ONTARIO ENERGY BOARD

IN THE MATTER OF sections 70 and 78 of the *Ontario Energy Board Act, 1998,* S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF a Board-initiated proceeding to designate an electricity transmitter to undertake development work for a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie Line.

EB-2011-0140

EWT LP
Argument in Chief

April 18, 2013

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Executive Summary

The tables below present an overview of EWT LP's submissions.

Key Criteria	EWT LP
Relevant Knowledge and Experience	Through EWT LP's partners and their related entities, and its technical team, EWT LP has strong local knowledge and extensive experience in technical design, regulatory affairs and stakeholder consultation. This knowledge and experience is directly relevant to the development of electricity transmission projects in northern Ontario and, in particular, to the proposed East-West Tie project (the "**Project**"). EWT LP's knowledge and experience reduces both the Project cost and schedule and, more importantly, helps build the necessary "social licence" for the Project to move to completion.
Schedule and Cost	EWT LP has based its schedule and development costs on a plan comprising more than 300 discrete tasks and a comprehensive review of potential development risks. EWT LP's approach to technical design, system studies, the environmental assessment, land acquisition and consultation provides additional flexibility to respond to new risks. EWT LP's methodical and detailed approach will help prevent both schedule delays and cost overruns, and also provides the Board a prudent and realistic budget for EWT LP's development activities.
Technical Design	In addition to the reference option, EWT LP has considered three additional alternatives. One alternative is the use of cross-rope suspension ("**CRS**") structures, which are new to Ontario but which have been successfully used in similar terrain and conditions in northern Quebec since the 1970's. A CRS alternative could reduce total costs by $116 million, with an accompanying improvement in structural integrity and therefore electrical reliability. EWT LP has set out in detail the methodology and decision criteria it will use to determine the most cost-effective and viable technical design given the needs, terrain, conditions, environment, land availability and constructability.
Consultation	EWT LP's development plan is founded on the need to acquire a "social license" to develop, construct and operate the Project. This fundamental tenant runs through every aspect of the development plan. As has been seen recently elsewhere, projects lacking a valid social licence experience repeated delays, cost overruns and in many instances have to be abandoned. EWT LP has provided a detailed plan for how it intends to consult with the public, with agencies and with Aboriginal communities both to ensure proper and meaningful stakeholder engagement in the Project and to mitigate permitting risk.
Routing & Land Acquisition	Employing its extensive local knowledge, EWT LP has assessed the potential route in segments and has considered a number of alternatives in each, including the use of existing corridors in the more densely populated areas around Thunder Bay. The final route will incorporate the results of the environmental assessment and input from stakeholders. EWT LP plans to implement a fair and principled land acquisition plan that will adopt extensive consultation and incentive mechanisms as a means to promote timely and voluntary land assembly requirements.

Key Criteria	EWT LP
Aboriginal Participation	EWT LP's partner Bamkushwada LP ("**BLP**") is comprised of the six First Nation Communities most directly affected by the Project. BLP will contribute extensive local knowledge and relationships, assistance in consultation, and has a vested interest in the success of the Project. This fact, coupled with additional plans to provide economic support opportunities to other First Nation and Métis communities, demonstrates that EWT LP has established participation that is in the best interest of the Project.

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Applicant	Summary of Key Shortcomings of the Other Applicants' Proposed Development Plans
RES	• RES's technical design fails (i) to reflect the physical attributes of its preferred H-frame structure and the impact those attributes have on the foundations and associated costs; (ii) to properly characterize the technical aspects of its selected ACSS conductor; (iii) to appreciate the cascade failure risk of the preferred design and the need to mitigate that risk; and (iv) to make the fundamental connection between the nature of RES's preferred structures and the geological characteristics of the land on which the structures will be placed. • Although RES's partner, MidAmerican, has U.S. development experience, this experience is not directly relevant to development in the Project area, given the regulatory differences between the U.S. and Ontario, and the unique approach to stakeholder consultation that is necessary in northern Ontario. • RES has the second longest overall schedule to in-service. • RES's application is predicated on the Board accepting a fixed-price scheme with incentives for achieving certain construction cost targets. RES's incentive approach is to RES's advantage but not the ratepayers'.
UCT	• UCT's development schedule is aggressive and will be difficult to achieve. For example, the schedule fails to account for the seasonality of certain environmental studies and assumes only two rounds of public consultation will be required. This significantly increases the risk of project delay and cost overruns during project development. • UCT's recommendation of a double circuit Y-structure is unproven and technically problematic. UCT filed no evidence of any operational experience with this design. • Like RES, UCT proposes an incentive scheme that is a departure from rate-making principles and unfair to ratepayers. • UCT has limited relevant experience developing electricity transmission in Ontario and other relevant areas of Canada, yet UCT has not supplemented that experience with qualified and experienced consultants.

Applicant	Summary of Key Shortcomings of the Other Applicants' Proposed Development Plans
AOLP	• AOLP has proposed a risky development schedule that is not likely achievable, particularly because it has not identified and developed sufficient mitigation measures to address key development risks. AOLP identified only seven generic construction and development risks in total. • AOLP intends to develop the project with minimal stakeholder input. AOLP's plans to consult with the public and Aboriginal communities are inadequate, and its consultation budget is one quarter that of other applicants. • AOLP has not provided a comprehensive land acquisition strategy as part of its development plan. • AOLP's decision to self-sole source development and construction to its owner, SNC-Lavalin, is inconsistent with the Board's Affiliate Relationship Code.
I/TC	• I/TC's original development budget is approximately double the estimate of most other applicants, yet I/TC provided very little information to justify either prudency of this budget or its value to ratepayers. Rather, in its interrogatory responses, I/TC attempted to amend its application to restate its budget. • Although Iccon has significant experience constructing transmission lines in South America and Africa, neither Iccon nor TransCanada have demonstrated transmission development experience relevant to the Project area. • I/TC's decision to self-source construction to Iccon's affiliate Isolux is potentially inconsistent with the Board's Affiliate Relationship Code. • It is questionable whether the joint I/TC proposal is eligible for designation, given that the joint application is in respect of an entity that is yet to be created and licensed.
CNP	• CNP did not demonstrate that it has sufficient relevant experience to develop the Project. • CNP provided very little evidence regarding <u>how</u> it would develop the Project if designated. • CNP's overall schedule to in-service is two years longer than the shortest schedule proposed by EWT LP.

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I. Introduction

These are the submissions of EWT LP made in respect of the Ontario Energy Board's (the "**Board**") proceeding EB-2011-0140 to designate a licensed transmitter to develop the East-West Tie Line (the "**Project**").

EWT LP

EWT LP was purposely formed to bring together three partners: the six First Nation communities most directly affected by the development of the Project, through their partnership in Bamkushwada LP ("**BLP**");[1] Great Lakes Power Transmission EWT LP ("**GLPT-EWT**");[2] and Hydro One Inc. ("**Hydro One**").[3] Post-designation, the partners of EWT LP and their applicable partner related entities will act as one and employ their collective knowledge and expertise to develop the Project.

Board objectives

The Board's objectives, expressed both in the statute and in the Board's orders, are the lens through which the Board must assess each designation application and select a designated transmitter.

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[1] BLP is a newly formed limited partnership comprised of six limited partners: (1) Red Rock Indian Band, (2) Pays Plat First Nation, (3) Ojibways of the Pic River First Nation, (4) Pic Mobert First Nation, (5) Michipicoten First Nation and (6) Fort William First Nation (together, the "**Participating First Nations**"). The communities of the Participating First Nations are all located within 40 km of the existing East-West Tie line, which lies entirely within their traditional territories and also crosses two of the Participating First Nations' reserves. The Project will be in the vicinity of the existing East-West Tie line, and as a result the Participating First Nations will be directly affected by the Project.

[2] GLPT-EWT is a partnership of Brookfield Infrastructure Holdings (Canada) Inc. ("**BIH**") and Great Lakes Power Transmission Inc. ("**GLPT**"), both of which are the partners of the licensed transmitter Great Lakes Power Transmission LP ("**GLPTLP**") and are indirectly controlled by Brookfield Infrastructure Partners LP ("**Brookfield Infrastructure**"). GLPT-EWT is part of the Brookfield Infrastructure Power and Utilities Group ("**Brookfield Utilities Group**"). As such, GLPT-EWT will be able to draw on the Brookfield Utilities Group's international expertise and significant capital resources to develop and construct the Project.

[3] Hydro One is a holding company that is wholly-owned by the Province of Ontario. Hydro One's largest wholly-owned subsidiary is Hydro One Networks Inc. ("**HONI**"). HONI owns and is in the business of planning, constructing, operating and maintaining transmission and distribution networks across Ontario. HONI's transmission and distribution businesses are regulated by the Board (ET-2003-0035 and ED-2003-0043).

Key among these are the objectives set out for the Board in the *Ontario Energy Board Act, 1998*, particularly, (i) protecting the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service; and (ii) promoting economic efficiency and cost effectiveness in the generation, transmission, distribution, sale and demand management of electricity.[4]

The Board articulated the purposes of the designation process in its Phase 1 Decision and Order: "The Board's primary objective in this proceeding is to select the most qualified transmission company to develop, and to bring a leave to construct application for, the East-West Tie line."[5] Consistent with its statutory objectives, the Board established for this proceeding the core objective of providing benefit to ratepayers through economic efficiency.[6] The Board clarifies this core objective in its Transmission Project Development Planning policy report:

> "Within the context of transmission investment policy, economic efficiency can be understood to mean achieving the expansion of the transmission system in a cost effective and timely manner….."[7]

Therefore, in selecting the most qualified transmitter to develop and to bring a leave to construct application for the Project, the Board must evaluate which development plan will be most cost effective and timely.

From the Board's and ratepayers' perspectives, a cost-effective and timely development plan is one that not only proposes a reasonable development budget,[8] but also expresses how the transmitter will manage a complex project and control costs.[9]

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4 *Ontario Energy Board Act, 1998*, SO 1998, c 15, Sch B, ss. 1(1)1 and 2.

5 Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), p. 3.

6 Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), p. 5.

7 Ontario Energy Board, EB-2010-0059, Board Policy: Framework for Transmission Project Development Plans (August 26, 2010), <http://www.ontarioenergyboard.ca/OEB/_Documents/EB-2010-0059/Framework_Transmission_Project_Dev_Plans_20100826.pdf>, p. 3.

8 Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), p. 17.

9 Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), p. 12.

Based on these objectives, the Board established filing requirements with which to evaluate designation applications. In effect, to satisfy the Board's objectives, a development plan must fully (i) establish cost estimates that are reasonable and a schedule that is reliable; (ii) enable costs to be effectively managed; (iii) provide the most appropriate and achievable technical design and, where possible, an innovative design given the geography, system need and stakeholder considerations; and (iv) establish a plan to obtain the "social license" to develop the Project through consultation with the public, government agencies and First Nation and Métis communities. The applicant with the plan that best meets these criteria will most likely bring the most cost-effective and timely leave to construct application to the benefit of ratepayers.

Ultimately, "applicants should be compared on the basis of applications as filed."[10] To do so, the Board must consider each application as filed and in its entirety. If an application is predicated upon invalid assumptions, and is in part unacceptable or unworkable, the Board cannot ignore, waive or remedy those parts of the application but instead must deny that application. To do otherwise would be comparable to amending the application, and such a result would not reflect the intent of the applicant in the application as originally filed.

EWT LP best satisfies the Board's objectives

Within these parameters, EWT LP has prepared a development plan that satisfies the Board's criteria and objectives. Drawing on its partners' extensive and relevant experience, EWT LP's development plan presents: (i) a detailed task based approach to establish a project schedule and costs that are reasonable, reliable and controllable; (ii) a clear choice of technical alternatives and a clear approach to establish a workable and cost effective design; and (iii) detailed Aboriginal and Public Consultation plans, together with Aboriginal participation, designed to help EWT LP achieve the "social license" to develop, construct and operate the Project.

As noted above, as part of economic efficiency, cost control is an important objective for the Board. An important aspect of cost control is the ability to manage and mitigate risks that could

[10] Ontario Energy Board, EB-2011-0140, Procedural Order No. 5 (January 8, 2013), p. 2.

cause an applicant to exceed its development budget. Applicants must understand project risks and mitigate those risks to ensure that final development costs are reasonable. In this regard, the lowest development budget does not necessarily translate into the most reasonable cost, since "cutting corners" by failing to identify and mitigate project risks may lower the development budget but elevate the risk that an applicant will be unable to control its costs. A balance must be struck. EWT LP's approach strikes the correct balance by providing a cost effective plan at reasonable cost based on a reliable and timely schedule. EWT LP's development plan is built around mitigating risk and the management of costs. All aspects of the development plan are directed to this result. It is the thread that binds the development plan together. For example:

- Relevant Knowledge and Experience - Through EWT LP's partners and their related entities, and its technical team, EWT LP has strong local knowledge and extensive experience in technical design, regulatory affairs and stakeholder consultation. This knowledge and experience is directly relevant to the development of electricity transmission projects in northern Ontario and, in particular, to the Project. EWT LP's knowledge and experience reduces both the Project cost and schedule and, more importantly, helps build the necessary "social licence" for the Project to move to completion.

- Schedule and Cost - EWT LP has based its schedule and development costs on a plan comprising more than 300 discrete tasks and a comprehensive review of potential development risks. EWT LP's approach to technical design, system studies, the environmental assessment, land acquisition and consultation provides additional flexibility to respond to new risks. EWT LP's methodical and detailed approach will help prevent both schedule delays and cost overruns, and also provides the Board a prudent and realistic budget for EWT LP's development activities.

- Technical Design - In addition to the reference option, EWT LP has considered three additional alternatives. One alternative is the use of cross-rope suspension ("**CRS**") structures, which are new to Ontario but which have been successfully used in similar terrain and conditions in northern Quebec since the 1970's. A CRS alternative could reduce total costs by $116 million, with an accompanying improvement in structural integrity and therefore electrical reliability. EWT LP has set out in detail the methodology and decision criteria it will use to determine the most cost-effective and viable technical design given the needs, terrain, conditions, environment, land availability and constructability.

- Consultation - EWT LP's development plan is founded on the need to acquire a "social license" to develop, construct and operate the Project. This fundamental tenant runs through every aspect of the development plan. As has been seen recently elsewhere,

projects lacking a valid social licence experience repeated delays, cost overruns and in many instances have to be abandoned. EWT LP has provided a detailed plan for how it intends to consult with the public, with agencies and with Aboriginal communities both to ensure proper and meaningful stakeholder engagement in the Project and to mitigate permitting risk.

- Routing - Employing its extensive local knowledge, EWT LP has assessed the potential route in segments and has considered a number of alternatives in each, including the use of existing corridors in the more densely populated areas around Thunder Bay. The final route will incorporate the results of the environmental assessment and input from stakeholders. EWT LP plans to implement a fair and principled land acquisition plan that will adopt extensive consultation and incentive mechanisms as a means to promote timely and voluntary land assembly requirements.

- Aboriginal Participation - EWT LP's partner BLP is comprised of the six First Nation Communities most directly affected by the Project. BLP will contribute extensive local knowledge and relationships, assistance in consultation, and has a vested interest in the success of the Project. This fact, coupled with additional plans to provide economic support opportunities to other First Nation and Métis communities, demonstrates that EWT LP has established participation that is in the best interest of the Project.

EWT LP's risk mitigation strategy is in contrast to the approach of other applicants. In an effort to distinguish themselves some applicants, like AltaLink Ontario, L.P. ("**AOLP**") and Upper Canada Transmission, Inc. ("**UCT**"), have adopted aggressive schedules. However, in so doing, they have ignored relevant and material risks and made unrealistic assumptions without any corollary mitigation plans should these assumptions prove non-viable. Because schedule and costs are interrelated, ignoring relevant and material risks will likely lead to delays and cost escalation. Others, such as UCT and RES Canada Transmission LP ("**RES**"), have attempted to be innovative in their technical design but these designs are either ill-conceived or poorly suited for this Project. Some, like RES, require a financial inducement to manage costs or to operate efficiently, while others, like Iccon Transmission, Inc. ("**Iccon**") and TransCanada Power Transmission (Ontario) LP ("**TransCanada**" and, together with Iccon, "**I/TC**") and AOLP, require sole source contracts (without competitive pricing). Many of the applicants have approached the preparation of their designation applications from the perspective of wishing to distinguish their plans in one or two aspects, such as a short schedule or an innovative design, whereas EWT LP has focused on preparing a balanced and comprehensive plan that will be most cost-effective for rate payers.

In the submissions that follow, EWT LP sets out its submissions first with respect to its development plan, followed by its submissions regarding the development plans of each of the other applicants, and a response to Board staff's submissions.

II. EWT LP's Development Plan

As mentioned above, EWT LP's development plan demonstrates, more than that of any other applicant:

- a detailed and reliable project schedule and reasonable costs to help ensure the Project is built on-time and on-budget;
- an innovative and feasible suite of technical design alternatives that will ensure the most cost-effective project is ultimately built; and
- comprehensive Aboriginal and public consultation plans, and a land acquisition strategy, that will ensure EWT LP achieves the social license necessary to develop, construct and operate the Project.

It is important to note that not only does EWT LP's designation application describe <u>what</u> EWT LP will do to develop the Project, it also sets out for the Board exactly <u>how</u> EWT LP is going to do it. For example, EWT LP has produced:

- a detailed Gantt chart that breaks down general development activities into more than 300 discrete tasks;[11]
- detailed project workflow plans both for its regular and accelerated development schedules, which ensure all project tasks are coordinated, all schedule risks are captured and clearly demonstrate to the Board exactly how EWT LP will undertake project development;[12]
- a detailed plan to develop the terms of reference and undertake an environmental assessment;[13]
- a detailed plan for meaningful Aboriginal and public consultation[14] and an extensive list of potential consultees;[15]
- a detailed set of land acquisition compensation principles;[16]

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[11] EWT LP Designation Application, Appendix 7C.

[12] EWT LP Designation Application, Appendices 7A and 7B.

[13] EWT LP Designation Application, Appendix 9A.

[14] EWT LP Designation Application, Appendix 10A.

[15] EWT LP Designation Application, Appendix 9B.

- a detailed engineering methodology for refining the Project design;[17]
- a detailed methodology for refining the Project route;[18]
- a summary of relevant government land use policies that will be taken into consideration when refining the Project route;[19]
- a detailed procurement policy;[20] and
- detailed construction safety policies.[21]

As discussed in greater detail below, EWT LP has satisfied the Board's filing requirements. EWT LP has presented a cost-effective and timely plan for delivering the Project.

A. Relevant Experience and Knowledge

Not all transmission projects face the same challenges. The challenges that arise during project development will depend on the local geographical, social and regulatory environment. Experience and knowledge in developing transmission projects, generally, or in other jurisdictions is not necessarily relevant to developing the Project.

In this regard, EWT LP has demonstrated that it has both the experience and knowledge sufficient to develop a transmission project, and the experience and knowledge specifically relevant to the successful development of this project. This expertise comes from years of developing, constructing and operating major transmission lines in Ontario, including those situated within the Project area. More than any other applicant, EWT LP has:

- meaningful participation arrangements in place with First Nations communities most directly affected;

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16 EWT LP Designation Application, Appendix 4E.
17 EWT LP Designation Application, Appendix 6C.
18 EWT LP Designation Application, Appendix 9D.
19 EWT LP Designation Application, Appendix 9F.
20 EWT LP Designation Application, Appendix 4D.
21 EWT LP Designation Application, Appendix 4F.

- detailed knowledge of the geophysical and environmental conditions of the Project area;
- positive relationships with other local and Aboriginal communities;
- extensive experience working in the regulatory regime governing transmission infrastructure in Ontario; and
- a strong and experienced team of technical advisors.

To complement the experience of its partners and its management team, EWT LP has also assembled a team of experts in consultation, environmental assessment, land acquisition and electrical engineering to assist in its development and design process. As a result, EWT LP has, in its view, prepared the development plan that is best suited for the Project, and will be best able to overcome, in a cost-effective and timely manner, the challenges that will arise during Project development.

