EB-2017-0182
EB-2017-0194
EB-2017-0364

ONTARIO ENERGY BOARD

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

- and –

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

-and-

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

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COMPENDIUM OF THE SCHOOL ENERGY COALITION
(Hydro One Panel)

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Apportioning Project Costs & Risks

The capital cost to complete the Lake Superior Link Project is $636.2 million. The cost of the work detailed through Section 1.0 below allows for the schedule provided in **Exhibit B, Tab 11, Schedule 1**.

This Application results in significant benefits for Ontario customers. These include:

i) substantially lower costs to complete the Project
   - capital savings of $120 million [1]
   - ongoing annual OM&A savings of $3.2 million – the equivalent of approximately $55 million of capital expenditures from a net present value perspective[2];

ii) a narrower corridor along the route of the line,

iii) reduced environmental impact and physical disturbance; and

iv) reduced risk to ratepayers by Hydro One assuming certain risks on the delivery of the Project.

1.0 PROJECT COST

The Lake Superior Link Project's cost is summarized as follows:

Table 1: Total Project Costs ($000s)	
Development Cost[3]	12,215
Construction Cost[4]	623,946
Total Project Cost	$636,161

[1] Hydro One's total costs of $636,161 as provided in Table 1 of Exhibit B, Tab 7, Schedule 1 relative to the NextBridge construction costs of $736,971 as provided in EB-2017-0182 Exhibit B, Tab 9, Schedule 1 Table 1 plus the incremental development costs incurred since designation as provided EB-2015-0216 NextBridge EWT Monthly Report – October 23, 2017 – Page 8, Table 1.
[2] Please refer to Exhibit B, Tab 9, Schedule 1 for further details.

[3] Based on forecast cost until October 2018 - OEB forecast approval date.
[4] Forecast construction cost contingent upon an October 2018 OEB approval of this Application.

1.1 Development Costs

As mentioned previously, once this Application is filed with the OEB, Hydro One will commence its consultation process with impacted parties.

Hydro One understands that the OEB's designation policy, *OEB Policy: Framework for Transmission Project Development Plans,* contemplates development cost recovery from ratepayers by the designated transmitter only. However, the policy also says that if customer benefits outweigh costs, the cost should be allowed for recovery.

> *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*
>   - *as to route, or*
>   - *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.* [5]

Both Hydro One's capital and OM&A costs are significantly less than those proposed by NextBridge. In comparing the two leave to construct applications currently before the Board, Hydro One's proposal **will save ratepayers approximately $175 million** in capital equivalency (representing approximately $120 million in capital costs[6] and $3.2 million lower ongoing annual OM&A costs[7]). As discussed in **Exhibit B, Tab 9, Schedule 1**, this is expected to have a ratepayer benefit of approximately $13 million annually in reduced revenue requirement.

[5] EB-2010-0059 - OEB Policy: Framework for Transmission Project Development Plans – August 26, 2010 – Page 16

[6] EB-2017-0182 – Exhibit B, Tab 9, Schedule 1 – Table 4 – NextBridge Construction Costs of $736,971K plus incremental Development Costs of $17,812K relative to Hydro One's Construction Costs of $636.2M (not including the $22.& million approved as part of the designation process)

[7] The difference in annual ongoing OM&A expenditures carries a capital equivalency NPV of over $50 million as described in Exhibit B, Tab 9, Schedule 1.

The significant ongoing savings to ratepayers outweighs the projected one-time $12 million development costs to be incurred prior to OEB approval. Hydro One submits that, as contemplated by the aforementioned policy, the development costs documented in **Table 2** of this Exhibit should be eligible for recovery in rate base if Hydro One is selected to construct this Project.

Table 2: Development Costs ($000s)	
Real Estate	4,267
Engineering and Design	2,277
Environmental Approval[8]	2,181
Regulatory & Legal	1,995
First Nations & Métis Consultations	1,101
Project Management	154
Other Consultations	240
Total Development Cost	**$ 12,215**

These development costs include consultation activities (with affected Indigenous Communities and impacted stakeholders), preliminary engineering and design work, real estate acquisition, plus other costs expected to be incurred prior to OEB approval.

In order to complete the Project at the cost and schedule provided in this Application, Hydro One will utilize the existing development work as contemplated and already approved in the Designation Proceeding[9].

[8] Requires use of NextBridge's EA and ability for Hydro One to undertake regulatory process to meet additional EA obligations associated with Hydro One route modifications as discussed in Exhibit C, Tab 1, Schedule 2.
[9] EB-2011-0140

1.2 Construction Costs

Hydro One's construction cost to complete this Project is $623 million. Hydro One has partnered with SNC-Lavalin, one of the leading engineering and construction groups in the world, and has brought forward innovative project management to construct the Lake Superior Link Project resulting in the significant cost savings as shown herein. Hydro One and SNC-Lavalin have agreed to enter into a fixed price contract, providing further assurance on meeting the delivery price and mitigating the risk to ratepayers.

Table 3: Construction Costs ($000s)	
Construction	354,030
Site Clearing, Preparation & Site Remediation [10]	104,339
Material[11]	58,713
Project Management	5,802
Other Costs[12]	9,451
Construction Management, Engineering, Design & Procurement	17,828
Real Estate	9,798
First Nations & Métis Consultations	1,133
Environmental Approval	819
Other Consultations	160
Contingency[13]	10,775
Interest During Construction("IDC")[14]	42,596
Overhead[15]	8,502
Total Construction Cost	**$623,946**

1

[10] Includes an allowance for labour cost unit rate increases until Dec 2021.
[11] Includes an allowance for cost increases in commodities (steel, zinc, aluminum) and Foreign Exchange until November 2018.
[12] Other Costs include insurance, contract securities, other approval costs (various crossings, dewatering, etc.)
[13] In addition to contingency carried by SNC-L
[14] IDC is calculated using the OEB's approved interest rate methodology (EB-2006-0117) to the projects' forecast monthly cash flow and carrying forward closing balance from the preceding month.
[15] Overhead costs allocated to the project are for corporate services costs. These costs are charged to capital projects through an overhead capitalization rate in compliance with the Affiliate Relationship Code. As such they are considered "Indirect Overheads". Hydro One does not allocate any project activity to "Direct Overheads" but rather charges all other costs directly to the project.

2.0 KEY ASSUMPTIONS, RISKS AND CONTINGENCIES

2.1 Key Assumptions

These key assumptions are critical to the completion of the Project, both with respect to schedule and overall costs. If these assumptions do not materialize, Hydro One will not be able to complete the Project as proposed in this Application.

i. **CO-OPERATION WITH MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE:** It will be necessary that the MOECC work collaboratively with Hydro One to implement a regulatory measure, such as a Cabinet exemption to typical EA requirements. This regulatory measure would allow Hydro One to utilize the EA-specific development work already completed by NextBridge, and address changes in the proposed route through additional study, consultation and regulatory approval. Hydro One will ensure the Project is conducted in accordance with any relevant conditions and mitigation measures proposed in the NextBridge EA as well as incorporate any additional considerations from the studies associated with the route changes.

ii. **UTILIZATION BY HYDRO ONE OF EXISTING EA:** Given that the competitive process established by the OEB clearly states the ability for any transmitter to submit a Leave to construct to build the project, Hydro One has assumed that the EA-specific development work will be made available to the transmitter designated to ultimately construct the Project. This is a necessary measure to foster optimal competition in any open process. It aligns with the intent of the Policy that established that the development transmitter and constructing transmitter was not necessarily going to be the same transmitter[16], and is critical

[16] Phase 2 Decision and Order (EB-2011-0140 – page 4), "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."

to mitigate ratepayer costs and ensure a timely in-service date for the Project. Additionally, in the context of an open, fair and on-going competitive process, the development work (inclusive of the EA) is intended for the benefit of ratepayers through the ultimate construction of the line.

iii. **DISCLOSURE OF THE NEXTBRIDGE EA:** The effects of the EA Amendment currently being prepared by NextBridge will need to be made available to Hydro One prior to the end of the third quarter of 2018 in order to ensure changes are addressed. Approval of NextBridge's EA must be received by the end of the third quarter of 2018 and Hydro One must receive EA approval of the route changes by June 2019 in order to meet both the in-service date and the costs as outlined in this Application.

iv. **AGREEMENT WITH IMPACTED INDIGENOUS COMMUNITIES:** This leave to construct application is conditional upon Hydro One finalizing agreements with directly impacted Indigenous communities to be established on mutually agreeable terms within a short period of time (in order of 45 days) from receipt of OEB approval.

Risks and Contingencies

2.2 HYDRO ONE MONTE CARLO SIMULATION

Hydro One utilized a Monte Carlo risk simulation to assess the probability of possible outcomes to determine the amount of the risk contingency. This sophisticated risk simulation method enables Hydro One to derive a reasonable and probable contingency allowance based on the analysis of a multitude of scenarios. A similar process was also followed by our construction partner.

The key risks that were included in the Monte Carlo simulation are identified in the table below.

Table 4			
Description	**Likelihood**	**Impact**	**Mitigation**
Ability to reach agreement with First Nations and Métis in a timely manner	Medium	Delay in construction start Potential Cost Increase	▪ Hydro One has engaged with all impacted communities ▪ Hydro One has terms of agreement from other projects that are fair, equitable and tested (e.g., B2M LP) ▪ SNC-L also has extensive experience working with Indigenous communities ▪ Consultation activities will start in February 2018
Community consultation for approval of route results in delays to completing EA	Medium	Schedule Delay Potential Cost Increase	▪ Commence consultations in February 2018 ▪ Route differences limited to use of existing corridor through Park; significant reduction in environmental impact should be favourably viewed by public
Land acquisition and expropriation (if required) not completed in time for construction	Medium	Schedule Delay Potential Cost Increase	▪ Hydro One's experienced team with voluntary agreements ▪ Land Acquisition Compensations Principles that encourage voluntary settlement through incentives ▪ Early notification and proactive discussions with land owners commencing March 2018 ▪ Early identification of the need for expropriation through an accelerated land acquisition program in conjunction with the opportunity to stage construction pending final results of expropriation
Scheduled 15-days continuous double-circuit outage to replace towers in Pukaskwa National Park delayed	Low	Potential Cost Increase	▪ Obtain outage plan approval from all stakeholders early in the process

Inability to undertake an approved regulatory process to meet EA obligations in a timely manner	Medium-High	Schedule Delay Potential Cost Increase	▪ Consultations with MOECC began in late 2017; regulatory measure is possible if Project is compelling to Province
Substantive unforeseen conditions imposed on EA Approvals	Low-Medium	Potential Schedule Delay Potential Cost Increase	▪ Any conditions imposed would be the same for Hydro One and NextBridge in shared route areas; Hydro One's route changes expected to result in reduced environmental impacts and therefore reduced mitigation measures
OEB approval not received by October 2018	Medium	Potential Schedule Delay Potential Cost Increase	▪ Respond timely to all scheduled timelines
Archaeology findings delaying construction work more than 2 weeks/per instance	Medium	Potential Schedule Delay Potential Cost Increase	▪ Accelerate work schedules ▪ Parallel existing route and only 10% of the route is greenfield.

Based on the Monte Carlo results, and given the terms of the fixed-price contract between Hydro One and SNC-Lavalin, SNC-Lavalin carrying its own contingency, and Hydro One's past experience, Hydro One is carrying a much smaller contingency ($10.8 million) than is typical for a capital project of this size.

The contingency includes allowances to cover the following potential risks which will not impact rate payers:

- Commodity price fluctuations and foreign exchange variations (until November 2018)
- Accumulated funds used during construction interest rate variations (other than those required by OEB through the statutory regulatory process)
- Material delivery delay due to procurement or vendor issues.

v. RISKS ELEMENTS NOT INCLUDED IN THE HYDRO ONE PRICE

No contingencies have been made for the following unlikely events and reasonable price adjustments would be submitted to OEB for prudency review only after all other recourses have been exhausted:

- Labour disputes;
- Safety or environmental incidents not covered by the insurance program of Hydro One;
- Significant changes in costs of materials, commodity rates and/or exchange rates post-October 2018) (NB: the dollar amount subject to these risks is less than 8 percent of total project costs);
- Any conditions imposed by regulatory bodies or Governmental agencies;
- Force Majeure events.

vi. COSTS OF COMPARABLE PROJECTS

A comparable project constructed by Hydro One would be the Niagara Reinforcement Project as it will also be a new 230 kV line upon completion. Due to the unique construction arrangement for the Lake Superior Link, two similar high-voltage projects completed by SNC-Lavalin have also been included in **Table 5**. Lastly, for ease of reference, Hydro One has also included the NextBridge East West Tie Line Project submission for comparative purposes.

Project Schedule

TASK	START	FINISH
Submit Section 92 Application to OEB		February 2018
Projected Section 92 Approval	February 2018	October 2018
Finalize EPC Contract with SNCL		November 2018
Environment Assessment and Consultation		
Obtain EA Approval from MOECC	January 2018	June 2019
Ongoing First Nations & Métis Consultation and Consultation with Stakeholders	February 2018	December 2021
Lines Construction Work		
Real Estate Land Acquisition	March 2018	March 2020
Detailed Engineering	April 2018	July 2019
Tender and Award Procurement	January 2019	September 2019
Construction	July 2019	November 2021
Commissioning	October 2021	December 2021
In Service		**December 2021**

Hydro One recognizes that the IESO has recommended an in-service date of 2020 for the East-West Tie Project[1] and that the proposed in-service date in this Application is one year beyond that recommended date. Hydro One believes that a delay to the in-service date to 2021 is manageable and should not impact the supply of electricity to the Northwest.

[1] Exhibit B, Tab 2, Schedule 1, Attachment 2

UNDERTAKING – JT 2.9

Undertaking

To update Exhibit B, Tab 11, Schedule 1, Page 1.
Provide a Gantt project schedule for other details, as available.

Response

Minor updates are provided to the project schedule provided at EB-2017-0364 Exhibit B, Tab 11, Schedule 1.

TASK	**START**	**FINISH**
Submit Section 92 Application to OEB		February 2018
Projected Section 92 Approval	February 2018	October 2018
~~Finalize~~ **Execute** EPC Contract with SNCL		November 2018
Environment Assessment and Consultation		
Obtain EA Approval from MOECC	January 2018	~~June~~ **July** 2019
Ongoing First Nations & Métis Consultation and Consultation with Stakeholders	February 2018	December 2021
Lines Construction Work		
Real Estate Land Acquisition	March 2018	March 2020
Detailed Engineering	~~April~~ **March** 2018	July 2019
Tender and Award Procurement	**March 2018** ~~January 2019~~	**May 2020** ~~September 2019~~
Construction	July 2019	~~November~~ **September** 2021
Commissioning	~~October~~ **September** 2021	December 2021
In Service		**December 2021**

Included as Attachment #1 to this undertaking response is a Gantt chart view of the project, showing major activities, critical path, and project float of approximately four months (two months of regulatory float and two calendar months of construction float).

OEB Staff Interrogatory # 11

Reference:

EB-2017-0364 Evidence, Hydro One's Application filed on February 15, 2018, Exhibit B, Tab 7, Schedule 1, Page 1 and 3
Hydro One's Development Cost Estimates

Hydro One stated that the development costs are estimated at approximately $12.2 million and that the forecast is based on an October 2018 approval date.

Interrogatory:

a) Please provide an updated development cost estimate in the event that OEB approval is received by end of November, or December 2018, respectively.

b) Please elaborate how the response in part (a) would change Hydro One's overall project budget and completion date.

c) Does Hydro One have monthly or quarterly development cost estimates including major components? If so, please provide those current estimates.

Response:

Prior to responding to these interrogatories, Hydro One would like to inform the OEB that the Project cost estimate has been updated to reflect current information. Please also note that Hydro One's updated development costs include costs up to the OEB's decision on Hydro One's Leave to Construct application projected for January 2019, whereas in the original application in February, there was a projection of an October 2018 decision on the application.

