of lines, towers, hardware, and conductors. Vast experience in refurbishment, upgrades, and damage assessment of existing transmission structures and foundations. Have Strong experience in finite element analysis, stress analysis, design, maintenance, rehabilitation and reliability analysis of structures. A pioneer in area of damage assessment of existing transmission structures using expert systems, fuzzy logic, neural networks, and hybrid intelligent systems.

SKILLS

- Effective Management
- Expertise in Troubleshooting
- Creative Problem Solving
- Performance Optimization
- Transmission lines design
- Structural analysis and design
- Damage assessment and failure investigations
- Software Expertise: PLS-CADD, PLS-POLE, PLS-Tower, LPile, Caisson, Shaft, etc.
- Finite Element Analyses (RISA 3D, SAP 2000, Ansys, etc.)

ACCOMPLISHMENTS

Published over 60 technical papers in the general area of structural engineering and wrote two chapters in two reference books. Is the recipient of many prestigious scholarships and awards and is serving on several IEEE and CSA committees and working groups.

AWARDS:

- 1979 1981 Transport Canada Research and Development Centre (TCRDC) Ph.D. Fellowship
1977 1981 University of Waterloo Graduate Scholarship
1977 1979 National Research Council of Canada, Postgraduate Scholarship (NRC)

Other awards including, Egyptian government award for distinguished under graduate students (4-years), University of Windsor graduate scholarship, Ontario Graduate scholarship (declined due to obtaining other major scholarships), etc.

Subject matter expert on CEATI conferences (2016 and 2017)

Invited to give a lecture to University of Windsor graduate students - 2017

The recipient of 2012 and 2017 Hydro One President award for innovation.

PROFESSIONAL EXPERIENCE

MANAGER/SENIOR MANAGER, TRANSMISSION ENGINEERING

May 2013 – Present

Hydro One Network Inc.

Manage lines engineering projects, standards, emergency break-fix, etc. Ensure highly-engage and motivated staff. In addition, plan training and short and medium term resources, organize workforce to meet growing work program, direct resources to meet customer's need and emergency and break-fix works, and control the work flow and work quality.

TEAM LEAD, LINES ENGINEERING

January 2006 – 2013

Hydro One Network Inc.

Supervise/Manage a group of approximately 30 lines engineering staff (18 engineers, 12 Draftspersons, and a technical clerk). The accountability includes:

- Implement engineering goals, objectives, and strategies by providing effective team leadership and direction in establishing and maintaining an effective engineering design and analysis service.
- Plan, organize, schedule, and coordinate lines work and assign tasks providing instruction, as required to ensure that lines projects achieve their deliverables.
- Develop and obtain approval for and maintain lines engineering policies, standards, templates, and products.
- Support senior management by providing consolidated information on the engineering portion of projects with respect to standards requirements, failure and root cause analyses of transmission lines components, design alternatives, etc.
- Prepare and monitor the projects budget.

DESIGN SPECIALIST and SENIOR DESIGN SPICIAIALIST

1986-2000 and 2000-2006

Ontario Hydro/Hydro One Networks Inc.

- Designed many new transmission lines and refurbished/upgraded many existing lines using PLS-CADD programs.
- Conducted Failure investigations and root cause analyses, most recently, K2Z towers/conductor failures in 2018, the B3N River crossing tower failure in 2003, failure of two 500 kV guyed towers supporting circuit X503E in 2006, conductor failure of the new

Hydro Quebec interconnection transmission line in 2008, failures of several towers supporting circuits N21W/N22W in 2002 and 2011, etc.

- Designed new transmission structures (such as the twin circuits 500kV towers type V9S and V10L, tapping structures type BPD and BPE, twin circuits, twin bundle conductors, 230 kV towers type X29 and X30, single circuit 115 kV HAT1 type, and three circuits 115kV type HAT3 families of towers). Modified numerous structures for security or loading upgrades.
- Designed new families of light duty steel-pole structures (115 kV and 230 kV) for replacement of wood-pole-structures.
- Designed all type of foundations such as caisson, spread, mat, raft, pile etc. for all types of structures such as towers, wind turbines, etc. under all types of soil conditions (cohesive, granular, rock, weak etc.).
- Conducted Damage assessment of numerous steel structures.
- Provide technical consultations to construction, asset management, Work Methods, and Provincial Lines concerning the repair, maintenance, work safety of existing-transmission structures. Also provide technical consultations for special projects such as the Revenue Metering projects and other station projects.
- Development of probabilistic models for reliability assessment and remaining life of existing transmission lines' components.
- Development of new diagnostic models for the safety evaluation of existing transmission structures using fuzzy logic and hybrid intelligent expert systems.
- Analysis of transmission structures for possible installation on communication antennas. Design various types of brackets for installation of these antennas on transmission towers and steel poles (over 200 sites have been completed generating over ≈\$6 million dollar of annual revenue to Hydro One).
- Analysis of numerous communications towers (self-supporting, guyed, monopole, etc.)
- Provided technical consultations to OHT (Ontario Hydro Technology – now Kinectrics) and OHI (Ontario Hydro International) on external projects and proposals. Projects with OHT include analysis and design structures to support wind turbines (10 kW to 600 kW) for remote installations in Ontario.

DESIGN ENGINEER,

1982-1986

Ontario Hydro (Nuclear Division)

- Seismic and finite element analyses of components in the nuclear power plant systems.
- Conducted analytical study on the effects of local impact of crushable missile on the concrete containment structure at Darlington Nuclear Power plant.

SPECIAL STUDIES:

- Development of a non-linear Finite Element Constitutive Model for pre and post crack behaviour of Reinforced Concrete Systems.
- Local Response of Reinforced Concrete Barriers to Missile Impact (pipe-whip). Computer program for missile impact was developed.

EDUCATION AND TRAINING

University of Waterloo, 1982

Waterloo, Ontario, Canada

Ph. D., Civil Engineering

Many management courses and workshops

PROFESSIONAL AFFILIATIONS/REGISTRATION

- Association of Professional Engineers of Ontario, Canada (PEO).
- Institution of Electrical and Electronic Engineers (IEEE) member of several working groups
- CSA Technical Committee on Overhead Systems C22.3 No. 1

ADDITIONAL INFORMATION

OTHER ACTIVITIES AND INTERESTS:

- Judge many engineering competitions; the latest is the HATCH Ontario Engineering Competition, University of Toronto (2012)
- Soccer, Tennis, and Classical Music

PUBLICATIONS:

(Selected Publications Related to Power Transmission Engineering)

- Ibrahim Hathout, Karen Callery, Jessica Trac, and Tariq Hathout, “Impact of Thermal Stresses on the End of Life of Overhead Transmission Conductors”; accepted for presentation and publication at 2018 IEEE Power & Energy Society General Meeting, 2018 in Portland, OR, USA.
- Karen Callery and Ibrahim Hathout, “Intelligent Corrosion Monitoring System for the Management of Existing Steel Transmission Structures”; Proceedings of the 2018-NACE International Corrosion Conference & Expo, Phoenix, Arizona, April 15-19, 2018.
- Ibrahim Hathout; Karen Callery; Tariq Hathout; Ugan Sivagnanenthirarajah “Digital image expert system for corrosion analysis of steel transmission structures”; 2017 IEEE Power & Energy Society General Meeting, 2017 IEEE, 978-1-5386-22124/17/\$31.00 ©2017 IEEE
- Ibrahim Hathout , Karen Callery, Tariq Hathout, and Yu Chen Xu , “Condition Assessment and Failure Probability of Existing Transmission Lines”, proceedings of the Power & Energy Society General Meeting, 2017 IEEE, 978-1-5386-22124/17/\$31.00 ©2017 IEEE
- Ibrahim Hathout, Karen Callery-Broomfield, and Tony Tsz-Tung Tang, “Fuzzy probabilistic expert system for overhead conductor assessment and replacement”, **proceedings of the Power & Energy Society General Meeting**, 2015 IEEE, 978-1-4673-8040-9/15/\$31.00 ©2015 IEEE
- Karen Callery and Ibrahim Hathout, “New Approach for Upgrading an Existing 115 kV Transmission Line”, proceedings of the ASCE Electrical Transmission & Substation Structures, Branson, Missouri, 2015.
- Ibrahim Hathout and Karen Callery, “Impact of Extreme Weather on Transmission lines’ Structures”, proceedings of the ASCE Electrical Transmission & Substation Structures, Branson, Missouri, 2015.
- Ibrahim Hathout and K. Juraschka, “Improved Digital Image Analysis of Corroded Steel Transmission Towers”, 2014 CIGRÉ Canada Conference, International Center, Toronto, Ontario, September 22-24, 2014.
- K. Callery-Broomfield, R. Davis, I. Hathout, M. O’Reilly, “Extreme Weather Impacts on Transmission and Distribution Systems”, 2014 CIGRÉ Canada Conference, International Center, Toronto, Ontario, September 22-24, 2014.
- Ibrahim Hathout and Karen Callery-Broomfield, “Novel Approach for Digital Image Analysis of Corroded Steel Transmission Structures, International Conference on Overhead Lines- Design, Construction, Inspection & Maintenance, Fort Collins, Colorado USA, March 31 – April 3, 2014.

- Ibrahim Hathout, Harmeet Cheema, and Karen Callery-Broomfield, "Damage Assessment of Existing Transmission Structures Using ANFIS (Adaptive Neuro-Fuzzy Inference) Model, Journal of Energy and Power Engineering 7 (2013) 2363-2372.
- Ibrahim Hathout and Harmeet Cheema, "Damage Assessment of Existing Transmission Towers Using Sugeno Model", proceedings of CIGRE Canada Conference on Power Systems, CIGRE-149, Montreal, September 24-26, 2012.
- Hathout and F. Al-Amin, "Fuzzy Probabilistic Approach for Overhead Shield Wires Assessment and Replacement", proceedings of CIGRE Canada Conference on Power Systems, CIGRE-116, Vancouver, October 17-19, 2010.
- Hathout, Ibrahim and Vu, Linda, "Failure Probabilities of Existing Overhead Shield Wires", proceedings of the 10th International Symposium on Probability Methods Applied to Power Systems (PMAPS 2008), May 25-29, 2008, Rincon, Puerto Rico USA.
- Hathout, Ibrahim, "Maintenance Prioritization of Existing Transmission Lines Using Priority Risk Indices (PRI)", proceedings of the 9th International Symposium on Probability Methods Applied to Power Systems (PMAPS 2006), June 11-15, 2006, KTH, Stockholm, Sweden.
- Hathout, Ibrahim, "Damage Assessment and Soft Reliability Evaluation of Existing Transmission Lines", proceedings of the 8th International Symposium on Probability Methods Applied to Power Systems (PMAPS 2004), September 13-16, 2004, Ames, Iowa, USA.
- Hathout, Ibrahim, and Goel, Anand, "Failure Investigation of a 230 kV, River Crossing Transmission Tower", proceedings of the 8th International Conference on Utility Line Structures", March 29-31, 2004, Fort Collins, Colorado, USA.
- Hathout, Ibrahim, Krishnasamy, Samy, Goel, Anand "Application of Fuzzy Logic to Condition Assessment and Reliability Evaluation of Utility Wood Poles", proceedings of the 7th International Symposium on Probability Methods Applied to Power Systems (PMAPS 2002), September 22-26, 2002, Naples, Italy.
- Hathout, Ibrahim, "Applications of Fuzzy Weighted Averages in Damage Assessment of Transmission Structures", proceedings of the 6th International Symposium on Probability Methods Applied to Power Systems, September 25-28, 2000, Funchal, Madeira, Portugal.
- Hathout, Ibrahim, "Reliability of Existing Transmission Lines", proceedings of the 5th International Symposium on Probability Methods Applied to Power Systems, September 21-25, 1997, Vancouver, British Columbia.
- Hathout, Ibrahim, "Soft Reliability Assessment of Existing Transmission Lines", Proceedings of ISUMA-NAFIPS'95, University of Maryland, College Park, September 17-20, IEEE Computer Society Press, 1995.