EWT has meaningful participation arrangements in place with local First Nations partners

The communities of the Participating First Nations are all located within 40 km of the existing East-West Tie line, which lies entirely within their traditional territories and also crosses two of the Participating First Nations' reserves. Through BLP, the Participating First Nations are equal equity partners in EWT LP.

BLP and the Participating First Nations exercised their commercial choice in deciding to partner with EWT LP. It has taken EWT LP's partners over three years to develop an enduring relationship based on trust, respect and equality and ultimately to negotiate and agree on how the Participating First Nations will participate in EWT LP. A key aspect of this relationship is BLP's equal representation in the governance of EWT LP. BLP is equally represented on the board of EWT LP's general partner and will chair this board on a rotating basis.[22] The Participating First Nations will therefore have a leadership role in the development, construction and operation of the Project. No other applicant has included equal governance representation in its plans for Aboriginal participation.

[22] EWT LP Designation Application, Exhibit 3, p. 4, lines 18-20.

BLP's participation arrangement is beneficial for the Project. As discussed below, BLP and the Participating First Nations are invaluable sources of local and traditional knowledge; they have been, and will continue to be instrumental in shaping and executing EWT LP's development plans for the Project. Because EWT LP is exposed to the risk of cost disallowance for permitting delays and cost-overruns during development, the Participating First Nations have an incentive to ensure that EWT LP's plans for routing, consultation and environmental review are comprehensive and properly managed. These shared risks will help ensure the Project is developed cost-effectively and in adherence to the Project schedule.

Unlike other applicants that are not willing to share governance control with potential Aboriginal partners, the Participating First Nations, through BLP, will have a real and demonstrable opportunity to shape the Project development work and optimize EWT LP's environmental assessment, consultation and routing processes based on their local expertise. EWT LP has proposed a unique model of Aboriginal participation in energy infrastructure that is entirely consistent with government policy.

No other applicant has demonstrated the positive relationships that EWT LP through its partners has with Aboriginal communities. These positive relationships are built on a foundation of trust, which takes time to develop and is essential for meaningful Aboriginal engagement. Whereas many applicants like UCT propose to enter into a working relationship with First Nations in the Project area immediately after designation, EWT LP can, without delay and immediately following designation, draw on the experience of BLP and the Participating First Nations in conducting the environmental assessment and consultation in the Project area. BLP's early participation in the project planning process and its active engagement in development work, especially environmental assessment and consultation, will significantly lower the risk of Project cost overruns and delays. Other applicants have cited examples of engagement with First Nations communities in other parts of Ontario or Canada, but they cannot assume that they will have a positive relationship with the First Nations communities in the Project area or that trusting and collaborative working relationships will mature overnight.

In addition, EWT LP has proposed other opportunities for Aboriginal participation in the Project outside of equity participation. EWT LP will give priority with respect to employment, training and commercial opportunities to Aboriginal community members and to businesses owned or controlled by an Aboriginal community or its members. EWT LP will match community resources to Project needs and help enhance Aboriginal participation in the Project by, for example, pre-qualifying Aboriginal community businesses and members for the provision of certain goods and/or services; providing feedback on any gaps in qualifications and information on how to remedy those gaps and become more competitive bidders; holding workshops for Aboriginal community businesses or members to develop or enhance their ability to qualify and bid effectively; requiring bidders on major contracts to include plans for Aboriginal content and/or participation; and ensuring Aboriginal businesses and members are kept informed of contracting and employment opportunities during Project construction.[23] All Aboriginal communities will have an opportunity to participate in the Project.

EWT LP has detailed knowledge of the geophysical and environmental conditions of the Project area

EWT LP, through its partners, has extensive knowledge about the geophysical and environmental conditions of the Project area along the northern shores of Lake Superior. This knowledge distinguishes EWT LP from other applicants. It has enabled EWT LP to identify the risks and opportunities associated with the local environment as well as a suite of technical designs that are particularly well suited for the area.

This experience will be drawn from each of EWT LP's partners and their related entities. First, because the Project area is located entirely within the traditional territories of the Participating First Nations, BLP brings to EWT LP intimate knowledge of the local geography, seasonal weather patterns and traditional land use activities in the Project area. In addition, the Ojibways of the Pic River First Nation, Pic Mobert First Nation and Pays Plat First Nation bring extensive experience in developing generation projects and associated transmission infrastructure in the

[23] See EWT LP Designation Application, Exhibit 3, pp. 7-8.

challenging climate and terrain of the Project area.[24] Furthermore, the Ojibways of the Pic River First Nation and Red Rock Indian Bank bring particular familiarity with the Project area's forests and topography from approximately 30 years of local commercial forestry harvesting and management experience.[25]

BLP's extensive traditional knowledge of the potential environmental impacts of the Project will inform EWT LP's routing and consultation process and result in more efficient, more cost-effective and lower risk Project development. As indicated in EWT LP's designation application, BLP's knowledge will play a particularly important role in focusing the environmental assessment. For example, BLP will assist in identifying important and/or sensitive local flora and fauna species and mapping their distribution, population status, seasonal ranges and movements for the Natural Environment Existing Conditions Report component of the ToR.[26]

Post-designation, EWT LP also has access to the knowledge and experience of Great Lakes Power Transmission LP ("**GLPTLP**"), which has a long and successful presence in this part of Ontario. GLPTLP owns and operates transmission facilities that extend northwards from Sault St. Marie to Wawa, where it shares a common connection point with the existing East-West Tie. This presence has given GLPTLP extensive experience in the local geographic and environmental challenges that may affect the development, construction and operation of transmission facilities in proximity to the Project area. For example, GLPTLP successfully developed the Transmission Reinforcement Project on the eastern shores of Lake Superior, one of the longest electricity transmission lines built in Ontario in recent years. In doing so, it gained a deep and current understanding of key environmental features of the Lake Superior area, such as presence of local endangered species, the seasonal challenges in accessing construction sites, and ways to mitigate the risks that those challenges pose to successful Project development.[27]

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[24] See EWT LP Designation Application, Exhibit 2, pp. 4-5.

[25] EWT LP Designation Application, Exhibit 2, p. 6.

[26] See EWT LP Designation Application, Appendix 9A, pp. 19-21.

[27] See EWT LP Designation Application, Exhibit 2, pp. 7-8.

Through years of right of way and facility maintenance, GLPTLP has also gained extensive experience in the materials and equipment that best withstand the climate, and the engineering and design requirements dictated by the geography. This enables EWT LP – unlike RES, for example – to understand why a steel H-frame is a problematic and expensive tower design given the bedrock in the area, and therefore to propose more feasible technical designs.[28] It also enables EWT LP – unlike AOLP, for example – to understand the seasonal challenges of completing the fieldwork necessary for an environmental assessment and to develop a schedule that does not ignore these risks.

Hydro One's partnership in EWT LP also adds to this experience. Hydro One, through Hydro One Networks Inc. ("**HONI**"), owns and operates approximately 96% of the transmission system in Ontario, one of the largest transmission systems in North America, including the existing East-West Tie and the related transmission stations to which the Project will connect.[29] Post-designation, EWT LP will benefit from HONI's direct experience operating the existing transmission line in the Project area.

EWT LP has extensive experience with the regulatory regime governing transmission infrastructure in Ontario

EWT LP's experience with Ontario's regulatory regime governing transmission project development is superior to that of other applicants. Post-designation, EWT LP will benefit from HONI's experience as a licenced transmitter and as the developer and operator of the Bruce-to-Milton Transmission Reinforcement Project – Ontario's most recent and significant transmission project and one that required the same consultation and environmental assessment processes as will be applicable to the Project. In fact, through HONI's experience with the Bruce-to-Milton project, EWT LP is the only applicant with relevant experience completing an individual environmental assessment for a transmission project in Ontario. EWT LP's team also has

[28] Wood pole lines, both single pole and H-frames are used extensively in northern Ontario, especially at 115 kV. Wood pole H-frames are typically shorter than steel H-frames due to the limited availability of tall trees. The spans are correspondingly shorter and the issues surrounding foundations are more easily overcome.

[29] See EWT LP Designation Application, Exhibit 2, pp. 9-11.

significant experience satisfying the procedural aspects of the Crown's duty to consult in connection with transmission projects.[30]

In addition, GLPTLP, in developing its Transmission Reinforcement Project, was required to complete many EA studies and to obtain many of the same required permits and approvals. Furthermore, as noted above, the Participating First Nations bring to BLP experience in permitting a number of generation projects in operation or under development in the Project area, including the Umbata Falls Generating Station, the Twin Falls Generating Station, the Gitchi Animki Hydroelectric Project, the Lower Lake Hydroelectric Project, the High Falls Generating Station and the Manitou Falls Generating Station.[31]

Both HONI and GLPTLP are familiar with operating transmission infrastructure. In Appendices 4D, 4E and 4F of its designation application, EWT LP has set out in detail the operating policies and procedures that it will employ in operating the Project in accordance with the Transmission System Code and good utility practice.

The depth of EWT LP's experience and that of its management team is not easily acquired. It comes through years of experience working with regulators in interpreting and applying the regulatory regime to specific project circumstances. EWT LP has the ability to draw on its partners' existing relationships with the regulatory agencies that will govern the Project to ensure that the Project is developed on-time and on-budget. For example, the sum total of RES's regulatory experience in Ontario relates to two wind generation projects with less than 60km of associated private transmission lines.[32]

EWT LP has assembled a strong and experienced team of technical advisors

EWT LP's development team also includes a strong and experienced team of technical advisors for the Project. The four experienced consultants retained for the Project will provide specialized

[30] For example, see EWT LP Designation Application, Exhibit 2, p. 19, lines 19-21.

[31] EWT LP Designation Application, Exhibit 2, pp. 4-5.

[32] See RES Designation Application, Exhibit E, Tab 5, Schedule 2.

skills, resources and advice to assist EWT LP's development of the Project. Power Engineers Inc. ("**Power Engineers**") has over 35 years of experience as one of the largest specialist transmission and distribution engineering firms in North America, including more than 20 years of project experience in Ontario and across Canada, and will assist EWT LP in engineering design and route selection.[33] AECOM Canada Ltd. ("**AECOM**") has extensive experience completing environmental assessments in Ontario and has worked on more than 27,000 km of transmission line projects worldwide.[34] It will assist EWT LP in co-ordinating and implementing all the consultations, studies, field work, assessments and evaluations required for Project environmental assessment and route selection. Shared Value Solutions ("**SVS**") is experienced in consultation, particularly Aboriginal consultation, and will assist EWT LP by coordinating, scheduling, facilitating and documenting all public engagement activities associated with the Project, including procedural aspects of the Crown's duty to consult with First Nations and Métis communities that the Crown may delegate to EWT LP.[35] Altus Group Inc. ("**Altus**") is an experienced real estate service provider and will assist EWT LP in Project siting, routing and the valuation and acquisition of land and land rights.[36]

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[33] For example, Power Engineers has designed transmission line connections for various Ontario renewable generation projects, including the Greenwich, Talbot, Prince, Erie Shores and Kruger wind projects and the Umbata Falls hydroelectric project. Power Engineers was also engaged from 1993 to 2009 in the repair of the 287 kV, 88km Rio Tinto Alcan Transmission Line in the coastal mountains of British Columbia, which involved rugged and remote access issues, deep snow, helicopter work and managing poor weather scheduling. See EWT LP Designation Application, Exhibit 4, p. 12, lines 10-15 and Appendix 4C - Power Engineers Experience.

[34] For example, AECOM led the individual environmental assessment for Ontario Highway 407 East Extension, which included five rounds of consultation involving a Regulatory Agency Group, Municipal Technical Advisory Group and Community Advisory Group; multiple public information centres and public/stakeholder workshops; field trips with regulatory agencies; and consultation with First Nations communities. See EWT LP Designation Application, Appendix 4C - AECOM Experience.

[35] For example, SVS led a traditional knowledge and land-use study with the Red Sky Métis Independent Nation in conjunction with an environmental assessment consultation process regarding the Marathon PGM Metals mine. SVS conducted video and participatory GIS (geographic information system) interviews with a broad section of the community and continues to assist the community with peer reviews of permitting and approvals documentation and participation in panel review hearings in connection with the mine. See EWT LP Designation Application, Exhibit 4, p. 18, lines 23-32.

[36] For example, Altus performed land acquisition activities in connection with approximately 350 properties along the approximately 180 km right of way for the Bruce to Milton Transmission Reinforcement Project. Altus provided value benchmarking along the proposed route; prepared pre-expropriation property specific valuations

B. Schedule and Cost

Shortest schedule and lowest cost do not necessarily equate to best plan

EWT LP's development schedule (and, in turn, its cost estimate) is based on a realistic, bottom-up and task-based assessment of the Project. In particular, EWT has:

- proposed the most comprehensive, reliable development schedule;
- identified opportunities for schedule compression and cost savings;
- undertaken the most detailed risk analysis and mitigation planning; and
- presented the most accurate and reasonable cost estimates.

No other applicant has undertaken such a comprehensive approach and thereby provided such reliable Project schedule and cost estimates. As a result, the development plans of all other applicants pose significantly higher risks that the Project will run over-budget and beyond schedule and, ultimately, not achieve the Board's objective of delivering a cost-effective and timely new transmission project with the inherent capability to manage costs.

In project development, a balance must always be struck between minimizing time and expense and ensuring the comprehensiveness of consultation activities, technical studies and the environmental assessment. Schedule and cost are directly interrelated. Changes in schedule are very likely to have a cost impact. The better a developer is able to establish and manage its schedule, the more likely the developer can maintain its cost estimate. Developers that overemphasize low cost solutions or scheduling shortcuts are in reality creating risks that these development activities will not be satisfactorily completed without material cost and schedule overruns. The shortest schedule and the corresponding lower cost do not necessarily equate to the best or most reliable schedule or cost estimate. It is the methodology and the building blocks used to create the schedule and cost estimates that will dictate whether Project risks have been

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and property specific expropriation valuations; and completed more than 200 market value appraisals with regard to injurious affection. See EWT LP Designation Application, Appendix 4C - Altus Experience.

understood and factored into the schedule in a balanced manner to give an on-time and on-budget result.

EWT LP has proposed the most comprehensive, reliable development schedule

EWT LP's development schedule is based on a detailed Gantt chart which breaks down development of the Project into approximately 300 discrete tasks and subtasks.[37] This detail is necessary to ensure that no development tasks are omitted from the schedule, particularly with respect to the critical path environmental assessment process.

EWT LP has developed detailed Project workflow plans both for its regular and accelerated development schedules.[38] These workflow plans ensure that all Project tasks are coordinated and all schedule risks are captured. They also clearly demonstrate exactly how EWT LP will undertake Project development.

Drawing on its extensive experience and knowledge of the Project area, EWT LP has identified innovative ways to expedite the Project development schedule and to reduce Project costs. Based on its analysis, the development phase of the Project, up to the point of filing the application for leave to construct, is expected to take between 23 months and 32 months, depending on the complexity of environmental issues encountered and the level of public support. The ways in which EWT has identified opportunities for schedule compression and cost savings are discussed further below.

EWT LP also estimates that Project construction could be completed within 22 months from the date the construction contract is executed. Assuming designation on August 1, 2013, EWT LP will therefore bring the Project into service in approximately five years. Figure 1 below illustrates EWT LP's schedule compared to other applicants.[39]

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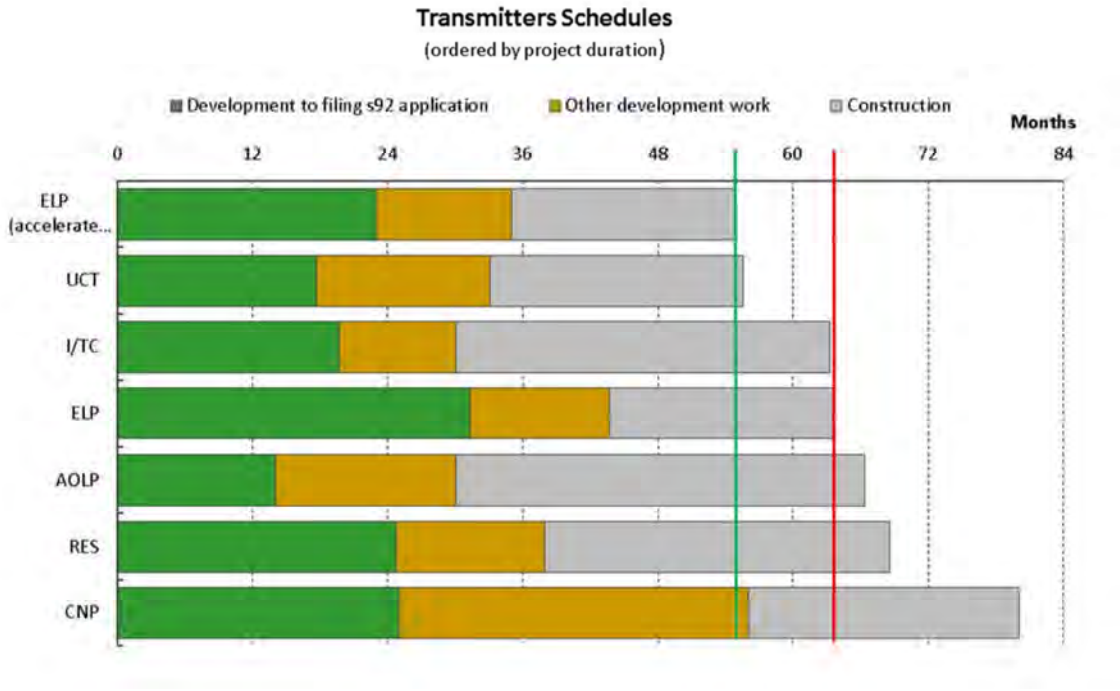
[37] See EWT LP Designation Application, Appendix 7C.

[38] See EWT LP Designation Application, Appendices 7A and 7B.

[39] It should be noted that other applicants will not have the immediate benefit of Aboriginal partners' input into their development plans, and they may experience schedule delays due to the time required to negotiate equity partnerships with Aboriginal communities.

Figure 1 - Transmitters' Schedules[40]



EWT LP has distinguished itself from other applicants in the comprehensiveness and robustness of its Project schedule. Through its task-based approach, EWT LP took great care to ensure that its Project schedule accounted for all of the significant steps in the most critical path aspect of Project development – namely, the individual environmental assessment ("**EA**") that the Project must complete pursuant to Ontario's *Environmental Assessment Act*[41] (the "**EAA**"). There are two main stages of the individual EA process. The first is developing and obtaining approval from the Ministry of the Environment ("**MOE**") of a focused terms of reference for the environmental assessment ("**ToR**"), which addresses the rationale for and alternatives to the proposed Project and provides the "roadmap" for the EA. The second is completing and obtaining the MOE's approval of the EA itself, which will include the assessment of and the development of mitigation measures for the Project's potential impacts.

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[40] ELP (accelerated schedule) assumes the environmental issues will be less complex and less public consultation will be required, as discussed further below.

[41] RSO 1990, Chapter E.18.

Terms of Reference for the Environmental Assessment

The ToR can only be prepared, submitted and approved when sufficient detailed development work including routing has been completed to adequately describe the Project, and after sufficient public consultation has been completed to confirm the range of routing alternatives and satisfy the requirements of the EAA. Transmitters like UCT and AOLP cannot reasonably expect to receive the MOE's approval for a proposed ToR without first considering a range of Project alternatives and performing adequate consultation. Because they have not considered these aspects, their development schedules are unreliable, as discussed further in Sections III-C and III-D below. Moreover, it is much more efficient to complete an EA using ToR that reflect a Project design endorsed by key stakeholders than to forge ahead with a plan based on poorly considered alternatives, only to have stakeholders raise concerns with those alternatives at a later date.

In addition, although the regulations under the EAA state that the government's review and approval of the ToR should take no more than 12 weeks (3 months), they also give the MOE the ability to extend the deadline for completing this review if the Minister believes there is a compelling reason to do so.[42] In contrast, AOLP's schedule expects the MOE to review and approve its ToR within as little as one month of submission,[43] which, as discussed in Section III-C below, makes its schedule and cost estimates highly uncertain.