DEVELOPMENT COSTS

The Project development costs provided at Exhibit B, Tab 7, Schedule 1, have been amended in as follows in Table 1 below:

Table 1 – Development Cost ($ thousand)		
	February 2018	September Update
Real Estate	$3,813	$3,442
Engineering & Design	$2,034	$4,317
Environmental Approvals	$1,949	$4,328
Regulatory & Legal	$1,782	$528
First Nations & Métis Consultation	$983	$1,990
Project Management	$138	$264
Other Consultations	$217	$423
Interest	$100	$195
Overhead	$1,200	$1,485
Total Development	**$12,215**	**$16,972**

These development cost have been updated to account for various changes that have occurred since Hydro One filed its leave to construct application in February of 2018.

Real Estate Costs – Development Phase

Real Estate activities have been progressing favourably, generally in accordance with plan, but slightly behind schedule. The development costs have decreased by ($0.37 million). At the outset, there was an approximate 8 week delay in contracting for field property agent services. In addition there was an approximate 4 week delay in establishing meaningful property owner contacts to launch direct field activities. These delays have contributed to the under expenditures to plan through a delayed offer process.

Engineering & Design Costs – Development Phase

Engineering and Design Development cost have increased by $2.30M due to the Development phase being shifted from previously assumed LTC approval dated October 2018 to the now assumed approval in January 2019. The total Engineering and Design cost, including both Development and Construction phase costs, has increased by ($0.75M) Consequently Construction Management, Engineering, Design and Procurement costs have been decreased in the Construction phase.

The extra work to be done in Development phase encompasses:

- Engineering survey of tower and foundation in Pukaskwa Nation Park
- Engineering work required to initiate geotechnical work in the field
- Engineering work required to define extent of construction permits
- Engineering work required so that firm offers can be obtained for fabrication and testing of tower prototypes.

Environmental Approvals Costs – Development Phase

The increase in Environmental Approvals development costs of approximately $2.4M can be attributed predominately to the following:

- inclusion of some contingency costs in the updated cost, as the risk has been realized, ($150K); and,
- increases in approach to environmental approvals and scope of studies and consultation ($2.2 million).

Contingency costs realized of $150K in the updated cost included additional activities identified as potentially being required based on a very narrow scope of an EA amendment.

Additional costs attributed to changes in approach to environmental approvals and scope of studies and consultation include:

- additional Stage 2 archaeology costs as differences in tower locations between NextBridge and Hydro One designs became evident after additional studies were completed along the route for tower siting
- a portion of the cost of the Parks Canada Detail Impact Assessment. Although either a basic or detailed impact assessment is expected under CEAA, no additional cost was originally included in the budget for this, as Parks Canada indicated they would allow use of Hydro One's provincial EA documentation for review. However, this is now not the case (as conveyed in July 2018 communication letter provided in Exhibit I, Tab 1, Schedule 14) due to the more complicated scope and the addition of the Dorion route in the Hydro One IEA, as outlined in the ToR
- a portion of the cost of the Dorion Route Alternatives. There were changes in the scope of the Declaration Order/EA that resulted from the addition of the Dorion route alternative. This increased costs for consulting, additional meetings, stakeholder consultation, reporting, travel, and various studies (eg., additional visual assessment and

simulation around Dorion, biological, human health, cultural heritage, socio economic etc.)

- a portion of about the cost of conducting an Individual EA Process concurrently with the Declaration Order approach. Based on MECP feedback, the Individual IEA Process has been undertaken in parallel with the Declaration order process. This results in additional costs to cover the IEA process, the ToR, the increased scope and study area and different processes. These cost include additional labour, consulting costs (studies for biological, human health, cultural heritage, socio-economic etc.), disbursements for meetings, consultations, documentation, reporting, travel.

Regulatory & Legal Costs – Development Phase

Regulatory and legal costs have decreased (-$1.3M) as the original budget was based on the assumption that the OEB hearings were going to be held in Thunder Bay, increasing both internal, regulator, and intervenor funding costs. Additionally, with the combined hearing, Hydro One now assumes that the OEB will follow a similar cost sharing approach that was utilized in the NextBridge Motion to Dismiss Hearing where both transmitters will be responsible for funding the procedural costs of the hearing.

Indigenous Consultation Costs – Development Phase

The Indigenous consultation estimate has increased by ($1 million), which is a function of increased consultation given the Environmental Assessment scope has changed from the Declaration order to an Individual EA, as well as risks that have materialized and hence been removed from project contingency. Although the preferred option remains the Declaration order, the additional studies and resources required for an Individual EA have led to an increase in the Indigenous Consultation budget to allow for the Indigenous communities to be meaningfully consulted on the Project, including the EA. Also related to the change in the EA scope, Hydro One is required to meet with 18 Indigenous communities and the Métis on a more frequent basis than originally budgeted for. In addition, the following four Indigenous communities have expressed an interest in the project and Hydro One has engaged them. Métis Nation of Ontario - North Channel Métis Council, Métis Nation of Ontario – Historic Sault St. Marie Council, Jackfish Métis Association, and the Ontario Coalition of Indigenous Peoples. Hydro One is required to consult with any Indigenous community that expresses an interest on the Project, hence the need for additional resources to accommodate the interest of these additional four communities.

Additional costs are also associated with the need for further consultation with two of the First Nations who have a real estate permit interest in the Project. Pays Plat and Michipicoten First Nation have existing on reserve real estate permits that require negotiations which leads to additional costs.

Hydro One's Indigenous Consultation project costs were developed in absence of the delegation letter from the Crown (Hydro One requested it in November 2017 but did not receive until March 2018) with regards to consultation and therefore had to be amended to reflect delegation from the Crown. Hydro One anticipated that the Ministry of Energy would identify the depth of consultation required for each of the 18 Indigenous communities and assumed that the 6 BLP communities would be identified as requiring deeper consultation. Although this is something the Ministry of Energy is required to provide as part of its MOU with Hydro One regarding consultation on projects, the March 2, 2018 delegation letter identified all 18 Indigenous communities as "rights-based" and therefore Hydro One was not provided with depth of consultation required for each community but instead was directed to consult with all Indigenous communities equally. This leads to additional time and costs than what was included in the original Indigenous Consultation estimate.

Project Management Costs – Development Phase

Project Management cost have increased ($0.1M) due to Development phase being shifted from previously assumed LTC approval in October of 2018 to now assumed approval in January of 2019.

Other Consultation Costs – Development Phase

Other consultation costs have increased by $0.2M due to the requirement to consult on the Dorion Route alternative.

Interest During Construction & Overhead Capitalization – Development Phase

Interest during construction and overhead capitalization costs were initially budgeted and spread among the various cost items provided in Table 2 of Exhibit B, Tab 7, Schedule 1. Hydro One has a standard methodology for allocation of interest and applies an overhead capitalization rate to all its projects to account for non-direct staff's time working on capital projects. This overhead rate is determined by spreading a portion of overhead staff across budgeted capital projects. In this update, we have shown both of these numbers as separate line items. The

increase in costs ($0.4M) are a function of timing and the increase in the cost update as provided above.

CONSTRUCTION COSTS

The Project costs provided at Table 3 of Exhibit B, Tab 7, Schedule 1 for Project Costs have been amended as follows in Table 2.

Table 2 – Construction Costs ($ thousand)

	February 2018	**Sept. Update**
Construction	354,030	355,530
Site Clearing, Preparation & Site Remediation	104,339	104,339
Material	58,713	58,713
Project Management	5,802	6,085
Other Costs	9,451	9,451
Construction Management, Engineering, Design & Procurement	17,828	16,304
Real Estate	9,798	10,558
First Nations & Métis Consultations	1,133	3,615
Environmental Approval	819	2,423
Other Consultations	160	30
Contingency	10,775	5,401
Interest During Construction("IDC")	42,596	43,845
Overhead	8,502	8,506
Total Construction Cost	**623,946**	**624,800**

EPC Construction Costs: (Construction; Site Clearing; Material; Other costs; Construction Management, Engineering Design & Procurement)

Construction Management, Engineering, Design & Procurement cost has decreased (-$1.5M) due to Construction phase being shifted from assumed November 2018 to now assumed February 2019 and associated planned costs being allocated to the Development phase.

The overall cost for the fixed-price EPC contract has not changed, across the development and construction phases. Through further development work on the project, it was identified by Hydro One that some relocation costs for the T1M section of line were not included in the total project estimate although they are included in the scope of EA activities. They have since been added into the Construction phase of the project at $1.5 million. Of note, these costs are also not

included in the NextBridge application, and should be borne by the transmitter selected to construct the project.

Real Estate Costs – Construction Phase

The cost increase for Construction of $0.8M to the Original Application Estimated is attributable to the delays outlined in the Development Costs rationale for Real Estate above.

Project Management Costs – Construction Phase

Project Management cost in Construction phase have increased slightly ($0.3M) through this phase.

Indigenous Consultation Costs – Construction Phase

Certain costs during the construction phase of the Project have been identified to have increased, such as First Nations and Métis costs and Environmental Approval costs. However, these costs have been off-set by the reduction in Hydro One's contingency costs. The rationale for these increased costs are explained in the section above that deals with development costs.

Environmental Approval Costs – Construction Phase

The increase in Environmental Approval costs during the Construction phase of approximately $1.6 million can be attributed to a number of factors including:

- $890K in contingency costs expected to be realized during the construction phase for post-EA work such as permitting and additional approvals;
- changes in the approach to environmental approvals, scope of studies and consultation as a result of these activities continuing past the LTC date (approximately $714K). These items include: Parks Canada Detail Impact Assessment, Dorion Route Alternatives studies, and conducting the Individual EA Process concurrently with the Declaration Order approach. These additional scope activities are all described in the Development Phase Environmental Approval cost increases above.

Contingency – Construction Phase

Estimated contingency has been reduced (-$5.4M) due to a number of risks being materialized, mostly related to Environmental Approval and Indigenous Consultation. Interest during

construction and contingency cost have been updated to reflect the changes in the updated construction costs provided above.

Hydro One's total Project costs are now approximately $642M, an increase of less than 1% from the original filing and still considerably less than the original NextBridge estimate of $777M.

a) An updated development cost estimate is provided as Table 3 of this response. Hydro One now expects that LTC approval will be obtained by the end of January, 2019. If approval is received by end of November or end of December, refer to Figure below for expected development costs.

Table 3 - Life to Date & Forecast Development Cost ($000s)

	Feb 15, 2018 (S.92)[1]	**Life to Date (31/08/2018)**	**End of Sept 2018**	**End of Oct 2018**	**End of Nov 2018**	**End of Dec 2018**	**End of Jan 2019**
Real Estate	3,813	1,235	1,735	2,235	2,735	3,035	3,442
Engineering and Design	2,034	1,277	1,523	2,234	2,798	3,202	4,317
Environmental Approval	1,949	727	1,527	2,327	3,137	3,528	4,328
Regulatory & Legal	1,782	253	303	353	403	453	528
First Nations and Metis Consultations	983	57	357	657	1,157	1,490	1,990
Project Management	138	110	125	161	197	228	264
Other Consultations	217	223	273	323	373	402	423
Interest	100	18	16	25	35	46	195
Overhead	1,200	512	110	235	258	153	1,485
Total Development Cost	**12,215**	**4,412**	**5,969**	**8,550**	**11,093**	**12,537**	**16,972**

b) There would be no change to the overall project costs. Refer to Exhibit I, Tab 4, Schedule 3 for a scenario analysis that assesses the impact of regulatory approval delays will have on total project costs.

c) Please refer to a) above.

[1] Updated to identify interest and overheads separately

OEB Staff Interrogatory # 5

Reference:

EB-2017-0364 Evidence, Hydro One's Application filed on February 15, 2018, Exhibit B, Tab 1, Schedule 1, Page 12

Hydro One requests that a decision on this its application be rendered by October 2018.

Interrogatory:

a) Does Hydro One need a decision by October 2018 to meet its proposed December 2021 in-service date? If not, when does Hydro One need a decision from the OEB? Please explain and identify critical path items in Hydro One's project scheduling and planning.

b) What requirements (approvals, permits etc.) does Hydro One need to satisfy before it can start construction, if Hydro One is selected to build the new East-West Tie line?

Response:

a) In order to meet the December 2021 Hydro One will require:

- leave to construct approval no later than January, 2019, to initiate procurement activities associated with long lead time items; and
- EA approval by August, 2019, so that construction can commence.

See the Table below for an updated construction schedule that assumes Leave to Construct approval in January of 2019. Additionally, a scenario analysis is provided at Exhibit I, Tab 1, Schedule 7, to illustrate the impact to the schedule and cost should an EA approval not be received by August of 2019.

The current schedule is provided in the Table below:

TASK	START	FINISH
Submit Section 92 Application to OEB		February 2018
Projected Section 92 Approval	February 2018	January 2019
Execute EPC Contract with SNCL		January 2019
Environment Assessment and Consultation		
Obtain EA Approval from MOECC	January 2018	August 2019[1]
Ongoing First Nations & Métis Consultation and Consultation with Stakeholders	February 2018	December 2021
Lines Construction Work		
Real Estate Land Acquisition	March 2018	May 2020
Detailed Engineering	March 2018	Oct 2019
Tender and Award Procurement	January 2019	July 2020
Construction	September 2019	November 2021
Commissioning	September 2021	December 2021
In Service		**December 2021**

[1] Assumption: Declaration Order approved by MECP Minister
Please refer to Attachment 1 for Gantt Chart

b) Final requirements for approvals and permits will be outlined in EA approval documents. Studies and consultation conducted as part of the EA will inform this final determination.

School Energy Coalition Interrogatory # 5

Reference:

N/A

Interrogatory:

Please provide a similar schedule as requested in SEC-HONI-4, which includes a decision by Parks Canada that Hydro One cannot go through Pukaskwa National Park.

Response:

The current schedule is provided in the Table below:

TASK	START	FINISH
Submit Section 92 Application to OEB		February 2018
Projected Section 92 Approval	February 2018	January 2019
Execute EPC Contract with SNCL		January 2019
Environment Assessment and Consultation		
Obtain EA Approval from MOECC	January 2018	August 2019 [1]
Ongoing First Nations & Métis Consultation and Consultation with Stakeholders	February 2018	December 2021
Lines Construction Work		
Real Estate Land Acquisition	March 2018	May 2020
Detailed Engineering	March 2018	Oct 2019
Tender and Award Procurement	January 2019	July 2020
Construction	September 2019	November 2021
Commissioning	September 2021	December 2021
In Service		December 2021

[1] Assumption: Declaration Order approved by MECP Minister

Please refer to Attachment 1 for Gantt chart

UNDERTAKING – JT 2.30

Undertaking

Hydro One to file the probabilistic Monte Carlo analysis used to confirm the LSL schedule.

Response

Hydro One and SNC-Lavalin completed a process to look at factors which could cause the project schedule to extend beyond the planned completion date of December 2021. These factors were considered from a risk basis, assessing both likelihood and consequence of occurrence. The results were then modeled through a Monte Carlo simulation to probabilistically determine the confidence interval. The following distribution articulates to an 85% confidence interval (i.e. P85) that the LSL project will be completed prior to December 31, 2021.