- Hathout, Ibrahim, "Expert system for Damage assessment and reliability evaluation of existing transmission structures", proceedings of the 4th International Symposium on Probability Methods Applied to Power Systems, September 26-29, 1994, Rio de Janeiro, BRAZIL.
- Hathout, Ibrahim, "Treatment of uncertainty in a fuzzy logic expert system for damage assessment of transmission structures", A chapter in the reference book "Uncertainty Modelling and Analysis: Theory and Applications", edited by B.M. Ayyub and M.M. Gupta, Machine Intelligence and Pattern Recognition, Elsevier Science Publishers B.V., North-Holland, 1994.
- Hathout, Ibrahim, "A new approach for damage assessment and reliability evaluation of existing transmission structures", CEA spring meeting, Toronto, March 1994.
- Hathout, Ibrahim, " Damage Assessment of Existing Transmission Towers Using Fuzzy Weighted Averages", proceedings of the 2nd International Symposium on Uncertainty Modelling and Analysis, ISUMA'93, University of Maryland, College Park, April 25-28, 1993, pp. 573-580.
- Hathout, Ibrahim, "Safety and Reliability Evaluations of Existing Transmission Lines Using Fuzzy Set Theory", A chapter in the reference book "Analysis and Management of Uncertainty: Theory and Applications", edited by B.M. Ayyub, M.M. Gupta and L.N. Kanal in the series Machine Intelligence and Pattern Recognition, Volume 13, Published by Elsevier Science Publishers B.V., North-Holland, 1992.
- Hathout, Ibrahim, " Reliability and Security Evaluation of Existing Transmission lines Using Fuzzy Set Theory", proceedings of the 3rd International Symposium on Probability Methods Applied to Power Systems, July 3-5, 1991, London, UK, pp. 92-96.
- Krishnasamy, S.G., Hathout, I. and Tabatabai, M., "Reliability Based Design of Transmission Lines - A Critical Review", proceedings of the 3rd International Symposium on Probability Methods Applied to Power Systems, July 3-5, 1991, London, UK, pp. 86-91.
- Hathout, Ibrahim, " Safety Evaluation of Existing Transmission Lines", proceedings of the 1st International Symposium on Uncertainty Modelling and Analysis, ISUMA'90, University of Maryland, College Park, Dec. 3-5, 1990, pp. 244-248.
- Hathout, Ibrahim, "Reliability of Transmission Structures Using non-linear Finite Element Analysis", proceedings of the 2nd International Symposium on Probability Methods Applied to Power Systems, September 20-23, 1988, Oakland, California, pp. 19.1 - 19.12.
- Krishnasamy, S.G., Tabatabai, M. and Hathout, Ibrahim, "Wind and Ice Loads Data Base for Probability-Based Design of Transmission Lines", proceedings of the 2nd International symposium on Probability Methods Applied to Power Systems, September 20-23, 1988, Oakland, California, pp. 31.1 - 31.14.

TECHNICAL REPORTS:

Numerous technical internal and external reports range from missile impact on containment structure (nuclear) to failure analysis of towers due to tornadoes and microbursts.

Mr. Makuch is a Structural Engineer with twenty-seven years of experience. He is an expert in design of transmission line towers and their foundations (in overburden, rock and on piles). He has witnessed several tower tests and line accessories. He also worked in the design of steel and concrete structures (e.g. heavy industrial buildings, concrete foundations (spread footings and pile caps), concrete slabs and retaining walls, and steel connections). He presented a seminar on the design of transmission line towers for the Ethiopian Electric Power Corporation (EEPCo) in Addis Ababa, Ethiopia and gave training for Power Grid Corporation of India Engineers in Montreal on EHV substation design with reference to the 765 kV Seoni substation Project – Structure and Foundation Design

SECTORS OF EXPERTISE

- | | |
|----------------------------|---|
| Infrastructure & Buildings | › Industrial Buildings |
| Power | › Transmission Lines in Alternating Current; Transmission Lines in Direct Current; Distribution Systems |

EDUCATION

- | | |
|------|---|
| 2000 | Intensive training in project management, University of Quebec in Montreal, Montreal, Quebec, Canada |
| 1986 | B. Eng. Civil Engineering, McGill University, Montreal, Quebec, Canada |
| 1985 | Graduate Courses in Pre-stressed Concrete, Advanced Design in Metals, Earthquake Resistance Design of Structures, McGill University, Montreal, Quebec, Canada |
| 1981 | Combined B. Eng. and M. Eng. Program – Specialization in Design of Bridges and Highways, Technical University of Wroclaw, Wroclaw, Poland |

EXPERIENCE

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| SINCE 2016 | <p>SNC-LAVALIN INC., QUEBEC, CANADA
 Senior Foundation and Structural Engineer</p> <p>Hydro and Power Delivery, Power</p> <p><i>Tower type FCG, Hydro-Quebec, Quebec, Canada (2017 - present)</i></p> <ul style="list-style-type: none"> › Design and detailing of a rigid 735 kV suspension tower (0°-20°) type FCG. <p><i>TL266 Gantry -Hardwoods Terminal Substation, Nalcor, Newfoundland and Labrador, Canada (2016 - present)</i></p> <ul style="list-style-type: none"> › Design and detailing of 230kV gantry and foundation design. › Preparation of technical specifications (Construction& Procurement). <p><i>TL267 (BDE-WAV) Bay d'Espoir to Western Avalon, Western Avalon (WAV) Terminal Substation, Nalcor, Newfoundland and Labrador, Canada (2016 - present)</i></p> <ul style="list-style-type: none"> › Design and detailing of 230kV gantry and foundation design. › Preparation of technical specifications (Construction& Procurement). <p><i>Maritime Link Project -345/230kV Substation, ABB, Quebec, Canada (2017)</i></p> |
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Years of Experience

- › 32 years

Years with SNC-Lavalin

- › 12 years

Key Positions

- › Design Supervisor/Manager - Structural
- › Engineering Design Lead
- › Engineering Specialist - Structural

Languages

- › English
- › French
- › Polish
- › Russian
- › Ukrainian

Site Experience

- › Canada
- › India

- › Design of Pull Box for Telecom Cable to Radio Tower.

Tower Failure Investigation (L20D/H22D), Hydro One, Ontario, Canada (2016)

- › Review of TOWER models (structures 5 to 9) within the scope of work of the failure investigation for circuit L20D/H22D between Harmon Junction and Kipling GS in Northern Ontario, to determine the cause of towers failure.
- › Preparation of a report.

2014 - 2016

WSP, QUEBEC, CANADA
Senior Project Engineer

Tower and Foundation Design

Design Workshop, Pepco Holdings Inc, United States (2014 - 2016)

Preparation of Design Workshop including the following modulus

- › Module 5: Weather and Structural Load Design Criteria
- › Module 6: Clearance
- › Module 7: Transmission Line Structures

86,4 MVAR, capacitor project, BL England, Maryland, United States (2014 - 2016)

- › Design verification of BL England substation.
- › Design verification of High Street substation

FEM type tower. 735 kV Single Circuit Transmission Line, circuit 7027, Hydro-Quebec, Canada (2014 - 2016)

- › Determination of foundation loads (manual calculations).
- › Grillage foundation for monopod FEM type tower. 735 kV Single Circuit Transmission Line, circuit 7027, Micoua Substation.
- › Determination of foundation loads (manual calculations).
- › Validation of existing grillage foundations (200kPa soil capacity) to accommodate new loads and soil capacity of 120 kPa.

Design of a New Long Lake 138 kV Transmission Line, Long Lake Hydro Inc./Regional Power, Canada (2014 - 2016)

- › Preparation of the Design Basis Memorandum for the design of a new transmission line.
- › Preparation of technical specifications and scope of work documents.
- › Preparation of Design Requirement Drawings for the design and fabrication of steel tubular structures.
- › Design of stub extensions to resist severe snow creep and glide loads Comparison of foundations loads of tubular steel structures having horizontal and vertical configurations, as well as latticed monopode towers of horizontal and vertical configurations. Structure weight and cost evaluation in order to choose the best tower configuration and type for the new transmission line.

Finavera Renewables Inc. Meikle Creek Wind Energy Project, 230 kV Transmission Line Peace River Regional District, Boreas Construction, British Columbia, Canada (2014 - 2016)

- › Preparation of the preliminary design basis for the design and construction of a 230 kV transmission line (wooden structures) in British Columbia.
- › Verification of PLS-Pole structure models.

Okikendawt Hydroelectric Project 44 kV Distribution Line, Hydromega Services inc, Dokis Bay, Ontario, Canada (2014 - 2016)

- › Product review for wooden poles damaged by woodpeckers.
- › Woodpecker pole damage assessment.

Independent Review of the Long Lake 138 kV Transmission Line, Long Lake Hydro Inc./Regional Power, Mississauga, Ontario, Canada (2014)

Near Steward

- › Preparation of an Assessment Report of the Transmission Line.
- › Site inspection and line evaluation.
- › Verification of conceptual design including tubular steel structures, sag and tension calculations, loadings, design criteria and ground electrical clearances, snow creep loads as well as structural failures evaluation.
- › Preparation of arbitration documentation.

Update of Line Route Study and Environmental and Social Impact Assessment (ESIA) on the 330 kV WAPP North Core, Client: West African Power Pool (WAPP), Benin (2014)

- › Participation in the Kick-off meeting in Cotonou, Benin (November 27 & 28, 2014) .
- › Presentation on the line route methodology.

2009 - 2014

SNC-LAVALIN INC., MONTREAL, QUEBEC, CANADA

Power Transmission & Distribution - Montreal

Senior Project Engineer

Tower and transmission line design; supervision and distribution of work.

Dawson Creek Area 230kV Transmission Line Project, BC Hydro, British Columbia, Canada

- › Verification and re-design of tower types D & KG.

SC Black Spring Ridge Tubular Pole Transmission Line, Altalink, Alberta, Canada

- › Design of concrete pile foundations (caissons) for 240 kV transmission line.

D.C. Transmission Line for Rumaila 150 MW Early Power Plant Project, BP Iraq NV, Iraq

- › Involved in preparation of the technical proposal for 132kV D.C. transmission line.

220kV Line Kamanyola (Ruzizi III) - Bujumbura, Régie de Production et Distribution d'Eau et d'Électricité (REGIDESO), Burundi, CA \$2 286 315

Feasibility study, detailed engineering and preparation of tender documents.

- › Involved in a feasibility study for 220kV Kamanyola (Ruzizi III) - Bujumbura (220kV, S.C. and 110kV, D.C. Lines).

St-Césaire / Bedford QP1EA Project, Hydro-Quebec, Canada

- › Structural verification of Tower #1 (circuit 1424) at 120kV;
- › Structural verification of the 230kV DQB tower;
- › Design of special +4.0 m Body Extension for tower DQB;
- › Structural verification of 230kV DQA tower.

Charlesbourg Substation Looping Project, Hydro-Quebec, Canada

- › Structural verification of DPK tower of future transmission line no. 2325;

- › Special foundation design in overburden (MT140kPa) for the DPK tower.

Special Hydro-Quebec Project, Hydro-Quebec, Canada

- › Design of a temporary pole base.

Les Boules / Copper Mountain QRBDR Existing 161kV Line Project, Hydro Quebec, Canada

- › Verification, design and production of foundation drawings in overburden (MT100-kPa) for Les Boules-Gaspé and the Lévis-Les-Boules tangent towers.

Relocation of circuits 3058 and 3058 of the Chenier Substation Projects, Hydro-Quebec, Canada

- › Replacement of damaged tower members of the Tower no. 74.

Bécancour-Nicolet-Gentily 2 Project, Modified DQB Towers (Transpositions) Project, Hydro-Quebec, Canada

- › Design of transposition towers H10 and H18.

315kV D.C. North-East Network Upgrade for the Metropolitan Region Project, Hydro-Quebec, Canada

- › 315kV D.C. EPM type tower foundations design in overburden (MT100 and MT150); roc foundations with and without knee-brace and foundations on-piles; Types P1 and P2;
- › Participation in the 315kV D.C. rigid, angle & dead-end 10° to 90° tower type EPM testing at Gammon India Ltd. in Deoli, Wardha, Maharashtra - India;
- › Detailed design of 315kV D.C. rigid, angle & dead-end tower 10° to 90° type EPM.