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[42] EAA, s. 7(3). In reality, the MOE ToR review often requires longer than 12 weeks. For example, the MOE required 8 months to review the ToR for Bruce to Milton, and the Board did not proceed with the oral phase of the Bruce to Milton leave to construct proceeding until the ToR were approved. See MOE, Bruce to Milton Transmission Reinforcement Project - Terms of Reference, <http://www.ene.gov.on.ca/environment/en/industry/assessment_and_approvals/environmental_assessments/projects/STDPROD_082721.html?page=2> ("Date Submitted: August 3, 2007 … Decision Date: April 4, 2008"); and Ontario Energy Board, EB-2007-0050, Decision and Order (September 15, 2008), s. 2.3.4.

[43] AOLP's development schedule allows for a scenario where the ToR are finalized in the 5 months after designation, submitted to the MOE on August 30, 2013 and approved within one month on September 30, 2013. See AOLP Designation Application, Appendix 13.

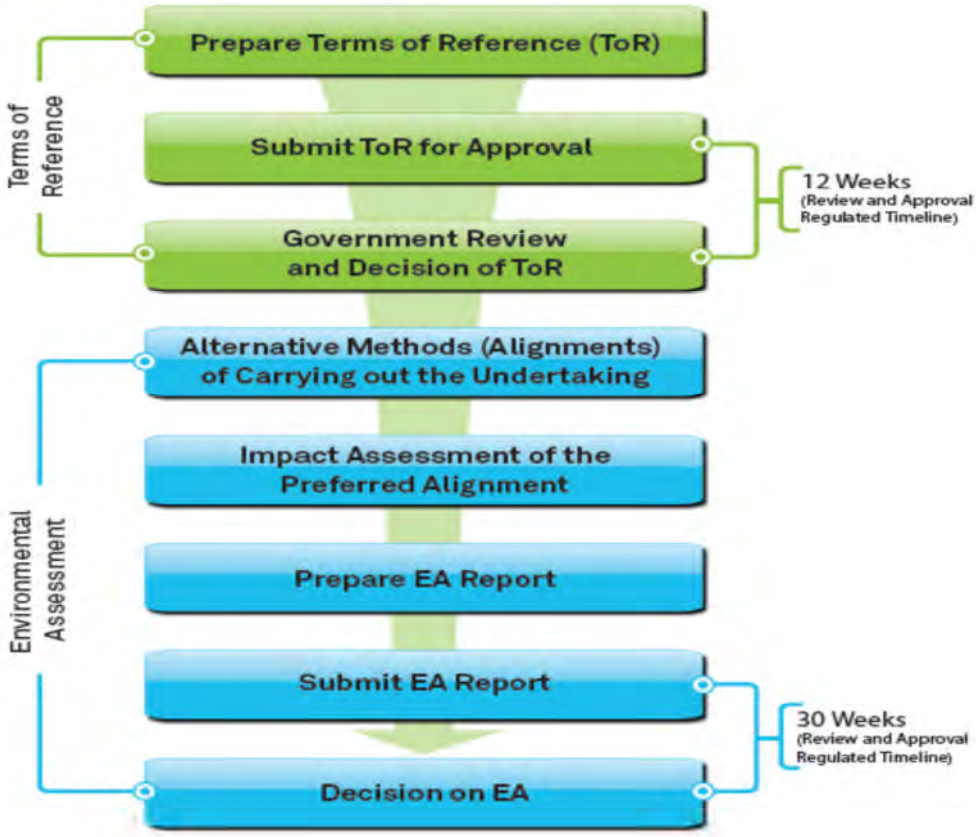
Environmental Assessment

Once the ToR have been approved, the EA itself can commence. This stage will include substantial public consultation and the completion of detailed environmental field studies. The field work has to be undertaken over a period of no shorter than one year (*i.e.*, one complete ecological cycle) so that the environmental impact of the line and its construction can be studied in each of the four seasons. There are also certain seasonal limitations to the studies. For example, certain breeding habitats can only properly be studied in the relevant breeding season, and certain impacts to birds can only be properly assessed during key migration seasons. The completion of the environmental assessment phases therefore typically takes 12-24 months depending on the complexity of the undertaking and degree of public interest.[44]

An overview of the EA process was set out in Figure 7.2 of EWT LP's designation application and is included below for reference as Figure 2.

[44] MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

Figure 2 - Overview of EA Process



EWT LP submits that aggressive assumptions about the timeline for completing any of these steps, if proven wrong, can create cascading delays through each subsequent step. Such delays could be at the expense of ratepayers. Applicants such as UCT and AOLP (as discussed further in Sections III-B and III-C) propose accelerated development schedules that make questionable assumptions about the EA process. For example, AOLP has scheduled submittal of its ToR within approximately 2-4 months of designation,[45] despite the fact that according to the MOE Code of Practice for *Preparing and Reviewing ToR for EAs in Ontario* (the "**Code**"), preparing the ToR requires on average 6-9 months.[46] Similarly, UCT assumes that it will be able to prepare

[45] See AOLP Designation Application, Appendix 16.

[46] MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (October 2009), p. 8.

a draft environmental assessment report within 4 months[47] and submit its final environmental assessment report in a further two months,[48] but a full year of field studies is required to ensure that a full seasonal cycle is captured under the EA.[49] Given this 6 month timeline and the EA requirements for a full year of field studies, UCT is presumably planning to undertake at least half of its seasonal field studies prior to ToR approval. However, its schedule and costs will likely be impacted if the MOE requires any revisions to the ToR that involve additional field studies. Unlike these applicants, EWT LP has factored into its development schedule assumptions about the EA process consistent with MOE practice guidelines.[50]

EWT LP's approach to critical path EA scheduling reflects its approach to scheduling generally: in essence, EWT LP has prepared its development plan to provide the Board with a balanced view of the cost and time required to develop the Project up to the filing of the leave to construct.

EWT has identified opportunities for schedule compression and cost savings

EWT LP has built into its schedule a possibility of accelerating the development of the Project if certain circumstances occur. It may be possible to accelerate EWT LP's development work by as much as nine months.

The following circumstances could give rise to such an accelerated schedule:

- If the first series of public open houses in January 2014 reveals that the public has fewer concerns about the Project, its design and its location than anticipated, it may be possible to commence environmental field studies two months earlier than scheduled;

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[47] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1090, Prepare Draft EA Report (27-Feb-12 to 04-Aug-14).

[48] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1120, Prepare and Submit Final EA to MOE (Finish 15-Oct-14).

[49] The Code notes that developing a full environmental assessment usually requires 12-24 months. See MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

[50] See EWT LP Designation Application, Exhibit 7, pp. 43-44.

- If the initial environmental field studies reveal that there are fewer credible alternative alignments than expected based on EWT LP's initial routing workshop, then it may be possible to advance the LiDAR survey from early summer 2015 to late summer 2014;

- The environmental field studies could reveal that the proposed design results in fewer significant environmental concerns than anticipated; and

- If the environmental field studies reveal fewer significant environmental concerns than anticipated and if the appropriate mitigation measures for any identified concerns are well established, it may also be possible to eliminate the fourth series of open houses.

Given these opportunities, it may be possible to accelerate EWT LP's development work by as much as approximately eight months.[51] The Project budget would also be reduced by up to $3.2 million.[52]

EWT LP has provided a development schedule range within which the Board can be confident that risks will be managed. In contrast, other competitors have not broken down their Project schedules in such detail and have not reflected the impact certain risks may have to their schedules. For example, AOLP has provided the Board with their best-case development scenario, without giving the Board an indication of how the materialization of certain risks, such as delayed designation or a delay in ToR approval, would impact its schedule. As discussed further in Section III-C below, AOLP has made unduly risky assumptions regarding: (i) its ability to submit its ToR very quickly post-designation, without any significant opportunity for the consultation and technical work necessary to develop a focused ToR; (ii) the timeline within which the MOE will approve the ToR; (iii) the timing of certain seasonal studies that must be completed for the EA; and (iv) the timeline for submitting the EA report for the MOE's approval. AOLP's schedule can only get longer - resulting in higher costs - than that which was presented in its designation application. EWT LP, on the other hand, has the ability to respond to changes and to shorten the schedule and reduce costs for ratepayers.

EWT LP has also considered other opportunities to accelerate development and construction. For example, EWT LP has identified opportunities to:

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[51] EWT LP Designation Application, Exhibit 7, p. 44, lines 16-20.

[52] EWT LP Designation Application, Exhibit 8, p. 6, line 29.

- reduce critical path delays by commencing system impact assessment and customer impact assessment studies upon selection of the preferred route and prior to finalization of line design;

- compress development timelines by integrating the technical design of the line with assessment of its environmental impacts;

- speed the commencement of construction by acquiring land right options prior to receiving the Board's leave to construct; and

- accelerate the entire construction process through the use of CRS transmission structures, which are lighter and easier to assemble than traditional transmission towers.

EWT has undertaken the most detailed risk analysis and mitigation planning

As shown in the table below, EWT LP has also distinguished itself from other designation applicants in the degree to which its development plan considers and develops mitigation measures for potential risks to the project schedule, thereby reducing the risk that unforeseen contingencies will run the Project over budget or extend its schedule. EWT LP has identified risks to costs and schedule during both the development and construction phases and developed corresponding mitigation strategies.[53]

	Development Risks	Development & Construction Risks	Construction Risks	Total All Risks
AOLP	-	7	-	7
CNP	7	-	5	12
ELP	36	-	22	58
I/C	19	-	6	25
RES	11	-	22	33
UCT	3	9	16	28

For example, EWT LP considered the potential risk of receiving Board designation later than anticipated under its development schedule. EWT LP developed a mitigation strategy regarding

[53] See EWT LP Designation Application, Exhibit 7, pp. 17-25 and 33-39; and Exhibit 8, pp. 13-17 and 25-27.

impacts to its environmental assessment studies, but acknowledged that if it is not able to complete summer field studies until summer 2015, this could potentially impact its overall development program by up to six months. In contrast, as discussed further in Sections III-A, III-B and III-C below, RES, UCT and AOLP failed to identify a change in their assumed designation date as a potential Project risk and failed to mitigate against this risk or indicate how it may affect their development schedules.[54] Canadian Niagara Power Inc. ("**CNP**") generally noted "designation is delayed" as a potential schedule risk, but did not develop a mitigation plan or identify effects on its development schedule beyond observing that a "delay of two weeks would cause a minor effect, while a delay of two years would cause a major effect."[55]

As a second example, EWT LP identified that acquiring permits across Crown lands (including national parks, provincial parks, and Ministry of Natural Resources ("**MNR**") buffer zones) was a complex process potentially subject to delay. As a result, EWT LP developed a mitigation strategy of (i) meeting with the MNR and appropriate parks and land use agencies at the earliest opportunity to understand their potential issues and to ensure those issues are properly considered during the environmental assessment and technical design of the line, including its construction; and (ii) actively considering routes that avoid parks and MNR buffer zones, where any additional cost of the alternative route is justified given the balance of lower environmental impact, permitting delays and the need to expropriate land.

In contrast, AOLP did not identify this risk regarding Crown land permits.[56] RES noted that it might encounter "[u]nanticipated problems in securing options for land and access rights" but only developed a general mitigation strategy.[57] It is unclear whether CNP intended to encompass

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[54] For example, UCT did not identify its designation date assumption as one of its three development-specific risks. See UCT Designation Application, Figure 19, p. 103. See also AOLP Designation Application, Table 7.2-1 East-West Tie Line Schedule and Cost Risk Assessment, p. B-103; and RES Designation Application, Exhibit N, Tab 2, Schedule 4, Table N-1.

[55] CNP Designation Application, Exhibit 7, p. 11, lines 10 and 23-24.

[56] AOLP Designation Application, Table 7.2-1 East-West Tie Line Schedule and Cost Risk Assessment Development and Construction, p. B-103.

[57] See RES Designation Application, Exhibit N, Tab 2, Schedule 3, p. 1 ("Early and proactive outright with all private, public and Crown entities from which land rights will be needed. Extensive work already completed by the Applicant in connection with this Application.").

this risk within its general category of "Legal or environmental challenges", but, as discussed further in Section III-E below, it did not identify a mitigation strategy beyond having retained legal counsel.[58]

The failure of other applicants to identify specific key schedule risks indicates a willingness to assume, and pass on to ratepayers, greater risk and exposure to delays and cost overruns. The failure to take such risks into account and to develop specific mitigation strategies creates a risky schedule and one that can be easily derailed if and when those risks transpire. Schedules and budgets that are not based on comprehensive sets of tasks are less prepared to address risks and potential cost overruns because they do not take into account a wide range of risks. Because EWT LP's schedule factors in each key development activity and how it mitigates potential Project risks, it is more comprehensive and therefore likely more reliable than those of other applicants.

EWT LP has proposed the most accurate and reasonable cost estimates

EWT LP has taken the same rigorous approach to developing its development, construction and O&M cost estimates as it has taken in developing its project schedule. Ultimately, EWT LP's goal was to ensure that all significant costs were, to the extent possible, appropriately reflected in these estimates. In addition to being fully transparent, this reduces the risk that unforeseen contingencies will run the Project over-budget. This approach is fundamental to the Board's evaluation of which designation application is the most cost-effective option.

Development Costs

In preparing its development cost estimate, EWT LP began by assigning a cost to each task or group of tasks set out in its Gantt chart at Appendix 7C of EWT LP's application. Based on the total cost of each of these individual actions, EWT LP's estimated budget for completing Project development up to filing an application for leave to construct is in the range of $17.1 million to $22.1 million, depending on whether the scope of development work can be reduced.

[58] CNP Designation Application, p. 101, lines 9-10.

This estimate is not only rigorous but also competitive with the development estimate of all other applicants. As seen in Figure 3 below, only AOLP proposes a significantly lower development estimate; however, as discussed above and in Section III-C below, this estimate is premised on a development plan that risks running the Project over-budget and extending its schedule.

Moreover, even though EWT LP's development estimate is similar to those proposed by UCT, RES and CNP, none of these applicants' estimates are based on a similarly comprehensive development plan that provides a basis for cost management. For example, as discussed in Section III-E below, CNP has not prepared a detailed schedule of development tasks on which to base its cost estimates;[59] RES has proposed a technical design that is not appropriate for northern Ontario and has not considered foundation costs and foundation installation scheduling in its budget and schedule; and UCT has assumed that it will be able to prepare an environmental assessment in less than 6 months,[60] which is 6-18 months less than Code guidelines.[61] EWT LP can offer a comprehensive development plan for the lowest cost.

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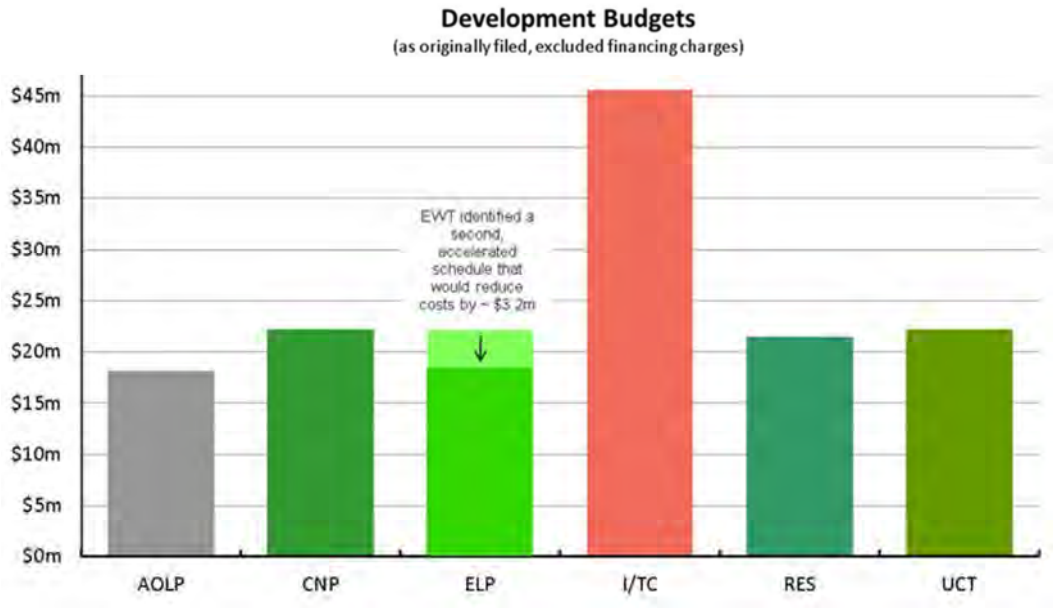
[59] CNP Designation Application, p. 98, lines 25-26.

[60] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1090, Prepare Draft EA Report (Start 27-Feb-12) and PROVEA1120, Prepare and Submit Final EA to MOE (Finish 15-Oct-14).

[61] See MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

Figure 3 - Development Budgets



Construction Costs

EWT LP's construction cost estimates, although necessarily less precise than its development estimates, were also prepared with a view to being as comprehensive as possible. In this regard, EWT LP did not develop its estimated budget for the construction of the Reference Case in isolation. Rather, it involved its engineering consultant, Power Engineers, in preparing the estimate and then sought input on the estimate from two major North American construction companies, Kiewit Corporation and Valard Construction LP. Based upon the Reference Option, EWT LP estimates the construction costs, including AFUDC, to be in the range of $340 million to $510 million for a double circuit overhead line,[62] which is lower than most and competitive with all other applicants (see Figure 4 below). EWT LP is also the only transmitter to have provided a detailed description of how construction costs were derived, including volumes and unit prices.[63]

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[62] EWT LP Designation Application, Exhibit 8, p. 23.

[63] See EWT LP Designation Application, Appendix 6A, p. 7 and Appendix A, Figures 1 and 2, and Appendix 6D, pp. 18-19 and Appendix B; RES Designation Application, Exhibit P, Tab 1, Schedule 1, p. 3 and Exhibit P, Tab

Furthermore, EWT LP's construction cost estimate for the CRS design is the lowest construction estimate provided by any applicant. As discussed further below, the use of CRS structures could reasonably be expected to reduce construction cost by approximately $116 million (see Figure 4 below).[64] EWT LP is committed to evaluating innovative yet proven technical designs that may yield significant cost savings for ratepayers. In contrast, as discussed in Section III-B below, UCT's proposed guyed structure alternative is not technically feasible and therefore cannot be relied upon to deliver any potential cost savings.

EWT LP remains committed to reducing these construction costs to the extent possible. Unlike AOLP or I/TC, EWT LP has not proposed to sole-source its construction of the Project from related parties. AOLP proposes to subcontract engineering, procurement and construction ("**EPC**") work to its affiliate, SNC Lavalin,[65] and I/TC intends to enter into a fixed fee EPC contract with Iccon's affiliate, Isolux, which will explicitly not be at cost on a transparent basis or without mark-ups for profit.[66] These applicants provide no justification as to how such arrangements would be most cost-effective for ratepayers or explain how they would be compliant with the Board's *Affiliate Relationship Code for Electricity Distributors and Transmitters* (the "**ARC**"). EWT LP believes that ratepayers will benefit from competitive procurement.

Finally, unlike AOLP and RES, EWT LP has not found it necessary to include a bonus scheme for achieving cost savings and avoiding cost over-runs, which ratepayers expect Ontario transmitters to achieve as part of their regulatory obligations. The traditional cost of service model obliges Ontario transmitters to ensure that their capital and operating expenditures are prudent and reasonable.