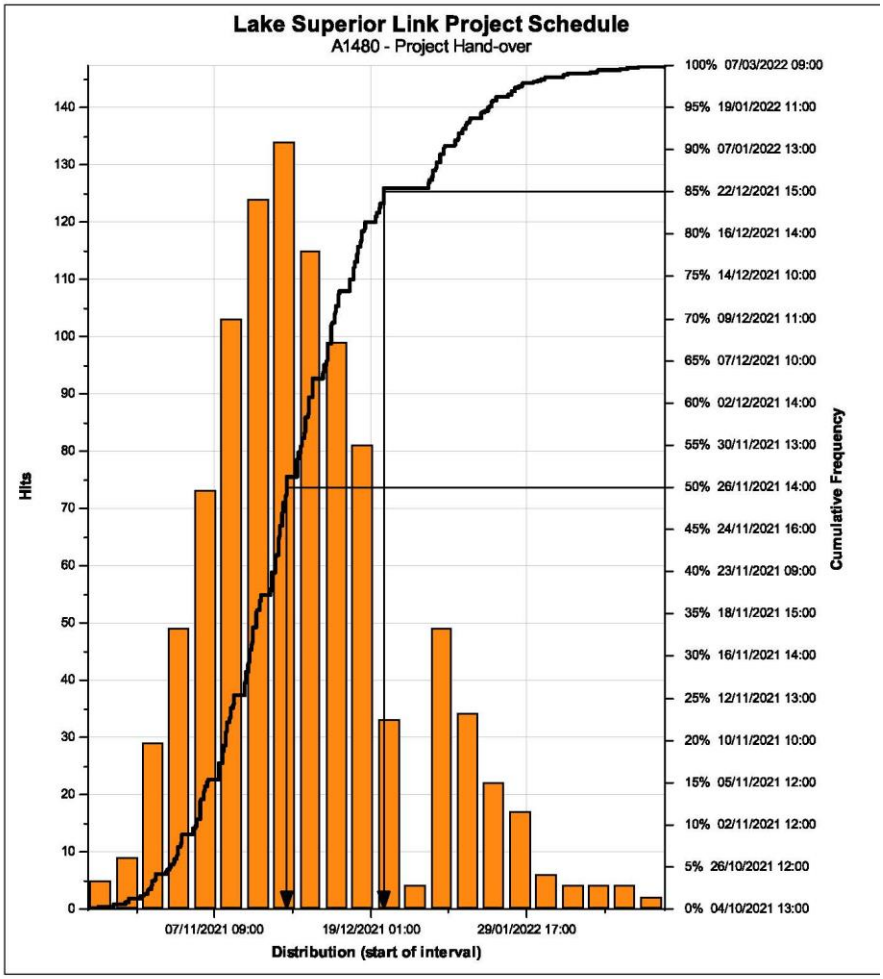


Chart 1

Generic Cost Estimate Matrix - AACE Recommended Practice No. 18R-97

	Primary Characteristic	*Secondary Characteristic*		
ESTIMATE CLASS	**MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical variation in low and high ranges
Class 5	0% to 2%	Concept screening	Capacity factored, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Equipment factored or parametric models	L: -15% to -30% H: +20% to +50%
Class 3	10% to 40%	Budget authorization or control	Semi-detailed unit costs with assembly level line items	L: -10% to -20% H: +10% to +30%
Class 2	30% to 75%	Control or bid/tender	Detailed unit cost with forced detailed take-off	L: -5% to -15% H: +5% to +20%
Class 1	65% to 100%	Check estimate or bid/tender	Detailed unit cost with detailed take-off	L: -3% to -10% H: +3% to +15%

The RQE is a Class 3 estimate and is being used as the control budget for the Program. Ninety per cent of the estimated costs of completion meet or exceed the level of estimate accuracy corresponding to Class 3. The largest component of the work bundle estimate, the Retube and Feeder Replacement ("RFR") estimate, is a Class 2 estimate. Chart 2 provides the estimate class for each of the major work bundles.

UNDERTAKING – JT 2.25

Undertaking

Hydro One to provide the analysis that led to the preliminary calculation (leading to the +/- 6% variance).

Response

Component	Nominal	Accuracy	Lower Bound	Upper Bound
EPC Contract Fixed-Price	$546 million[i] (Note 1)	-3% to +5%	$530 million	$573 million
Interest During Construction	$43 million	+/- 5% EPC portion +/- 15% non-EPC portion	$38 million	$49 million
All other Costs	$47 million	+/- 15%	$40 million	$54 million
Total Project	**$636 million**	**-5% to +6%**	**$608 million**	**$676 million**

[i] The fixed-price EPC contract is based upon the current scope of work as defined at the time of s92 filing. Should there be no authorized changes due to things outside the control of SNC-Lavalin, the EPC portion of the project will be delivered for $546 million. However changes to the scope of work, schedule, etc. due to things beyond SNC-Lavalin's control may be subject to contract changes for review and potential approval by Hydro One (i.e., adaptations to account for unforeseen imposed conditions on environmental assessment approvals). Conversely, should there be additional savings defined as part of the EPC prior to the execution of the contract following the potential OEB s92 approval, the fixed-price contract amount would reduce. As such an accuracy range of -3% to +5% is reasonable to assume

NextBridge Interrogatory # 64

Reference:

EB-2017-0364 – Hearing of Motion – Technical Conference HONI Undertaking Response JT2.30.

Interrogatory:

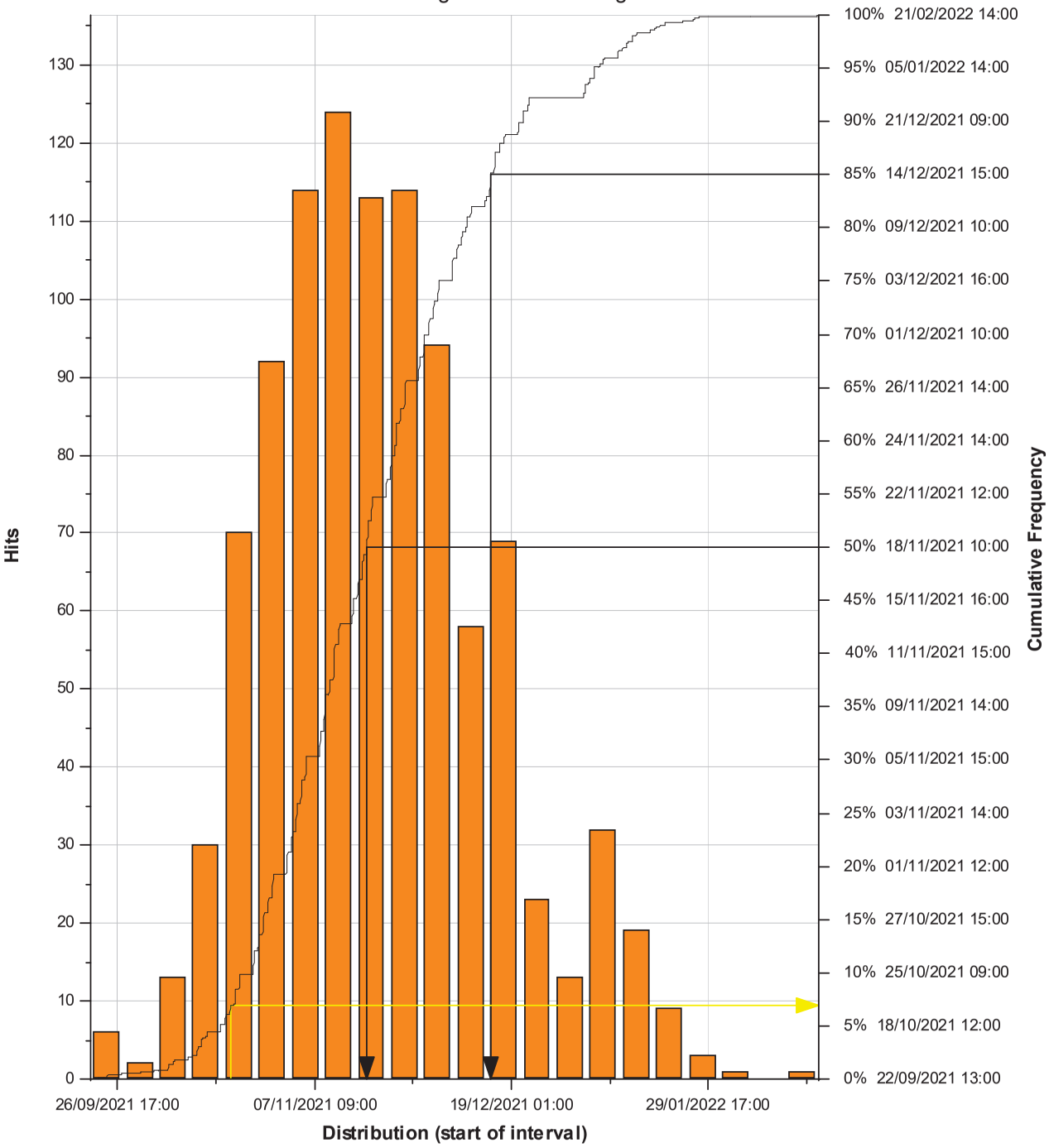
Please update and resubmit the probabilistic Monte Carlo analysis used to confirm the LSL schedule for both the preferred route through Pukaskwa National Park and alternative route around Pukaskwa National Park.

Response:

Please refer to Attachment 1. A schedule risk analysis has not been performed for the alternative route around Pukaskwa National Park.

Lake Superior Link Project Schedule 2018.08.30 R02

A1470 - Testing & Commissioning : Finish Date



Data	
Finish Date of:	
A1470 - Testing & Commissioning	

Filed: 2018-09-24
EB-2017-0364
Exhibit I-2-64
Attachment 1
Page 1 of 1

Analysis	
Iterations:	1000

Statistics	
Minimum:	22/09/2021 13:00
Maximum:	21/02/2022 14:00
Mean:	20/11/2021 18:00
Bar Width:	week

Highlighters	
85%	14/12/2021 15:00

OEB Staff Interrogatory # 7

Reference:

EB-2017-0364 Evidence, Addendum to the 2017 Updated Assessment for the Need for the East-West Tie Expansion, Reliability Impacts and the Projected System Costs of a Delay to the Project In-Service Date, June 29, 2018 (prepared by the IESO)

In the Conclusion section, the IESO continues to recommend an in-service date of 2020 for the East-West Tie Expansion. The IESO provides that its recommended in-service date is based on applicable planning and reliability criteria to ensure the reliability needs in the Northwest are met and to avoid the additional risks and associated costs of not having expanded transmission capability between the Northwest and Southern Ontario.

Interrogatory:

a) Has the IESO's update in any way impacted Hydro One's proposed project or ability to construct in the timeline that it is proposing? If so, please explain how and provide details.

b) What potential issues in Hydro One's proposal could potentially result in Hydro One's in-service date being delayed past the end of 2022?

Response:

a) No, it has not.

b) Hydro One fully intends to deliver the LSL Project by December 2021. However, Hydro One is cognizant of the fact that there could potentially be delays outside of Hydro One's control. For instance, a delay in obtaining EA Approval after August 2020 could result in the in-service date being delayed past the end of 2022. Hydro One has completed a sensitivity analysis to illustrate the impact of a one, three, five, or twelve-month delays that an EA approval would have on the in-service date and costs of the Project. This is provided in Table 1 below. Hydro One believes the likelihood of the EA being approved after August 2020 to be very low; therefore, an in-service date beyond December 2022 is also unlikely.

Table 1 – EA Approval Date Scenario Analysis					
		EA Delay			
Schedule - Preferred Route	**Baseline**	**1 Month**	**3 Month**	**5 Month**	**12 Month**
Submit Section 92 Application to OEB	Feb-2018	Feb-2018	Feb-2018	Feb-2018	Feb-2018
Projected Section 92 Approval	Jan-2019	Jan-2019	Jan-2019	Jan-2019	Jan-2019
Finalize EPC Contract with SNCL	Feb-2019	Feb-2019	Feb-2019	Feb-2019	Feb-2019
Environment Assessment and Consultation					
Obtain EA Approval from MOECC	**Aug-2019**	**Sep-2019**	**Nov-2019**	**Jan-2020**	**Aug-2020**
Ongoing Stakeholder Consultations	Dec-2021	Dec-2021	Dec-2021	Dec-2022	Dec-2022
Lines Construction Work					
Real Estate Land Acquisition	Mar-2020	Mar-2020	Mar-2020	Mar-2020	Mar-2020
Detailed Engineering	Feb-2019	Feb-2019	Feb-2019	Feb-2019	Feb-2019
Material Deliveries	Jul-2020	Jul-2020	Oct-2020	Dec-2020	Jul-2021
Construction Completion	Sep-2021	Oct-2021	Dec-2021	Nov-2021	Sep-2022
Commissioning Completion	Dec-2021	Dec-2021	Dec-2021	Dec-2021	Dec-2022
In Service Date	**Dec-2021**	**Dec-2021**	**Dec-2021**	**Dec-2021**	**Dec-2022**
Cost Impact ($000s)	**$0**	**$0**	**+$1,359**	**+$4,472**	**+$14,761**

1

School Energy Coalition Interrogatory # 19

Reference:

N/A

Interrogatory:

Please provide Hydro One's views on the IESO's Addendum to the Updated Needs Assessment.

Response:

The projected system costs of a delay to the in-service date are strongly affected by the availability and cost of the Northwest generation resources and the imports, for which the IESO has the knowledge. Given this fact, in Hydro One's view, the IESO assumptions and findings in the Addendum to the 2017 Updated Needs Assessment [IESO's June 29, 2018, report] are reasonable.

OEB Staff Interrogatory # 13

Reference:

EB-2017-0364 Evidence, Hydro One's Application filed on February 15, 2018, Exhibit B, Tab 7, Schedule 1, Page 10, Lines 9 to 11

Hydro One in its evidence indicated that it made no contingencies for certain unlikely events and that reasonable price adjustments would be submitted to the OEB for prudence review only after all other resources have been exhausted. Among the unlikely events, Hydro One identified significant changes in costs of materials, commodity rates and/or exchange rates post-October 2018. Hydro One noted that the dollar amount subject to these risks is less than 8% of total project costs.

Interrogatory:

a) Please comment on how likely it is that recent U.S. steel tariffs will significantly impact the estimated costs of materials for the line construction. What is the estimated dollar amount of an increase, if applicable?

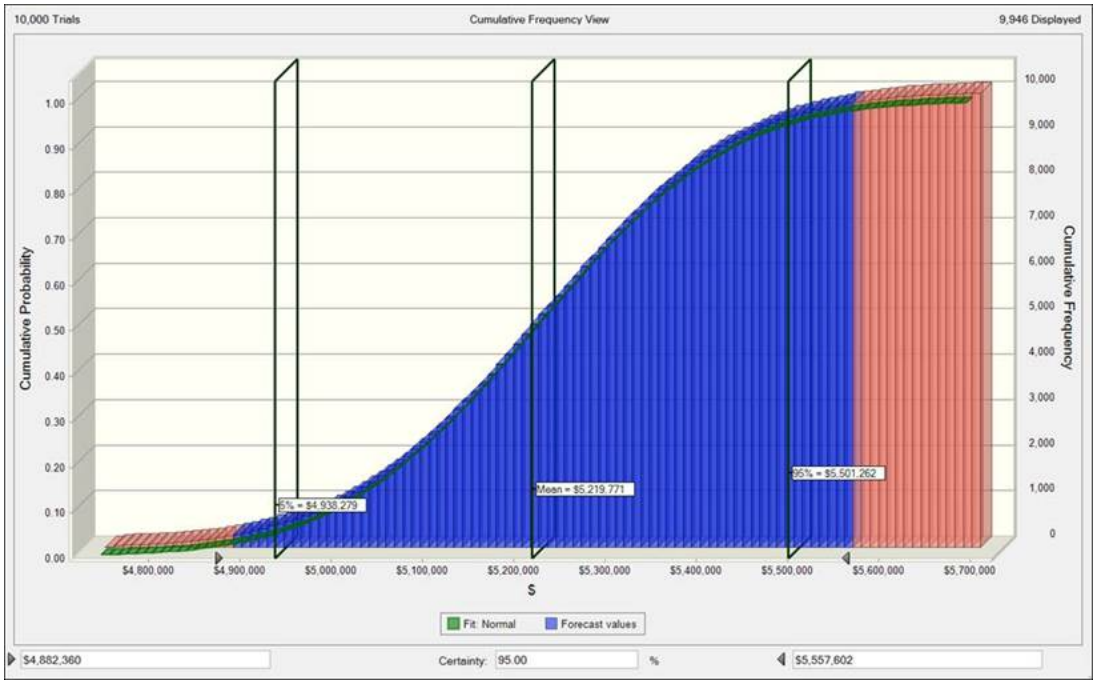
b) Have any of the potential risks identified in Hydro One's LTC applications become more likely to occur, since the filing of its Lake Superior Link application? If yes, please identify those risks and potential costs, should these risks materialize.

c) Has Hydro One found that the contingencies for the project need to be revised, since the application was filed? If so, please describe the costs according to appropriate categories and provide the reasons for any changes.