Montagnais Normand (Blomlake Mine) EGD Tower Design Load Study Project, Hydro-Quebec, Canada

- › Detailed design of 345kV S.C. (EGD) - Bloomlake Mine guyed lattice suspension tower of 0° - 5° line angle.

Muskrat Falls Hydroelectric Development, Nalcor Energy, Canada, CA \$6 000 000 000, 824 MW

The 824 MW development will comprise a 35 m high roller-compacted concrete dam, a spillway discharge capacity of 25,000 m³/s, 1,200 km of HVDC overhead transmission lines as well as HVAC overhead transmission lines.

- › Involved in Towers and foundations design review of the 315kV HVAC Muskrat Falls to Churchill Falls transmission line.

Nicolet-Bécancour-Gentily 2 Line Project, Hydro-Quebec, Canada

- › Detailed design of two (2) 230kV D.C. DQA and DQB latticed towers.

315kV S.C. (EGD) guyed latticed suspension 0° to 5° tower, Hydro-Quebec, Canada

- › Design and detailing of 315 kV S.C. (EGP) guyed latticed tower.
- › Participation in tower testing at Gammon India Ltd at Deoli, Wardha, Maharashtra, India.

Project Lower Mattagami River; Smoky Falls 2GS, KAP and Ontario Power Generation, Canada

- › Responsible for the design of substation frameworks and foundations and for a 4km, 230kV D.C. transmission line allowing connection to the HONI (Hydro-One) network.

Foundation Verification and Design for Site Using Navigational Assistance, Pêches et Océans Canada, Garde Côtière, Quebec, Canada

- › Longue Pointe Route, FP; concrete foundation verification;
- › Île Ste-Thérèse, FA, downstream; metallic foundation verification;
- › Île Ste-Thérèse, FP, downstream; metallic foundation design;
- › Nicolet, FP Crossing; concrete foundation design;
- › Nicolet, FA Crossing; concrete foundation design.

Existing 500kV KA Tower, Altalink Management Ltd., Alberta, Canada

- › Design of a new +6.0m Body Extension.

Nicolet-Bécancourt-Gentily 2, 230kV D.C. Line, Hydro-Quebec, Quebec, Canada

- › Detailed design of two (2) latticed towers (type DQA and DQB);
- › Design was stopped by Hydro-Quebec after having finished design work for the DQA tower.

Miscellaneous Hydro-Quebec Projects, Hydro-Quebec, Canada

- › Detailed preliminary design of a 735kV, S.C. guyed angle (0° to 45°) Tower (FHH), and a 735kV, S.C. guyed latticed suspension Tower (FHA).

CB-5 Tower, Hydro-Quebec, Canada

- › Complete structural verification of foundation in overburden and on-rock for the CB-5 Type Tower.

Expansion of 220/22kV Grid in Dhabiya Area for Interconnection with ADCO / Lot 2 Overhead Lines, Abu Dhabi Water & Electricity Authority, United Arab Emirates

- › Preliminary study for existing conductor replacement for a new conductor with better electrical capacity;
- › Existing portal frame verification for durability to avoid replacement and/or reinforcement.

Rimouski Les Boules-Baie des Sables Rigid Suspension Tower for 161kV Line, Hydro-Quebec, Canada

- › Verification of Tower No. 38, for a 23m of horizontal displacement on-site.

500kV D.T. Steel Straight-Line Tower (tubular), SNC Lavalin ATP, Alberta, Canada

- › Preliminary design verification of caisson foundations (in order to determine cost), with loadings corresponding to 200, 225, 250, 275, 300, 325, 350 and 375m ruling spans.

240kV D.C. Tangent Steel Tower, Tubular Version, SNC Lavalin, Alberta, Canada

- › Verification of preliminary caisson design for tubular poles with loadings corresponding to 200, 225, 250, 275 and 300m ruling spans.

Monopod Angle Tower (FEJ), 1st Line Chamouchouane-Jacques-Cartier, Hydro-Quebec, Canada

- › Design verification of foundations in overburden (100kPa).

230kV D.C. Rigid Angle (0° to 60°) Tower (DPK), Hydro-Quebec, Canada

- › Design of stringing beam for ground wire.

Reconstruction of Tower 328 circuits 3011/3020, Hydro-Quebec, Canada

- › Modification of three (3) 315kV Towers of the Bersimis 2 family:
 - Analysis and reinforcement of towers, number 327, 329 and 330 to withstand climatic loads of the zone of 40mm of radial ice and 105km/h wind;
 - Preparation of tower outline, calculation sheets, utilization criteria and foundation loading drawings for each tower;
 - Verification of detail drawings showing the reinforcements.

Lac Otehluk Iron Ore, Feasibility Study, 735 kV S. C. Transmission Line, Exploitation Minière Lac Otehluk Ltée, Quebec, Canada

- › Corridor selection and determination of the most economical line route.
- › Preparation of design criteria.
- › Preliminary design of 735 kV S.C. tangent guyed tower in order to determine total tower weights and foundation reactions.

Fort St. John transformer upgrade project, Fort St. John substation, BC Hydro , British Columbia, Canada

- › Design criteria review.

Fort. St-James green energy project, 60L 344 line tap modification at substation FM2, BC Hydro, British Columbia, Canada

- › Design basis verification and approval.

115 kV Hearn switching section project, ABB, Quebec, Canada

- › Design of G1, G2 & G3 type towers.

2005 - 2009

RSW INC., MONTREAL, QUEBEC, CANADA
Senior Project Engineer

315kV Existing Circuits 3006-3068, Hydro-Quebec, Canada

- › Structural verification of four rigid towers, Bersimis type, of existing circuits.

115kV Transmission Line, Victor Project, De Beers Canada Inc., Canada

- › Preparation of bid - preliminary design of wooden structures.

Foundation Design for towers BFA and BFC, Line Nemiscau - Washaganish, Hydro-Quebec, Canada

- › Foundation design verifications.

Training Workshop in Ethiopia for EEP Co Engineering Staff, Ethiopian Electric Power Corporation (EEPCo), Addis Ababa, Ethiopia

- › Mechanical & Civil Design of Transmission Line Towers;
- › Structural Analysis of EPPCo Towers.

Replacement of existing earth wire, Ethiopian Electric Power Corporation (EEPCo) and Canadian International Development Agency (CIDA), Ethiopia

- › Feasibility study for the replacement of an earth wire by a telecommunication cable on the Ethiopian 230/132kV line network.

XACBAL Hydroelectric Project, 230/34 kV Substations, Hidro XACBAL. S.A., Quiché, Guatemala

- › Foundations design for steel structures, equipment supports and poles.

Design of 230kV SC (DGQ) angle guyed (0° to 42.5°) tower, Hydro-Quebec, Canada

- › Modification of an existing 735kV (FGJ) guyed tower to suite the 230kV line river crossings with 315kV electrical clearance requirements.

Design of 230kV SC (DAE) tangent rigid (0° to 1.5°) tower, Hydro-Quebec, Canada

- › Assistance in the tower testing at DAMP ELECTRIC site in Sabara, Brazil.

Design of 230kV SC (DAI) angle and dead-end (0° to 50°) tower, Hydro-Quebec, Canada

- › Design of 230kV SC (DAI) angle and dead-end (0° to 50°) tower, as well as its foundations in overburden (100kPa) and on rock.

Foundations design (in overburden and on rock) for Hydro-Quebec's towers, Hydro-Quebec, Canada

- › 315kV D.C. rigid tangent tower (EPA);
- › 315kV D.C. rigid angle (0° to 5°) tower (EPD);
- › 315kV D.C. rigid angle and dead-end (0° to 60°) tower (EPK);
- › 315kV D.C. rigid angle (0° to 60°) and crossing (0° to 90°) tower (EAY) (foundation in overburden only).

315kV DC (EOU) rigid tangent river crossing tower, Hydro-Quebec, Canada

- › Design of 16.67m Leg Extension;
- › Design of foundation in overburden; 150kPa.

230kV SC (DAM) angle rigid (90°) tower, Hydro-Quebec, Canada

- › Assistance in the tower testing at Kalpantaru Power Transmission Ltd. site near Ahmedabad, India.

Foundation design for 230kV SC (DAM) angle rigid (90 °) towers, Hydro-Quebec, Canada

- › Foundations in overburden; 100kPa and 150kPa;
- › Rock foundations; 2000kPa;
- › Pile foundations.

402S Scotford Expansion Substation, 138kV Scotford Transmission Line, ATCO Utility Services, Alberta, Canada

- › Responsible for the design of the new line as well as for the modification of the existing 138kV ALCO3L Line (wooden poles) due to a tapping to the new line;
- › Load calculations for new steel poles as well as for the existing 138kV wooden poles ALCO3L line to be modified for a tap to be connected to a new line;
- › Design of caissons;
- › Preparation of all line drawings.

220kV DC Transmission Line (Snow and Non Snow Zones), Allain Duhangan Hydroelectric Project (192 MW), Indo Canadian Consultancy Services, Delhi, India

- › Evaluation of bids for Snow and Non Snow Zones, 220kV Transmission Lines;
- › Responsible for verification of all structures;
- › Site visits to Himalayas for line route assessment.

Modification of a rigid 161kV DC (B7M) tower, Peribonka-Simard Line, Hydro-Quebec, Canada

- › Calculation of wind and ice loads on the tower;
- › Modeling and analysis of maximum height tower;
- › Design of a new 3.0m Body Extension;
- › Preparation of tower outline, calculation sheets, utilization criteria and foundation loadings drawings;
- › Verification of tower construction drawings;
- › Design for stringing beam for the optical groundwire.

Design and testing of 161kV DC (CSK) angle and dead-end (0° to 60°) guyed tower, Peribonka - Simard Line, Hydro-Quebec, Canada

- › Calculation of wind and ice loads on the tower;
- › Modeling and analysis of tower, including different body extensions and guy dispositions;
- › Preparation of tower outline, calculation sheets, utilization criteria and foundation loadings drawings;
- › Tower analysis taking into consideration vertical uplift of 150mm or more of the foundation;
- › Verification of tower construction drawings;
- › Design of stringing beams for the conductor and optical groundwire;
- › Assistance in the tower testing at the Jyoti Structures site in Nsahik, India.

Design and testing of 161kV DC (CSA) tangent guyed tower, Peribonka-Simard Line, Hydro-Quebec, Canada

- › Calculation of wind and ice loads on the tower;
- › Modeling and analysis of tower, including different body extensions and guy dispositions;
- › Preparation of tower outline, calculation sheets, utilization criteria and foundation loadings drawings.
- › Tower analysis taking into consideration 15% slope of the terrain, four guys with one 25m longer than others, tolerance of 5% to 7% in the location of guys, broken guy and vertical uplift of 150mm or more of the foundation;
- › Verification of tower construction drawings;
- › Assistance in the tower testing at the ABB site in Betim, Brazil.

Repair of the tower #16 of the Quebec –Stadcom Line, Hydro-Quebec, Canada

- › Verification of tower for the hourly annual wind loading, the minimum temperature of the region and winter loadings;
- › Verification of tower with temporary guys.

315kV SC (ROK) angle and dead-end guyed tower, complex Romaine, line Romaine 1 – Romaine 2, Hydro-Quebec, Canada

- › Preliminary design of 315kV SC (ROK) angle and dead-end guyed tower.

315kV SC (ROO) tangent guyed tower, Complex Romaine, Romaine 1 – Romaine 2 Line, Hydro-Quebec, Canada

- › Preliminary design of 315kV SC (ROO) tangent guyed tower.

315kV DC (ETI) tangent guyed tower, Complex Romaine, Romaine 1 – Romaine 2 Line, Hydro-Quebec, Canada

- › Preliminary design of 315kV DC (ETI) tangent guyed tower.

Training for Power Grid Corporation of India (POWERGRID) Engineers, Power Grid Corporation of India, Quebec, Canada

- › EHV Substation Design with Reference to the 765kV Seoni Substation Project - Structure and Foundation Design.