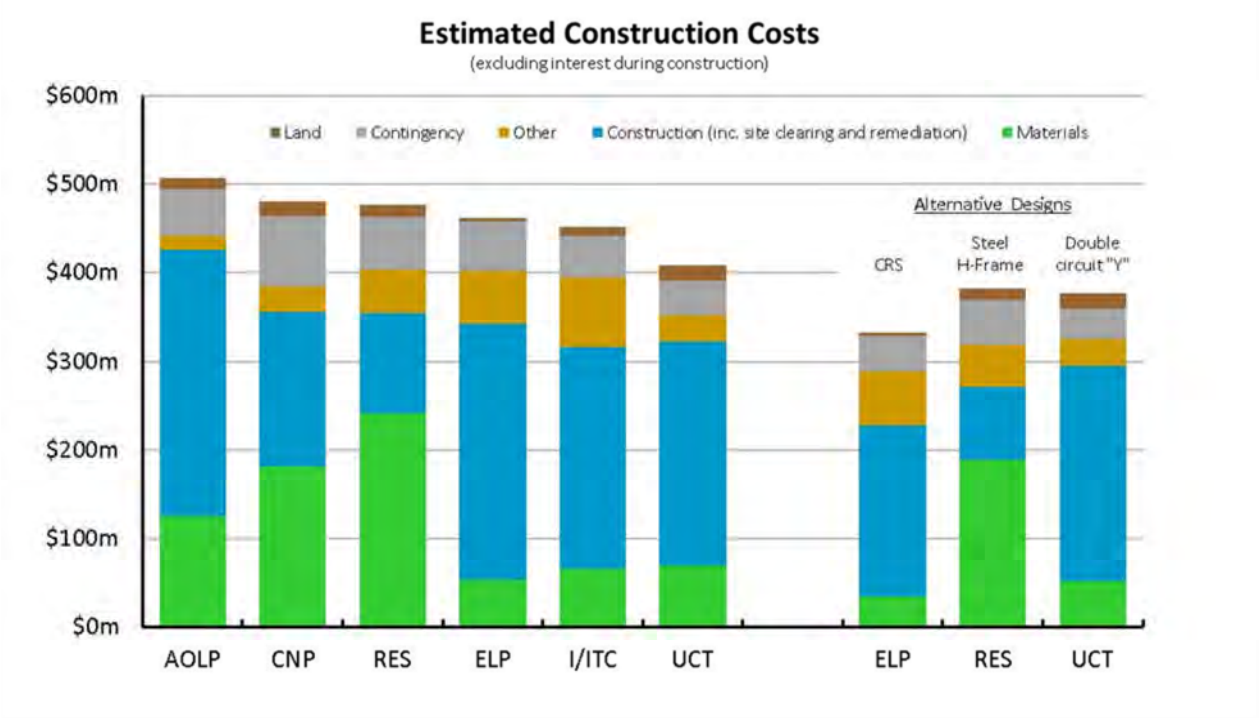
4, Schedule 1, p. 2; UCT Designation Application, p. 118; AOLP Designation Application, p. B-112; I/TC Designation Application, Exhibit 8, p. 6; and CNP Designation Application, pp. 110 and 116 and Appendix X.

64 EWT LP Designation Application, Exhibit 6, p. 18, lines 1-15.

65 AOLP Designation Application, p. B-5.

66 I/TC Designation Application, Exhibit 2, p. 3, lines 24-27.

Figure 4 – Estimated Construction Costs



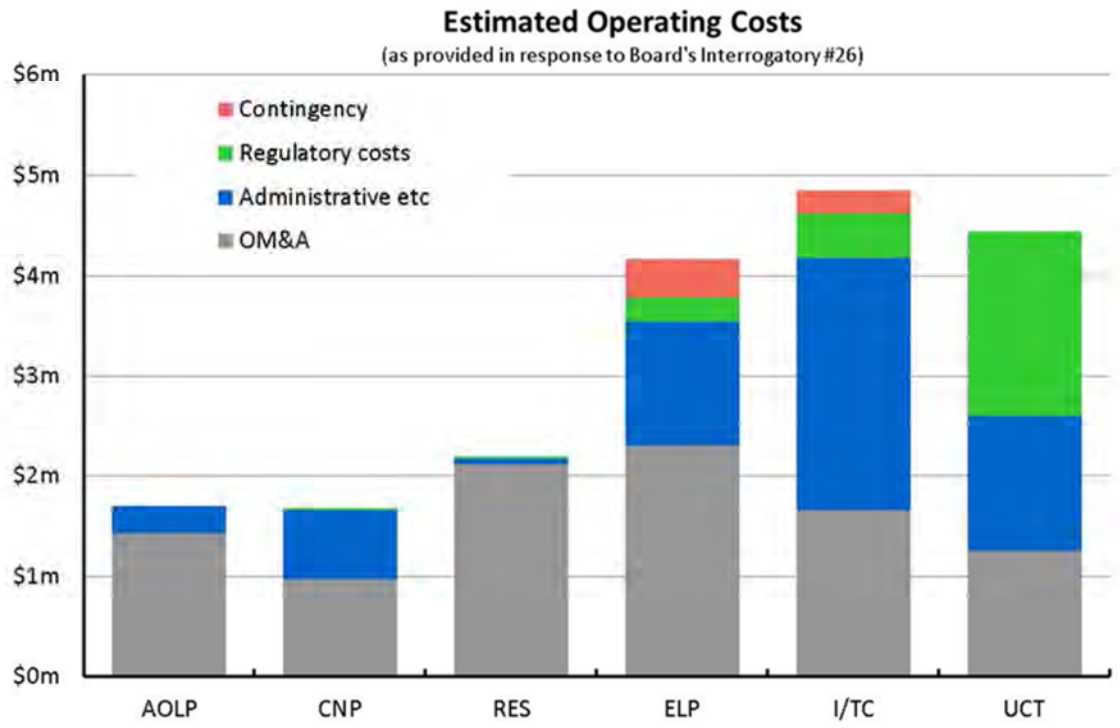
O&M Costs

EWT LP approached its O&M cost estimate in the same rigorous way as its development and construction estimates. Unlike any other applicant, EWT LP through its partners has extensive experience in operating and maintaining transmission lines in the Project area and prepared its estimates using the cost categories given in the Board's Accounting Procedures Handbook. As a result, EWT LP's O&M estimate is reasonable. Certain applicants like AOLP, RES and CNP allocate either no or almost no budget for regulatory costs, an unusual omission for a public utility that will be before the Board in regulatory matters. In its designation application, CNP also omitted administration costs from its O&M budget, which it subsequently estimated to be more than $700,000 annually.[67] Although actual O&M expenditures will not be incurred until sometime in the future for the designated transmitter, EWT LP already has a solid understanding

[67] CNP Response to Board Interrogatory #29 to All Applicants, p. 1.

of the expected reasonable costs necessary to operate major transmission infrastructure in Ontario.

Figure 5 – Estimated Operating Costs



C. Technical Design

The designated transmitter's ability to develop an innovative yet feasible technical design will be critical to ensuring that a leave to construct application will present a cost-effective and timely proposal for ratepayers. Ultimately, the applicants must be evaluated not only on the strength of their proposed designs but also on their plans (or lack thereof) to assess those designs to ensure the greatest benefit for ratepayers. In addition to meeting the Board's technical design criteria, EWT LP distinguishes itself from other applicants because:

- EWT LP has proposed a suite of potential technical designs, which could result in the greatest cost savings and reliability for ratepayers (including an approximately $116 million savings if a single circuit cross-rope suspension option proves to be the preferred alternative over the Reference Case); and

- Unlike other applicants, EWT LP has set out a plan to assess its suite of alternatives[68] during the development phase by including the broadest range of alternatives and identifying the specific studies required for the selection of the best option, rather than prejudging the result.

EWT LP's alternatives

EWT LP's suite of alternatives include the following:

- the Board's Reference Option, a conventional double circuit line design based on the X10 family of steel lattice towers;
- a modified Reference-based design, without the single loop galloping criteria;[69]
- a single circuit design;[70] and
- a single circuit design with CRS.[71]

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[68] EWT LP Designation Application, Appendix 9D - Route Selection Process.

[69] EWT LP commissioned Power Engineers to study the assumptions underlying the reference option to determine whether modified design parameters with prudent limits would increase value to ratepayers and whether any alternative, innovative technical designs would be technically feasible in the Project area while at the same time reducing costs for ratepayers. Further to this assessment, Power Engineers identified the single loop galloping criteria as overly conservative. Adhering to the galloping criteria using traditional tower designs such as the X10 will require shorter spans and this will increase the number of towers required and hence the construction and maintenance cost of the line. However, Power Engineers noted that the existing East-West Tie, which has relatively long spans using the X7 tower family, does not comply with the Board's galloping criteria, yet Hydro One Networks Inc. reported that the line had performed satisfactorily with no issues caused by galloping. EWT LP has therefore proposed to assess the galloping criteria in the development phase prior to finalizing the choice of towers in order to achieve the most cost effective technical design.

[70] EWT LP also considered additional innovative alternatives that also achieve reliability and cost-savings for ratepayers. EWT LP therefore commissioned Power Engineers to study single circuit alternatives as well. In particular, Power Engineers considered the electrical performance of a 795 kcmill Drake Conductors in a 2 bundle arrangement and concluded that it would have equivalent electrical performance to the single line options studied by the Independent Electricity System Operator ("**IESO**") in its August 18, 2011 Feasibility Study for Reinforcing the East-West Tie. The IESO concluded that a single circuit line complies with all reliability standards but unlike a double circuit line would require the IESO to take post-contingency actions to prepare for a second contingency. Power Engineers indicated that steps could be taken to make a single circuit line more reliable than the design studied by the IESO for relatively small incremental costs. Doing so would reduce but not eliminate the difference in performance of a single circuit line compared to a double circuit line. Again, EWT LP has presented this alternative for further study during the development phase.

[71] EWT LP recognized the potential for even further cost savings associated with a single line alternative that used a tower design that has been proven to work in conditions similar to northern Ontario. In this regard, EWT LP explored how the cost-benefit analysis would change if a single line option were considered in combination with CRS structures. Power Engineers noted in the same report that CRS structures, though new to Ontario,

These four potentially feasible designs present a range of alternatives for the Board that, once assessed further in the development phase, are likely to yield the most cost-efficient design for ratepayers. In contrast, RES and UCT appear committed to developing only one technical design even before any development work has been completed.

Moreover, EWT LP has not presented a range of alternatives at the expense of proposing viable designs. All are strong alternatives that warrant further consideration. This is unlike the applications of RES and UCT, which have proposed technical design options that are ill-suited for the Project area. For example, as discussed in greater detail in Section III-A below, RES's technical design fails to:

- properly characterize the technical aspects of its selected ACSS conductor;
- understand the physical attributes of its preferred H-frame structure and the impact those attributes have on the needed foundations and associated costs;
- appreciate cascade failure risk of the preferred design and the need to mitigate that risk; and
- make the fundamental connection between the nature of RES's preferred structures and the geological characteristics of the land on which the structures will be placed.

Similarly, as discussed further in Section III-B below, UCT has not demonstrated that its recommended design, a double circuit "Y" tower, has been successfully used by either UCT or another transmitter in similar conditions to the East-West Tie, or in any conditions. Based on the evidence filed, the design appears to be completely untested and very likely unworkable. Thus, of all the applicants, only EWT LP has proposed a range of technically credible design options that can be brought into the development phase to determine which one will provide better value for ratepayers.

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have been widely and successfully used in other jurisdictions including 2,000 km of lines in northern Quebec. Power Engineers also notes that CRS structures have a significantly lower construction cost compared to conventional free-standing steel lattice towers. Power Engineers estimates a new single circuit East-West Tie line using CRS structures would be approximately $116 million less expensive than a conventional double circuit line based on the existing X10 tower family.

EWT's plan for evaluating alternatives

As mentioned above, EWT LP has presented a range of alternatives and a plan for assessing the costs and benefits of those alternatives during the development stage. Project development for a new transmission line of this rating and length will involve ongoing engineering work, extensive discussions with land owners and other stakeholders, the acquisition of land rights, the completion of an environmental assessment and consultation with First Nations and Métis communities.[72] Unlike other applicants, EWT LP has set out these design activities in great detail.[73] For example, EWT LP provides a road map for the studies it will conduct during the development phase to evaluate each proposed alternative's impact on the region's transmission network. Such studies include an assessment of power flow and reactive power requirements under normal and contingency conditions; preliminary lightning performance analyses; and line impedance comparisons for different circuit and conductor/bundling configurations.

With four technically sound alternatives ready to evaluate, a comprehensive plan already in place to complete that evaluation, and that evaluation plan factored into its schedule, EWT LP is well positioned to begin its technical design refinement promptly upon designation. No other applicant is as prepared to test the key assumptions underlying the Reference-Based Design and undertake the studies necessary to evaluate a range of credible alternatives to see which can be adopted at a lower cost. Those that have advocated innovative designs (RES and UCT) have not factored such an evaluation into their schedules. As mentioned, EWT LP's preliminary estimates suggest a potential savings of $116 million, relative to the Reference-Based Design, by pursuing a single circuit CRS design. No other applicant's technical design alternatives offer that degree of cost savings. And no other applicant is as well prepared as EWT LP to assess its design alternatives in the development phase to determine the most technically appropriate design for the Project and the most cost-effective design for ratepayers.

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[72] As discussed in Sections 7, 9 and 10 of its Designation Application, EWT LP has developed a detailed consultation plan and schedule which factors in numerous technical design activities.

[73] See EWT LP Designation Application, Appendix 6C.

D. Consultation and Land Acquisition

EWT LP's development plan establishes how it will obtain a "social license" to develop, construct and operate the Project. In particular:

- EWT LP's Aboriginal and Public Consultation is unparalleled among the applicants' plans in its detail and in its commitment to community-based consultation;
- EWT LP, unlike other applicants, has a comprehensive land acquisition strategy that ensures early consultation and attempts to minimize the need to expropriate land after the leave to construct is filed; and
- EWT LP has proposed the most comprehensive plan for routing the Project of any applicant.

This focus on building broad-based stakeholder support through consultation is critical to being able to expeditiously and cost-effectively develop and construct the Project.

EWT LP has proposed the most effective plans for Aboriginal and public consultation

Developing a social license through broad-based community consultation is critical to successful project development. A number of Ontario electricity projects -- including the Oakville generating station, the York Region Transmission Reinforcement Project, and the Scarborough Bluffs offshore wind project -- were recently cancelled, in part because they did not achieve the necessary social license. Recognizing this and consistent with its community-centric approach to development, EWT LP has developed robust and comprehensive plans for consulting with Aboriginal communities, and for consulting with municipalities, federal and provincial agencies, landowners and the public.[74] The consultation plans have been prepared not only to meet the statutory consultation requirements of the *Environmental Assessment Act*, but also to solicit stakeholder input at the earliest opportunity and throughout the Project and to appropriately incorporate this input into the final Project design. EWT LP will build relationships and work alongside stakeholders over the course of Project development, including via sixty open house sessions (equally covering both local and Aboriginal consultation) conducted at a number of

[74] See EWT LP Designation Application, Appendix 10A.

locations across the Project area. EWT LP's development schedule allows for more time to consult and integrate stakeholder feedback, which will in turn reduce the risk that Project permits or construction are opposed. This could ultimately enable EWT LP to accelerate the development and construction processes.

EWT LP's 32-page Aboriginal and community consultation plan is the most robust, comprehensive and detailed of any applicant. It sets out in detail EWT LP's principles and approach to Aboriginal and local consultation and ensures conformity with regulatory requirements and best practices. It also includes detailed work plans identifying specific consultation tasks for each phase of the Project. In contrast, CNP did not produce an Aboriginal consultation plan, as discussed further in Section III-E below, in direct contravention of Board filing requirements.[75]

EWT LP, through its partners, also has unique experience that will enable it to ensure the successful implementation of its consultation program. For example, BLP's participation from the beginning of the Project planning process has been significant in shaping EWT LP's approach to Project development and consultation. BLP will continue to advise EWT LP on the appropriate consultation strategy for the Project. Many of the Participating First Nations bring to EWT LP the unique perspective of having been both consultor and consultee in power and infrastructure developments in the Project area. For example, the Participating First Nations have not only conducted consultation in the Project area among other local and Aboriginal communities and stakeholders in conjunction with their own generation projects, such as Umbata Falls,[76] but have also been subject to consultation in the Project area, such as in conjunction with the Marathon PGM Metals mine.[77] As a result, BLP is particularly sensitive to the challenges in the consultation process, especially with respect to Aboriginal communities. The Participating First Nations also have long-standing relationships with other Aboriginal communities, land owners, municipalities and agencies in the Project area, which will facilitate EWT LP's rapid

[75] Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), Appendix A - Filing Requirements for Designation Applications, Requirement #10.1.

[76] EWT LP Designation Application, Exhibit 2, pp. 4-5.

[77] See EWT LP Designation Application, Exhibit 10, p. 10.

understanding of key Aboriginal and local issues that may affect the location, design and construction of the Project.

Ultimately, EWT LP's consultation plan recognizes that meaningful consultation requires giving stakeholders genuine opportunities to shape the design and route of the Project. EWT LP is not taking the "design first, consult later" approach favoured by some proponents. Proponents such as AOLP and UCT, that intend to approach stakeholders with a ready-made plan for Project development, will likely not be offering meaningful opportunities to receive and integrate public feedback and, as a result, risk encountering delays and cost impacts due to public opposition.

EWT LP has proposed the most effective land acquisition strategy

EWT LP recognizes that obtaining the land rights necessary to develop the Project presents challenges that, if not anticipated and managed, can trigger expropriation hearings and otherwise significantly delay the Project schedule and increase costs. Therefore, EWT LP plans to meet with landowners at the earliest opportunity to identify and evaluate potential routes with the benefit of landowner input. It will work with landowners, owners of interests in the land and government authorities to identify parcels where the existing land use would be consistent with or benefit from the construction of the Project and use this information to impose different ratings when evaluating corridor preference.[78] EWT LP will make every effort to reach voluntary agreements with property owners and to avoid potential routes that would require the expropriation of multiple properties.[79] This proactive approach benefits ratepayers by reducing the risk of having to return to the Board after a leave to construct has been granted to seek expropriation of land rights -- a time consuming and expensive process. EWT LP has also set out specific detailed plans for the acquisition of different categories of land rights, including private land, Crown land, crossings, Reserve land, provincial and national parks.[80]

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[78] EWT LP Designation Application, Exhibit 9, pp. 2-3.

[79] EWT LP Designation Application, Exhibit 7, p. 18.

[80] EWT LP Designation Application, Exhibit 9, pp. 5-11.

Furthermore, EWT LP will adopt a set of detailed land acquisition principles for the Project based on land acquisition principles that were accepted by the Board in connection with the Bruce to Milton Transmission Reinforcement Project.[81] EWT LP's land acquisition principles will include principles of property owner choice, transparent appraisal procedures and incentive compensation for voluntary and timely land acquisition.[82] A principled and consistent approach to land acquisition will help ensure landowners are treated -- and perceive themselves to be treated -- fairly.

EWT LP has proposed the most comprehensive routing plan

EWT LP has identified a number of routing considerations, particularly in regard to the more densely populated areas around Thunder Bay. Applying its extensive local knowledge, EWT LP has broken the potential route into four segments and analyzed the particular routing concerns of each segment.[83] In the segment between Thunder Bay to Nipigon, EWT LP has identified potential benefits in rationalizing some of the existing transmission infrastructure and using an existing ROW corridor for the new line, which have not been identified by any other applicant.[84] EWT LP has also developed a detailed methodology for refining the Project route[85] and compiled a summary of the relevant land use policies that will need to be taken into consideration.[86] In addition, EWT LP proposes holding a routing workshop between November 2013 and January 2014[87] (and, potentially, a second routing workshop between March and April 2014[88]) to work with stakeholders to refine the final Project route.

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81 See EWT LP Designation Application, Appendix 4E.

82 See EWT LP Designation Application, Exhibit 9, p. 7.

83 See EWT LP Designation Application, Exhibit 9, pp. 18-36.

84 See EWT LP Designation Application, Exhibit 9, pp. 22-24.

85 EWT LP Designation Application, Appendix 9D.

86 EWT LP Designation Application, Appendix 9F.

87 See EWT LP Designation Application, Appendix 7A - Project Workflow (Regular) and Appendix 7B - Project Workflow (Accelerated).