Response:

a) No impacts from the recent US steel tariffs are expected on the proposed pricing.

b) Please refer to Exhibit I, Tab 1, Schedule 11 where Hydro One's updated cost estimate is provided. In summary, Hydro One's portion of the contingency has changed from $10.8 million to $5.5 million. A portion of the contingency reduction is a function of risks that have materialized and are now included in base-costs (i.e., primarily Environmental Assessment and Indigenous Relations), as well as risks that have changed with additional project development work (such as Real Estate). Please refer to Attachment 1 for Hydro One's updated Risk Registry. The results of the Monte Carlo simulation are provided below.



c) Yes, please see part b) above.

Risk Counter	Risk Title	Risk Status	Probability Ranking	Cost Impact Estimate	Schedule Impact	Additonal Comments on Cost and Schedule
1	Because this EA Amendment procedure is unprecedented with the MOECC it is unclear at this time if it will be accepted by the MOECC. MOECC may require HONI to begin at a different stage gate in the IEA process (ie new TOR, or new EA). A condition required to proceed; Note risk updated in September 2018 to reduce probability ranking as more clarity around process is now available	ACTIVE	UNLIKELY 25% - 49%		Order of magnitude 2+ years for EA approval	Cost impact initially not carried as would greatly alter working assumptions; now additional cost included in LSL cost update, based on current knowledge of regulatory approval process - assuming Declaration Order or Individual EA using publicly available work from NextBridge; if NextBridge approval/work cannot be referenced then order of magnitude cost is increased by approximately $20M
2	Additional studies, reports and/or consultation, including open houses. September 2018 update: Initially intended for EA Amendment scope. This contingency is now included in the cost, however, approach of Declaration Order and IEA for entire route add additional scope and cost which is now also included in the updated cost.	CLOSED	LIKELY 75% - 94%			Cost incorporated into updated base cost for Enviornmental Approvals
3	Construction delays due to above risk #2; cost included in EPC cost impact due to delays	ACTIVE	LIKELY 75% - 94%			If EA Approval granted later then Aug 2019; need to re-base schedule and cost
4	Additional cost to explore other routing alternatives for Park section. September 2018 update: Initially intended for EA Amendment scope. This contingency is now included in the cost, however, approach of Declaration Order and IEA for entire route add additional scope and cost which is now also included in the updated cost.	CLOSED	VERY LIKELY 95% - 100%			Cost incorporated into updated base cost for Enviornmental Approvals
5	EPC Contractor has to use four circuit towers around Loon Lake / Dorion, refer to above risk #4	Inactive	REMOTE 0% - 24%			
6	EPC Contractor has to make a bypass around Loon Lake / Dorion, refer to above risk #4	CLOSED	VERY LIKELY 95% - 100%			
7	If there is a separate commercial entity (including Hydro One as well as other entities) which will be the owner of the infrastructure within PNP will this affect the license agreement and the ability to consider this as existing infrastructure (ie not a new development)?	ACTIVE	REMOTE 0% - 24%			Potential delays to agreements; not likely cost implications; refer to schedule delay scenarios
8	A large portion of the EA document needs to be rewritten to reflect the design, construction, maintenance and operation practices of Hydro One.	CLOSED	VERY LIKELY 95% - 100%		Incorporated into updated Sept 2018 schedule	Cost incorporated into updated base cost for Enviornmental Approvals
9	Nextbridge IEA was intended to meet the MNRF Class EA requirements for both the disposition of Crown land and works in Provincial Parks. We will need to follow up with the MNRF to confirm that this EA and the subsequent Amendment meet their Class EA requirements. MNRF may require further information or time to conduct further Class EA work of their own.	ACTIVE	EVEN ODDS 50% - 74%		2-3 months delay to start of construction	Risk cost impact combined with risk 10
10	Nextbridge IEA was intended to meet the Ministry of Infrastructures Class EA requirements for the disposition or modification of IO/ORC lands. Nextbridge was to submit additional information to MOI under a separate cover that is not currently in the public realm. There may be no trigger for the Class EA or if there is the MOI may deem the current IEA and additional information provided by Nextbridge inadequate to meet their Class EA requirements.	ACTIVE	LIKELY 75% - 94%	$ 1,000,000	2-3 months delay to start of construction	
11	Schedule impact due to delays under S. 35. (expropriation delaying construction)	ACTIVE	UNLIKELY 25% - 49%	$ 1,000,000	6 month delay	
12	A written plan for construction will need to be submitted per article 8.01 of the current licence agreement. Parks Canada will not approve the modification of the route. A condition required to proceed with base scenario.	ACTIVE	REMOTE 0% - 24%			Risk would result in route around Pukaswka National Park; development costs same
13	Parks Canada Detail Impact Assessment; September 2018 update: Although basic or detailed impact assessment expected under CEAA - no additional cost originally included in budget as Parks Canada indicated they would allow use of existing IEA document. This is not the case, as conveyed in July 2018, due to the more complicated scope and addition of Dorion route in IEA ToR.	CLOSED	LIKELY 75% - 94%		Not a Risk	Cost incorporated into updated base cost for Enviornmental Approvals
14	Analyses, Studies and reports within the EA will need to be amended to reflect the changes in routing and construction practices (such as ROW width, access). Many of these studies are time sensitive and seasons specific. We may need 4 seasons to complete all of the necessary studies. There is also the risk that early access agreements will not be in place to allow for conducting the studies at the appropriate time.	ACTIVE	UNLIKELY 25% - 49%		6 month delay to start of construction	Cost captured in Risk 20
15	Delay in coordinating Indigenous monitors which may be required for various studies including Archaeology and Natural Heritage.	ACTIVE	UNLIKELY 25% - 49%		6 months delay to construction start	Not likely a significant additional cost, only affects schedule and any resulting costs from schedule delay

Risk Counter	Risk Title	Risk Status	Probability Ranking	Cost Impact Estimate	Schedule Impact	Additonal Comments on Cost and Schedule
16	The reaction by Indigenous communities to additional consultation from Hydro One is uncertain. Indigenous communities may be limited in the extent they can share information with Hydro One given existing agreements with Nx. (Cost Incorporates risks 26-29)	ACTIVE	EVEN ODDS 50% - 74%	$ 1,000,000	6-12 month delay to construction start	
17	If leave to construct is awarded to Hydro One and NxB EA is not complete there is a risk of NxB not completing the EA.	ACTIVE	EVEN ODDS 50% - 74%		6 months delay to construction start	Cost implications difficult to determine, as it is not clear if portions of NextBridge work may be utlized by Hydro One; refer to Risk 1
18	Indigenous monitors may need to be present for Geotechnical studies.	ACTIVE	VERY LIKELY 95% - 100%		3-6 month delay to construction start	Cost risk captured in Risk 15
19	Permits for such things as water crossings, roads, tree clearing etc. may run into delays or added costs depending on availability and requirements of Regulatory staff and other stakeholders (ie Sustainable Forest Licencees).	ACTIVE	EVEN ODDS 50% - 74%	$ 1,200,000	(3-6 month delay)	
20	There is a risk that various environmental features may delay, post-pone or constrain construction activities by imposing timing restrictions. Eg. Species at Risk, nesting birds, water crossings, wet terrain. May also result in unplanned studies or mitigation.	ACTIVE	LIKELY 75% - 94%		SNCL Risk	
21	Stage 2 Archaeology, Cultural Heritage Evaluation Report and Heritage Impact Assessment may have findings that could result in additional studies (such as Stage 3 or 4 archaeological investigations) if mitigation or avoidance is not possible.	ACTIVE	EVEN ODDS 50% - 74%		Exclude from risk model and capture in S92 conditions	
22	Archaeological findings may cause delays to construction and modification to construction access routes or structure locations. Archaeology may not be fully complete before construction begins and may result in the adjustment to construction staging. May cause delays which may result in CCN's.	ACTIVE	EVEN ODDS 50% - 74%		Exclude from risk model and capture in S92 conditions	
23	Requirement for clearance letters from MTCS can cause delays by slow turn around.	ACTIVE	REMOTE 0% - 24%	$ 600,000	1-2 month delay in construction start	
24	Environmental Monitoring commitments made in the IEA and required by Regulator Permits may result in added analysis, studies and reports (ie Turbidity and Total Suspended Solids at water crossings).	ACTIVE	LIKELY 75% - 94%		SNCL to take on risk of construction delays	
25	POST EA Work During and Post Construction may be higher than anticipated	CLOSED	VERY LIKELY 95% - 100%			Cost incorporated into updated base cost for Enviornmental Approvals
26	Indigenous communities may decide to remove themselves from the consultation process, which can affect the consultation budget.	ACTIVE	REMOTE 0% - 24%		combine with 15	Risk cost captured in Risk 15
27	Indigenous communities may request additional meetings in order to conclude the consultation process which can delay necessary approvals and affect the consultation budget	ACTIVE	REMOTE 0% - 24%		combine with 15	Risk cost captured in Risk 15
28	Indigenous communities may raise issues that Hydro One cannot respond to and must be addressed by the Crown, which can delay necessary approvals and affect the consultation budget.	ACTIVE	REMOTE 0% - 24%		combine with 15	Risk cost captured in Risk 15
29	Additional Indigenous communities may assert rights in the Project area and request to be consulted which can delay necessary approvals and affect the consultation budget.	ACTIVE	REMOTE 0% - 24%		combine with 15	Risk cost captured in Risk 15
30	The risk of the regulatory approval taking longer than anticipated and not having visibility on when the EA approval will be received	ACTIVE	LIKELY 75% - 94%			If EA Approval granted later then Aug 2019; need to re-base schedule and cost
31	Land Value Study results lower than individual full narrative property appraisals.	CLOSED	UNLIKELY 25% - 49%			Risk materialized; cost impact ($500K) reflected in revised base budget
32	Property owner delayed authorisation or refusal to grant access for studies and assessments prior to s.92 approval.	ACTIVE	REMOTE 0% - 24%		minimal schedule impact	
33	Refusal to grant option for permanent lands rights, necessitating e	ACTIVE	EVEN ODDS 50% - 74%	$ 2,400,000	nil	Construction can be managed around the 14-18 months expropriation process, without impacting I/S
34	Compensation for Business Disruption/Loss associated in the grant of permanent land rights.	ACTIVE	UNLIKELY 25% - 49%	$ 800,000		

Risk Counter	Risk Title	Risk Status	Probability Ranking	Cost Impact Estimate	Schedule Impact	Additonal Comments on Cost and Schedule
35	Underlying rights within Provincial Crown lands, e.g. minerals (consent approval).	ACTIVE	EVEN ODDS 50% - 74%	$ 500,000		
36	Project requirements for route result in impact to primary residence or major out building (Buyout/Relocation).	CLOSED	UNLIKELY 25% - 49%			Risk materialized; cost impact reflected in revised base budget
37	Obtaining agreement and associated permits from FN (Pays Platt and Michipicoten) to accept current rental formula with other FN (annual amount).	ACTIVE	LIKELY 75% - 94%			Cost impact, if materialized is on OM&A
38	Undefined access road for temporary requirements (relying on preliminary information).	ACTIVE	LIKELY 75% - 94%	$ 525,000		
39	Unable to procure necessary Land Agent resources in a timely manner (substitute with internal staff).	ACTIVE	REMOTE 0% - 24%	$ 260,000		
40	Real Estate Buyouts found in the last moment (already addressed within Risk 36).	CLOSED	VERY LIKELY 95% - 100%			Risk materialized; cost impact reflected in revised base budget
41	IESO may reject the 15 days double circuit outage as it does not consider it as a valid plan	CLOSED	REMOTE 0% - 24%			
42	15 days double circuit outage cancelled two weeks before scheduled start date. New start date moved to following year.	ACTIVE	REMOTE 0% - 24%	$ 5,000,000		
43	15 days double circuit outage delayed for one week, 1 day before original scheduled start date.	ACTIVE	REMOTE 0% - 24%			
44	Single circuit outage(s) start delayed four hours in the morning of starting daily outage ($100k per instance)	ACTIVE	EVEN ODDS 50% - 74%	$ 600,000		
45	Communication cost due to POST EA Work During and Post Construction may be higher than anticipated	ACTIVE	VERY LIKELY 95% - 100%	$ 300,000		
46	Risk that Indigenous Communities request more than industry-typical study scopes	ACTIVE	EVEN ODDS 50% - 74%			Cost risk captured in Risk 15
47	MECP does not approve NxB EA by end of Q4 2018 as anticipated	ACTIVE	VERY LIKELY 95% - 100%			Result is delay and associated cost as described in Risk 30
48	MECP does not approve NxB at all and transfers all issues to H1	ACTIVE	EVEN ODDS 50% - 74%			Similar implications to Risk 17: Cost implications difficult to determine, as it is not clear if portions of NextBridge work may be utlized by Hydro One; refer to Risk 1
49	HONI is not granted Dec order, CEAA approval by August 15/19	ACTIVE	EVEN ODDS 50% - 74%			Result is delay and associated cost as described in Risk 30
50	Delay to project due to MECP tying Station EA approval to Dec order/IEA approval for LSL	ACTIVE	EVEN ODDS 50% - 74%		Current Jan 2019 EA approval as expected maintains in-service date of Dec 2021	Delay beyond that in assumptions will result in delay and associated cost as described in Risk 30

School Energy Coalition Interrogatory # 15

Reference:

[Motion Hearing, JT 2.30]

Interrogatory:

With respect to Hydro One's Monte Carlo simulation:

a) Did Hydro One undertake a similar Monte Carlo simulation with respect to cost? If so, please provide a copy of the results.

b) Please provide a list of the full inputs into the Monte Carlo simulation, including the numeric likelihood and consequence of occurrence values.

c) Please explain how Hydro One identified the risks, and determined their values.

Response:

a) Please refer to Exhibit I, Tab 1, Schedule 13

b) Please refer to Exhibit I, Tab 1, Schedule 13.

c) Hydro One identified the risks by holding Risk Workshops among Subject Matter Experts. These SMEs have also provided cost estimates for identified work as well as risk.

NextBridge Interrogatory # 42

Reference:

EB-2017-0364 - February 15, 2018 HONI Lake Superior Link Application, EXHIBIT B, TAB 7, SCHEDULE 1, Page 4, lines 3-8.