735kV SC tower (FHH), Complex Romaine, Arnaud-Romaine 1 (150 years) Line, Hydro-Quebec, Canada

- › Preliminary study of a guyed angle and dead-end (0° to 45°) 735kV SC tower (FHH).

2003 - 2005

BRETTON BLAINVILLE & ASSOCIÉS, MONT SAINT-HILAIRE, QUEBEC, CANADA
Senior Project Engineer

Modification of the Levis substation due to thermal deicing, Hydro-Quebec, Canada

- › Load calculations for various new structures for 22kV and 735kV lines;
- › Verification of electrical clearances for 22kV, 230kV and 735kV lines.

Modification of the Pandora substation, Hydro-Quebec, Canada

- › Stringing sag and tension calculations for 25kV and 120kV lines.

Sault Ste-Marie, Ontario Anjigami and Sault 230kV Line Reconstruction, Great Lakes Power Ltd., Canada

- › Acting as the Owner's representative performs a complete design verification of a new 230kV overhead line (wooden structures).

Iron Ore Company of Canada Mine loading pocket no. 3, Iron Ore Company of Canada, Canada

- › Design of wooden structures for 4.16kV line.

Energie Eolien du Mont Copper, Vestas-Canada Wind Technology Inc., Quebec, Canada

- › Build and design project of 34.5kV and 69kV lines. Verification of wooden poles and H-frame wooden structures, including the calculations of sag and tension, plan and profile and loading calculations.

Alcoa Plant at Baie-Comeau, Hatch and Associates Inc., Canada

- › Feasibility study of the exploitation of the line no.12 at 95° C, including verification of electrical clearances, plan and profile and preparation of a report.

1998 - 2003

DESSAU-SOPRIN INC., MONTREAL, QUEBEC, CANADA
Senior Design Engineer

Reinforcement of towers at the Levis substation, Hydro-Quebec, Canada

- › Reinforcement of towers at the Levis substation due to thermal deicing and replacement of ground wires for the following lines:
 - Ligne Lévis-Kamouraska Circuits 3078 & 3079 - 315kV, D.T. rigid suspension towers, types I et II;
 - Ligne Laurentides-Lévis Circuit 7010 - 735kV, S.T. rigid 15° angle tower;
 - Ligne Lévis-Manicouagan Circuit 7007 - 735kV, S.T. rigid 15° angle tower;
 - Ligne Lévis-Appalaches Circuit 7097 - 735kV, S.T. rigid 30° to 60° angle tower (FBJ).

Verification of existing Hydro-Quebec towers, Telus Mobility, Canada

- › Verification of existing Hydro-Quebec towers, against the Hydro-Quebec specifications, due to the installation of

telecommunication antennas.

Standardization of 330/132kV Transmission Line Towers, Electric Power Authority, Abuja, Nigeria

- › Standardization of 330/132kV Transmission Line Towers.

Preliminary design of 315kV guyed suspension tower, Hydro-Quebec, Canada

- › Preliminary design of 315kV guyed suspension tower.

Design of caisson foundations for 120kV Lanaudiere – St.-Sulpice transmission line, Hydro-Quebec, Canada

- › Design of caisson foundations for 120kV Lanaudiere – St.-Sulpice transmission line.

315kV Manicouagan 5 – Micoua 2nd Line, Hydro-Quebec, Canada

- › Modeling, analysis and detailing of suspension, double suspension, 15°, 30°, 45°, 60° angle lines and transposition towers due to new loads and replacement of a ground wire by a new optical ground wire.

Design of caisson foundations for 120kV Sherbrooke – St.-François transmission line, Hydro-Quebec, Canada

- › Design of caisson foundations for 120kV Sherbrooke – St.-François transmission line.

Consorcio Trans Mantaro SA., Peru, Line Mantaro-Socabaya, Hydro-Quebec, Canada

- › Design of special foundations for tower type DD No. 990, including tower verification, design of inverse body extensions and steel connections.

Analysis of 375 feet high River Crossing Suspension Towers, Hydro-Quebec, Quebec, Canada

- › Analysis of 375 feet high River Crossing Suspension Towers.

New 230kV suspension/rigid 0° to 90° angle “D9M” tower, Hydro-Quebec, Canada

- › Complete modeling, design and detailing of a new 230kV suspension/rigid 0° to 90° angle “D9M” tower.

Structural analysis of telecommunication tower located at St-Phillipe de Neri, Bell Canada, Canada

- › Structural analysis of telecommunication tower located at St-Phillipe de Neri due to the addition of two new antennas.

Mantaro-Socabaya Line, Hydro-Quebec, Canada

- › Design of reinforced concrete columns and rock foundations, including verification for stability and overturning of foundations.

Towers Modification including the design of a new 6.0 m body extension, Hydro-Quebec, Canada

Modification to the following towers including the design of a new 6,0 m body extension for each tower, for Hydro-Quebec:

- › 315kV D.T. rigid 0° to 5° angle “EOD” type tower with optical ground wire;
- › S.T. rigid 30° to 60° angle “FBJ” type tower with optical ground wire;
- › S.T. rigid 60° to 90° angle “FBL” type tower with optical ground wire;
- › 120kV D.T. rigid 10° angle “B6F” and 30° angle “B6G” type towers.

Various Towers Modifications, Hydro-Quebec, Canada

Participation in the modification of the following towers, for Hydro-Quebec:

- › 120kV D.T. rigid suspension Type I (B6A) tower;
- › 120kV D.T. rigid suspension Type II (B6B) tower;
- › 120kV D.T. rigid suspension Type III (B6C) tower;
- › 120kV D.T. rigid suspension Type III (B7C) tower;
- › 120kV D.T. rigid 90° angle (B7M) tower;
- › 315kV D.T. suspension (EOA) tower.

1996 - 1998

HATCH AND ASSOCIATES INC., MONTREAL, QUEBEC, CANADA

Senior Project Engineer

Thin Copper Foil Plant, Société Générale de Financement du Quebec (SGF-CFL), Canada

- › Feasibility study and cost estimate of the entire plant.

Preparation of General Specifications, Hatch and Associates inc., Quebec, Canada

- › Preparation of Hatch general specifications (steel and concrete) for English and French Canada, as well as the U.S.A.

ALP Building, QIT Fer et Titane Inc., Quebec, Canada

- › Verification of the validity of a claim for additional works on the ALP building claimed by the contractor;
- › Preparation of documents for arbitration.

Verification, Reinforcement and Design, QIT Fer et Titane Inc., Quebec, Canada

- › Verification and/or reinforcement of existing structures for new fume-capture hoods (moving loads);
- › Design of built-up beam sections (including moment capacities determination) and detail engineering of various steel and concrete connections.

Canada Rod Mill Modernization – Phase II, IVACO Rolling Mills, L'Original, Ontario, Canada

- › Preliminary design of reducing size mill foundations (both spread footings and foundations on piles);
- › Recuperator and stack foundation designs;
- › Verification of casting machine cooling bed's rakes and beams for a full capacity (42 billets) load;
- › Preliminary design of breakdown mill electrical room.

Mileage 1.4 to 2.2 Vaudreuil Subdivision, Canadian Pacific Railway, Quebec, Canada

- › Stilling basin cover design;
- › Light pole foundation design.

Caribou Mine, Caribou Mine, New Brunswick, Canada

- › Steel tank design verification.

UGS Project, QIT Fer et Titane Inc., Quebec, Canada

- › Preliminary design verification of Acid Leaching and Utilities Buildings;
- › Design of runway for 15 MT crane and 2 T monorails;
- › Determination of wind and snow loads on 14.5 m and 43 m long conveyor trusses;
- › Design of tubular truss connections;
- › Geometry establishment of 41 m high bent for the support of five conveyor galleries;
- › Complete design of 21 m high Transfer Tower, including structural steel and concrete foundations;
- › Determination of pile quantities for preliminary design of a Cooling Tower;
- › Design of special connections (e.g. sliding connections on FABREEKA pads supported on steel and concrete beams,

	with and without a pin at truss leg ends, pin connections for truss supports taking into account settlement of opposite supports); › Design of steel beams taking into account torsion due to sliding of truss legs and horizontal forces on pin connections; › Design of concrete pilasters and pile caps for various structures, including a pile quantity determination per pile cap; › Design of steel base plates, including those with significant tensile loads; › Design of shear lugs and verification of concrete column shear capacities and design of anchor bolts with significant tension; › Verification of shop drawings; › Responsible for the coordination and design of pipe supports for 36" CO gas and 14" slurry pipe lines.
1991 - 1995	SNC-LAVALIN INC. - SNC SHAWINIGAN INC., MONTREAL, QUEBEC, CANADA Senior Project Engineer <i>Modification to 735kV Transmission line due to New Optical Ground Wire, Hydro-Quebec, Canada</i> › Involved in tower verification due to a new OPGW loads. <i>Vindhyachal Project, Phase II, Power Grid Corporation of India Limited, India</i> › Involved in preparation of a proposal. <i>Alumysa Hydroelectric Project, The Alumysa Construction Consortium/Noranda Aluminum Inc., Chile, CA \$600 000 000, 1 097 MW</i> Study of three developments : Rio Cuervo, Rio Blanco and Lago Condor, comprising three concrete-face rockfill dams, a concrete gravity overflow dam, two underground powerhouses and an above-ground one. › Involved in preparation of a proposal. <i>230kV Guasquitas – Panama II Transmission Lines and Panama Channel Crossing, Guasquitas - Panama, Panama</i> › Involved in a preparation of a proposal. <i>345kV Yulgu Transmission Line, Samsung Engineering & Construction Co., Ltd., South Korea, CA \$16 500 000</i> Two strain towers and two high suspension towers, 180 m high, with conductors and hardware, to cross the Yulgu Bay. The total length of the crossing is 2,626 meters, at an altitude of 100 m from sea level. › Preparation of a proposal for Yulgu Bay Crossing Towers (suspension and anchor). <i>Bakreswar Thermal Power Project, and proposal for Bakreswar – Armbag 400kV S/C Line, Bakreswar, West Bengal, India</i> › Involved in preparation of a proposal. <i>132kV Interconnection Nigeria-Niger, Société nigérienne d'électricité (NIGEELEC), Nigeria, CA \$50 000 000, 132kV</i> Addition of a 132kV switch bay in the Katsina substation in Nigeria, and construction of 280 km of 132kV transmission line and three 132-20kV substations in Maradi, Gazaoua and Zinder in Niger. › Complete design verification and participation in tower tests in Lecco Italy, as well as insulators (in U.K.), conductors (at cableries de Lens, France) and line accessories in Italy. <i>ATANASIO GIRARDOT Stadium's Illumination Towers, Atanasio Girardot, Colombia</i> › Failure investigation of Atanasio Girardot stadium's illumination towers.

Transmission Pole Towers, Syncrude Canada Ltd., Alberta, Canada

- › Involved in the design of steel pole structures.

1988 - 1990

MONENCO CONSULTANTS LTD., MONTREAL, QUEBEC, CANADA
Residence Structural designer

Design, checking and redesign of steel and concrete structures:

- › Design of single storey buildings;
- › Checking of concrete slabs and beams for new openings;
- › Design of footings and retaining walls;
- › Reinforcement of roof trusses;
- › Design of steel platforms;
- › Responding to site queries;
- › Checking of steel beams and columns for additional loads;
- › Design of canopies and slabs on ground.

1988

MICHELIN TIRES CANADA LTD., NEW GLASGOW, NOVA SCOTIA, CANADA
Structural Designer

Involved in the design of concrete structures, project supervision and work with contractors, updating of Michelin plant drawings by using VERSACAD and preparation of drawings for major office changes and new additions.

1988

MIL SYSTEM ENGINEERING INC., OTTAWA, ONTARIO, CANADA
Structural Designer

Weight calculation of ship structural and miscellaneous outfitting.

1986 - 1987

TRI STEEL INC., MONTREAL, QUEBEC, CANADA
Structural Designer

Involved in the following aspects of transmission line tower design:

- › Design and detailing;
- › Checking electrical clearances;
- › Development of a computer program for checking electrical clearances.