88 See EWT LP Designation Application, Appendix 7A - Project Workflow (Regular).

E. Conclusion

Only EWT LP has undertaken the necessary detailed Project planning work to ensure it has budgeted appropriate time and resources to provide ratepayers with a comprehensive, cost-effective and prudent plan for Project development, construction, operation and maintenance.

III. Competitors

A. RES

RES's development plan is deficient in a number of areas. In particular, RES:

- Has not, with respect to its preferred technical design, (i) explained the physical attributes of its preferred H-frame structure and the impact those attributes have on the foundations and associated costs; (ii) explained cascade failure risk of the preferred design and the need to mitigate that risk; (iii) explained the relationship between the fundamental connection between the nature of RES's preferred structures and the geological characteristics of the land on which the structures will be placed; and (iv) characterized the technical aspects of its selected ACSS conductor.

- Has not demonstrated the experience relevant to Ontario necessary to execute its development plan;

- Proposes an incentive mechanism that is only to the advantage of RES, does not comply with rate making principles within the Board's jurisdiction and is unfair to ratepayers; and

- Has tied its application to the acceptance by the Board of a fixed bid amount for development and construction that is conditional on an incentive mechanism that is not in the ratepayers' interest.

Selection of Steel H-Frame is Inappropriate and Unsubstantiated

In its application RES conclusively endorses a technical design using tubular steel H-frame structure as its preferred option. However, in doing so, RES has not provided the results of any technical or economic studies to endorse its choice of structure, and has not disclosed to the Board the inherent limitations of tubular steel H-frame structures that will expose the Project to additional risks.

H-Frame Structure has Greater Cascade Failure Risk

ASCE Manual 74, "Guidelines for Electrical Transmission Line Structural Loading" states:

> "H-frames and narrow-based, rectangular, latticed structures (which) have little inherent ability to withstand the longitudinal loads of a cascading line."[89]

Unlike either conventional guyed structures or four-legged trussed steel lattice structures, H-frames inherently lack longitudinal mechanical strength, i.e. the structures are robust against transverse wind loads but are weak against longitudinal loads, for example unbalanced loads caused by ice shedding or a conductor breakage.

Because of both the higher tension due to the use of ACSS (discussed below) and also to longitudinal forces to which the H-frame structures will be subject, there is a greater cascade failure risk with RES's design.[90] RES is intending to install anti-cascade structures at up to 12 mile (19 km) intervals, with another "strain type" structure or a full "deadend" structure about halfway between these structures, which could result in the loss of 30 or more structures over approximately 10 km of line in the event of a cascading failure.[91]

Foundation Costs are Improperly Estimated

RES claims that the foundation cost for the tubular steel pole H-frames are lower than for the four-legged latticed tower based on the count of two foundations compared to four foundations for the latticed tower. It notes: "where the Preferred Design uses single-circuit H-frame structures, there would be further cost savings from constructing two rather than four foundations for each tower…".[92]

RES did not file any evidence relating to the design and dimensions of a typical foundation for its proposed H-frame or reference design. Nor, unlike EWT LP, did it provide any information about the quantities and unit costs used to estimate construction costs.

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89 See UCT Response to Board Interrogatory #4 to UCT, p. 1.

90 EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 21. In accordance with Board Procedural Orders Nos. 5 and 6, this affidavit does not provide additional information regarding EWT LP's designation application and pertains exclusively to the evidence filed in RES's designation application.

91 See RES Designation Application, Exhibit H, Tab 2, Schedule 1, p. 4 and Exhibit I, Tab 2, Schedule 1, p. 3.

92 RES Designation Application, Exhibit G, Tab 1, Schedule 1, p. 5.

However, RES ignores the fact that the height, weight and design of the tower, together with the soil and rock conditions, determine the foundation and thus the cost. The number of legs of a structure is not the sole determinant of cost as stated by RES.

Foundation design forces under trussed (latticed) structures (such as in the Reference Design) are largely compression (down), uplift (up) and shear (lateral) but there are no significant bending moment forces. A typical foundation would be comprised of concrete piers less than 1.0 m in diameter and 4-6 m deep depending on the soil type. In very hard ground, the foundation gets smaller until it can be compromised of a small block of concrete on rock anchors holding two anchor bolts less than 1.0 m in length. Screw anchors, steel grillage pads, micropiles and rock bolts are options under select conditions to reduce costs.

In contrast, the design forces impacting steel H-frame structures include large bending moment forces with comparatively modest compression, uplift and shear forces. Defending against bending moment forces experienced by H-frame structures with foundations is very expensive compared to defending against compression, uplift and shear forces for traditional lattice structures. Under the typical soil conditions, a leg of an H-frame steel structure will require a concrete pier of approximately 1.5 m in diameter and 5-10 m deep.[93] Where bedrock is within the depth to which a foundation would exist, the transmitter would typically bolt the tower to the bedrock using a significantly large bolt pattern of about 1.5 m in diameter and each bolt would be approximately 2.5 m in length. Each bolt would have to be drilled in place.[94]

When soils are unpredictable and rock is likely to be somewhere within the depth of the foundation required as is the case for the Project, an installed cost comparison between a four legged latticed tower design and a steel H-frame design will not show the latter design as the lowest cost. This is because the foundations required are much more extensive and of unpredictable design. Notwithstanding a lattice structure will require foundations under each of

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[93] Draft Environmental Impact Statement for MidAmerican's Red Butte project prepared by the US Department of Interior Bureau of Land Management (page 2-38) notes that Rocky Mountain Power are proposing typical foundations 4-5 ft in diameter and 20-30 ft deep for a tower 80-140 ft tall. The hole would typically be bored by a truck-mounted auger. RES's proposed towers for East-West Tie are 2-53 m tall (8-177 ft tall).

[94] See EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 16.

its four legs, the nature of the H-frame structure will require larger and deeper foundations that are more costly to install.[95]

The only possible way for an H-frame foundation cost to be comparable to latticed towers is for the structure to have no strength against tension imbalances. However, this would make the structure very vulnerable to longitudinal collapse, inviting a cascade line failure event.[96]

The foregoing is a result of known physical laws that affect structures and are generally known in the industry.

Construction Techniques for H-Frame are Unproven

RES has not proven that it understands the construction techniques to construct its recommended tubular steel H-frame design in the Project area.

RES provided the MidAmerican Group's Sigurd Red Butte Project in Utah as a reference. EWT LP has reviewed the draft Environmental Impact Statement[97] for this project prepared by the US Department of Interior Bureau of Land Management ("**BLM**"). On page 2-38, BLM describes the proposed installation methodology:

> "H-frame tangent structure and single-pole materials would be hauled to the structure location via flatbed truck and assembled on site. The entire structure would be framed on the ground and erected as one unit using a crane."

> "H-frame tangent structures would be used predominantly. The poles would be embedded directly into excavated holes at a depth based on geological data resulting from the geotechnical investigations. If holes are determined unsuitable for direct embedment, a drilled pier could be required with the depth and diameter of the pier excavation determined from the geotechnical investigation."

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95 See EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, paras. 16-20.

96 EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 20.

97 Draft Environmental Impact Statement for the Sigurd to Red Butte No. 2 – 345kV Transmission Project (May 2011), <http://www.blm.gov/pgdata/etc/medialib/blm/ut/cedar_city_fo/planning/deis_documents.Par.10790.File.dat/SRB_DEIS_Volume_I.pdf.>.

BLM also notes that Rocky Mountain Power is proposing typical foundations 4-5 ft diameter and 20 to 30 ft deep for a tower 80–140 ft tall, i.e. similar in height to the proposed Project towers. The hole would typically be bored by a truck-mounted auger.

It is EWT LP's understanding that the terrain for MidAmerican's Sigurd Red Butte Project is dry desert, mostly barren of trees, very light snow in winter with warmer winter temperatures and often quite flat with occasional dramatic rocky areas. The soil is often deep and the rock is not hard granite. In comparison, in northern Ontario the ground is wetter and softer with more streams, harder rock, deeper snow, colder temperatures and longer winters.

The steep rocky hills, granite bed rock and boggy wooded areas likely to be found in the Project area will limit vehicular access and make this installation technique very challenging.

RES does not make the fundamental connection between (a) the nature of the H-frame structures and foundations needed to serve them; and (b) the geological characteristics of the land on which the structures will be placed. RES highlights in its application the geological characteristics but does not factor those facts into its choice of structures and its costs.

RES's Foundation Design is Unproven in Similar Terrain and Conditions

RES has not provided a proven foundation design for 75% of the new line.

At Exhibit H, Tab 5, Schedule 1 of RES's application, RES sets out its subsurface foundation design assumptions. In particular, it notes that 60% of the structure's location would have bedrock at ground surface or within one meter of the surface, and that a further 15% of structure locations will have bedrock within 3 m of the surface.

RES notes that "Drilled shaft concrete piers will be utilized whenever possible. Alternate foundations will be designed where appropriate."[98] It seems unlikely it will be cost effective for RES to auger a 20 – 30 ft hole to use a drilled shaft concrete foundation where bedrock is at or within 3 m of the surface. Instead RES will need to design a new, alternative foundation.

[98] RES Designation Application, Exhibit N, Tab 5, Schedule 1, p. 3, line 1.

RES stated that "For H-Frames in rock, a grouted anchor system with a concrete cap that incorporates anchor-bolts is being developed."[99]

RES has proposed a tubular steel H-frame design but acknowledges that a suitable foundation has not yet been developed or tested in service for the ground conditions expected at approximately 75% of the structure locations on the Project.

The Cost and Environmental Implications of RES's Design Have Not Been Properly Evaluated

In response to Board Interrogatory #15, RES stated that any risks associated with the H-frame structures identified in its risk analysis were incorporated into its developmental cost proposal.[100]

RES's design span for the tubular pole option is relatively small compared to conventional lattice and guyed structures – 335 m vs. 410 m.[101] This in turn means that 22% more structures will be required when a steel H-frame is used. The greater number of structures will tend to increase costs. The additional construction sites and associated construction access tracks are likely to result in greater environmental damage during construction.

RES's Design is Unproven

RES has not filed evidence sufficient to demonstrate that RES's recommended design has been used in similar terrain and condition as the Project.

In response to Board Interrogatory #15, RES responded:

> "Similar H-frame towers have been utilized by projects in jurisdictions with terrain and environmental conditions that are similar to those in northern Ontario. These include two projects in Wyoming that were constructed by PacifiCorp, an affiliate of RES Transmission. Both PacifiCorp projects are single-circuit lines

[99] RES Designation Application, Exhibit N, Tab 5, Schedule 1, p. 3 [emphasis added].

[100] RES Response to Board Interrogatory #15 to All Applicants, p. 22.

[101] RES Designation Application, Exhibit H, Tab 1, Schedule 1, p. 5.

> that utilize 1557 kcmil ACSS conductors, strung on tubular steel, H-frame towers."

RES did not identify the name, operating voltage, length or location of either project.

The statutes of Wyoming (W.S. § 37-2-205(a)) states, in part:

> "No public utility shall begin construction of a line, plant or system, or of any extension of a line, plant or system without having first obtained from the [Wyoming Public Service] commission a certificate that the present or future public convenience and necessity require or will require such construction."

EWT LP has searched the Wyoming Public Service Commission's public database back to 1997 in an effort to identify RES's two reference projects. EWT LP identified 18 instances where the Commission had approved a certificate of public convenience and necessity to a MidAmerican Group transmitter, nine of which related to the construction of a new transmission line at 230 kV or higher.[102] The longest project was 17 miles and the shortest 1.6 miles. The aggregate length of all transmission projects was 83 miles.

In the absence of any evidence from RES to the contrary, one must therefore conclude that RES's endorsement of a tubular steel H-frame for the 400km East-West Tie is based solely on its affiliate's experience with two lines neither of which are longer than 17 miles / 25 km. Furthermore, on the basis of the above-noted search, it appears that RES's affiliate has minimal experience of transmission development and construction with which to compare the tubular H-frame design.[103]

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[102] See Wyoming Public Service Commission dockets 20000-373-EA-10, 20000-375-EA-10, 20000-357-EA-9, 20000-348-EA-9, 20000-335-EA-08, 20000-334-EA-08, 20000-329-EA-08, 20000-324-EA-08, and 20000-EA-05-223, <http://psc.state.wy.us/htdocs/asp/docketmain.asp>.

[103] RES asserted in response to the Board's Interrogatory #15 to All Applicants that the two above mentioned projects had been designed in accordance with industry standard weather cases, which are similar to the standards specified by the Board. EWT LP argues that RES tells an incomplete story because the overload factors in the CSA Standard are very different than the overload factors in the US National Electrical Safety Code. See RES Response to Board Interrogatory #15 to All Applicants, p. 22.

Selection of ACSS Conductor is Inappropriate and Unsubstantiated

In its application RES conclusively endorses a technical design using ACSS/TW conductor ("**ACSS**") with a tubular steel H-frame structure as its preferred option. RES did not provide the results of a conductor optimization study typically completed before endorsing the choice of conductor and did not disclose the inherent limitations of the ACSS conductor that will expose the Project to structural risks.

Exhibit H-4-1 of RES's application states that the preferred conductor is "Potomac" 1557 kcmil ACSS/TW,[104] which is designed to have a continuous rating of 1891 A at 127°C (786 MVA at 240 kV) but, unlike the standard ACSR conductor, it is capable of continuous operation at up to 250°C. RES declares that:

> "The proposed 1557 ACSS/TW conductor possessed superior capabilities relative to the (Grackle) 1192.5 ACSR conductors. These superior capabilities include: a larger capacity to transfer current (i.e.: higher ampacity); reduced line sag during situations of emergency electrical load, an ability to operate at higher temperatures; and excellent self-damping vibration properties."[105]

Many of RES's claims for the superior performance of its recommended conductor are either unsubstantiated or incorrect. RES's conductor choice is theoretically capable of operating at a higher continuous temperature and thus providing greater ampacity. However, RES did not explain the unique design changes that would be required to allow this additional ampacity to be realized without infringing safety clearances, nor did it explain the value of this unsolicited extra ampacity to ratepayers. RES did not identify the risks and disadvantages associated with using ACSS conductor including its higher costs, reduced safety margins, higher sags, higher purchase

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[104] ACSS/TW (aluminum conductor steel supported) conductor is similar in principle to conventional ACSR/TW (aluminum conductor, steel reinforced) conductor in that both are concentric lay stranded conductors with the inner layers of strands being coated high tensile steel and the outer layers high electrical conductivity aluminum. The principal difference between the two conductors is that ACSS is 'baked in an oven' after manufacture to anneal the aluminum. This has two effects – it allows the conductor to operate at higher temperatures with no change of mechanical properties but also results in the loss of mechanical strength in the aluminum strands. The 'TW' refers to the trapezoidal shaping of the individual strands of the conductor. TW conductors are widely used.

[105] RES Designation Application, Exhibit G, Tab 1, Schedule 1, p. 3, lines 14-18.

cost and increased installation costs. RES's claims as to the conductor's excellent self-damping vibration properties are incorrect.

In summary, RES's selected Potomac ACSS/TW conductor offers higher risks at higher costs than the widely discussed Grackle ACSR choice. RES has not provided any evidence of having completed the line optimization studies necessary to select the most cost effective and technically effective conductor.

Sag

RES claims that the reduced line sag of its recommended conductor, especially during situations of emergency electrical load, is superior to that of the Grackle conductor identified by the IESO and a number of the other applicants. This claim is not correct.

To illustrate, as set out in the affidavit of Peter Catchpole attached as an Appendix hereto, Power Engineers compared the Potomac ACSS/TW conductor to Grackle ACSR conductor as assumed by the IESO. The two conductor choices were held to a common span – that being RES's suggested span of 355 m – and to a common cold temperature Catenary Constant value of 1,900 m.[106] The results of Power Engineers' analysis are set out below.[107]

Conductor	**1192 Grackle ACSR**	**1557 Potomac ACSS/TW**
Span (m)	355 m	355 m
Equal Sag at -20 C (C , Sag)	1,900 m, 8.3 m	1,900 m, 8.3 m
Compared Factors: green = better performer		
Alcoa Span Limit: 1 damper	478 m (basic need)	247 m
Alcoa Span Limit: 2 dampers	957 m	494 m (basic need)
Max. Design Tension (H)	8,725 kg	7,895 kg

[106] The cold temperature, initial Catenary Constant is widely understood as the parameter most highly related to a conductor's vibration behavior. The relationship is not perfect but the error is not significant for the purpose of this argument. The curve described by a conductor is described by a curve called a Catenary which is mathematically described by a hyperbolic function i.e. $y = a.\cosh(x/a)$ where the parameter 'a' is the catenary constant and the variables x and y are the horizontal and vertical distances respectively. Based on Power Engineer's assumptions, the Potomac and Grackle lines will have the same curvature at -20°C.

[107] EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 3.

Conductor	1192 Grackle ACSR	1557 Potomac ACSS/TW
Max. Tension, 1" ice (%RTS))	46%	61%
Sag at 1" ice	11.9 m	14.6 m
%RTS initial @ -30 °C	24%	39%
%RTS final @ 15 °C	18%	35%
Design Sag at 100 °C[108]	13.8 m	15.1 m
Sag at 250 °C	N/A	17.2 m
Sag at 40 °C final	11.8 m	14.2 m
CSA Rule Blowout	3.9 m	4.3 m
Estimated unit purchase cost	100%	136%

A number of conclusions can be drawn from this analysis:

- The design sag at the design temperature, 100°C, is greater for Potomac ACSS (15.1 m) than for Grackle (13.8 m) i.e. to achieve a safe ground clearance, Grackle requires shorter towers or lower stringing tension than Potomac ACSS. Potomac ACSS therefore has a greater line sag compared to Grackle, and not a reduced line sag as claimed by RES.

- Grackle conductor provides a superior clearance margin against extraordinary ice events than Potomac ACSS. The Board's Minimum Design Criteria state that the conditions for maximum sag shall be determined by either the temperature criteria (100°C) or the radial ice thickness criteria (25.0 mm, i.e. 1 inch), whichever produces the greater conductor sag. As can be seen from the table, the maximum sag for both conductors will be set by the temperature criteria. For Grackle, the margin between the maximum sag at 100°C (13.8 m) and the maximum sag at the ice loading (11.9 m) is 1.9 m. For Potomac ACSS, it is only 0.5 m. This margin represents how much ice above the 25 mm radial ice thickness criteria the conductor can carry before safety clearances to ground are infringed. The margin for Grackle is greater.

RES's claims therefore appear unsubstantiated.

Costs of Operating conductor at Higher Temperatures are ignored

RES claims that Potomac ACSS can operate at higher temperatures, and that this makes it superior. This claim is true in part because ACSS is designed for continuous operation at temperatures up to 250°C which allows for a higher ampacity.

[108] Condition for Maximum Sag as described in Appendix A, Table 2 of the Board's Minimum Design Criteria for the Reference Option.

However, RES has not discussed the effect that operating the line at 250°C will have on conductor sag. As can be seen from the table above, the sag at 250°C will be 17.2 m compared to the maximum design sag of 15.1 m. Unless RES either employs 2.1 m taller towers, which will be more expensive, or increases the conductor tension, which is not necessarily desirable for the reasons discussed below, RES will not be able to run the line at these higher temperatures without infringing ground safety clearances.[109]

Both Grackle and Potomac ACSS conductors are capable of delivering the required MVA capacity within the limits expressed in the Board's technical requirements. While the ACSS conductor can run much hotter and deliver more ampacity, this capability comes at the added cost of greater sag and the need to provide for the higher capacity with the station equipment. The incremental capacity does not come free of charge, nor was it solicited.

Self-damping Vibration Properties Overstated

RES claims that its recommended Potomac ACSS conductor has superior self-damping vibration properties. This claim is not backed up by Power Engineers' independent calculations.