Interrogatory:

a) Provide copies of all Canadian (1) government agency rulings or (2) court pleadings and rulings or (3) executed settlements over the last 5 years in which SNC-Lavalin's procurement or construction practices and costs, including cost overruns, are the subject matter of the pleading, ruling or settlement, also including the identification of any fines, penalties or sanctions imposed.

b) For the last 10 years, provide the following information for any transmission project over 50 kilometers and at least 100 kV and above worked on by SNC- Lavalin:

i. The estimated in-service date at the time SNC-Lavalin was contracted to work on the project and the actual in-service date.

ii. The estimated cost of construction at the time SNC-Lavalin was contracted to work on the project and the actual cost of construction.

iii. The estimated cost of any procurement of equipment or material over $1 million to be undertaken by SNC-Lavalin at the time SNC-Lavalin was contracted to work on the project and the actual cost of the procured equipment and material.

iv. Identify any transmission tower(s) that collapsed during construction, including the reason for the collapse.

v. Identify any transmission tower(s) that collapsed during operation, the reason for the collapse and the time to restore the line into service, including the erection of a new tower.

vi. Identify any project owner or Indigenous Community concerns expressed or received related to safety, procurement, contracting or construction practices, including cost overruns, and provide copies of any associated documents.

vii. Identify any disallowance of the project owner's construction or capital costs. Provide copies of any order directing the disallowance.

c) For the last five years, provide the following information for any capital project over $100 million dollars:

i. The estimated in-service date at the time SNC-Lavalin was contracted to work on the project and the actual in-service date.

ii. The estimated cost of construction at the time SNC-Lavalin was contracted to work on the project and the actual cost of construction.

iii. The estimated cost of any procurement of equipment or material over $1 million to be undertaken by SNC-Lavalin at the time SNC-Lavalin was contracted to work on the project and the actual cost the procured equipment and material.

iv. Any project owner Indigenous Community concerns expressed or received related to safety, procurement, contracting or construction practices, including cost overruns, and provide copies of any associated documents.

Response:

a) SNC-Lavalin Inc. and its affiliates are party to various claims and litigation arising in the normal course of operations. Due to the inherent uncertainties of litigation and/or the early stage of proceedings, it is not possible to predict the final outcome of ongoing claims and litigation at any given time or to determine the amount of any potential losses, if any. With respect to claims or litigation arising in the normal course of operations which are at a more advanced stage and which present a better assessment of potential outcome, SNC-Lavalin Group Inc. does not expect the resolution of these matters to have a materially adverse effect on the solvency, liquidity or financial condition of SNC-Lavalin Group Inc. or any of its affiliates including SNC-Lavalin Inc.

For further details regarding the various legal proceedings, please refer to SNC-Lavalin Group Inc.'s (i) 2017 audited consolidated financial statements (see particularly Note 34 – Contingent Liabilities), and (ii) unaudited interim condensed consolidated financial statements as at and for the six-month periods ended June 30, 2018 and 2017 (see particularly Note 13 – Contingent Liabilities), as filed on www.sedar.com.

With respect to specific government agency rulings or court rulings, within the Clean Power Sector, we are not aware of any such rulings. With respect to executed settlement agreements over the last 5 years, please note that any such settlement agreements are confidential by their nature between the parties and we do not have authority or consent to transmit any such settlement agreements.

With respect to any public court cases, should there be any such judgments or court rulings in Canada, such judgments would be searchable in the public databases. We are not aware of any such public court judgments or rulings within the Clean Power Sector. We cannot, however, confirm with certainty whether any of our colleagues in other Sectors would have any such judgments.

b) With respect to this paragraph (b), the information requested is confidential and in some cases, proprietary information and SNC-Lavalin has strict contractual and confidentiality undertakings with our respective clients and therefore SNC-Lavalin cannot share any such information listed above.

c) With respect to this paragraph (c), the information requested is confidential and in some cases, proprietary information and SNC-Lavalin is bound under contractual and confidentiality undertakings with our respective clients and therefore SNC-Lavalin cannot share any such information listed above.

UNDERTAKING – JT 2.21

Undertaking

Hydro One to provide construction cost estimates for the route proposed by NextBridge in EB-2017-0182, using the same cost categories as in Table 2 in Hydro One's response to CCC8, both NextBridge route and preferred route. Also, to provide variance explanations for substantial differences.

Response

Hydro One would like to clarify that the reference Table is Nextbridge's response to CCC8 not Hydro One's response as the undertaking request currently reads. Hydro One notes that portions of the NextBridge response to CCC Interrogatory 8 in EB-2017-0182, filed March 21, 2018, were filed in confidence, specifically Table 3. Therefore, Hydro One has no line of sight to what detailed values NextBridge utilized to develop the costs provided in Table 2 of CCC Interrogatory 8. Consequently, a number of cost allocation assumptions have been made to align Hydro One's estimate, provided at Exhibit B, Tab 7, Schedule 1, Table 3 with the categories provided in CCC Interrogatory 8 Table 2.

Variance explanations have been provided for substantial differences between the NextBridge and Hydro One s.92 applications.

As requested, Hydro One has also provided the cost breakdown for the expected costs of the alternative of Hydro One following NextBridge's route in its entirety. Although the numbers vary, the variances explanations would not significantly differ for this alternative.

Category as per Exhibit I.B.NextBridge.CCC.8 - Table 2	NxB S.92	HONI S.92	Variance Explanation	HONI - NextBridge "Bypass" Route
Route length	443 km	403 km	Shorter route through Pukaskwa National Park	443 km
Engineering	$19,342,245	$17,828,000		$18,719,400
Materials & Equipment	$89,408,231	$58,713,000	34% cost reduction driven by optimized tower designs, shorter overall length and global purchasing power	$64,584,300
Environmental	$13,030,561	$9,819,000 (1)		$10,819,000
Land Rights	$23,830,512	$9,798,000	Hydro One is considering a number of instruments, including land use permits and believes it will reach voluntary settlements with the vast majority of property owners.	$9,798,000
First Nation and Métis Participation	$7,000,000	$18,450,000 (2)	Substantial economic participation included in Construction costs in the form of employment and FN&M contracting opportunities.	$20,664,000
First Nation and Métis Consultation	$13,211,000	$1,133,000	Lower due to the substantial amount of consultation completed to-date on the existing route	$1,627,000
Other Consultation	$2,530,194	$160,000		$160,000
Site Clearing, Access	$107,463,339	$66,339,000 (3)	The 38% variance is the result of a much smaller environmental footprint (50% less).	$75,379,680
Construction	$356,547,573	$363,481,000 (4)	Comparable total costs on a per unit basis.	$381,212,500
Site Remediation	$13,898,699	$10,550,000 (5)		$11,816,000

Interest During Construction	$31,003,000	$42,596,000	Consistent with the Board's decision in EB-2008-0408, interest during Construction is based upon the forecast of the embedded cost of debt used to finance the capital expenditures. It is impossible for Hydro One to compute NB's IDC without the monthly information to ascertain how a more expensive project has a lower IDC.	$44,838,161
Contingency	$49,339,445	$10,775,000	$10.8M of contingency is exclusive of the $54M of risk & contingency included within the fixed-price EPC contract.	$10,775,000
Regulatory	$5,405,078		All Hydro one regulatory costs are included in the development phase	
Project Management	$4,900,644	$5,802,000		$5,802,000
Overhead (new)		$8,502,000	Overheads shown separately as required by OEB Chapter 4 Filing Requirements Section 4.3.2.9.	$8,502,000
Total Construction Phase	**$736,970,521**	**$623,946,000**		**$664,697,041**

Notes:

1. This value differs from the $819k value depicted in Exhibit B, Tab 7, Schedule 1, Table 3 under Environmental Approval because environmental monitoring, permitting and mitigations costs which were included in Site Clearing, Preparation, & Site Remediation have been redistributed for the purposes of this comparison.
2. Though not explicitly identified in Exhibit B, Tab 7, Schedule 1, Table 3, First Nation and Metis Participation funding was accounted for in Site Clearing, Preparation, & Site Remediation. These funds have been redistributed for the purposes of this comparison.
3. This value has been reduced by $38M from what has been reflected in Exhibit B, Tab 7, Schedule 1 under Site Clearing, Preparation and Site Remediation to redistribute funds to Environmental, FN&M participation, and Site Remediation for the purposes of this comparison
4. This value is a combination of the Construction costs and Other costs identified in Exhibit B, Tab 7, Schedule 1.
5. Though not explicitly identified in Exhibit B, Tab 7, Schedule 1, Table 3, Site Remediation funding was accounted for in Site Clearing, Preparation, & Site Remediation. These funds have been redistributed for the purposes of this comparison.

SEC INTERROGATORY #24

INTERROGATORY

[Motion Hearing - JT 2.21]

Please provide a similar comparison table as provided by Hydro One with Nextbridge's views on the rationale for the cost variance in each category.

RESPONSE

NextBridge provides below a comparable table to the one provided by Hydro One (HONI) from Hydro One's response to Undertaking JT2.21. NextBridge has used Hydro One's table and substituted NextBridge variance explanations. NextBridge has further modified the table to incorporate additional cost categories anticipated to impact Hydro One's Lake Superior Link (LSL) cost estimate. Detailed variance analyses and explanations are provided below the table.

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	NextBridge S.92	HONI S.92	Variance Explanation	HONI -[1] NextBridge "Bypass" Route
Route length	446 km	403 km	NextBridge's route is longer due to NextBridge's inability to obtain Parks Canada consent to study a route through Pukaskwa National Park (Park). HONI has not yet received approval to route the LSL Project through the Park.	443 km
Engineering	$19,342,245	$17,828,000	NextBridge's detailed engineering is fully contracted, 90% complete, and the cost provided has a high level of confidence (Class 2 AACE, compared to HONI's Class 3 AACE, which is less accurate). In HONI's response to Undertaking JT 2.9, HONI stated that detailed LSL project engineering started in March of 2018 and would run through July 2019, which shows that HONI is far from showing the actual cost for detailed engineering.	$18,719,400
Materials & Equipment	$89,408,231	$58,713,000	It is not clear what materials HONI has included in this category so it is difficult to make a comparison, but if the list of materials and equipment is comparable to NextBridge's, then the HONI costs appear to be generally understated. (See narrative that follows for additional consideration)	$64,584,300
Environmental	$13,030,561	$9,819,000	NextBridge does not know the assumptions that HONI has made to arrive at this estimate, but NextBridge has more cost certainty than HONI due to	$10,819,000

[1] To date, there is insufficient information on the cost figures provided by HONI related to its by-pass route to provide a variance explanation.

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	NextBridge S.92	HONI S.92	Variance Explanation	HONI -[1] NextBridge "Bypass" Route
			further progress made in activities such as the Environmental Assessment (EA) process, completing Stage 2 archeological assessments, undertaking Species at Risk field work, and completing fish surveys to inform waterbody crossings for construction access.	
Land Rights	$23,830,512	$9,798,000	NextBridge included in its cost estimate use of an easement tenure that requires Crown land legal surveys be completed, per the recommendation of the MNRF. Additionally, since there is no increase in the land expenses in the "bypass" route, NextBridge assumes HONI may not have considered compensation to Crown interest holders in arriving at its estimate.	$9,798,000
First Nation and Métis Participation	$7,000,000	$18,450,000	NextBridge has executed agreements with Indigenous communities who sought economic participation. This provides a better informed price that is targeted and efficient, which in turn provides more cost certainty. NextBridge has a comprehensive employment, training and procurement plan, which it has already implemented, in coordination with its general contractor.	$20,664,000

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	NextBridge S.92	HONI S.92	Variance Explanation	HONI -[1] NextBridge "Bypass" Route
First Nation and Métis Consultation	$13,211,000	$1,133,000	NextBridge has had extensive consultation with the 18 communities from its delegated Duty to Consult since 2013, which provides more cost certainty. It appears that HONI believes Indigenous communities will require limited consultation efforts.	$1,627,000
Other Consultation	$2,530,194	$160,000	NextBridge has based its stakeholder consultation activities on almost 4 years of communication and interaction with highly engaged communities along the route. HONI appears to believe it will conduct significantly less stakeholder consultation and still obtain support for its project.	$160,000
Site Clearing, Access	$107,463,339	$66,339,000	NextBridge has not seen a HONI detailed access plan so it is unclear what is included in HONI's cost. NextBridge has undergone years of due diligence of stakeholder consultation, a competitive review by multiple contractors in the RFP process and verification on the ground by NextBridge's general contractor. There is also limited risk for NextBridge that these costs increase given the terms of the general contractor agreement. There is no evidence that HONI has completed any of the work that NextBridge has completed to inform the estimate on this issue.	$75,379,680
Construction	$356,547,573	$363,481,000	NextBridge does not know how HONI calculated its estimate without knowing the inputs that were used. NextBridge assumes	$381,212,500

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	NextBridge S.92	HONI S.92	Variance Explanation	HONI - [1] NextBridge "Bypass" Route
			those inputs would include consideration for a construction access plan that was provided to the MNRF/MECP for consultation similar to the process NextBridge completed. NextBridge has also provided costs in 2020 dollars and therefore escalation was included to show actual in-service costs. From HONI's application, it is unclear what year dollars are included in their construction estimate.	
Site Remediation	$13,898,699	$10,550,000	A large portion of the NextBridge reclamation efforts are already captured in its access plan. It is unclear what requirements are captured in the HONI site remediation cost given their detailed access plan has not been made available for review.	$11,816,000
Interest During Constr uction	$31,003,000	$42,596,000	Consistent with the Board's recommendation in the November 28, 2006 Approval of Accounting Interest Rates Methodology for Regulatory Accounts (Board File No. EB-2006-0117), NextBridge used as an estimate interest rate based on the Scotia Capital Inc. All Corporates Mid-Term Average Weighted Yield, as published on the Bank of Canada's website.	$44,838,161
Contingency	$49,339,445	$10,775,000	NextBridge has a high level of confidence in regards to the contingency (7%) it has estimated given the final stage of design and execution of the general contractor agreement as further characterized as AACE Class 2 estimate. Conversely, HONI has	$10,775,000

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	**NextBridge S.92**	**HONI S.92**	**Variance Explanation**	**HONI -[1] NextBridge "Bypass" Route**
			presented an AACE Class 3 estimate based on preliminary engineering and a contingency of $10.8M (1.7%). HONI's general contractor will also carry approximately $55 million in contingency. Tr. page 184, lines 4-8 of EB-2017-0364 (May 17, 2018).	
Regulatory	$5,405,078		HONI does not appear to have included any regulatory costs related to the approximately three-year period anticipated between LTC approval and in-service of the LSL project.	
Project Management	$4,900,644	$5,802,000	NextBridge does not know what HONI has included in project management to arrive at its estimate.	$5,802,000
Overhead (new)		$8,502,000	NextBridge overheads are included in the above totals.	$8,502,000
IESO delay costs (new)	$0	$21,000,000	The IESO estimated $19 MM for delay costs related to a December 2021 in-service date in 2017 dollars, which have been escalated to 2021 dollars by 2.5%. The delay cost figure could increase based on the IESO's response to the party's interrogatories on September 24, 2018.	$21,000,000
Outage cost (new)		TBD	It is expected the IESO will provide the estimated cost of a HONI two-week outage of the existing EWT Line if it routes through the Park in response to interrogatories on September 24, 2018.	
Escalation costs	$0	Unknown	NextBridge has assumed escalation costs to bring its	Unknown

Category as per Exhibit I.B.NextBridge. CCC.8 - Table 2	NextBridge S.92	HONI S.92	Variance Explanation	HONI -[1] NextBridge "Bypass" Route
			project to 2020 dollars. It is not clear that HONI has included escalation or what dollars their estimate is in.	
Total Constructi on Phase	**$736,970,521**	**$644,946,000**		**$685,697,041**

Additional Information on Variances:

Route length: NextBridge's route is longer due to the denial of Parks Canada to allow NextBridge to add additional parallel transmission infrastructure in Pukaskwa National Park. At this time, HONI is seeking Parks Canada to allow them to construct 87 new quad circuit transmission towers with up to 12 guy anchors per tower in the Park and stay within its existing right-of-way and do little harm to the environment in the Park during construction. NextBridge has yet to see substantial evidence that shows what HONI believes will in actuality be possible when it comes to the quad circuit tower construction and operation. Further, to date, there is no evidence that Parks Canada has approved HONI's request. Even if Parks Canada approves HONI's request, NextBridge also disagrees that the use of quad circuit towers in this instance is as reliable as NextBridge's transmission design that does not combine the existing new East-West Tie Line into a single point of failure for 87 towers. Thus, even though HONI has theoretically proposed a shorter route, NextBridge believes there are more disadvantages than advantages to the proposal and it should not be adopted.