PROFESSIONAL ASSOCIATIONS

SINCE 2015

Engineers & Geoscientists British Columbia , Membership no. 42449

SINCE 2011

Professional Engineers & Geoscientists of Newfoundland & Labrador (PEGNL), Membership no. 06198

SINCE 2010

Professional Engineers Ontario (PEO), Membership no. 1001662624

SINCE 1991

Ordre des ingénieurs du Québec (OIQ), Membership no. 88974

ACADEMIC POSTS

1985

Research Assistant to R.D. Redwood, Ph. D, involved in laboratory work, testing of structural offshore joints, drafting, programming in FORTRAN language and calculations, McGill University, Montreal, Quebec, Canada

Mr. Mourad Meziane, Eng., is an Electrical Engineer with more than 20 years of solid background in transmission line engineering and line route design. He has superior skills in the use of PLS CADD, and good skills in use of Map Info, and Global Mapper. He has worked on projects carried out in Canada and other countries such as Algeria, Angola, Benin, Cameroun, Chad, Congo, Equatorial Guinea, France, Gabon, India, Togo, Ghana etc. Currently, he is working as Senior Overhead Line Engineer for 500 km of 315 kV HVAC Muskrat Falls to Churchill Falls Transmission Lines and 1100 km of 350 kV HVDC Muskrat Falls to Soldiers Pond Transmission Line, Nalcor, St John's, Canada. He speaks English, Arabic, and French.

SECTORS OF EXPERTISE

Environment	› Corridors and Route Selection
Power	› Power Transmission and Distribution
Infrastructure & Buildings	› Distribution Networks

EDUCATION

1994	M.A. Sc., Electrical Engineering, Institut National Polytechnique de Grenoble, Grenoble, France
1989	B.A. Sc., Electrical Engineering, University of Sciences and Technologies Houari Bo, Algeria

EXPERIENCE

SINCE 2008	SNC-LAVALIN INC., MONTREAL, QUEBEC, CANADA <i>Power Transmission & Distribution - Montreal</i> Transmission Line Lead Engineer Power Transmission line design up to 765 kV both AC and DC Lines <i>Transmission line lead engineer, TL 267 - 230 kV line between Western Avalon and Bay D'Espoir, NL Hydro, Newfoundland and Labrador, Canada (2016 - present)</i> 230 kV line - 190 km length Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD; Preparation of Line Design Package. Construction support <i>Transmission line lead engineer since 2016, 350 kV DC Muskrat Falls to Soldiers Pond Transmission Line, Nalcor, Newfoundland and Labrador, Canada (2013 - present)</i> 350 kV DC line - 1100 km length › Engineering of Transmission Line, line design including tower spotting and plan and profile drawing by using PLS-CADD; › Preparation of Line Design Package.
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Years of Experience

- › 22 years

Years with SNC-Lavalin

- › 9 years

Key Positions

- › Design Engineer
- › Engineering Design Lead

Languages

- › English
- › Arabic
- › French

Site Experience

- › Algeria
- › Benin
- › Canada
- › Togo

Computer Applications

- › MS Office MS Word, MS Excel, Power Point.
- › PLS CADD
- › Map Info
- › Global Mapper

- › Construction support

315 kV AC Muskrat Falls to Churchill Falls Transmission Lines, Nalcor, Newfoundland and Labrador, Canada (2011 - present)

Two 315 kV AC lines - 250 km length each

- › Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD;
- › Preparation of Line Design Package.
- › Construction support

500 kV AC Genesee Re-Termination of Transmission Lines, AltaLink, Alberta, Canada (2011)

- › Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD.

161 kV TUMU-JERAPA-WA and 330 kV ABOAZE-KUMASI-BOLGATANGA Transmission Lines, Altalink, Alberta, Canada (2011)

- › Participation on Line routing.

500 kV HVDC Transmission Line, AltaLink, Alberta, Canada (2010 - 2011)

- › Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD;
- › Preparation of Line Design Package.

240 kV Heartland Transmission Line, AltaLink, Alberta, Canada (2009 - 2011)

- › Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD;
- › Preparation of Line Design Package.

Heartland and East Pallisar 240 kV Transmission Line, AltaLink, Alberta, Canada (2010)

- › Line route design using Lidar survey and PLSCADD.

Sasan 765/400 kV substation, Sasan, Uttar Pradesh, India (2009)

- › Sag and tension calculations for aerial conductor and overhead shield wire in the substation.

RTE network rehabilitation SM8 and SM9, RTE, France (2009)

- › Verification and load calculations of existing 90 kV lines using PLSCADD (six lines for SM8 and six lines for SM9).

Highvale 767CL 138 kV Transmission Line, AltaLink, Alberta, Canada (2009)

- › Engineering of Transmission Lines, line design including tower spotting and plan and profile drawing by using PLS-CADD;
- › Design support to construction manager during line construction;
- › Site inspection after completion of line construction and before energizing.

2007 - 2008	RSW INC, QUEBEC, CANADA Overhead Line Engineer Transmission line route design. Transmission line design. <i>Interconnection Lines of ECONOMIC COMMUNITY OF CENTRAL AFRICAN STATES, ECCAS, Gabon (2008)</i> › Designed the route of 10 lines between Chad and Cameroon, Central African Republic and Democratic Republic of the Congo, Central African Republic and Cameroon, Cameroon and Equatorial Guinea, Equatorial Guinea and Gabon, Gabon and Republic of the Congo, Democratic Republic of the Congo, and Angola. Total length 1500 km. › Prepared Line route using Map Info software. <i>900 MW Nyamjang Chhu Supply – 400 kV Transmission Line for Nyamjang Chhu 200 km Long, Canadian Consultancy Services – ICCS, Nagaland, India (2008)</i> <i>SCOTFORD 138 kV Transmission Line, ATCO, Alberta, Canada (2007 - 2008)</i> › Participated in design of 138 kV Transmission Line; › Made the loads calculation with PLS CADD for wooden H-Frame design; › Prepared the bill of hardware accessories; › Line design issues for Sag/Tensions, Stringing.
2002 - 2003 2002 - 2003	CIMA+ ENGINEERING SOCIETY, QUEBEC, CANADA Project Engineer of Topographic, Environmental, and Sociological Studies <i>Topographic, Environmental and Sociological Studies of 3 Line Routes, CEB Electric Community of Benin, Benin (2002 - 2003)</i> 161 kV Parakou – Bembéréké, 110 km, Parakou and Bembereké, Benin, 63 kV Djougou – Natitingou, 75 km, Djougou and Natitingou, Benin, 161 kV Dapaong – Mango, 80 km Dapaong and Mango. › Leader of topographic, environmental, and sociological studies as Project engineer; › Prepared topographic report.
2002 - 2003	Project engineer <i>Rehabilitation Study of 161 kV, CIDA - Canadian International Development Agency, Canada (2002 - 2003)</i> Lome – Cotonou – Sakete – Onigbolo Transmission Line, between Togo and Benin. › Worked on rehabilitation expertise; › Verification of line calculation loads; › Visited sites for getting information of line; › Visited damaged section of line to assess nature and extent of damage.
1989 - 2001 1998 - 2001	SONELGAZ (NATIONAL SOCIETY OF ELECTRICITY AND GAS), ALGERIA Team Leader Design of transmission lines › Team Leader design of Transmission Line; › Oversaw the verification and approval of line project design; › Controlled and approved engineering of transmission lines routes; › line design including tower spotting and plan and profile drawing; › Provided site support during Line construction; › Engineered design of transmission line routes, line design including tower spotting and plan and profile drawing of the following projects: Hassi Messaoud to North Industrial Complex 3 lines, 220 kV, 21 km, 1999 Hassi Messaoud, Algeria.

Hassi Messaoud to South Industrial Complex 3 lines, 220 kV, 45 km, 2000, Hassi Messaoud, Algeria Hassi R'Mel – SONATRACH, 60 kV, 50 km, 1999, Hassi R'Mel, Algeria.

Designed the routes :

- › Hadjar –Jendouba 400 kV Line (interconnection Algeria – Tunisia), Algerian section, 70 km, 2000, Annaba, Algeria;
- › Hassi Aneur – Bourdim 400 kV Line (interconnection Algeria – Morocco), Algerian section, 200 km, 2000, Hassi Aneur, Algeria. Hassi Messaoud (Sahara) – Ain Beida 400 kV Line (interconnection between north and south electrical network), 500 km, 2001 Hassi Messaoud, Algeria.

1989 - 1998

Transmission Line Design Engineer

- › Engineered Transmission Line routes, line design including tower spotting and plan and profile for:
 - Zahana–Ghazaouet, 220 kV, 160 km, Zahana and Ghazaouet;
 - Ghardaia – Ouargla, 220 KV, 180 km, Ghardaia and Ouargla;
 - Ouled Fayet –Beni Mered, 220 kV, 27 km, Beni Mered;
 - Oued Aissi – Dellys 60 kV, 25 km, Tizi Ouzou;
 - Koléa – Beni Mered, 60 kV, 30 km, Ville Koléa and Beni Mered.

PROFESSIONAL ASSOCIATIONS

SINCE 2011

Professional Engineers & Geoscientists of Newfoundland & Labrador (PEGNL), Membership no. 06155

SINCE 2002

Ordre des ingénieurs du Québec (OIQ), Membership no. 127039



ANGEL PINTO UNDA, P.Eng.

Angel Pinto, P.Eng, has 20 years of diversified service experience in power utilities and industrial companies' settings. He has experienced with systems ranging from 60 kV to 735 kV AC and upto 500 kV DC, using PLS-CADD, PLS-Pole, PLS-Tower and AutoCAD. He worked in projects for various utilities in Canada, USA and Venezuela such as AltaLink, BC Hydro, Hydro Québec, Newfoundland Hydro, Hydro One, Pacific Corp, Electricidad de Caracas, Edelca, Cadafe, etc.

In addition to his design experience, he is responsible for the Transmission Line and Civil disciplines which main responsibilities is to strategize the functioning and growth of the disciplines in view of the present and future workloads and to ensure that assigned project goals and objectives are met in a timely manner, and at the level of quality as demanded by the organization. In business development, he prepared numerous proposals for worldwide transmission line and substation projects financed by various multilateral financial institutions, governments and private companies. He is fluent in Spanish, English, Italian and French.

SECTORS OF EXPERTISE

Power > Hydroelectric Power; Power System Planning

EDUCATION

ONGOING	Power Systems Specialist, Universidad Simón Bolívar, Caracas, Venezuela
1998	Bachelor in Electrical Engineering, Universidad Simón Bolívar, Caracas, Venezuela

EXPERIENCE

SINCE 2011	SNC-LAVALIN INC., MONTRÉAL, QUEBEC, CANADA
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Power Transmission & Distribution - Montreal

Since 2014	Manager of Transmission Lines and Civil
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Main responsibilities of this role include: - Manage the Transmission Line and Civil Disciplines.

- > Strategize the functioning and growth of the Disciplines in view of the present and future workloads and to ensure that assigned project goals and objectives are met in a timely manner, and at the level of quality as demanded by the organization.
- > Ensuring that staff within the Disciplines keep their actions aligned with the organization's policies and procedures, as indicated in the Quality Management System (Q.M.S.).- Offer assistance and services to clients (internal and external), as required. - Ensuring successful completion of the Group deliverables in accordance with project scope, schedule and procedures.
- > Monitoring project resource requirements, usage of work-hours and delegating/shifting assignments accordingly. - Ensuring compliance with all applicable codes and standards, SNC-Lavalin's internal policies and procedures, such as Safety, Environmental, Quality Assurance and Quality Control.
- > Overseeing the review of internal and external designs for code compliance, prudent design practices and constructability. - Developing various plans for hiring, succession and training of the Group staff.
- > Overseeing the preparation of project specifications for material and equipment purchase and installation.
- > Resolving day to day project execution, staffing and administrative issues. -

Years of Experience

- > 20 years

Years with SNC-Lavalin

- > 7 years

Key Positions

- > Engineer - Electrical
- > Engineering Design Lead
- > Team Leader

Languages

- > English
- > Spanish
- > French
- > Italian



Ensuring project documentation is complete with respect to design and engineering, including all commitment packages, as-builts and return data information.