Power Engineers' analysis shows that two dampers per span are recommended for the ACSS installation and one damper per span for the ACSR conductor choice. This recommendation conflicts with the proponent's statement of excellent self-damping properties. The basis for the disagreement can be expressed as this: while a conductor may be less prone to vibration due to its self-damping capabilities, this does not imply that once vibrating, it also has equal or better survivability against fatigue damage.[110]

ACSS tensions are proportionately higher

RES did not file any evidence in its application identifying or proposing mitigation against the risks of reduced fatigue life, increased cascade failure or reduced safety margins resulting from the use of Potomac ACSS conductor operating closer to its rated tensile strength.

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[109] See also EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, paras. 9-10.

[110] See EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, paras. 5-6.

The tension of Potomac ACSS for given operating conditions is greater than that of Grackle. However, the sags are greater. These larger sags could be reduced by increasing the design tension as discussed above but doing so further increases the vibration activity and raises the %RTS "usage" of the ACSS conductors – values that are already quite high.[111] Increased design tensions could also affect the fatigue life of the conductor. Note that the rated tensile strength of Potomac ACSS (12,353-14,842 kg)[112] is considerably less than that of Grackle (18,959 kg)[113] – this may be an issue given the harsh conditions in the Project area.

EWT LP also notes from the tables that the initial design tension at -30°C for Potomac ACSS, 39% of RTS, is greater than the 25% value specified in the Board's Minimum Design Criteria.

ACSS is More Expensive

Potomac ACSS is estimated to cost approximately 36% more than Grackle ACSR. This estimate is based on equal unit costs for aluminum and steel core materials except for an adder for annealing and shaping the ACSS strands and providing a high heat resistance ACSS core.

RES did not file any evidence justifying this incremental cost.

ACSS Requires a Wider Right of Way

Potomac ACSS has a greater conductor blowout (4.3 m) compared to Grackle ACSR (3.9 m).[114] The use of Potomac ACSS will therefore require a marginally wider right of way to maintain safety clearances unless the conductor tension is increased.

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[111] At maximum tension with 1" (25mm) of radial ice loading, Grackle will be loaded to 46% of its rated tensile strength (RTS) whereas Potomac ACSS will be loaded to 61%. This means that the safety margin of Potomac will be lower i.e. in lay terms, it is more likely to snap. See EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 8.

[112] Southwire Company, ACSS/TW product specifications (2009), "Potomac/ACSS/TW", <http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheetEN0002>.

[113] Southwire Company, ACSR/TW product specifications (2003), "Grackle/TW", <http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheet24>.

[114] See EWT LP Argument in Chief, Appendix, Affidavit of Peter Catchpole, para. 3.

RES did not file any evidence justifying either the increased costs or identifying the permitting risks associated with a wider right of way because of greater conductor blowout.

ACSS is More Difficult and Expensive to Install

The installation cost for ACSS conductor will be greater than for the ACSR choice. RES did not identify these additional costs in its evidence.

Potomac ACSS (2,600 kg/km)[115] is heavier than Grackle ACSR (2,300 kg/km).[116] Heavier conductors cost more to install than lighter conductors mostly because the lengths on the reels are shorter forcing more installation set-up locations.

ACSS conductors also require more careful handling on site to avoid damage to the very soft annealed outer aluminum strands.

Relevant Internal Technical and Permitting Experience Uncertain

Because RES did not consider the technical risks and deficiencies of its preferred design, questions are raised as to its relevant experience in designing a line suitable for the Project and the Project area.

RES asserts that PacifiCorp (MidAmerican Group) staff have engineered the various lines put forward by RES as examples of past work. Yet in answer to the Board's interrogatory, RES notes that detailed line siting, access road layout, general permitting support and other basic engineering design functions were provided by external engineers under contract.[117] In fact, many of RES's reference projects including Gateway West, Gateway South and the lateral connections to RES's Ontario wind farms have all been engineered by Power Engineers Inc. – see EWT LP's application Part A, Exhibit 4, Appendix #4. RES has provided no evidence that it

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[115] Southwire Company, ACSS/TW product specifications (2009), "Potomac/ACSS/TW", <http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheetEN0002>.

[116] Southwire Company, ACSS/TW product specifications (2009), "Potomac/ACSS/TW", <http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheetEN0002>.

[117] RES Response to Board Interrogatory #1 to RES, p. 2.

has engaged external engineers for this Project. The conclusion one must draw is that RES does not have the engineering capacity to undertake the Project, and will not do so until MidAmerican Group engages external engineers. This is a significant risk were RES to be designated.

As indicated in response to Interrogatory #3 (RES specific interrogatory), RES acknowledged that it had only a supporting role dealing with the environmental impact assessments for its past US projects. BLM had overall responsibility.

The record of consultation for MidAmerican Group's Gateway West Transmission Line was documented by BLM in Chapter 5 of its draft Environmental Impact Statement.[118]

Some of the consultation activities documented by BLM were as follows (these are unedited extracts taken from Chapter 5):

- The BLM published a Notice of Intent in the Federal Register on May 16, 2008.
- The BLM prepared and distributed a tri-fold mailer to interested parties in the proposed and alternative project corridors and to others interested in the proposed project.
- The BLM prepared and distributed two press releases regarding the original scoping period.
- The BLM established a Web site regarding the proposed project at the beginning of the scoping period.
- The BLM hosted nine public meetings in June 2008 to provide planning and NEPA information to the public and agencies to allow them to identify issues and concerns to the BLM. Public scoping and the scoping meetings were advertised as noted in the section above. As summarized in Table 5.1-3, a total of 140 members of the public attended the various public meetings.
- The BLM also hosted a focused scoping meeting on July 10, 2008, in Kemmerer, Wyoming, with an integrated group of federal, state, and local agencies and elected officials to discuss specific issues regarding routing Gateway West Project corridors.

[118] See Gateway West Transmission Line, Draft Environmental Impact Statement, <http://www.wy.blm.gov/nepa/cfodocs/gateway_west/draft_eis.html>.

- There were 62 individual letters submitted to the BLM during the scoping period, and included in those letters were 89 individual comments. In addition, during the extended scoping period, the BLM received 1,533 individual letters, and included in those letters were 1,613 individual comments.

- The BLM hosted four stakeholder meetings with landowners, local jurisdictions, and special interest groups to inform them about the project and the NEPA process.

- The BLM attended 26 project proponent-hosted meetings with landowners along the study corridors.

- The BLM met on July 10, 2008, with stakeholders in the Kemmerer-Cokeville area to discuss specific issues regarding routing in southwest Wyoming and southeast Idaho, as well as a few alternative variations extending into Utah. In compliance with Section 106 of the NHPA (as amended) and the ACHP's revised regulations (36 CFR § 800), the BLM initiated government-to-government consultation with seven Native American Tribes in the project area in April 2008.

It is apparent from the public record that although MidAmerican did host 26 project meetings with landowners along the study corridor, the majority of the consultation was led by BLM, not MidAmerican. This is in contrast to the Ontario process, where the designated transmitter will be responsible for coordinating and executing all consultation, permitting and routing.

Rate Incentives Are an Inappropriate Transfer of Risk to the Ratepayer

RES's designation application is made subject to a rate incentive proposal in respect of two main cost components: (i) the interest rate charged in respect of deferral account balances reflecting construction work in progress; and (ii) the return on equity and weighted cost of capital applicable to costs under or over RES's specified bid amount. Both incentives are inconsistent with good rate making and should be disallowed. Moreover, because RES's application is conditional on the rate incentive proposal, a rejection by the Board of the rate incentives necessitates the rejection of RES's application in its entirety.

Weighted Average Cost of Capital and CWIP

RES proposes Project development costs of $21.5 million. RES's application is subject to the Board varying its methodology to record interest on deferral account balances by approving a

blended debt/equity rate (in effect a weighted average cost of capital) to apply to the development costs recorded in a deferral account established by the Board to track its development costs. Specifically, RES requires a blended rate of the Board approved return on equity on 40% of the development expenditures and the lesser of the Board approved short-term debt rate or the "interest during construction" rate on 60% of the development expenditures (the "condition"). The logic underpinning RES's condition is the desire to match equity invested during development to the earning of an equity return during the development process.[119] In effect, to mitigate any opportunity cost to RES for the equity invested during that period.

The condition requested as part of RES's development costs is only for the protection of RES. The ratepayers' interest has not been factored into the equation by RES in any manner. In effect, RES's proposal treats the development costs as if those costs were made part of the rate base from day one. However, the purpose of development activities is to determine the feasibility of a project and to take steps that will enable a leave to construct application. It is possible that the project may not prove to be viable and may not proceed. In addition, some costs may not be considered capital costs and will not ultimately form part of rate base and be subject to a weighted average cost of capital. Typically, rate-regulated transmitters in Ontario will undertake projects without a deferral account and do not earn a rate reflecting the weighted average costs of capital on costs until the assets are in service. The fact that a deferral account will be contemplated by the Board in this proceeding is unique to this proceeding and from a ratepayer's perspective does not dictate a new rate of interest on recorded amounts.

A Rejection of the Incentive Proposal Means a Rejection of the Application

The purpose of the proceeding is to provide cost efficiency to the ratepayer. Nowhere in it submission does RES indicate that it would proceed with the Project without the special treatment of receiving an equity return on its deferral account balance.[120] Given that the Board

[119] RES Designation Application, Exhibit B, Tab 1, Schedule 1, p. 16.

[120] RES Designation Application, Exhibit B, Tab 1, Schedule 1, p.15 and Exhibit B, Tab 1, Schedule 1, p. 16.

will consider the applications as filed (without being supplemented)[121] and RES has not stated an alternative choice in the event its request is denied, it must be concluded that RES would not proceed with development if its request is denied. RES specifically tied its designation application to this incentive request. As such, in denying RES's request, the Board must deny RES's application. The Board has indicated the importance of fairness in this proceeding.[122] It would be unfair for the Board to provide alternative relief for the applicant unless such relief has been requested. If in reply to this submission, RES suggests it would be willing to proceed without the incentive, the Board should reject such a response since it would be an amendment to RES's original filing. There is no evidence before the Board as to RES's position in the absence of the incentive.

Incentive Related to Total Cost Also Unfair

The foregoing development cost proposal is part of a larger development and construction cost proposal. In addition to the condition of calculations of interest for construction work in progress at the weighted average cost of capital or a blended rate, RES's broader development and construction cost proposal has the following fundamental conditions:

- The completion of development and construction of the Project at a firm bid amount of $413.4 million under Option 1 (preferred design/preferred preliminary route) or $493.7 million for Option 3 (reference design/preliminary preferred route) (collectively, the "**Bid Amount**").

- The amount of the Board approved rate base would be decreased by any cost underage in respect of the Bid Amount (the "**Subtracted Amount**"). RES would earn a return at a 60/40 debt to equity rate at the Board approved long term debt and return on equity rates on the actual development and construction cost. For the cost underage or "subtracted amount", RES would earn a return of 60/40 debt to equity at the Board approved long term debt rate and the Board approved return on equity plus 300 basis points after tax.[123]

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[121] Ontario Energy Board, EB-2011-0140, Procedural Order No. 6 (March 4, 2013), p. 2.

[122] Ontario Energy Board, EB-2011-0140, Phase 1 Decision and Order (July 12, 2012), pp. 17 and 20.

[123] RES Response to Board Interrogatory #16 to RES, p. 20.

- By completing the development and construction costs of the Project at a cost greater than the Bid Amount (the "**Overage**"), RES would earn the deemed long term debt rate on 100% of the Overage.

The Board should reject the incentive proposed by RES for the following reasons:

The Bid Amount

The fundamental flaw of the RES Bid Amount is that it requires the Board to determine today that the Bid Amount is the prudent amount that will ultimately form rate base. The risk is wholly transferred to the ratepayer, since RES will be compensated no matter what is spent on development or construction. However, under the traditional cost of service approach, the transmitter bears the risk to establish Project costs have been prudently incurred and to the extent a transmitter is below budget, the ratepayer wholly gains. If the transmitter is over budget, it must justify the excess. Other than the differential between the Approved ROE and long term debt costs, on an Overage, RES is isolated from the risk. The ratepayer, however, is locked into the Bid Amount. It has all the risk and no material upside. The Bid Amount is based on imperfect information and assumptions that are not fully tested or understood since development has not yet occurred. In particular, RES has not filed any evidence to prove that (i) it has considered a reasonable range of alternative designs, (ii) its recommended design represents the best value for ratepayers or (iii) its development and construction costs are reasonable.

Subtracted Amount

For the amount of the Subtracted Amount, RES seeks to earn a return on money that was not spent. In effect, this is phantom rate base. The Board has no jurisdiction in establishing rates to grant a return on a rate base that does not exist. To do so would not result in just and reasonable rates.

In Exhibit P-1-7 and its response to Board Interrogatory #16 to RES, RES presents savings to the ratepayer arising from an underage relative to the Bid Amount. However, this calculation is deceiving. The proper comparison is the result arising from traditional ratemaking. As indicated in RES's response to Interrogatory #16, the incentive treatment on the Subtracted Amount

actually results in a cost to the ratepayer under the traditional rate making approach. RES's approach is counterintuitive from the perspective of the ratepayer, since a reduction in Project costs actually results in the ratepayer paying more under RES's approach.[124] This approach does not fit within the just and reasonable rate methodology employed by the Board.

It should also be noted that the weighted cost of capital sought by RES does not include the short term debt rate which is prescribed by the Board as forming part of the Board approved weighted average cost of capital. Without the short term rate, RES is providing itself a further premium at ratepayers' expense.

Rate making principles prescribe that in setting rates, the benefit should follow the cost. Assuming there is a Subtracted Amount, the costs will have been reduced as part of a regulated activity; and, as such, the ratepayer should obtain that benefit. However, the ratepayer does not receive a benefit. Instead, the ratepayer is paying a cost for which it has not received any benefit. RES, on the other hand, has put itself ahead of the ratepayer's interest in an effort to mitigate its own risk.

Cost Overage

Based on RES's proposal, it would not face a potential loss arising from the disallowance of capital expenditures for development and construction, other than the decrease in return on the cost overage. It would not face the prospect of disallowance for imprudent expenditures. As such, its risk exposure is much less than in the circumstance of traditional rate making where the prospect of disallowance would mean that no return would be recovered if the expenditure is imprudent. As such, under its proposal RES gets all of the upside with an enhanced return at the cost of the ratepayer for any underage in costs relative to the Bid Amount, and little downside on any cost overage relative to the Bid Amount.

[124] Furthermore, EWT LP estimates the lifetime cost to ratepayers of RES's Case #3 is closer to $3.5 million than the $2.04 million quoted by RES in response to Board Interrogatory #16 to RES once tax is included.

It should also be noted that RES has under its proposal excluded the costs associated with land acquisition, Aboriginal participation and accommodation, environmental permitting costs and line costs associated with line length greater than 410 km. This is on the basis that RES has little or no control of these aspects. However, good planning will provide an ability to have cost control, particularly with respect to land acquisition and environmental and permitting costs. By excluding these from the cost overage proposal, RES has once again mitigated its own risk and ensured its own benefit at the expense of ratepayers.

Conclusion

RES's preferred technical design would be problematic given the geological formations of the Project area, and its selected conductor's attributes have been mischaracterized. RES's costs and schedule are in doubt because of uncertainty over foundation designs and timing of installation. Furthermore, RES's incentive scheme, although innovative, appears to be self-serving and contrary to rate-making principles.

B. UCT

UCT's development plan is deficient in a number of areas. In particular:

- UCT's recommendation of the double circuit "Y" structure is unproven and technically problematic;
- UCT's schedule is unreliable since it compresses the environmental assessment into a very short time period and does not take into account seasonal aspects, preliminary design work, and landowner consultation; and
- UCT has limited relevant experience developing electricity transmission in Ontario and other relevant areas of Canada, yet it has not supplemented that experience with qualified and experienced consultants.

UCT's Preferred Engineering Design Is Not Workable

UCT has proposed a double circuit "Y" tower. UCT has not provided any evidence demonstrating that its recommended design has been successfully used by either UCT or another transmitter in similar conditions to the Project, or in any conditions. This is a particular concern since the "Y" tower as described has inherent technical risks and weaknesses that render it challenging.

UCT wrote in its application:

> "A thorough internal and third party analysis of the Reference Plan resulted in the proposal of alternative structures which use Guyed-Y steel lattice (Guyed-Y) towers (the NextBridge Recommended Plan) in place of the self-supported steel-lattice towers. The use of these alternative structures reduces cost by approximately $33 million while maintaining the same performance relative to the existing self-supported steel-lattice towers…"[125]

> "NextBridge recommends a Guyed-Y tower instead of the self-supported steel-lattice tower in the Reference Plan. We outline below the key advantages of our selection of the Guyed-Y tower (with an 1192 ACSR conductor and 230 kV AC double circuit):"[126]

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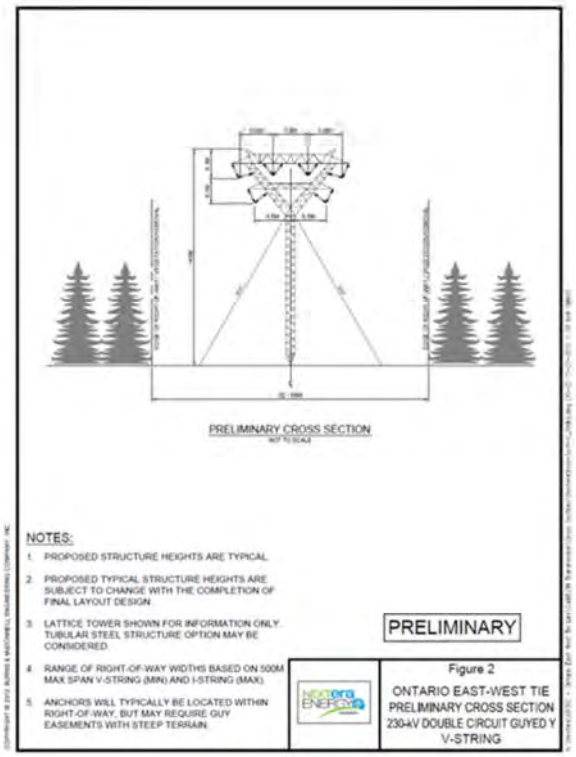
[125] UCT Application, p. 9.

[126] UCT Application, p. 92.

Figure 6 – UCT Guyed-Y Diagram[127]



EWT LP agrees with UCT's observations regarding the benefits of guyed structures for a project in the difficult terrain and harsh environment. Benefits of guyed structures include:

- lower cost;
- lighter structures, easier construction;
- less steel;
- simpler foundations;
- demonstrated performance; and
- inherent resistance to cascade failure.

[127] Figure reproduced from UCT Designation Application, Tab A13a.

Notwithstanding the benefits of a guyed structure, UCT's recommendation of a double circuit 'Y' structure is problematic.

As shown in Figure 6 above and as made clear in interrogatory responses, UCT is proposing a novel double circuit "Y" structure rather than a single circuit "Y" structure because UCT stated:

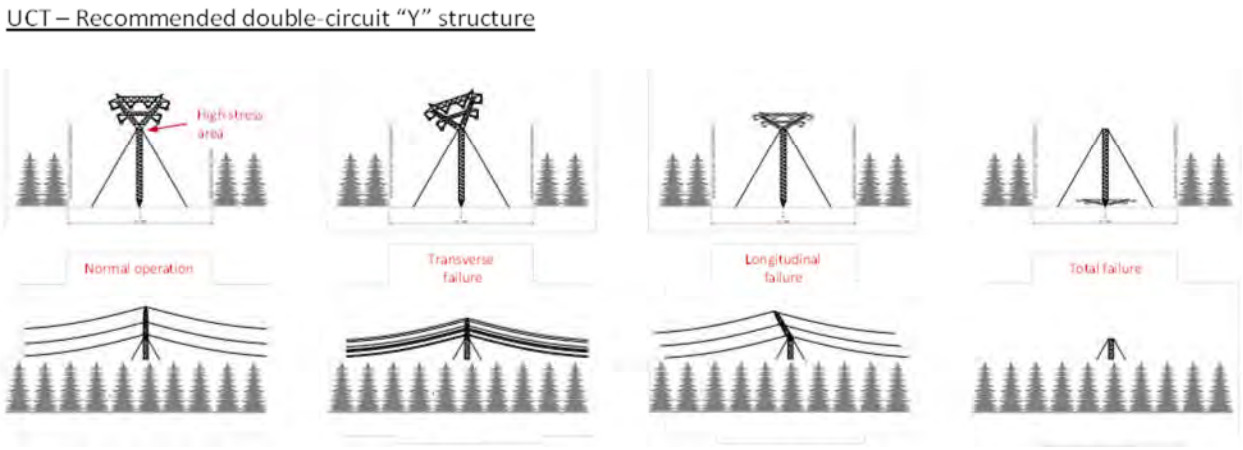
> "NextBridge has concluded that there are no benefits from a single circuit option, compared with a double circuit option."[128]

An evaluation of UCT's proposal reveals a fundamental design weakness. UCT's recommended double circuit Y-structure requires a very strong and heavy head frame to support the six conductors and two earth wires, especially for towers where 'V' insulators are used. Yet the supporting guy wires for each tower do not reach the top of the frame because in so doing they would clash with the conductors. Instead they are attached approximately two thirds up the tower where the head frame joins the main vertical trussed supporting structure (i.e. similar to where the heavy sunflower flower head joins the stalk). The tower will therefore experience high bending loads at this point (both transverse due to the design winds and longitudinally in unbalanced ice or broken wire design load cases). Strengthening the tower to resist these high bending forces in the headframe and shaft will make the tower quite heavy and expensive, but it still remains vulnerable to bending failures (see Figure 7 below).