Materials and Equipment:

HONI contends that one of the reasons it can provide lower material and equipment costs is because it is in the global market and NextEra likely procures from the North American market. Tr. page 184-185, lines 25-27 EB-2017-0364 (May 17, 2018). This is incorrect. NextEra, one of the NextBridge partners, is the third largest builder of infrastructure in the United States of any industry and procures materials and equipment on the global market. Thus, HONI's attempt to downplay NextEra's purchasing power was not accurate. NextEra has transmission, distribution, and substation infrastructure investments, as well as other capital projects in wind, solar, combined cycle plants, gas pipelines, etc. and a global network of suppliers and manufacturers, with an annual deployment of capital in excess of $10B and $40B of planned investments through 2020. In addition to

NextBridge's superior purchasing power on a global scale, approximately 70% of the NextBridge materials for this project have already been competitively sourced and contracted, or at least shortlisted and pending final contract on approval of the LTC. The remaining 30% of this budget is allocated to the procurement of the conductor, optical ground wire, and overhead ground wire that NextEra purchases competitively in high volumes each year. In contrast, it is unclear from HONI's evidence 1) how it derived its material and equipment costs, or 2) how the material and equipment will be procured - competitively or sole sourced.
Given NextBridge's experience and due diligence it appears that there is an inconsistency of the types of materials included in this section or the costs may be understated or not well developed. NextBridge has also provided costs in 2020 dollars, and, therefore, escalation was included to show actual in-service costs. From HONI's application, it is unclear what year dollars are included in their construction estimate.

Land: Hydro One asserts in Exhibit C of its application that it has approximately 50% less area to acquire for their proposed route than NextBridge does (EB-2017-0364, Exhibit B, Tab 5, Schedule 1, page 4). This is reflected in the difference in area requirements for new land rights acquisition in Exhibit E of both applications and has a direct correlation to the overall cost of acquiring land rights for the route. However, it is not possible to verify that Hydro One has achieved 50% less footprint given the length of the line, the unavailability of an access plan, and the OEB Minimum Technical Requirements for width of right-of-way based on blowout conditions.

Furthermore, HONI cites in its application that it intends to add to its existing Multi-Site Land Use Permit with the MNRF to acquire approximately 1050 hectares of new land rights on unpatented provincial Crown land (EB-2017-0364, Exhibit E, Tab 1, Schedule 1, page 7). As outlined in Exhibit E of NextBridge's application and based on recommendation from the MNRF, NextBridge intends to transfer its provincial Crown land tenure from a land use permit to an easement tenure following the completion of post-construction surveying. An easement tenure, unlike a land use permit, requires a Crown land legal survey which NextBridge has budgeted to complete.

Also, HONI states with no substantial evidence in support that the land rights cost is no different for their "Bypass" route, which suggests that Hydro One has not considered compensation payable to Crown interest holders which NextBridge has included in its budget.

Regulatory: HONI's claims in Undertaking JT 2.21 that all its regulatory costs are part of its development costs which ends when the OEB provides a leave to construct, and there are no construction phase regulatory costs. HONI has not explained why it believes there will be no regulatory costs incurred by HONI between an OEB approval of the HONI LSL

LTC application and December 2021, the current proposed in-service date for the LSL Project.

Also, HONI is using a different endpoint in relation to characterization of a regulatory cost as being either development phase or construction phase related, describing "development costs" as those incurred through to OEB LTC approval (EB-2017-0364, Exhibit B, Tab 7, at page 3), which also makes it challenging to make a comparison to NextBridge, which ended development phase and costs at the filing of the Leave to Construct.

First Nations and Métis: NextBridge has engaged and consulted with First Nation and Métis communities since it was first delegated procedural aspects of the Duty to Consult in 2013. During that time, engagement with communities on the development of the line has led to the sharing of information between both parties on traditional values, the development of a comprehensive Indigenous employment, training and procurement plan, and executed agreements with communities who sought economic participation (ex. Bamkushwada LP and the Métis Nation of Ontario). All these mutual efforts have provided NextBridge with more cost certainty on its First Nation and Métis participation and consultation budgets.

The Crown has made clear in their MOU that delegates Duty to Consult to Lake Superior Link that HONI must consult on the project. The LSL Project will have its own impacts, taking up of lands, construction timeframe and methodology. In NextBridge's experience the First Nation and Métis consultation budget proposed by Hydro One is underestimated given the requirement to meaningfully consult with 18 First Nation and Métis groups. The Crown will insist on "deep" consultation with potentially impacted First Nations and Métis and this will require a significant amount of time and resources dedicated to ensure they have met the Crown's Duty to Consult."

While NextBridge does not know what makes up the HONI First Nation and Métis participation budget, it assumes that HONI's budget includes activities that were originally under "Preparation and Site Remediation" from the footnote in the original table, and it is unclear how these activities relate to participation.

Other Consultation: NextBridge has based its stakeholder consultation activities on almost four years of communication and interaction with communities along the route. These interactions have shown an increased interest from communities on this large infrastructure project. During the construction period, NextBridge has budgeted for three open houses, and a communications plan that not only informs communities on construction activity, but also addresses safety and construction awareness.

Site Clearing and Access: HONI has yet to provide an access plan so it is not possible to verify that they have achieved 50% less footprint given the length of the line and the OEB Minimum Technical Requirements for width of right of way based on blowout conditions. It is also unclear what is included in this category especially given HONI's recent reallocation of costs to other categories. However, NextBridge has a high degree of confidence in the East West Tie construction plan and cost estimate, specifically this category as it has been thoroughly investigated through years of onsite due diligence, aerial and ground surveys, multiple contractors have reviewed the plan for constructability, construction rates for these activities have been competitively sourced, the access plan has been completely and thoroughly inspected on the ground during the summer of 2018 by NextBridge's general contractor and there is also limited risk for NextBridge that these costs increase given the terms of its general contractor agreement (see NextBridge's response to SEC Interrogatory #18, at Exhibit I.NextBridge.SEC.18). In contrast, HONI has not explained in detail how its site clearing and access plan and associated costs were or are to be developed.

Interest During Construction (IDC): NextBridge's IDC estimate was based on the cash flow and prescribed OEB rate at the time of the LTC filing. NextBridge acknowledges that as the cash flow and the rate changes the amount of IDC will change. NextBridge cannot determine the reason for the difference in IDC between the NextBridge and HONI application without seeing the calculation of HONI's IDC.

Cost Comparison Table

Category	NB s.92	HO s.92	HO Explanation	NB Explanation	HO - NB Route
Route Length	443 km	403 km	Shorter route through Pukaskwa National Park	NextBridge's route is longer due to NextBridge's inability to obtain Parks Canada consent to study a route through Pukaskwa National Park (Park). HONI has not yet received approval to route the LSL Project through the Park.	443 km
Engineering	$19,342,245	$17,828,000		NextBridge's detailed engineering is fully contracted, 90% complete, and the costprovided has a high level of confidence (Class 2 AACE, compared to HONI's Class 3 AACE, which is less accurate). In HONI's response to Undertaking JT 2.9, HONI stated that detailed LSL project engineering started in March of 2018 and would run through July 2019, which shows that HONI is far from showing the actual cost for detailed engineering.	$18,719,400
Environmental	$13,030,561	$9,819,000		NextBridge does not know the assumptions that HONI has made to arrive at this estimate, but NextBridge has more cost certainty than HONI due to further progress made in activities such as the Environmental Assessment (EA) process, completing Stage 2 archeological assessments, undertaking Species at Risk field work, and completing fish surveys to inform waterbody crossings for construction access.	$10,819,000
Materials & Equipment	$89,408,231	$58,713,000	34% cost reduction driven by optimized tower designs, shorter overall length and global purchasing power	It is not clear what materials HONI has included in this category so it is difficult to make a comparison, but if the list of materials and equipment is comparable to NextBridge's, then the HONI costs appear to be generally understated. (See narrative that follows for additional consideration)	$64,584,300
Land Rights	$23,830,512	$9,798,000	Hydro One is considering a number of instruments, including land use permits and believes it will reach voluntary settlements with the vast majority of property owners.	NextBridge included in its cost estimate use of an easement tenure that requires Crown land legal surveys be completed, per the recommendation of the MNRF. Additionally, since there is no increase in the land expenses in the "bypass" route, NextBridge assumes HONI may not have considered compensation to Crown interest holders in arriving at its estimate.	$9,798,000
First Nation and Métis Participation	$7,000,000	$18,450,000	Substantial economic participation included in Construction costs in the form of employment and FN&M contracting opportunities.	NextBridge has executed agreements with Indigenous communities who sought economic participation. This provides a better informed price that is targeted and efficient, which in turn provides more cost certainty. NextBridge has a comprehensive employment, training and procurement plan, which it has already implemented, in coordination with its general contractor.	$20,664,000
First Nation and Métis Consultation	$13,211,000	$1,133,000	Lower due to the substantial amount of consultation completed to-date on the existing route	NextBridge has had extensive consultation with the 18 communities from its delegated Duty to Consult since 2013, which provides more cost certainty. It appears that HONI believes Indigenous communities will require limited consultation efforts.	$1,627,000
Other Consultation	$2,530,194	$160,000		NextBridge has based its stakeholder consultation activities on almost 4 years of communication and interaction with highly engaged communities along the route. HONI appears to believe it will conduct significantly less stakeholder consultation and still obtain support for its project.	$160,000
Site Clearing, Access	$107,463,339	$66,339,000	The 38% variance is the result of a much smaller environmental footprint (50% less).	NextBridge has not seen a HONI detailed access plan so it is unclear what is included in HONI's cost. NextBridge has undergone years of due diligence of stakeholder consultation, a competitive review by multiple contractors in the RFP process and verification on the ground by NextBridge's general contractor. There is also limited risk for NextBridge that these costs increase given the terms of the general contractor agreement. There is no evidence that HONI has completed any of the work that NextBridge has completed to inform the estimate on this issue.	$75,379,680
Construction	$356,547,573	$363,481,000	Comparable total costs on a per unit basis.	NextBridge does not know how HONI calculated its estimate without knowing the inputs that were used. NextBridge assumes those inputs would include consideration for a construction access plan that was provided to the MNRF/MECP for consultation similar to the process NextBridge completed. NextBridge has also provided costs in 2020 dollars and therefore escalation was included to show actual in-service costs. From HONI's application, it is unclear what year dollars are included in their construction estimate.	$381,212,500
Site Remediation	$13,898,699	$10,550,000		A large portion of the NextBridgere clamation efforts are already captured in its access plan. It is unclear what requirements are captured in the HONI site remediation cost given their detailed access plan has not been made available for review.	$11,816,000
Interest During Construction	$31,003,000	$42,596,000	Consistent with the Board's decision in EB-2008-0408, interest during Construction is based upon the forecast of the embedded cost of debt used to finance the capital expenditures. It is impossible for Hydro One to compute NB's IDC without the monthly information to ascertain how a more expensive project has a lower IDC.	Consistent with the Board's recommendation in the November 28, 2006 Approval of Accounting Interest Rates Methodology for Regulatory Accounts (Board File No. EB-2006-0117), NextBridge used as an estimate interest rate based on the Scotia Capital Inc. All Corporates Mid-Term Average Weighted Yield, as published on the Bank of Canada's website.	$44,838,161
Contingency	$49,339,445	$10,775,000	$10.8M of contingency is exclusive of the $54M of risk & contingency included within the fixed-price EPC contract.	NextBridge has a high level of confidence in regards to the contingency (7%) it has estimated given the final stage of design and execution of the general contractor agreement as further characterized as AACE Class 2 estimate. Conversely, HONI has presented an AACE Class 3 estimate based on preliminary engineering and a contingency of $10.8M (1.7%). HONI's general contractor will also carry approximately $55 million in contingency. Tr. page 184, lines 4-8 of EB-2017-0364 (May 17, 2018).	$10,775,000
Regulatory	$5,405,078		All Hydro one regulatory costs are included in the development phase	HONI does not appear to have included any regulatory costs related to the approximately threeyear period anticipated between LTC approval and in-service of the LSL project.	
Project Management	$4,900,644	$5,802,000		NextBridge does not know what HONI has included in project management to arrive at its estimate.	$5,802,000
Overhead		$8,502,000	Overheads shown separately as required by OEB Chapter 4 Filing Requirements Section 4.3.2.9.	NextBridge overheads are included in the above totals.	$8,502,000
Total Construction Phase	**$736,970,521**	**$623,946,000**			**$664,697,041**

Source: Motion Hearing JT 2.21; I.Nextbridge.SEC.24

Scope of Work - Division of Responsibilites						
			Owner		EPC	
#	Activity	Deliverables	Hydro One	NextBridge	SNC-Lavalin	Valard
1.0	**Project Development**	**All activities to permit the project**				
1.01	Environment	Pre-disturbance Assessment (PDA) (Biophysical Survey) - Raptor Nest Surveys - Migratory Bird Surveys - Sensitive Species Survey - Vegetation, Weed, Soil Surveys		X	X	
1.02	Environment	Historical Resource Impact Assessment and Clearance		X	X	
1.03	Environment	Environmental Field Report (EFR) - Crown Land only		NextBridge has not become aware of the need of this requirement through its extensive regulatory consultation Process.	X	
1.04	Environment	Environmental Specifications Requirements (ESR)		NextBridge has not become aware of the need of this requirement through its extensive regulatory consultation Process.	X	
1.05	Environment	Ontario Water Act and Fisheries Approvals		X	X	
1.06	Environment	Caribou Protection Plan		If required. MNRF still to provide directions if needed or not.	X	
1.07	Environment	Traditional Land Use (TLU) Surveys		X	X	
1.08	Environment	Environmental Contamination: Phase I ESA (Haz Mat survey) and Phase II/III ESAs if required.		X	X	
1.09	Environment	Environmental Studies for Permitting		X	X	
1.1	External Engagement	Communications / Public Relations	X	X	Assist	
1.11	External Engagement	Consultation (Indigenous Communities and others)	X	X	X	Assist
1.12	External Engagement	Government Relations	X	X		
1.13	External Engagement	Aboriginal Consultations	X	X	Assist	Assist
1.14	External Engagement	Letter of Adequacy	X			
1.15	External Engagement	Forest Management Agreements and Timber Damage Agreements	X	X		X
1.16	Siting	T Line Spotting		X	X	X
1.17	Siting	Commitments to Landowners / Occupants	X	X		
1.18	Siting	Route or Structure Changes Due to Landowner/Affected Parties Negotiations	X	X		
1.19	Land	Land Easements / Individual Ownership Plans	X	X		
1.2	Land	Land Acquisition - Buy Out	X	X		
1.21	Land	Crown Easement (EZE) Disposition Application Submissions/Approval	X	X		
1.22	Land	Obtain Preconstruction TFAs (Crown only)	X	X		
1.23	Regulatory	EA Preparation and Submission		X	X	
1.24	Regulatory	LTC Preparation and Submission including IRs	X	X	Assist	
1.25	Regulatory	OEB Directed Route Adjustments	X	X		
1.26	Permits	Access Permits (Landowners)	X	X		
1.27	Permits	Water Course Crossing Notifications; Powerline Cable Crossing Form		See NBI's Exhibit H	X	X
1.28	Permits	DFO Permits: Temporary Water Crossing Permit; FOC Operations Statement		X	X	
1.29	Permits	Road Maintenance Agreements - Construction Only			X	X
1.3	Permits	Road Maintenance Agreements - Permanent Only	X	X		
1.31	Permits	Temporary Construction Permits (including Land Use Proposal Submission Form, building permits, camp permits)			X	X
1.32	Permits	Water Use: Temporary Diversion Licence and Temporary Diversion Access			X	See NBI's Exhibit H
1.33	Crossings and Facilities	Facility Mitigation Studies (e.g. pipelines)	X	X	Assist	