- › Ensuring that Group staff coordinates design activities with other disciplines and teams. - Maintaining good working relationships and facilitating communication within engineering disciplines and other internal groups such as Purchasing, Construction, Project Management, etc.
- › Assisting in developing business proposals and estimates.

Team Lead Transmission Line, Narrow Inlet, BC Hydro, British Columbia, Canada (06/2017 - present)

Construction of a tap line, including a flying tap and three switch structures, to connect the IPP-owned BluEarth Renewables Narrows Inlet substation to existing 138 kV line 1L037. Plus, approximately 5.5 km of ADSS is to be installed on existing structures.

- › Professional of record for all the activities related to transmission lines engineering and construction.
- › Participated in design. Prepared material list and provided support during construction.

Team Lead Transmission Line, Copper Conductor Replacement Program, BC Hydro, British Columbia, Canada (03/2017 - present)

The refurbishment of six 69 kV transmission lines (60L004/005/006/011/016/054) including the replacement of non-standard copper conductor by ACSR Partridge conductor.

- › Participated in feasibility design.
- › Prepared technical reports (inspection report, design basis, feasibility report, circuit rating report).
- › Estimated works and materials.

Cable Engineer , 138 kV Underground and submarine cable, Confidential Client, United States (2017 - present)

The Company has mandated SLI to carry out the preliminary engineering to obtain the permits.

- › Prepare design basis;
- › Performed onshore routing using Civil 3D in conjunction with geodatabase data (e.g roads, railway, wetland, water streams, archaeological sites, etc.);
- › Prepare cable cross-sections;
- › Prepare duct-bank cross-sections;
- › Prepare preliminary cable profile;
- › Prepare manhole and transition vault drawings.

Team Lead Transmission Line, 138 kV TL Circuit Restoration - 1L274, BC Hydro, British Columbia, Canada (03/2016 - present)

The full refurbishment of circuit 1L274 including a rating restoration to 50°C and the replacement of end of life wood structures. The 138 kV line on wood poles runs from Natal subs to Britt Creek and then subsequently ties into Alberta's Altalink transmission system at structure 64-08 for approximately 100 km.

Site Experience

- › Canada
- › United States
- › Venezuela

Computer Applications

- › PLS-CADD, AutoCAD, MS Office and Matlab

- › Professional of record for all the activities related to transmission lines engineering.
- › Proposal: prepared man-hour forecast and schedule.
- › Feasibility study:

Performed field inspection, including attendance to HSE training and tailboard and provide inputs to HSE plan for remote access area.

Participated in preliminary design and modeling using PLS-CADD.

Prepared field assessment report, design basis, feasibility report and thermal study report

- › Detailed Engineering:

Participated in design and modeling using PLS-CADD.

Prepared engineering reports and drawings.

Estimated and prepared bill of materials. Draft scope of works for service procurement

Team Lead Transmission Line, 69 kV TL Circuit Restoration – 60L344, BC Hydro, British Columbia, Canada (07/2016 - present)

The full refurbishment of circuit 60L344 including a rating restoration to 90°C and the replacement of end of life wood structures. The 69 kV line on wood poles runs from Tachick (TAK) to Fort St James #2 (FM2) subs for approximately 60 km (~700 structures) and includes 25 kV distribution underbuild.

- › Professional of record for all the activities related to transmission lines engineering.
- › Proposal: prepared man-hour forecast and schedule
- › Feasibility study:

Performed field inspection, including attendance to HSE training and tailboard and provide inputs to HSE plan for remote access area.

Participated in design and prepared field assessment report, design basis, feasibility report and thermal study report.

Team Lead Transmission Line, 69 kV TL Circuit Restoration – 60L285/292, BC Hydro, British Columbia, Canada (07/2016 - present)

The full refurbishment of circuits 60L285/292 including a rating restoration to 90°C and the replacement of end of life wood structures. The 69 kV lines on wood poles run from Natal (NTL) to CMO subs for approximately 50 km (~500 structures) and include 25 kV distribution underbuild.

- › Professional of record for all the activities related to transmission lines engineering
- › Proposal: prepared man-hour forecast and schedule .
- › Feasibility study:

Performed field condition assessment, including attendance to HSE training and tailboard and provide inputs to HSE plan for remote access area.

Participated in design and prepared technical reports (design basis, inspection report, feasibility report, circuit rating report). Estimated material costs and engineering effort for the implementation.

Team Lead Transmission Line, Prepared sag-tension and stringing chart and estimated terminal materials for lightning protection in substations, Engineering, Various, Canada (04/2014 - present)

Fort St James (FM2), Fort St John Substation (FJS), Sundance Lake Substation (SLS), Bear Mountain Terminal Station (BMT), Dawson Creek Substation (DAW), and George Tripp Substation (GTP).

Team Lead Transmission Line, Detailed Design of 735 kV Tower FCG, Hydro-Québec, Quebec, Canada (07/2017 - 09/2017)

Detailed design and detailing of a 735 kV Single-Circuit Rigid Suspension Tower FCG.

- › Project Management

Team Lead Transmission Line, Pennask Shinish Creek IPP, BC Hydro, British Columbia, Canada (07/2016 - 07/2017)

Design and construction of a tap line, including a flying tap and a switch structure, to connect the future IPP-owned PSW substation to existing 138 kV line 1L244.

- › Professional of record for all the activities related to transmission lines engineering and construction;
- › Engineering: participated in design and line modeling using PLS-CADD;
- › Prepared material list and provided support during construction.

Team Lead Transmission Line, Moose Lake Wind Energy, BC Hydro, British Columbia, Canada (08/2016 - 08/2017)

Construction of a 230 kV substation to connect a 15 MW wind farm. The new substation will connect to the existing 230 kV line 2L337 via a flying tap with OHSW.

- › Professional of record for all the activities related to transmission lines engineering and construction.
- › Project Definition: prepared design criteria, deliverable list and bill of materials.
- › Engineering: participated in design and line modeling using PLS-CADD.
- › Procurement: responsible for material procurement; participated in the drafting of construction scope of works and provided support during service procurement.
- › Construction: provided technical support. Project Close-out: prepared as-recorded drawings based on as-built drawings from site.

Construction Specification , Engineering, Confidential Client, United States (10/2016 - 01/2017)

The Company has mandated SLI to carry out the development and update of their construction specifications to the new standards and best engineering practices. A data base was developed to automatize and customize the preparation of construction specification for tendering process

- › Develop the Transmission Line Construction Specification;
- › Prepare the technical inputs to the Data base.

Project Engineer, Bay d'Espoir and Western Avalon Substation, Engineering, Nalcor, Newfoundland and Labrador, Canada (08/2015 - 2017)

The scope of the BWT project consists of:

- › A new 230 kV transmission line (TL267) connecting the Western Avalon Terminal Station and the Bay d'Espoir Terminal Station No. 2 .Station upgrade at Western Avalon (AIS extension) and Bay d'Espoir (addition of GIS).
- › Project Coordination Engineering.
- › Participated in design and Conductor modeling using PLS-CADD.

Manager of Transmission Lines, Meikle Wind Energy, BC Hydro and Power Authority, Peace River Region (33 km from Tumbler Ridge), British Columbia, Canada, CA \$35 036 065, 230 kV (11/2014 - 2017)

Loop the existing 230 kV line 2L313 in and out of the new Meikle station using flying tap structures to minimize outage. Two OHSW are installed on both side of the new station along the existing line (approx. 1 km each side).

- › Professional of record for all the activities related to transmission lines engineering.
- › Project Definition: prepared design criteria, deliverable list and bill of materials.
- › Engineering: participated in design and modeling using PLS-CADD.
- › Procurement: responsible for material procurement; participated in the drafting of construction scope of works and provided support during service procurement.
- › Construction: provided technical support and performed inspection of Contractor's work.
- › Project Close-Out: prepared as-recorded drawings based on as-built drawings from site.

*Structural Team Lead, Maritime Link, Engineering, ABB, Newfoundland and Labrador, Canada (12/2014 - 09/2017)*

Provide detail engineering of structures supports and gantries for three (1) 315 and 230kV transformer substation and (2) 230 kV switching substation Woodbine, Bottom Brook, Granite Canal, respectively.

Team Lead Civil engineering, Dogtown Road Static Var Compensator, SunEdison Inc.(First Wind Energy, LLC), United States, CA \$872 310 (2015 - 08/2016)

0/+70 MVAR SVC connected to the IUSA Central Maine Power network, intended to regulate the system voltage at the Detroit Substation 115 kV bus, and to facilitate the interconnection of a nearby Wind Farm development.

- › Perform review of detailed engineering, vendor drawings and technical specifications.

TI Engineer, Arc Parkland Interconnection Project, Engineering, BC Hydro, British Columbia, Canada (03/2014 - 2016)

Construction of a 138 kV tap line from the existing transmission line 1L377 between the Dawson Creek Substation (DAW) and Taylor Substation (TAY) in order to interconnect a natural gas processing plant, ARC Resources natural gas plant "Parkland" (PLD), to the BC Hydro transmission system.

- › Professional of record for all the activities related to transmission lines engineering.
- › Project definition: prepared design criteria, deliverable list and bill of materials; prepared scope of works and estimated engineering level of effort.
- › Engineering: participated in design

TL Engineer, Fort St. John Transformer Upgrade Project, BC Hydro, British Columbia, Canada (04/2014 - 11/2016)

Re-routing of three 138 kV wood pole lines, namely 1L367 from FJN to TAY (Taylor Substation), 1L371 from FJN to TXB (Boundary Lake Substation) and 1L374 from GMS (GM Shrum GS) to FJN due to capacity increase of the substation

- › Engineering: participated in design and drafting of design basis.
- › Procurement: responsible for material ordering and preparation of bill of materials.
- › Construction: performed field inspection of Contractor's work and prepared as-Recorded package.

TL Engineer, Jimmy Creek Hydroelectric Project, Engineering, Alterra Power Corp, Vancouver, Alberta, Canada (03/2015 - 07/2015)

Diversion of an existing 230 kV line between Toba and Sallery Bay. The line has OHSW and ADSS

- › Professional of record for all the activities related to transmission lines engineering.

TL Engineer, North Gila - Imperial Valley #2 Feasibility Study, Engineering, Confidential Client, United States (06/2015 - 08/2015)

The client was seeking to understand the scope and opportunities potentially associated with the proposed NGIV2 500kV Transmission Project. The Company has mandated SLI to carry out a study of contemporary documentation, decisions and any other publically available materials to assess the feasibility of the project.

- › Performed an independent analysis of transmission line corridor route options;
- › Drafted the route selection report;
- › Prepare List of Materials Prepare Cost Estimate.

2011 - 2014

*Power Transmission & Distribution - Montreal***Senior Transmission Lines Engineer***138kV Transmission Line Fort Saint John, BC Hydro, Canada*

Relocation of three 138kV Transmission Lines.

- › Completed all engineering deliverables including:
 - All design activities related to Transmission Line design such as, preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc.
 - Structure computer modeling using PLS-POLE, loadings and analysis, structural design requirement drawings and preparation of foundation design loading tables.
 - Drawing packages and Survey and Construction Scope of Work (SOW) documents.
 - Technical coordination and communication with Client and Contractor.
 - Scheduling and engineering man hours estimating.
 - Technical support and bid evaluation for project procurement process.
 - Staking Verifications and technical support during construction stage.
 - Delegated work to staff members, evaluated the results, supervised and mentored junior staffs.
 - Prepare the Professional of Record Quality Management Plan.
 - Act as Professional of Record.

60kV Transmission Line Fort Saint James, BC Hydro, Canada

Re-routing of Transmission Line in the vicinity of Fort St. James.

- › Completed all engineering deliverables including:
 - All design activities related to Transmission Line design such as, preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc.
 - Structure computer modeling using PLS-POLE, loadings and analysis, structural design requirement drawings and preparation of foundation design loading tables.
 - Drawing packages and Survey and Construction Scope of Work (SOW) documents.
 - Technical coordination and communication with Client and Contractor.
 - Scheduling and engineering man hours estimating.
 - Technical support and bid evaluation for project procurement process.
 - Staking Verifications and technical support during construction stage.
 - Delegated work to staff members, evaluated the results, supervised and mentored junior staffs.
 - Prepare the Professional of Record Quality Management Plan.
 - Act as Professional of Record.