In contrast, the guy wires in the CRS design identified for further study by EWT LP are attached to the top of each tower leg, with the result that each leg is solely in compression with no significant bending load. Similarly, for a single circuit "Y" structure design, the guys are typically attached to the body of the "Y" – lower down the headframe from the top of the structure. As a result, the bending forces are lower and the structure is reasonably stable. UCT's design has no such stability, and stability cannot be achieved since the double circuit plan prohibits affixing the guys to the top and thus providing stability.

[128] UCT Response to Board Interrogatory #21 to All Applicants, p. 2.

Figure 7 – Potential Failures of Double-Circuit "Y" Structure



UCT did not explicitly identify any limitations of its recommended design in its application, nor did it identify these technical issues as a significant Project risk. However, UCT does allude to the fundamental design limitation of its design in answer to Board Interrogatory #4 to UCT. UCT noted in its response that ASCE Manual 74 states that "…guyed-Y structures… are capable of resisting longitudinal loads and providing failure containment at a relatively low cost."[129] This is consistent with Power Engineers Inc.'s observation in EWT LP's filing that "[t]he [guyed] CRS design is inherently cascade failure resistant without risk of damage and at no added cost unlike any other tower design in the industry."[130] However, UCT goes on to note that "NextBridge's internal experts are of the view that the proposed 16 km spacing for deadend towers is consistent with good utility practice." The implication is that dead-end structures will be required in spite of the inherent resistance to cascade failure of guyed structures commonly in service. The inherent benefits of guyed structures are not realized in UCT's proposed double circuit "Y" structure design.

UCT did not provide any evidence in either its application or its response to Board Interrogatory #15 to All Applicants that it had experience owning and operating the recommended double circuit "Y" structure in terrain and conditions similar to Northern Ontario. Furthermore, UCT

[129] UCT Response to Board Interrogatory #4 to UCT, p. 2.
[130] EWT LP Designation Application, Appendix 6D - CRS Report, p. 8.

did not provide any evidence of another transmitter having experience owning and operating the recommended double circuit "Y" structure under the same terrain and conditions as the Project, or any other conditions. UCT did not provide any evidence that its recommended design had ever been successfully constructed. Although UCT is recommending a double circuit Y-frame structure, all the towers referred to in its response to Interrogatory #15 appear to be conventional single circuit 3-conductor AC or 2-conductor DC guyed 'Y' structures. As discussed above, these structures would be expected to have quite different mechanical performance.

Notwithstanding that UCT is endorsing the use of double circuit "Y" structures, it has not presented the results of a thorough analysis. In contrast, EWT LP filed as part of its application a comprehensive report detailing the advantages and disadvantages of the CRS design, and evidence of its successful use since the early 1970's in terrain and conditions similar to the Project. However, unlike UCT, EWT LP is at this time only recommending the design as one alternative for further evaluation with stakeholders including the IESO and OPA. EWT LP is not recommending its adoption in the absence of such a detailed and thorough evaluation.

UCT's Schedule is Unreliable

UCT's development schedule is short, with little time set aside to complete key activities.

Although UCT's application was lengthy overall, the central analysis and substantiation for the propositions made are very brief. UCT has provided no explanation of the unique methodologies it intends to employ to achieve its schedule and plan. Nor has it shown how the risks associated with its schedule will be mitigated. Schedule delays are likely to result in cost overruns.

UCT has not Accounted for Start-up Tasks

UCT has assumed it will start work immediately on designation. However, this is unlikely, especially as the initial work involves a number of specialized tasks that will require staff and contractors with the appropriate knowledge of Ontario who may not yet have been appointed. These tasks include:

- Land acquisition – develop scope;
- Stage 1 archaeological studies;
- Social-economic studies;
- Pre-consultation with federal agencies; and
- Bid and award engineering contract.

These Project specific tasks are in addition to the generic Project start-up tasks including preparing budgets, putting in place cost management and approval processes, updating websites, preparing consultation materials, finalizing the Project schedule, preparing initial work instructions, starting risk and communications logs, etc. Based on UCT's schedule, these start-up activities have not been identified or accounted for and, as such, UCT's start date is unlikely to occur resulting in schedule delay.

UCT's schedule for completing an environmental assessment is problematic

UCT plans to complete development work and submit its environmental assessment to the MOE within 17 months. UCT will file its application for leave to construct one month later. This schedule is very short.

The MOE advises that it usually takes 21 to 36 months to prepare and file an environmental assessment. This includes the preparation and approval of the ToR and associated public consultation.[131] The time required depends on the scale and complexity of the proposal, the availability of information and the level of public interest.

EWT LP has reviewed the transmitters' plans in order to produce the following table:

[131] Preparation of the ToR, which provides a list of the studies to be undertaken, typically takes 6–9 months. The timeline for the Minister's review and approval of the ToR is set by O. Reg. 616/98 and is up to 12 weeks or longer if necessary. Completion of the environmental assessment as described in the ToR and the preparation of the report typically takes 12 – 24 months. See MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (October 2009), p. 8; and MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

	Schedule for submitting a completed environmental assessment to the Minister for approval
AOLP	16 months
UCT	17 months
Ministry guidance	**21 – 36 months**
EWT LP	23 – 31 months
I/TC	29 months
RES	31 months
CNP	41 months

Both AOLP and UCT have proposed schedules that are not only noticeably shorter than those proposed by other transmitters but are also significantly shorter than the Ministry's guidance for projects subject to the provincial environmental assessment process, including for example small landfills or public gardens.

UCT's schedule provides little time to complete a number of key activities. For example, UCT has only allowed 6 months from the MOE's approval of the ToR to prepare and submit its environmental assessment report. This compares to the 12 to 24 months typically required by proponents to prepare and submit an EA as stated in the Code of Practice for Preparing and Reviewing Environmental Assessments in Ontario.[132] Similarly, UCT has allowed only two months for stakeholders to review UCT's draft environmental assessment. This seems too short a period for stakeholders to review volumes of complex scientific data and provide detailed feedback, and for UCT to complete any additional studies identified from this review and revise its report.

[132] MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

Overall, UCT has not provided in its two page summary of major steps in environmental assessment[133] the detail necessary to understand the innovative approaches it will pursue to reduce the time taken to complete a provincial environmental assessment by 50%.

UCT Undertakes a Risky Strategy on the Terms of Reference ("ToR")

The sequence for undertaking environmental assessments in Ontario, as noted in the Code of Practice, is for the proponent to first prepare the ToR for the environmental assessment and submit them to the Minister for review and approval. The ToR identifies the studies the proponent is required to complete during its environmental assessment. Once the terms are approved, the proponent completes the studies, prepares the final report and submits it to the Minister for public review and approval.

UCT intends to complete its environmental studies at the same time it is preparing the ToR. This approach has a number of risks:

- The Minister's review may identify additional studies or a different study area. UCT's development work will be delayed until such time as these studies can be completed. If they relate to ecological events, development could be delayed by up to twelve months.

- The *Environmental Assessment Act* requires UCT to consult with such persons as may be interested when preparing its ToR.[134] The Code of Practice suggests that consultation is a process "to improve project design before implementation."[135] UCT is planning to complete its environmental studies by October 30, 2013,[136] even before it has finished consultation on the ToR on November 6, 2013.[137] Stakeholders may question whether consultation has been meaningful.

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133 UCT Designation Application, Appendix 17 - Major Steps in Environmental Assessment.

134 EAA, s. 5.1.

135 MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Consultation in Ontario's Environmental Assessment Process* (June 2007), p. 4.

136 UCT Designation Application, Appendix 15, PROVEA1050, Natural Heritage Field Surveys, Fall (Finish 30-Oct-13).

137 UCT Designation Application, Appendix 15, PROVEA1060, EA ToR Consultation and EA ToR Finalization (Finish 06-Nov-13).

UCT has not identified the following as schedule risks. Because the risks are not acknowledged by UCT, there is no corresponding mitigation or "slack" in its schedule. The unidentified schedule risks include:

- The ToR for the environmental assessment cannot be filed by the proposed date;
- The MOE does not approve the ToR by the proposed date;
- Local community does not support the terms or reference and/or route as initially proposed, especially if they believe consultation has not been meaningfully pursued;
- Revision of the ToR or the proposed route are necessary;
- The requirement to complete archaeological assessments extends beyond the timelines currently proposed.

UCT's approach to completing the environmental assessment, which will be important for finalizing the design and route of the new line, contains a number of significant risks that have been neither identified nor mitigated.

UCT Does Not Take Into Account Seasonal Aspects

UCT's schedule is predicated on being designated April 26, 2013. It seems unlikely a transmitter will have been designated by this date.[138] UCT did not identify the accuracy of this key assumption as one of its three development-specific risks.[139] As such, UCT has not provided any indication of how its development schedule will be affected when it is not designated on April 26, 2013. As discussed in Section IV below, a delayed designation decision will not necessarily result in a day-for-day delay in the field studies, as certain field studies can only be completed at certain times of the year.

UCT has specified an unlikely designation date and has not accounted for a potential change in this date in its schedule. There is no evidence as to how UCT would reset its schedule in the

[138] See Ontario Energy Board, EB-2011-0140, Procedural Order No. 6 (March 4, 2013), p. 4 ("Any applicant that wishes to file a reply argument shall file that submission with the Board and copy it to all parties on or before May 30, 2013.").

[139] UCT Designation Application, Figure 19, p. 103.

event of a delay in designation. In contrast, EWT LP recognized this issue as a risk[140] and has sufficient flexibility in its schedule to still complete development within its conservative schedule.[141]

As noted in Section IV below in response to Board staff's submissions, switching the start date to correspond to the date the Board designates a transmitter will not correct the issue with UCT's schedule or any other schedule. This is because the development schedule, particularly the schedule relating to the environmental schedule, has a particular sequence of tasks related to a full year seasonal cycle. Starting in the midst of a season may mean that a full year is not available, and delay will consequently occur because certain studies must be completed in certain seasons. For example, trout spawning studies can only be performed when trout are spawning, i.e. typically May to June depending on water temperature; breeding bird studies in June and July when the birds are in their territory; and amphibian studies in May to mid-June. A prudent approach would have been to build this into the schedule by selecting a realistic designation date and providing flexibility in the schedule to assist in staying on time and budget.

UCT's schedule assumes the spring and summer natural heritage field surveys will start July 23, 2013. This start date will miss the ecologically rich spring study period of April to June. These studies will therefore need to be rescheduled for spring 2014, and this will affect UCT's overall development schedule. Because of the interrelationship between cost and schedule, this scheduling delay will likely negatively impact costs.

UCT Begins its Studies Without Preliminary Design Work

A preliminary engineering design is connected to the commencement of the environmental assessment. Simply put, without such engineering, a proponent has no idea what is being assessed. For example, what is the approximate number of structures? What are the foundations to be used? Will there be blasting or digging? Are there shorter spans requiring a greater number of access roads? UCT intends to start the environmental assessment without first having

[140] EWT LP Designation Application, Exhibit 7, p. 24.

[141] See EWT LP Argument in Chief, Section II-B, pp. 27-28.

appointed an engineer to complete the initial basic engineering studies. Prior to the environmental assessment, clarification of the integral aspects of the Project's design will be required. This will take time. However, there is no allowance for this in UCT's schedule.

UCT plans to "bid and award engineering contractor" by July 23, 2013.[142] It is not apparent how UCT will be ready to start "natural heritage field surveys" on July 23, 2013[143] given that the engineer will not at that time have been appointed to do preliminary design work to determine what studies are required. As noted, without having completed this preliminary design work, it is not clear how UCT will know where the line is to be built and therefore where in the Project area survey consents will be required. The explanation of how UCT's various development work comes together as a single logical plan is missing. A lack of specialist engineering capacity at the time of designation is a risk that UCT has neither identified nor mitigated.

UCT's Schedule Does Not Account for Landowner Consultation

UCT is proposing to acquire survey consents between July 1 and July 23, 2013.[144] Consultation does not start until September 5, 2013.[145] For many land owners, UCT's request for access to undertake field studies for a new electricity transmission line may therefore be the first time they have heard about the proposed new line across their land.

Furthermore, much of the route will likely cross Crown land. The transmitter will therefore need to work closely with MNR, which manages Crown lands. According to MNR's own processes, "… proponents of electricity sector projects … are required to fulfill their *EA Act* requirements before coming to MNR to apply for dispositions such as: … an easement…"[146] Based on UCT's

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[142] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, A1070, Bid and Award Engineering Contractor (Finish 23-Jul-13).

[143] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1030, Natural Heritage Field Surveys, Spring and Summer (Start 23-Jul-13).

[144] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, LND1060, Survey Consents for Spring and Summer (01-Jul-13 to 23-Jul-13).

[145] UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1060, EA ToR Consultation and EA ToR Report Finalization (Start 05-Sep-13).

[146] MNR, *A Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects* (2003),

schedule, UCT's application to MNR in early July 2013 for survey access is the first time UCT will formally approach MNR. MNR may wish to consult with existing rights holders, including Aboriginal groups and forestry companies, and with other agencies including the Ontario Power Authority. This will allow the MNR to better understand the Project and its importance, and to complete internal studies of its own to understand which Crown lands may be affected, before responding. Or MNR staff may simply have limited availability due to commitments to other priority provincial projects. UCT's proposed schedule is not robust against these risks. UCT has not scheduled any time to meet with MNR to discuss the Project and ensure the availability of appropriate MNR resources.

UCT's schedule contains omissions

UCT has recommended the use of guyed 'Y' structures. No allowance has been made in UCT's schedule for the OPA and IESO to analyze and comment on the suitability of these structures and their impact on system reliability. UCT has not planned for the evaluation of a range of alternatives to determine the most cost effective, technically proficient alternative for meeting the needs identified by the OPA. These studies will be required to support its future application for leave to construct.

With respect to UCT's construction schedule, UCT has assumed that its application for leave to construct can be heard and a decision made in 5 months and 3 weeks, which includes the winter holiday season. This is an aggressive schedule given the physical size of the Project and the amount of land that will be affected; the importance of the Project to securing long-term supply reliability in northwestern Ontario; the cost of the Project to ratepayers; and the interest that ratepayers, local communities and Aboriginal groups have already expressed in this Project. EWT LP has reviewed the sixteen applications for leave to construct submitted since 2003. Of the five applications made by public transmitters for new lines longer than 50 km, the average

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<http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@lueps/documents/document/245471.pdf>, s. 2.6.2, pp. 13-14.

elapsed time between submission of an application and its approval was 10.4 months, the application for the Bruce to Milton project having taken 23 months.

Consultation

UCT Has Not Filed a Detailed Consultation Plan

The Board's filing requirements require transmitters to file "a landowner, municipal and community consultation plan for the line".[147] UCT has not filed a detailed plan as required by the Board. Its proposed consultation activities are superficial. There is a clear concern that UCT does not take seriously the need to build public acceptance and the benefit that consultation can bring to furthering Project development.

UCT has provided a one page description of its consultation plan which refers to the implementation of a "Public Involvement Program" the purpose of which is "…to build public awareness and understanding, gather stakeholder input, answer questions, learn about community interests and perspectives and, where feasible, implement changes to Project design or scope to minimize adverse impacts."[148] However, UCT did not file a Project-specific Public Involvement Program. UCT provided no evidence either to demonstrate the existence of such a document or to describe how it would be developed. Indeed, UCT wrote "…a consultation program <u>will</u> be designed to enable effective and meaningful engagement with these stakeholder groups."[149] In contrast, EWT LP prepared and filed a comprehensive 32-page communication and consultation plan.[150]

UCT provided a table of the landowner, municipal and community stakeholders it plans to consult.[151] The table was less than one page and many of the consultees identified were generic,

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147 Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), Appendix A - Filing Requirements for Designation Applications, Requirement #9.2.

148 UCT Designation Application, p. 132.

149 UCT Designation Application, p. 133, Figure 28 [emphasis added].

150 See EWT LP Designation Application, Appendix 10A - First Nations, Métis and Public Consultation Plan.

151 UCT Designation Application, Figure 27, p. 131.

e.g. "Tourism Associations and Operators". Although UCT listed "specific" and "additional" townships with which to consult, some townships identified are unorganized. UCT did not explain how it proposed to consult with a township that has no organized basis with which to consult. This suggests the list is nothing more than a list of township names taken from a map without further analysis as to consultation. In contrast, in order to properly scope and budget for its consultation activities, EWT LP prepared and filed a 28-page list of consultees.[152]

UCT's Consultation is inadequate

UCT wrote that one purpose of its consultation activities will be to "…gather stakeholder input …. and, where feasible, implement changes to Project design or scope to minimize adverse impacts".[153] However, the public consultation described in UCT's schedule is narrowly focused on meeting the literal requirements of the environmental assessment, and not in soliciting broader stakeholder input as to the design and route of the line or the methodology and criteria for their selection. UCT contemplates only two series of Community Open Houses – one during the first six months of the project development phase (June – Nov 2013) and one in advance of construction beginning (January – June 2015).[154] This provides little opportunity for stakeholders to influence the design or scope of the Project.[155]

Furthermore, UCT's two rounds of consultation as set out in Appendix 15 only just meet the statutory minimum under Ontario's *Environmental Assessment Act*, i.e. that the proponent must consult during both the ToR and study phases of the environmental assessment. As already noted, the consultation related to the ToR will have limited meaning since the studies will be done before the ToR are filed. Other transmitters including EWT LP, have allowed for up to five

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[152] See EWT LP Designation Application, Appendix 9B - Potential Consultees.

[153] UCT Designation Application, p. 132.

[154] UCT Designation Application, Figure 28, p. 133.

[155] See UCT Designation Application, Appendix 15 - NextBridge Project Execution Chart, PROVEA1030, Natural Heritage Field Surveys, Spring and Summer (23-Jul-13 to 14-Nov-13); PROVEA1050, Natural Heritage Field Surveys, Fall (04-Sep-13 to 30-Oct-13); and PROVEA1080, Assess and Evaluate Alternatives (06-Nov-13 to 27-Feb-14).

rounds of public consultation to ensure that all issues are identified and appropriately incorporated during the development phase.

UCT has made no allowance in its schedule or budget for:

- Additional consultation requested by agencies or the public to address specific issues;
- Additional consultation to resolve disputes;
- Repeating studies and analysis to incorporate ideas or issues identified through consultation.

Nor has UCT provided any details on how consultation on route refinements and additional studies would be undertaken and how this consultation would affect its schedule and budget. In contrast, EWT LP provided a comprehensive plan of how it intends to work with all interested stakeholders to identify the preferred route; and furthermore, identified opportunities to accelerate development work and reduce costs for ratepayers.