1.34	Crossings and Facilities	Existing Facility Agreements (e.g. pipeline, wellhead, rail, road) - Crossing agreements (temporary and permanent) - Alberta Transportation Highway Crossings - Proximity Agreements - Encroachment Agreements	X	X	Assist	
1.35	Construction	Lease Agreements for private land used for yards, temporary facilities, etc.		X	X	
2.0	**General Management**	**All activities in planning and PMPC**				
2.01	Construction	Construction Execution Planning			X	X
2.02	Construction	Identify all Access Requirements and Temporary Worksites (including geotech, access, material yards, pull sites, etc.)			X	X
2.03	Construction	Construction Accommodations			X	X
2.04	Construction	Temporary Facilities for Construction (offices, trailers, etc.)			X	X
2.05	Construction	Temporary Power During Construction			X	X
2.06	Construction	Reclamation Plan			X	X
2.07	Construction	Construction period insurance			X	X
2.08	Environment	Vegetation Management Plan		X	X	
2.09	Environment	Environmental management plans including CEMP		X	X	
2.10	Land	Field Verification of Property Descriptions ("Survey Truthing" for structure location coordinates)		X	X	
2.11	Labour	Project and Commercial Management		X	X	X
2.12	Labour	Project Controls and Reporting		x	X	X
2.13	Labour	Construction Management		x	X	X
3.0	**Engineering**	**All activities to design**				
3.01	Engineering	LiDAR Data and Variation in Topographical Conditions			X	
3.02	Engineering	Geotech Studies and Variation in Ground Conditions			X	X
3.03	Engineering	Tower Spotting		X	X	
3.04	Engineering	Tower Design and Testing		X	X	
3.05	Engineering	Design Requirements Over and Above Functional Specification		X	X	
3.06	Engineering	Design and Engineering - including all drawing packages		X	X	
3.07	Engineering	Design Reviews (intermediate and final)	X	X	X	X
3.08	Engineering	Interface with Owner for Design		X	X	
3.09	Engineering	Design certification for Ontario		X	X	
3.10	Engineering	Constructability Review			X	X
3.11	Crossings and Facilities	Design and Construction of Crossing Structures		X		
4.0	**Procurement**	**All activities to procure material and services**				
4.01	Equipment	Procurement of Material and Major Equipment Required for Construction		X	X	
4.02	Equipment	Procurement of Material and Equipment Required for Construction Consumables			X	X
4.03	Equipment	Equipment Manufacturing, Quality, and Delivery		X	X	X
4.04	Construction	Executing contracts for miscellaneous construction services			X	X
5.0	**Access & Clearing**	**All activities for access and clearing construction**				
5.01	Construction	Construction Labour Availability and Pricing			X	X
5.02	Construction	Contracts for Labour Required for Construction			X	X
5.03	Labour	Field Coordinators and Monitors (Safety, Construction)		X	X	X
5.04	Labour	Field Monitors (Environment, Quality)		X	X	X
5.05	Labour	Field Engineering Construction Support		X	X	X
5.06	Construction	Weather Mitigations			X	X
5.07	Construction	Wildfire Management			X	X

5.08	External Engagement	Construction Coordination with Affected Partiess (Land Coordinators, Public Relations Coordinators)	X	X	X	
5.09	Crossings and Facilities	Facility Mitigation Installation (e.g. pipelines)		X	X	
5.10	Construction	Timber Salvage - Plan, Laydown Areas, Contractor (Construction Only)		X	X	X
6.0	**Foundations**	**All activities for foundation and anchor construction**				
6.01	Construction	Construction Labour Availability and Pricing			X	X
6.02	Construction	Contracts for Labour Required for Construction			X	X
6.03	Labour	Field Coordinators and Monitors (Safety, Construction)		X	X	X
6.04	Labour	Field Monitors (Environment, Quality)		X	X	X
6.05	Labour	Field Engineering Construction Support		X	X	X
6.06	Construction	Weather			X	X
6.07	Construction	Wildfire Management			X	X
6.08	External Engagement	Construction Coordination with Affected Partiess (Land Coordinators, Public Relations Coordinators)	X	X	X	
7.0	**Transmission Line**	**All activities for 230kV and 115kV construction**				
7.01	Construction	Construction Labour Availability and Pricing			X	X
7.02	Construction	Contracts for Labour Required for Construction			X	X
7.03	Construction	Staking - Avoidance Area, RoW, Tower			X	X
7.04	Labour	Field Coordinators and Monitors (Safety, Construction)		X	X	X
7.05	Labour	Field Monitors (Environment, Quality)		X	X	X
7.06	Labour	Field Engineering Construction Support		X	X	X
7.07	Construction	Weather Mitigations			X	X
7.08	External Engagement	Construction Coordination with Affected Partiess (Land Coordinators, Public Relations Coordinators)	X		X	X
7.09	Crossings and Facilities	Coordination of Outages for Transmission Line Crossings / Replacement of structures in park	X		X	X
7.10	Crossings and Facilities	Construction Parallel to Existing Facilities (Safety, Construction Considerations)			X	X
7.11	Crossings and Facilities	Traffic Management for Crossings (e.g. Highway Crossings)			X	X
10.0	**Commissioning**	**All activities for final commissioning of the facilities**				
10.01	Construction	T-Line End to End Testing			X	X
10.02	Construction	T-Line Phaseout			X	X
10.03	Commissioning	Fibre Optic Splicing and Testing			X	X
10.04	Construction	Final acceptance	X	X		
10.05	Construction	In-Service switching	X	X		
11.0	**EPC Closeout**	**All activities to close the contract**				
11.01	Land	Land Survey Post Construction		X	X	
11.02	Engineering	As-Built Drawings			X	X
11.03	Procurement	SubContract Closures			X	X
11.04	Construction	Punch List Items		X	X	X
11.05	Labour	Final Invoice and Reconciliations	X	X	X	X

Source: Motion Hearing JT2.22, Attachment 1, p.94-99; I.Nextbridge.SEC.23, Attachment

congestion on the East-West Tie and the downstream interfaces, low-cost energy from hydro facilities is sometimes bottled in the Northwest, leading to higher priced – and often higher-emitting – resources being dispatched in southern Ontario to meet Ontario's energy needs.

The IESO used an energy dispatch model to estimate future congestion costs due to a delay to the in-service date of the E-W Tie Expansion; the model assumed median water levels. The estimated difference in energy production costs from delaying the in-service date of the E-W Tie Expansion is approximately $0.5 million (2017$) per year.

Additional Costs due to Losses

Due to the long length of the existing East-West Tie line, paralleling the facility with the new line will provide energy cost savings by decreasing the line losses. The projected hourly flows across the East-West Tie, from the IESO's energy dispatch model, were used along with power flow studies to produce an estimate of the cost savings. The estimated combined yearly savings that would be foregone due to a delay to the in-service date of the E-W Tie Expansion is approximately $0.7 million (2017$).

Conclusion

The IESO continues to recommend an in-service date for the E-W Tie Expansion of 2020. The recommended in-service date is based on applicable planning and reliability criteria to ensure the reliability needs in the Northwest are met and to avoid the additional risks and associated costs of not having expanded transmission capability between the Northwest and southern Ontario.

A summary of the annual costs that may be incurred if the E-W Tie Expansion is deferred is presented in Table 2 below.

Table 2 Summary of Potential Cost of Delay to In-Service Date (2020-2024)

Year	Potential Capacity Cost (2017$ millions)	Energy Cost (2017$ millions)	Foregone Loss Savings (2017$ millions)	Total Potential Cost of Delay (2017$ millions)
2020	$16	$0.5	$0.7	$17
2021	$18	$0.5	$0.7	$19
2022	$22	$0.5	$0.7	$23
2023	$38	$0.6	$0.7	$39
2024	$44	$0.6	$0.7	$45

While interim measures may be able to address the incremental capacity need for all years considered in Table 2, an increasing number of interim measures, each with their own risks,

OEB Staff Interrogatory # 18

Reference:

EB-2011-0140, UCT's Application for Designation to Develop the East-West Tie Line, Section 5, Pages 72-74 (filed January 4, 2013)

According to section 96(2) of the Ontario Energy Board Act, in an application under section 92, the OEB shall consider the interests of consumers with respect to prices, and the reliability and quality of electricity service, and the promotion of the use of renewable energy sources in a manner consistent with the policies of the Government of Ontario.

Given the public interest mandate that is engaged in LTC applications, OEB staff is interested in exploring potential options with respect to prices and cost certainty.

Hydro One stated in its September 22, 2017 letter to the OEB that "Hydro One is prepared to submit a Leave to Construct application, which will include a not-to-exceed price…".

NextBridge indicated in its designation application that it would assume some risk for the construction cost forecast through performance-based ratemaking. At the time of the designation application, NextBridge planned to present this proposal as part of the LTC process.

Interrogatory:

a) Is Hydro One willing to provide the OEB with a not-to-exceed price for the project? If so, what is that price? If not, please explain.

b) Would Hydro One consider providing the OEB with varying capital costs for the project that reflect different risk sharing proposals between itself and ratepayers? For example, would Hydro One consider having certain specific risks shared between ratepayers and the utility, other risks absorbed by the utility, and other risks absorbed by the ratepayers, all of which would result in a specific project cost? If yes, please fill in Table 2 with the scenarios Hydro One is willing to provide. If not, please explain.

Table 2 (Please add or remove rows in the table below, as needed)					
Scenario #	Risks borne by the utility	Risks borne by the ratepayer	Risks shared between the utility and ratepayers	Project Cost ($)	Comments
1				$M	
2				$M	
3				$M	
4				$M	

c) Does Hydro One have any other proposals that the OEB might consider implementing in order to ensure the successful proponent brings its project into service in the timeline and cost established in this proceeding?

Response:

a) Hydro One would be open to consideration of a not-to-exceed price of $683 million to deliver the project in accordance with the February Application and updated evidence, subject to the conditions of receiving Leave to Construct in January 2019, as well as environmental approvals by August 2019. This amount represents the upper bound of the updated Lake Superior Link cost estimate as per Exhibit I, Tab 1, Schedule 11 and follows the same methodology as outlined in Exhibit JT2.25.

Binding this commitment would require approval of the new Hydro One Board of Directors effective as of August 14th, and could be sought should the OEB consider Hydro One's application to be the preferred alternative.

b) Should the OEB wish to further explore additional alternatives, Hydro One would be happy to further discuss in-camera, however at this point in time Hydro One believes the Application as filed and the not-to-exceed alternative presented in a) provide good optionality for consideration.

c) Hydro One strongly believes a number of innovative solutions have been proposed in the Application as-filed, and the consideration of granting leave with a not-to-exceed price would be new for both Hydro One and the OEB.

Another potential consideration could be to have a performance-based incentive provided to the successful proponent if they are able to bring the project in-service close to or below budget, with sliding benefits the further away from approved budget. For example, should the project be delivered on-time and for say 2% under budget (i.e. $629 million actual with 2% below updated forecast of $641.8 million), an appropriate incentive could be paid to the transmitter as a rider to future revenue requirements with reasonable consideration to sharing between the proponent and customers.

NextBridge Interrogatory # 43

Reference:

EB-2017-0364 - February 15, 2018 HONI 2018 Lake Superior Link Application, EXHIBIT B, TAB 7, SCHEDULE 1, Page 4, lines 3-8.

Interrogatory:

a) Provide a copy of the referred to fixed price contract if different from the EPC contract provided in HONI's response to JT2.22.

b) Define in detail what is meant and is included in "the delivery price."

c) Confirm that the Engineering, Procurement and Construction contract has not been executed. If not confirmed, provide copies of the fully executed contract. If confirmed, explain why the contract has not been executed to date and when it is expected to be executed.

   i. Explain whether the contract is applicable to a route through Pukaskwa National Park as well as routing around the Park.

d) Explain in detail the following with respect to the executed or the anticipated EPC contract:

   ii. Identify the contractual provisions that include the mechanisms or methodologies to estimate scope growth or scope changes. Explain in detail what impact that the implementation of these mechanisms and methodologies could have on HONI's construction cost estimate set forth in Table 3 of its Application, including the potential for an increase in the cost;

   iii. Identify the contractual provisions to estimate and limit escalation costs related to an in-service date that extends beyond December 2021. Explain in detail what impact the implementation of these mechanisms could have on HONI's construction cost estimate set forth in Table 3 of its Application, including the potential for an increase in the cost.

e) Explain in detail (with as specific a breakdown as possible) what construction and procurement costs and risks SNC-Lavalin has agreed to incur versus what costs and risks HONI has agreed to incur, and include an explanation how such a division of costs and risk impacts the construction costs estimate set forth in Table 3 of the Application.

   i. Identify any EPC contractual provisions that permit cost overruns to be passed on to customers.

ii. Identify each allocation of cost risk between SNC-Lavalin and HONI.

iii. For each risk identified, explain in detail how it potentially can impact the actual cost of the Lake Superior Link project, and the ability for those costs to increase the total project costs for either the current plan to route through Pukaskwa National Park and/or the alternative to route around the Park. For example, who bears the risk of unconcealed subsurface condition costs – HONI or SNC-Lavalin, and how is the overall construction costs impacted by that allocation of cost risk.

Response:

a) There are no changes to the fixed price contract since what was filed in response to JT2.22.

b) The delivery price as per the reference is intended to inclusively speak to the project's construction costs, however the comment is made in the context that "Hydro One and SNC-Lavalin have agreed to enter into a fixed price contract, providing further assurance on meeting the delivery price and mitigating the risk to ratepayers". The fixed price contract scope and cost estimate from SNC-Lavalin was reviewed by Hydro One under confidentiality, and covers the following rows from Table 3 of reference: Construction; Site Clearing, Preparation & Site Remediation; Material; Other Costs; Construction Management, Engineering, Design & Procurement.

c) Confirmed. The EPC contract is execution-ready for the route through Pukaskwa National Park and will be executed upon being granted leave to construct.

i. The EPC contract terms would be applicable to a route around Pukaskwa National Park, however with an adjustment to contract price and schedule elements prior to execution.

d) ii) From JT2.22, refer to *Article 19 – Changes* regarding contractual provisions and mechanism regarding changes. The fixed-price EPC remains at $546 million based on the current scope of work as defined at the time of Application. Should there be no authorized changes due to things outside the control of SNC-Lavalin, the EPC portion of the project will be delivered for $546 million. However changes to the scope of work, schedule, etc. due to things beyond SNC-Lavalin's control may be subject to contract changes for review and potential approval by Hydro One (eg., adaptations to account for unforeseen imposed conditions on environmental assessment approvals).

iii) From JT2.22, refer to *Article 25 - Substantial Completion*, *Article- 28 – Liquidated Damages for Delay*, and *Appendix D Liquidated Damages*. Hydro One's project schedule and cost is based upon receiving Leave to Construct Decision in January 2019 and Environmental Approvals prior to August 2019 to enable substantial performance and project completion by December 2021. Should either of those pre-requisite milestones be missed, there may still be opportunity to complete prior to December 2021. Further information is provided in response to OEB Staff #14 at Exhibit I, Tab 1, Schedule 14.

Should SNC-Lavalin not meet the contracted substantial completion date, liquidated damages for delay will be pursued in accordance with the contract provisions.

e) From JT2.22, refer to *Appendix A – Scope of Work - Division of Responsibility*. In general, SNC-Lavalin is entirely accountable for construction and procurement costs within their fixed price contract which together with other elements of the work account for 85% of the project total. Contained within this fixed price contract is $54million of contingency and risk to account for the known risks and unknown risks within the scope of work.