735kV Transmission Line Lac Otnuk, Lact Otnuk, Canada

Prepare feasibility study for the Transmission Line implementation.

Completed all engineering deliverables including:

- › All design activities related to Transmission Line design such as, preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc.
- › Scheduling and engineering man hours estimating.

Forestview, BC Hydro, Canada

New substation expansion.

- › Preparation of design criteria.
- › Estimated level of effort.
- › Perform the sag and tension calculation for the shield wire installation in the Forestview substation.

Bulk Power System Planning & Distribution, City of Saskatoon, Vancouver, British Columbia, Canada

The study is specific to the components comprising delivery of bulk electric power from SaskPower (the supplier) through to but not including the electrical distribution lines.

- › Identification and evaluation of the electrical and structural capabilities and limitations for the existing transmission system.
- › Recommendations for each Transmission Line section along with options for upgrades or additions.
- › Recommendations for a proposed Transmission Line connecting the Avenue C Substation and the North Central Substation serving the downtown area, including capacity, routing, and operating considerations.
- › Recommendations for operation and maintenance of the Transmission System based on best practices of North American Electrical Utilities.

230kV Kidd 2 New Substation, BC Hydro, Canada

New substation expansion.

- › Preparation of design criteria.
- › Estimated level of effort.
- › Perform the sag and tension calculation for the conductor and shield wire installation in the Kidd 2 substation.

115 kV Hearn Switching Station Hydro One Network Inc., ABB inc., Canada (03/2012 - present)

- › Line design including tower spotting and plan and profile drawing using PLS-CADD.
- › Preparing design package for client.

240 kV Hansman Lake 966L Transmission Line, AltaLink, Alberta, Canada, CA \$1 000 000, 416 MW (11/2011 - present)

- › Line design including tower spotting and plan and profile drawing using PLS-CADD.
- › Preparing design package for Client.

Smoky Falls, Kiewit-Alarie, A Partnership, Ontario, Canada, CA \$750 000 000, 270 MW (01/2012 - 09/2012)

- › Revision of the Transmission Line project, including tower placement and the development of line profile drawings using PLS-CADD.

Transam Due Diligence, Transelec, Antofagasta, Chile, CA \$100 000, 300 MW (08/2012 - 09/2012)

- › Development of technical reports for the purchase of electrical installations for lines and substations.

330 kV Ghana-Togo-Bénin Transmission Line, Communauté Économique des États de l'Afrique de l'Ouest (CÉDEAO), Benin, 330 kV (12/2011 - 07/2012)

- › Line design including tower spotting and plan and profile drawing using PLS-CADD.
- › Preparing design package for Client.

500kV Edmonton to Calgary Western Alberta Transmission Line (WATL), AltaLink LP, Edmonton, Canada, CA \$1 136 000 000, 1 000 MW at 500kV (Stage-1)

The main scope of works includes the construction of two (02) 1000MW 500kV HVDC Converter Stations along with the HVAC switchyards and 347km 500kV HVDC transmission line between Genesee and Langdon area.



Participated in the preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc. Delegated work to staff members, evaluated the results, supervised and mentored junior staffs.

Underwood, AltaLink, Canada

138kV Transmission Line Interconnection between Pike and Underwood Substation.

- › Completed all engineering deliverables including:
 - All design activities related to Transmission Line design such as, preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc.
 - Structure computer modeling using PLS-POLE, loadings and analysis, structural design requirement drawings and preparation of foundation design loading tables.
 - Drawing packages and Survey and Construction Scope of Work (SOW) documents.
 - Technical coordination and communication with Client and Contractor.
 - Technical support and bid evaluation for project procurement process.
 - Staking Verifications and technical support during construction stage.
- › Delegated work to staff members, evaluated the results, supervised and mentored junior staffs.

138kV Transmission Line Highland Area, BC Hydro, Canada

Thermal Upgrade.

- › Completed all engineering deliverables including:
 - All design activities related to Transmission Line design such as, preparation of design criteria, conceptual and route design, 3D line computer modeling using PLS-CADD, structure spotting, wire system analysis and design, structural configuration and material selection, etc.
 - Structure computer modeling using PLS-POLE, loadings and analysis, structural design requirement drawings and preparation of foundation design loading tables.
 - Drawing packages and Survey and Construction Scope of Work (SOW) documents.
 - Technical coordination and communication with Client and Contractor.
 - Scheduling and engineering man hours estimating.
 - Technical support and bid evaluation for project procurement process.
 - Staking Verifications and technical support during construction stage.
 - Delegated work to staff members, evaluated the results, supervised and mentored junior staffs.
 - Prepare the Professional of Record Quality Management Plan.
 - Act as Professional of Record.

2005 - 2011

EDELCA, CARACAS, VENEZUELA

Project Engineer

- › Responsible of evaluate, coordinate and supervise activities corresponding to the works related to the Engineering of Transmission and Distribution Lines project from 13.8kV until 765kV for the purpose of establishing the technical and administrative criteria of the bid documents that will norm the tender of the project.
- › Design and project management of Transmission Line projects. Route selection and analysis of proposed transmission lines. Assist in obtaining permits such as road crossings, regulatory, etc. Review of right-of-way easements and plats. Elaboration of line layout, routing, tower sizing, tower location, sag, etc using software PLS-CADD.
- › Coordination of contracting processes of the projects. Planning, programming and control of projects. Elaboration, reading and blueprint interpretation. Revise of Technical Standards. Testing of reception and put in service. Collection, organization and analysis of technical data. Editing of technical reports. Estimating Cost. Inspection and testing of equipments and materials in factory. Analysis of transmission lines design. Participating in the Inspections of electrical and mechanics tests on insulators, lightning rod, cables, etc. Devising and Revise

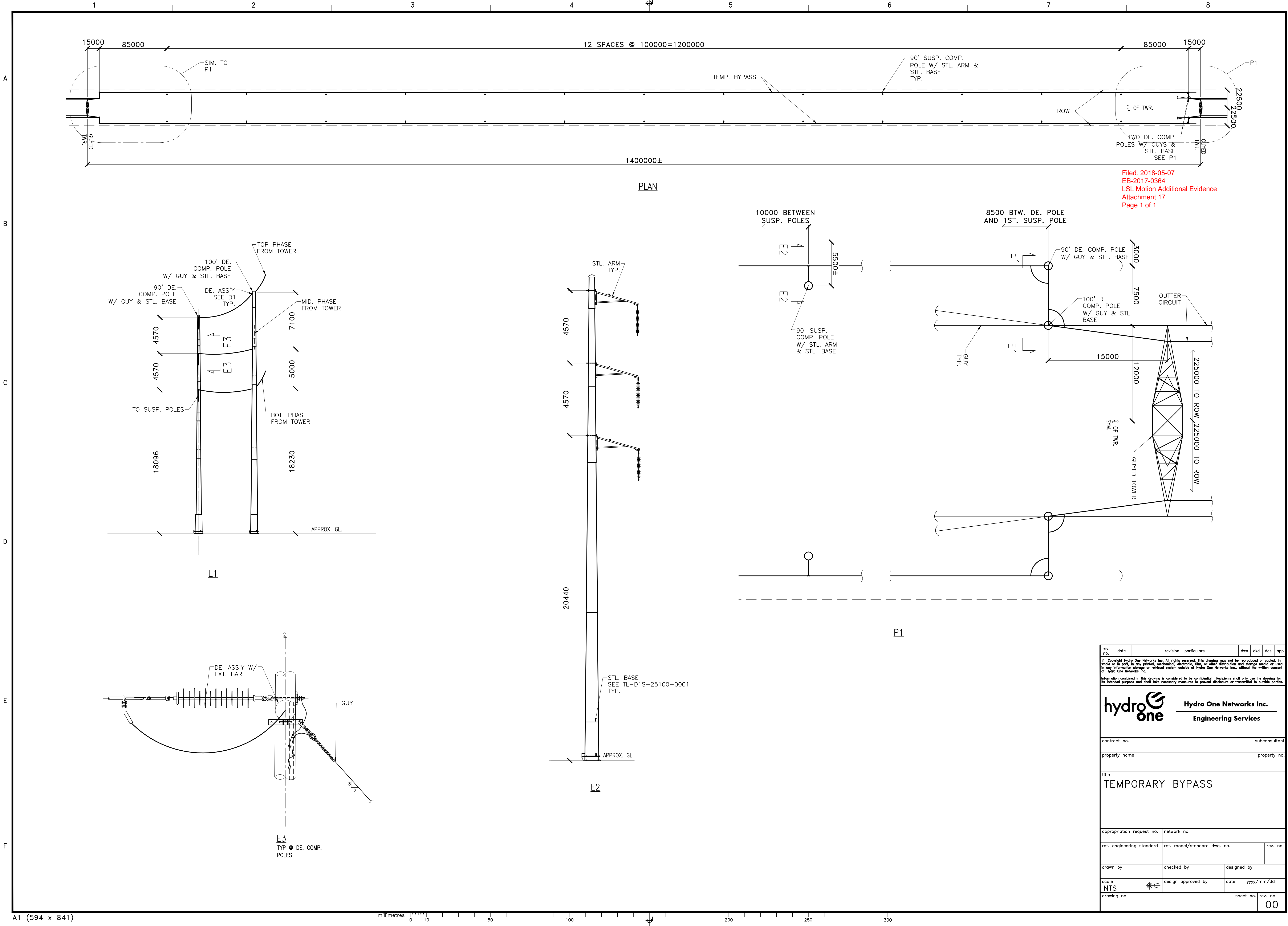
	blueprint of the engineering of detail for the construction. › Analysis of the power system of EDELCA and evaluate the feasibility Technical-Economic of new Projects. Interpretation of the Technical Information originating from Advisors and Consultants. Coordinating, to plan and execute technical-administrative activities of processes of contracting projects. Devising projects, utilizing the procedure of the Projects Management Processes Guide of Edelca. Organizing, to tabulate and to handle technical information compiled of different sources. Collection of the quality control requirements of the Material and Structures. › Acted as Team Leader in the absence of the designated engineer.
2003 - 2005	AES CORPORATION (C.A. LA ELECTRICIDAD DE CARACAS), CARACAS, VENEZUELA Maintenance Engineer › Responsible of the coordination and supervision of the maintenance of Transmission Lines of the power utility, C.A. La Electricidad de Caracas, C.A. › Participated in the Inspections of electrical and mechanics tests on insulators, lightning rod, cables, etc. Revised of Technical Standards. Testing of reception and put in service. › Monitored and Control of the Technical Information originating from Advisors and Consultants. Edited of technical reports. Estimated Cost. › Acted as Team Leader in the absence of the designated engineer.
2002 - 2003	PRECELCA USA CORP., FLORIDA, UNITED STATES Electrical Project Manager › Responsible of the Design, supervision and coordination of electrical Project (Home Automation, LAN Network and Security Systems).
2000 - 2002	PRECELCA, CARACAS, VENEZUELA Project Manager › Responsible of the coordination and supervision of the maintenance of distribution aerial and underground Lines of the power utility, C.A. La Electricidad de Caracas, C.A. › Monitored and Control of the Technical Information originating from Advisors and Consultants. Edited of technical reports. Estimated Cost.
1998 - 2000	IPOCEM C.A., CARACAS, VENEZUELA Project Engineer › Design and Project Management of Transmission Line projects from 115kV until 400kV for the power utility C.A.D.A.F.E. Route selection and analysis of proposed Transmission Lines. Assist in obtaining permits such as road crossings, regulatory, etc. Review of right-of-way easements and plats. Elaboration of line layout, routing, tower sizing, tower location, sag, etc.