In general, Hydro One is accountable for obtaining regulatory and environmental approvals, Indigenous Relations, temporary and permanent real estate rights.

i. Refer to part d) ii. Only authorized changes outside the control of SNC-Lavalin would be considered for approval. These costs would still be subject to OEB prudency review to be included in rate recovery .

ii. The allocation of cost risk is detailed through the Division of Responsibility table referred to in e) above. The Contractor (EPC) and the Owner (HONI) then perform their risk assessments and analysis on their respective scopes and include their respective costs to cover these risks within their pricing. HONI has provided details of their key risks in Exhibit B, Tab 7, Schedule 1, Table 4 of the Application.

iii. The impact of the actual cost will be determined by where the scope and responsibility of that event lies in the EPC Contract as detailed in the references within e) above. If the event is within the Contractor responsibility then it falls within its fixed price and there is no impact to the project price. To reply to the example if the unconcealed subsurface condition is geotechnical in nature then the EPC has the responsibility and no impact to project will occur, however if the unconcealed subsurface condition is hazardous then terms of Article 32 will apply which would be

handled through an authorized change process. These costs would still be subject to OEB prudency review to be included in rate recovery.

Project Schedule

Activity	**Target Date**
Submit Section 92 Application to OEB	Q3 2017
Begin Stage 2 Archaeological Assessments	Q2 2017
Begin environmental field work for environmental permitting activity	Q2 2017
Submit Environmental Assessment to MOECC	Q3 2017
Projected Decision and Order for Section 92	Q1 2018
Obtain Environmental Assessment approval	Q2 2018
Obtaining majority of environmental permits for construction	Q3 2018
Begin follow up Geotechnical Investigations	Q4 2018
Construction Start	Q4 2018
Property Rights Acquisition Completed	Q2 2019
In Service Date	Q4 2020

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3		
Activity	**Critical Milestone**	**Target Date**
Regulatory		
Submit Responses to OEB Procedural Order #3, dated April 27, 2018		3-May-2018
OEB Technical Conference		7-May-2018
Oral Hearing Start		4-Jun-2018
OEB LTC Decision and Order	Yes	July 2018
OEB approval of authority to expropriate	Yes	August 2019
Register approved Plan of Expropriation and issue relevant Expropriation Act Notices/Offers	Yes	October 2019
Obtain possession of expropriated lands for construction purposes	Yes	Q1 2020
Environmental		
Approval of the Amended EA	Yes	October 2018
Approval by MOECC of Permit to Take Water	Yes	October 2018
Approval by MOECC of Permit to Take Water - Camp Wells		October 2018
Approval by MOECC of ECA - Camp Wastewater		October 2018
Approval by MNRF of Water Crossing Permits	Yes	October 2018
Approval by MNRF of Endangered Species Permits (Bats)	Yes	October 2018
Approval by MNRF of Endangered Species Permits (Caribou)	Yes	October 2018
Approval by MNRF of Endangered Species Permits (Whip-poor-will)	Yes	October 2018
Approval of ECCC SARA Bat permits	Yes	October 2018
Approval of ECCC SARA Caribou permits	Yes	October 2018
Approval of MNRF Provincial Park & Conservation Reserve Amendments	Yes	October 2018

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3		
Activity	**Critical Milestone**	**Target Date**
Lakehead Region Conservation Authority Permit	Yes	October 2018
Transport Canada Section 67 for Transport Canada Lands	Yes	October 2018
Transport Canada Navigation Protection Act Canada permit	Yes	October 2018
Fisheries and Oceans Canada Navigable Waters Permit	Yes	October 2018
Indigenous Service Canada Section 67 for Reserve Lands	Yes	October 2018
Infrastructure Ontario Class Environmental Assessment	Yes	October 2018
MTCS - Historical and Cultural Resources acceptance	Yes	October 2018
Land Acquisition		
Substantial completion of signing of option agreements		Q4 2018
Crown Land Disposition Application filed		Q2 2018
Third party Crossing agreements complete	Yes	October 2018
MNRF approval of Crown Lease/Land Use Permits	Yes	October 2018
MNRF approval of Crown Land Work Permits	Yes	October 2018
MTO approval of Land Use and Building Permits	Yes	October 2018
MTO approval of Entrance Permits	Yes	October 2018
MTO approval of Encroachment Permits	Yes	October 2018
Indigenous Relations		
INAC approval of Land Related Permits	Yes	October 2018
HONI - Related		
Submit HONI Longitudinal Access Application Version 3	Yes	18-May-2018
HONI approves Longitudinal Access	Yes	20-Jul-2018

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3		
Activity	**Critical Milestone**	**Target Date**
HONI Approves Transmission Crossing Application	Yes	22-Jun-2018
HONI Substations commissioned (1)	Yes	November 2020
Engineering & Construction		
Segment A - Commence clearing & access		Q4 2018
Segment A - Commence Geotech and Foundations		Q3 2020
Segment A - Commence Towers Assembly		Q3 2020
Segment A - Commence Towers Erection		Q3 2020
Segment A - Commence Conductor Stringing	Yes	Q4 2020
Segment B - Commence clearing & access		Q4 2018
Segment B - Commence Geotech and Foundations	Yes	Q1 2020
Segment B - Commence Towers Assembly	Yes	Q1 2020
Segment B - Commence Towers Erection	Yes	Q2 2020
Segment B - Commence Conductor Stringing	Yes	Q3 2020
Note: Segment C contains caribou habitat - all activities are critical		
Segment C - Commence clearing & access	Yes	Q4 2018
Segment C - Commence Geotech and Foundations	Yes	Q1 2019
Segment C - Commence Towers Assembly	Yes	Q1 2019
Segment C - Commence Towers Erection	Yes	Q1 2019
Segment C - Commence Conductor Stringing	Yes	Q3 2019
Segment D - Commence clearing & access		Q2 2019
Segment D - Commence Geotech and Foundations		Q4 2019
Segment D - Commence Towers Assembly		Q4 2019
Segment D - Commence Towers Erection		Q4 2019
Segment D - Commence Conductor Stringing		Q1 2020

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3		
Activity	**Critical Milestone**	**Target Date**
Segment E - Commence clearing & access		Q4 2018
Segment E - Commence Geotech and Foundations		Q1 2019
Segment E - Commence Towers Assembly		Q1 2019
Segment E - Commence Towers Erection		Q2 2019
Segment E - Commence Conductor Stringing		Q4 2019
Segment F - Commence clearing & access		Q4 2018
Segment F - Commence Geotech and Foundations		Q1 2019
Segment F - Commence Towers Assembly		Q1 2019
Segment F - Commence Towers Erection		Q1 2019
Segment F - Commence Conductor Stringing		Q3 2019
Project Construction Substantially Complete(2)	Yes	30-Nov-2020
Project Commissioning Commences	Yes	Q4 2020
Project Commissioning Complete - In Service	Yes	Q4 2020
Final acceptance and release of General Contractor		Q2 2021

(1) Per Exhibit B, Tab 11, Schedule 1 of Hydro One Station work LTC application
(2) Schedule Contingency for Project Substantial Completion (one month)

STAFF INTERROGATORY #49

INTERROGATORY

Questions:

a) Please provide an update on NextBridge's construction cost estimate.
   i. If there has been any change in NextBridge's construction cost estimate, please provide a detailed explanation of the change and the reason for the change.

b) Please provide an update of NextBridge's projected in-service date for the EWT line?
   ii. To be able to maintain the December 2020 completion date, when must construction work begin by?

RESPONSE

a) NextBridge has provided a construction budget that is an AACE Class 2 cost estimate (EB-2017-0182, Exhibit B, Tab 9, Schedule 1, page 2). NextBridge continues to believe it can bring the East West Tie Line into service in December 2020 within this AACE International (formerly the Association for the Advancement of Cost Engineering) Class 2 cost estimate. This estimate has a +5% to +20% cost estimate accuracy.

   Any increase in the cost of construction would be a function of (1) additional environmental conditions that may need to be in place to start construction in the Spring of 2019 versus the Fall of 2018 as originally planned; (2) increasing equipment and crews and/or shifts to achieve a December 2020 in-service date or as close to 2020 as possible based on receiving a decision on its Leave to Construct ; (3) adjustment to equipment, materials, and labor as may be impacted by the schedule consistent with Article IV of the EPC agreement; and (4) increased oversight of additional construction crew and/or shifts. NextBridge expects that the construction costs will remain within the AACE Class 2 construction cost estimate provided.

b) NextBridge for nearly the last four years has worked towards a December 2020 in-service date, and, continues to work to bring the East-West Tie Line into service by December 2020. If the OEB approves NextBridge's leave to construct by December 31, 2018, NextBridge may still be able to meet a 2020 in service date, assuming approval of the Environmental Assessment not later than February 2019 and a construction start date on, or before, June 2019.

NextBridge has completed an updated schedule based on NextBridge's response to Procedural Order #3 (EB-2017-0182) filed on May 3, 2018, attached to this response as Attachment 1.

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3 - **REVISED**

Activity	Critical Milestone	Target Date
Regulatory		
Oral Hearing Start		October 2 2018
OEB LTC Decision and Order	Yes	December 31 2018
OEB approval of authority to expropriate**[1]**	Yes	October 2019
Register approved Plan of Expropriation and issue relevant Expropriation Act Notices/Offers	Yes	December 2019
Obtain possession of expropriated lands for construction purposes	Yes	March 2020
Environmental[2]		
Approval of the Amended EA	Yes	February 2019
Approval by MOECC of Permit to Take Water	Yes	1Q 2019
Approval by MOECC of Permit to Take Water - Camp Wells		1Q 2019
Approval by MOECC of ECA - Camp Wastewater		1Q 2019
Approval by MNRF of Water Crossing Permits	Yes	1Q 2019
Approval by MNRF of Endangered Species Permits (Bats)	Yes	1Q 2019
Approval by MNRF of Endangered Species Permits (Caribou)	Yes	1Q 2019
Approval by MNRF of Endangered Species Permits (Whip poor-will)	Yes	1Q 2019
Approval of ECCC SARA Bat permits	Yes	1Q 2019
Approval of ECCC SARA Caribou permits	Yes	1Q 2019
Approval of MNRF Provincial Park & Conservation Reserve Amendments	Yes	1Q 2019

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3 - **REVISED**

Activity	Critical Milestone	Target Date
Lakehead Region Conservation Authority Permit	Yes	1Q 2019
Transport Canada Section 67 for Transport Canada Lands	Yes	1Q 2019
Transport Canada Navigation Protection Act Canada permit	Yes	1Q 2019
Fisheries and Oceans Canada Navigable Waters Permit	Yes	1Q 2019
Indigenous Service Canada Section 67 for Reserve Lands	Yes	1Q 2019
Infrastructure Ontario Class Environmental Assessment	Yes	1Q 2019
MTCS - Historical and Cultural Resources acceptance	Yes	1Q 2019
Land Acquisition		
Substantial completion of signing of option agreements		2Q 2019
Crown Land Disposition Application filed		1Q 2019
Third party Crossing agreements complete	Yes	1Q 2019
MNRF approval of Crown Lease/Land Use Permits	Yes	1Q 2019
MNRF approval of Crown Land Work Permits	Yes	1Q 2019
MTO approval of Land Use and Building Permits	Yes	1Q 2019
MTO approval of Entrance Permits	Yes	1Q 2019
MTO approval of Encroachment Permits	Yes	1Q 2019
Indigenous Relations		
INAC approval of Land Related Permits	Yes	1Q 2019
HONI - Related		
HONI approves Longitudinal Access	Yes	1Q 2019

Detailed Project Schedule for East West Tie in Response to OEB Procedural Order #3 - **REVISED**		
Activity	**Critical Milestone**	**Target Date**
HONI Approves Transmission Crossing Application	Yes	1Q 2019
NextBridge files Sec 101 Application (If not approved by HONI)	Yes	1Q 2019
HONI Substations commissioned **[3]**	Yes	November 2020
Engineering & Construction [4]		
Commence Clearing & Access	Yes	June 2019**[5]**
Commence Geotech and Foundations	Yes	3Q 2019
Commence Towers Assembly	Yes	3Q 2019
Commence Towers Erection	Yes	4Q 2020
Commence Conductor Stringing	Yes	1Q 2020
Note: Segment C contains caribou habitat - all activities are critical		
Segment C - Commence clearing & access	Yes	4Q 2019
Segment C - Commence Geotech and Foundations	Yes	4Q 2019
Segment C - Commence Towers Assembly	Yes	4Q 2019
Segment C - Commence Towers Erection	Yes	1Q 2020
Segment C - Commence Conductor Stringing	Yes	3Q 2020
Project Construction Substantially Complete	Yes	4Q 2020
Project Commissioning Commences	Yes	4Q 2020
Project Commissioning Complete - In Service	Yes	**December 31 2020**
Final acceptance and release of General Contractor		2Q 2021

[1] Based on expedited OEB process to review and approve limited expropriation application
[2] Apart from the Environmental Assessment, based on the segmented approach to construction not all permits are needed at start of construction
[3] Per Exhibit B, Tab 11, Schedule 1 of Hydro One Station work LTC application.
[4] Construction milestones by segment are subject to renegotiation with EPC on approval of LTC and can be provided to OEB prior to construction commencement.
[5] Proposed June 2019 commencement of construction is weather dependent for access given the spring thaw conditions. NextBridge intends to mobilize EPC contractor as soon as reasonable conditions allow.

summer, and we've already undertaken many of the studies required.

So even the code of practice from MOECC states that generally it takes a proponent 12 to 24 months to prepare EA documentation. We've already started that, and a number of our studies are underway, so we do have a schedule that we feel confident will allow us to meet those MOE timelines for review, which are 12 weeks for terms of reference and a 30 weeks' review time for an individual EA.

MR. STEVENS: And have you discussed that schedule with the MOECC and have they agreed with it?

MS. CROLL: Yes, we've discussed it with MOECC.

MR. STEVENS: And have they agreed with it?

MS. CROLL: No, they haven't, but we are still under discussion.

MR. STEVENS: I see. Can you provide me with correspondence where the schedule's been discussed with them?

MS. CROLL: We've provided the schedule to them.

MR. STEVENS: No, I'm sorry, can you provide me with copies of the correspondence between Hydro One and MOECC where your proposed EER schedule has been discussed?

MS. CROLL: I would say I can provide you with correspondence where we've provided that.

MR. STEVENS: So do I take that to mean that there's been no correspondence in response from MOECC?

MS. CROLL: We've had verbal discussions around general timelines for declaration orders and individual

EAs.

MR. STEVENS: Okay. And what -- can you summarize what they've told you in terms of their reaction to the time that you are proposing?

MS. CROLL: So we've had numerous meetings with MOECC. With respect to a declaration order, it is difficult to presuppose how long that would take. Typically it is shorter than an individual EA process, and we heard the MOECC suggest a range of six to nine months yesterday. We feel that that would be appropriate, given the six months that we've suggested.

With respect to individual EAs, we have had verbal discussions with MOECC around possible ways to expedite that process, and we have had mostly verbal meeting discussions. I suppose we would have to get permission from MOECC to share those meeting notes.

MR. STEVENS: Did you get permission from MOECC to share everything that you've shared up to this point?

MS. CROLL: I think the correspondence that's formal -- sorry.

MS. LEA: Is the green light lit, not on Mr. Warren's side, but yours. I think you share with Ms. Strachan.

MS. COOPER: How's that?

MS. LEA: I think your microphone is working. Is that working for you?

MS. COOPER: Okay, I've got it.

I believe as part of the evidence that was filed, there were documents, correspondence exchanged between