PROFESSIONAL ASSOCIATIONS

SINCE 2014	Ordre des ingénieurs du Québec (OIQ), Membership no. 5054646
SINCE 2013	Association of Professional Engineers and Geoscientists of Alberta (APEGA), Membership no. 146657
SINCE 2013	Engineers & Geoscientists British Columbia , Membership no. 176693

PROFESSIONAL DEVELOPMENT

2010	French Intermediate Course, Language Studies Canada, Canada
2006	Computerized Transmission Line Design: PLS-CADD Hands-On Training, University of Wisconsin, Madison, United States
2006	Distributed Generation, Applications and Emerging Technologies, IEEE and Universidad Simón Bolívar, Caracas, Venezuela
2006	Environmental Impact and Corrosion in Power Systems, ESP OIL Engineering Consultants, Venezuela
2006	Diagnosis of High Voltage Insulation Systems: Condition – Based Maintenance and asset Management Perspectives, IEEE y Universidad Simón Bolívar, Venezuela
2005	Project Management-PMI, CVG EDELCA, Venezuela
2005	Estimating Cost, C.A. Caracas, Venezuela
2004	OSHA Health & Safety, C.A. La Electricidad de Caracas-AED Consulting, Venezuela
2003	Construction Business Management, Florida Atlantic University, United States
2003	OSHA Health & Safety Outreach, Florida Atlantic University, United States
2003	Estimating and Project Management, Florida Atlantic University, United States
2003	Construction Financial Management and Computers Applications, Florida Atlantic University, United States
2003	Strategic Planning and Marketing for the Construction Trades, Florida Atlantic University, United States
2003	Certificat en gestion de construction, Florida Atlantic University, Boca Raton, Florida, United States
1997	III Latin American Symposium on High Voltage and Electrical Insulation, IEEE Fondation de l'Institut d'Études Avancées, Venezuela
1994	English Course. Language Studies Canada, intermediate level, Language Studies Canada, Toronto, Ontario, Canada



Filed: 2018-05-07
EB-2017-0364
LSL Motion Additional Evidence
Attachment 17
Page 1 of 1

rev. no.	date	revision	particulars	dwn	ckd	des	app
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				Hydro One Networks Inc. Engineering Services			
contract no.				subconsultant			
property name				property no.			
title TEMPORARY BYPASS							
appropriation request no.				network no.			
ref. engineering standard				ref. model/standard dwg. no.			rev. no.
drawn by		checked by		designed by			
scale NTS				design approved by		date yyyy/mm/dd	
drawing no.						sheet no. rev. no.	
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CROLL Elise

From: HOPPER Bruce
Sent: Wednesday, May 02, 2018 6:23 PM
To: adam.wright@ontario.ca
Cc: andrew.evers@ontario.ca; STAITE Patricia
Subject: Hydro One -Lake Superior Link Project -Draft Notice of Commencement of Terms of Reference
Attachments: LSL-Draft-NoCToR 2018 05 02.docx

Hi Adam,

Please find attached a draft Notice of Commencement (NoC) of Terms of Reference for Hydro One's Lake Superior Link project. We would like to request an expeditious review of this draft notice by the Ministry of Environment and Climate Change (MOECC). We will be happy to consider any comments the MOECC may have. Please note that the dates, times and venues of the Community Information Centres may change before finalizing this notice as we are currently securing venues.

Please feel free to contact me with any questions.

Sincerely,

Bruce Hopper
Environmental Planner
Environmental Services
Hydro One Networks Inc.
416-779-0257
bruce.hopper@hydroone.com

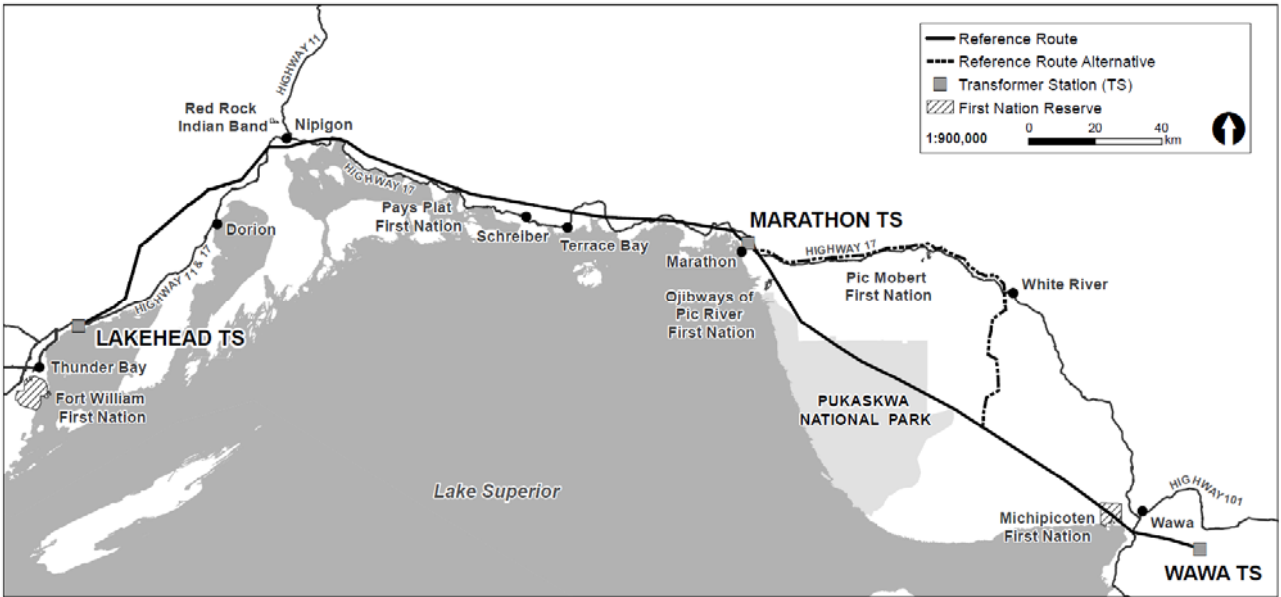
NOTICE OF COMMENCEMENT OF TERMS OF REFERENCE

Lake Superior Link Project

Hydro One Networks Inc.

Hydro One Networks Inc. (Hydro One) is initiating an Environmental Assessment (EA) under the *Environmental Assessment Act* for the Lake Superior Link project. The Independent Electricity System Operator's (IESO) Updated Assessment of the Need for the East-West Tie Expansion, 2017 states that a new transmission line "...continues to be the recommended alternative to maintaining a reliable and cost-effective supply of electricity in Northwestern Ontario for the long term." This project is required to ensure an adequate, safe, reliable and affordable supply of power to enable future growth and development in northern Ontario. The EA will consider two route alternatives for a new 400 km, double-circuit 230 kilovolt transmission line between Lakehead Transformer Station (TS) near Thunder Bay and Wawa TS near Wawa, as shown on the map. The reference route generally parallels Hydro One's existing East-West Tie transmission corridor.

In March 2018, Hydro One hosted public information drop-ins along the project route to provide initial opportunities for stakeholders to learn more about the project, meet the project team and provide feedback. Hydro One is aware of the extensive consultation already completed on the new line to date, and will make best efforts to streamline consultation wherever possible. This includes continued consideration of a regulatory measure to meet EA obligations avoiding duplication of study and consultation already completed. Concurrently, the Individual EA process will commence.



The planning process

This EA will be carried out in accordance with the requirements of the Ontario *Environmental Assessment Act*. The first step is the preparation of a Terms of Reference (ToR) which will set out the framework and work plan for addressing *Environmental Assessment Act* requirements when preparing the EA, including an outline of the studies and consultation activities that will be carried out. Important elements of this work will be to evaluate the alternative route, assess potential effects and determine measures to reduce or mitigate these effects.

The anticipated completion date for the ToR is July 2018, at which point it will be submitted to the Minister of the Environment and Climate Change for review and approval. If approved by the Minister, the EA will proceed as outlined in the ToR.

Consultation

Indigenous communities, government agencies, municipal officials, members of the public and other interested persons are encouraged to actively participate in the planning process, including in the development of the ToR. Consultation and engagement opportunities will be organized throughout the planning process and communicated via community newspapers advertisements, mailings and on the project website. Members of Hydro One's project team are always available to discuss the project with interested parties.

We will be hosting another round of Community Information Centres as outlined below to provide a project update and continue discussions about delivering tangible benefits to communities in the project area.

Please join us:

Monday, June 11, 2018	Tuesday, June 12	Wednesday, June 13	Thursday, June 14
Red Rock 12 P.M. – 2 P.M. Red Rock Public Library 42 Salls Street	Thunder Bay 5 P.M. – 7:30 P.M. Current River Community Centre 450 Dewe Ave, Thunder Bay	Schreiber 5 P.M. – 7:30 P.M. Schreiber Municipal Gym 204 Alberta Street	White River 5 P.M. – 7:30 P.M. Royal Canadian Legion Branch 169 108 Winnipeg Street
Nipigon 5 P.M. – 7:30 P.M. Royal Canadian Legion Branch 32 102 5th Street	Terrace Bay 5 P.M. – 7:30 P.M. Terrace Bay Cultural Centre 13 Selkirk Avenue	Marathon 2 P.M. – 7 P.M. Marathon Centre Mall 2 Hemlo Drive	Wawa 5 P.M. – 7:30 P.M. Royal Canadian Legion Branch 429 51 Broadway Avenue
Dorion 5 P.M. – 7:30 P.M. Dorion Community Centre 175 Dorion Loop Road			

Information gathered at these Community Information Centres will be used both to complete the ToR and to gather information toward completion of the EA.

For further information about this project, please contact:

Bruce Hopper, Environmental Planner
Hydro One Networks Inc.
T: 1-877-345-6799 F: 416-345-6984
E:Community.Relations@HydroOne.com
Website : www.HydroOne.com/LakeSuperiorLink



All personal information in a submission - such as name, address, telephone number and property location - is collected, maintained, and disclosed by the Ministry of the Environment and Climate Change for the purpose of transparency and consultation. The information is collected under the authority of the *Environmental Assessment Act*, or is collected and maintained for the purpose of creating a record that is available to the general public, as described in s. 37 of the *Freedom of Information and Protection of Privacy Act*. Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry of the Environment and Climate Change's Freedom of Information and Privacy Coordinator at 416-327-1434.

CROLL Elise

From: HOPPER Bruce
Sent: Friday, May 04, 2018 8:49 AM
To: CROLL Elise; STAITE Patricia; HAULENA Adam
Subject: Fwd: Hydro One -Lake Superior Link Project -Draft Notice of Commencement of Terms of Reference

Response from Adam Wright below

Sent from my iPhone

Begin forwarded message:

From: "Wright, Adam (MOECC)" <Adam.Wright@ontario.ca>
Date: May 4, 2018 at 7:47:24 AM CDT
To: "Bruce.Hopper@HydroOne.com" <Bruce.Hopper@HydroOne.com>
Cc: "Evers, Andrew (MOECC)" <Andrew.Evers@ontario.ca>, "patricia.staite@HydroOne.com" <patricia.staite@HydroOne.com>
Subject: RE: Hydro One -Lake Superior Link Project -Draft Notice of Commencement of Terms of Reference

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hello Bruce,

Thank you for your email, I have received the Notice of Commencement for a Terms of Reference for Hydro One's proposed Lake Superior Link project and will review and provide comments by early next week.

Until that time, if you have any questions please do let me know.

Cheers,

Adam

From: Bruce.Hopper@HydroOne.com [Bruce.Hopper@HydroOne.com]
Sent: May 2, 2018 6:22 PM
To: Wright, Adam (MOECC)
Cc: Evers, Andrew (MOECC); patricia.staite@HydroOne.com
Subject: Hydro One -Lake Superior Link Project -Draft Notice of Commencement of Terms of Reference

Hi Adam,

Please find attached a draft Notice of Commencement (NoC) of Terms of Reference for Hydro One's Lake Superior Link project. We would like to request an expeditious review of this draft

notice by the Ministry of Environment and Climate Change (MOECC). We will be happy to consider any comments the MOECC may have. Please note that the dates, times and venues of the Community Information Centres may change before finalizing this notice as we are currently securing venues.

Please feel free to contact me with any questions.

Sincerely,

Bruce Hopper
Environmental Planner
Environmental Services
Hydro One Networks Inc.
416-779-0257
bruce.hopper@hydroone.com<<mailto:bruce.hopper@hydroone.com>>

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