It is important to consider consultation and the plan for consultation in the correct context, especially if additional consultation is required because issues such as those noted above occur. Unlike a generation project, which is affecting a compact and reasonably well defined area, the Project stretches over 400 km and affects a number of stakeholders and communities. Additional consultation, in the case of the Project, may include open houses and other outreach in a number of communities, with additional issues and logistical concerns that take time, cost money and cause delay. UCT has not considered any of these risks or placed any importance on legitimate stakeholder concerns that may arise from the process.

UCT's 'decide, tell, defend' approach to consultation, in comparison with the 'listen, analyze, decide' approach adopted by EWT LP, is inconsistent with the Ministry's Code of Practice and with UCT's own description of what consultation should entail.[156]

[156] See UCT Designation Application, p. 132 (UCT notes that the purpose of its Public Involvement Program, the first set in its consultation plan, is "to build public awareness and understanding, gather stakeholder input,

UCT has not demonstrated in its schedule the opportunity for stakeholder engagement necessary to build the broad-based public support for a major infrastructure project such as the East-West Tie. UCT did not provide a proper consultation plan as required by the Board, and its approach contains a number of significant risks that UCT has neither identified nor mitigated.

UCT Does Not Have Sufficient Capacity

Team Capacity

The Project is a significant infrastructure investment for the province of Ontario, and when completed, will form a critical part of the provincial electricity transmission system. EWT LP estimates the Project will require in excess of 100,000 employee-hours of work to complete.[157] Few transmitters have either the capacity or the expert skills necessary to undertake a project of this magnitude, especially in a jurisdiction outside their normal operations, without engaging external consultants. Moreover, it is not usually cost-effective to rely entirely on internal resources.

Based on all of the applications, EWT LP has created a table of the external resources each transmitter has engaged to develop the Project.

As can be clearly seen in the chart below, UCT has not engaged any external resources to assist during development even though neither UCT nor its partners are Canadian electricity transmitters with any experience developing major public electricity transmission lines in Ontario or northern Canada.

Transmitter \ Resource	Engineering	Environmental	Public consultation	Land acquisition
AOLP	SNC Lavalin[158]	SNC Lavalin	SNC Lavalin	None

answer questions, learn about community interests and perspectives and, where feasible, implement changes to Project design or scope to minimize adverse impacts.")

[157] Approximate development budget - $20 million and average labour rate - $200/hr, assuming Project is almost entirely labour and no material purchases are required during the development phase.

[158] SNC Lavalin owns AOLP. See AOLP Designation Application, p. A-1. AOLP has not demonstrated why self-sole-sourcing is in the interest of ratepayers.

Transmitter \ Resource	Engineering	Environmental	Public consultation	Land acquisition
CNP	Neegan Burnside / TRC Engineers	Neegan Burnside / Northern Bioscience	Hardy Stevenson	None
EWT	Power Engineers Inc.	AECOM	Shared Value Solutions	Altus Group
I/TC	Isolux Ingeniería	Golder Associates, KP Environmental	None	None
RES	None	Stantec	Campbell Strategies Inc.	None
UCT	None	None	None	None[159]

UCT notes that "[f]rom past projects, the NextBridge partners have learned that having robust resource capacity at this first stage of the Project lifecycle will help to ensure the longer-term success of the Project."[160] However, UCT has not engaged the necessary consultants prior to preparing and submitting its plan for Project development. In particular, although UCT explicitly recognizes the importance of having sufficient engineering resources,[161] it has not yet engaged an owners' engineer to help design the Project. Similarly, UCT acknowledges the environmental assessment is a critical path activity in the development phase,[162] but has not engaged specialist resources familiar with completing environmental assessments in Ontario to undertake the work.

UCT's aggressive schedule assumes that UCT will start work immediately on designation. Yet UCT has not engaged any of the external capacity necessary to develop a project of this scope and scale. In particular, and in contrast to EWT LP, UCT has not engaged local consultants with the skills and knowledge to help develop reasonable cost and time estimates. UCT has not provided any evidence to demonstrate why its approach is workable, nor why it is in the best interest of ratepayers.

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[159] UCT Designation Application, p. 28 ("NextBridge will engage local agents under the direction of its Land Acquisition Lead to assist in working with affected landowners.").

[160] UCT Designation Application, p. 27 [emphasis added].

[161] UCT Designation Application, p. 27 ("Engineering resources will be required to develop the Project to the point where a leave to construct application can be brought before the OEB.").

[162] UCT Designation Application, p. 27 ("the Project will require a full environmental assessment (EA). This process is a critical path activity in the development phase. Therefore, we will be contracting third parties to support this work.").

First Nation and Métis Consultation

In its Phase 1 decision, the Board recognized that "…First Nation and Métis consultation is unique in being a constitutional obligation on the Crown, certain aspects of which may be delegated to the designated transmitter. Applicants will be required demonstrate their ability to conduct successful consultations with First Nation and Métis communities, as may be delegated by the Crown, by providing a plan for such consultations, and evidence of their experience in conducting such consultations."[163]

In the Board's sixth procedural order, the Board noted that the purpose of interrogatories was not to provide "… opportunities for transmitters to fill any gaps in their applications or to modify or enhance their proposals."[164]

In its response to Board Interrogatory #5 to All Applicants, UCT stated that it "… will engage day-to-day assistance using a combination of NextBridge internal staff and a suite of well-regarded and experienced consultants retained from among the following organizations" and listed five small specialized consulting firms.[165] None of these consultants were mentioned in UCT's designation application filed with the Board on January 4, 2013.[166] This information should be disregarded. UCT has attempted to fill a gap in its application relating to its capacity to undertake the designated aspects of the Crown's duty to consult with First Nations and Métis communities. In any event, despite its discussions with these consultants, nothing in UCT's interrogatory response suggests that it has secured the necessary capacity to undertake this critical development work. From UCT's response, the consultants have only expressed an interest in working with UCT. There is no clarity as to personal availability, any conflicts of interest or the settlement of commercial terms.

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[163] Ontario Energy Board, Phase 1 Decision and Order (July 12, 2012), p. 8.

[164] Ontario Energy Board, EB-2011-0140, Procedural Order No. 6 (March 4, 2013), p. 2.

[165] UCT Response to Board Interrogatory #5 to All Applicants, pp. 1-2.

[166] See UCT Designation Application.

It is therefore, necessary, in the absence of having secured competent external resources, to consider UCT's own internal experience in fulfilling the delegated aspects of the Crown's duty to consult.

In its application, UCT offered the Greenwich Wind Energy Project as any example of a First Nation community engagement success story.[167] Yet in RES's application, RES claimed exactly the same experience.[168] EWT LP notes that the OPA awarded a RES III contract for the project to Renewable Energy Systems Canada in January 2009.[169]

Although UCT offered one "example of First Nation and Métis community engagement success stories"[170] for NextEra relating to a generation project, UCT did not explain how this experience would be accessible to UCT without infringing the requirements of the ARC.

Land Acquisition, Permitting and Consultation

UCT has not demonstrated it has the experience relevant to Ontario to permit an overhead transmission line in terrain similar to the Project area.

UCT stated in its application that land acquisition, environment and permitting and community relations will be led by staff from Enbridge Pipelines Inc. These employees are located in Calgary and Edmonton, Alberta. Enbridge Pipelines Inc. owns and operates crude oil and liquid pipeline systems. Although there are similarities between permitting linear underground utilities, including pipelines and cables, and linear above ground utilities such as overhead electricity transmission lines, there are also significant differences. There are also important differences between permitting and constructing electricity transmission lines across relatively flat, arable

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[167] UCT Designation Application, pp. 155-156.

[168] RES Application, Exhibit B, Tab 1, Schedule 1, p. 24, lines 3-8 ("Based on the Applicant's previous experience, including constructing two major electricity infrastructure projects in Ontario (the Greenwich Wind Farm and the Talbot Wind Farm), the Applicant has assembled an experienced and skilled First Nation and Métis consultation team with former Grand Council Chief John Beaucage as First Nation and Métis Special Advisor.").

[169] OPA, "New Green Energy projects generate more green jobs" (January 23, 2009), <http://www.powerauthority.on.ca/news/new-green-energy-projects-generate-more-green-jobs>.

[170] UCT Designation Application, p. 156.

areas such as Texas and Alberta, and the rocky, hilly wooded terrain that makes up the Project area. UCT's experience as stated in its application relates primarily to work with underground pipelines and in relatively flat arable areas.

In contrast, EWT LP's land acquisition, environmental permitting and public consultation teams are all based in Ontario and all have substantial experience acquiring land, conducting consultations and leading environmental studies in terrain and conditions similar to the Project. Furthermore, the six Participating First Nations in EWT LP's partner, BLP, have lived in the Project area for many, many generations and have an unparalleled knowledge of the Project area.

UCT's Bonus Scheme is Self-Serving

UCT's proposed bonus scheme is not advantageous to ratepayers.

In Section 5.4 of its application, UCT proposed a bonus scheme whereby UCT would receive an adder of 100bps on the Board allowed return on equity in reward for reducing construction capital costs by 10% from $600 million to $540 million. UCT noted that this would generate revenue requirement savings for ratepayers of almost 5%.

UCT has not explained how this bonus scheme would benefit ratepayers. Under traditional cost of service, if the prudent cost was found to be $540 million rather than the initial estimate of $600 million, then the rate base would be only $540 million and result in a revenue requirement in part based on this lower value. The status quo regime would therefore have resulted in an up-front saving to ratepayers in excess of $60 million or 10%[171] rather than a saving of 'almost 5%' achieved under UCT's bonus scheme. For example, the bonus scheme earned UCT's owners a bonus of over 5% according to UCT's own calculation compared to traditional cost-of-service rate making. Such a bonus scheme allows UCT to capture in excess of 50% of any upside.

[171] The revenue requirement saving to ratepayers of reducing capital costs by $60 million is greater than $60 million because ratepayers will also benefit from not having to pay the cost of capital on the $60 million capital cost saving and associated corporate income tax.

Under rate regulation, the addition of basis points to return on equity typically relates to risk and not as an inducement.[172] All licensed transmitters share the obligations to act prudently and are expected to act in a cost efficient and effective manner.

UCT did not provide any evidence as to why it would not be able to realize construction cost savings typically realized by licensed transmitters unless it were granted some sort of incentive payment.

Conclusion

UCT has not proposed a credible development plan. Its recommended engineering design raises serious technical and cost concerns. It has proposed a short schedule that provides little time to complete the ToR and does not fully account for seasonality in its environmental assessment. In addition, UCT has not developed a detailed consultation plan. Finally, UCT has not demonstrated it has engaged the necessary resources to deliver the Project.

[172] Ontario Energy Board, EB-2009-0152, *Report of the Board - The Regulatory Treatment of Infrastructure Investment in connection with the Rate-regulated Activities of Distributors and Transmitters in Ontario* (January 15, 2010), <http://www.ontarioenergyboard.ca/OEB/_Documents/EB-2009-0152/Board_Report_Infrastructure_Investment_20100115.pdf>, s. 3.2.4, pp. 17-18.

C. AOLP

There are significant shortcomings in AOLP's designation application that raise questions about whether AOLP has the ability to develop the Project on time and on budget. In particular, AOLP:

- has proposed a development schedule that will be difficult to achieve ;
- has not provided a comprehensive land acquisition strategy with its development plan;
- has inadequate plans to consult with the public and Aboriginal communities;
- has not identified and developed sufficient mitigation measures to address key development risks;
- has proposed development and construction cost estimates that appear unreasonable;
- does not provide evidence on how it will comply with the ARC; and
- has not demonstrated sufficient experience relevant to Ontario.

Because of these shortcomings, AOLP's development plan is likely to result in schedule and cost overruns and public opposition to the Project. As a result, AOLP's development plan is unlikely to meet the Board's objective of designating a transmitter that can develop the Project in a cost-effective and timely way.

AOLP has proposed a development schedule that will be difficult to achieve

AOLP has proposed a development schedule that will be difficult to achieve. In particular, AOLP's development schedule[173] contains a number of challenges:

- Both AOLP and UCT have proposed schedules that are noticeably shorter than those proposed by other transmitters, and that are also significantly shorter than the Ministry's guidance. AOLP plans to formally submit its ToR to the MOE as early as July 2, 2013. Assuming designation on April 30, this would allow two months for AOLP to complete the consultation required by the *Environmental Assessment Act*.[174] AOLP did not provide

[173] AOLP Designation Application, Appendix 16.

[174] EAA, s. 5.1 ("When preparing proposed terms of reference and an environmental assessment, the proponent shall consult with such persons as may be interested".).

a detailed plan showing how it would be able to complete consultation activities in this time.

- There is an inconsistency within AOLP's application as to the timetable for submitting the ToR. In Appendix 16, AOLP states that the ToR will be submitted between July 2 and August 30, 2013.[175] Yet AOLP's consultants, SNC Lavalin, state in their draft ToR that formal submission of the ToR will occur between August 2013 and October 2013.[176] AOLP did not indicate which of these proposed schedules was correct. The two month difference between the two schedules is significant given AOLP's proposed 16 month overall development schedule.

- AOLP's schedule for preparing their ToR is also inconsistent with the Ministry Code of Practice. According to the Code of Practice, proponents typically require 6 - 9 months to complete the consultation and studies necessary to prepare and submit their ToR.[177] Yet AOLP's plan would take as little as two months. Although the preparation of a draft ToR as part of their designation application will slightly accelerate the time line, the document is relatively generic at present and lacks any stakeholder input. It seems unlikely that AOLP's desktop ToR would accelerate the ToR process significantly given that the majority of the work in preparing the ToR – including meeting and consulting with stakeholders – can only be started after designation.

- AOLP has assumed that the Minister of the Environment will review and approve the ToR in as little as 42 working days. The regulations allow the Minister up to 12 weeks to complete the review, and also allow the Minister to extend the review time if necessary.[178] EWT LP's experience, with input from its Ontario-based environmental consultants who have extensive experience permitting linear infrastructure in Ontario, is that the elapsed time for the approval of a ToR often exceeds 12 weeks. For example, the MOE required 8 months to review the ToR for Bruce to Milton, and the Board did not proceed with the oral phase of the Bruce to Milton leave to construct proceeding until the ToR were approved.[179] AOLP also did not explain how completing the preparation of the ToR in as little as two months rather than the 6 – 9 months usually needed by proponents would enable the Minister to approve the ToR so quickly. Indeed, the early submission of the ToR, without significant time for meaningful consultation, would seem more likely to

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[175] AOLP Designation Application, Appendix 16, p. 2, EA104, Formal submission of ToR (02-Jul-13 to 30-Aug-13).

[176] AOLP Designation Application, Appendix 13, p. 17.

[177] MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (October 2009), p. 8.

[178] O. Reg. 616/98.

[179] See MOE, Bruce to Milton Transmission Reinforcement Project - Terms of Reference, <http://www.ene.gov.on.ca/environment/en/industry/assessment_and_approvals/environmental_assessments/projects/STDPROD_082721.html?page=2> ("Date Submitted: August 3, 2007 … Decision Date: April 4, 2008"); and Ontario Energy Board, EB-2007-0050, Decision and Order (September 15, 2008), s. 2.3.4.

increase the time the Minister requires for proper public review, and also significantly increases the risk that the Minister rejects the ToR.

- AOLP is assuming the Minister will complete the review and approval of AOLP's ToR as early as September 30, 2013.[180] Yet AOLP is proposing to complete environmental field studies by June 30, 2014. There is clearly a risk that the Minister could, when approving the ToR, identify additional studies for AOLP to complete or change the area of study either by enlarging it or including new areas. If the Minister identifies additional studies that can only be undertaken in, for example, August, then AOLP would need to amend its schedule to carry out the additional field studies in August 2014. This would extend and delay AOLP's Project schedule.

- AOLP plans to submit its completed environmental assessment for the Minister's review and approval by July 2, 2014.[181] Yet AOLP's consultant SNC Lavalin proposes to file the same document in draft August 2014 and formally October 2014.[182] The lack of consistency between AOLP's plan and those of its consultants, SNC Lavalin, undermines the credibility of AOLP's plan, its aggressive 16 month schedule and its development budget.

- If AOLP submits its draft environmental assessment in July 2014, as per AOLP's plan, then it will have taken approximately 15 months from designation (assuming an April 30, 2013 designation). This is questionable. The MOE advises that it usually takes 21 to 36 months to prepare and file an environmental assessment. This includes the preparation and approval of the ToR and associated public consultation.[183] The time required depends on the scale and complexity of the proposal, the availability of information and the level of public interest. EWT LP has reviewed the transmitters' plans in order to produce the following table:

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[180] AOLP Designation Application, Appendix 16, p. 2, EA106, Ministry of Environment makes decision on ToR (Finish 30-Sep-13).

[181] AOLP Designation Application, Appendix 16, p. 2, EA109, Formal IEA submission for government and public review (Start 02-Sep-14).

[182] AOLP Designation Application, Appendix 13, p. 17.

[183] Preparation of the ToR, which provides a list of the studies to be undertaken, typically takes 6–9 months. The timeline for the Minister's review and approval of the ToR is set by O. Reg. 616/98 and is up to 12 weeks or longer if necessary. Completion of the environmental assessment as described in the ToR and the preparation of the report typically takes 12 – 24 months. See MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (October 2009), p. 8; and MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Preparing and Reviewing Environmental Assessments in Ontario* (October 2009), p. 13.

	Schedule for submitting a completed environmental assessment to the Minister for approval
AOLP	16 months
UCT	17 months
Ministry guidance	**21 – 36 months**
ELP	23 – 31 months
I/TC	29 months
RES	31 months
CNP	41 months

- Both AOLP and UCT have proposed schedules that are not only noticeably shorter than those proposed by other transmitters but are also significantly shorter than the Ministry's guidance. AOLP has not provided an explanation to understand how it intends to reduce the time taken to complete a provincial environmental assessment by 50%.

- AOLP's Gantt chart in Appendix 16 does not provide any explanation of how AOLP proposes to schedule the essential development work leading up to an application for leave to construct, including:

    - IESO system impact assessment;
    - HONI connection assessment and negotiation of an interconnection agreement;
    - Economic evaluation of alternatives;
    - Selection, evaluation and agreement of routing criteria;
    - Evaluation of routing alternatives, especially with Aboriginal communities and landowners;
    - The Crown land rights acquisition process;
    - The delegated aspects of the Crown's duty to consult; or
    - Discussions with land rights owners, especially with respect to the terms for the acquisition of land rights.

- AOLP's plan is to start development activities including public consultation, First Nation and Métis consultation and environmental field studies on April 1, 2013. This will not be possible because AOLP assumes the Board will not designate a transmitter until April 30, 2013.

- AOLP is planning to start environmental field studies -- which will require landowners and government agencies such as the Ministry of Natural Resources to grant permission to access their lands -- prior to starting consultation with land owners about the route of the line, or with stakeholders (including First Nations and Métis communities and government agencies) about either the route or proposed design of the line.

- AOLP only identified seven high-level, relatively generic development and construction risks in Table 7.2-1 of its application,[184] whereas EWT LP identified 22 development schedule risks alone. Moreover, although AOLP identified "Delayed Regulatory Approvals" as a somewhat likely high level risk in its table, AOLP did not explicitly identify the rejection of its ToR as a significant risk and has not proposed either any mitigation to reduce the risk from somewhat likely, nor to explain how its development plan would be affected were the ToR to be rejected.

Ultimately, AOLP's development plan is premised on a number of assumptions about how fast AOLP will be able to navigate Ontario's regulatory process. Because of the sensitivity and connectedness of AOLP's development schedule to Ontario's environmental assessment process, replacing AOLP's aggressive assumptions with more prudent and realistic values can and will have a material impact on the date by which AOLP will be ready to submit an application for the Board's leave to construct. This creates a high degree of uncertainty for regulatory agencies and ratepayers about when AOLP will have completed development, and when it will be ready to start construction.

AOLP has failed to incorporate a comprehensive land acquisition strategy into its development plan

The Board's filing guidelines required transmitters to provide the applicant's plan for obtaining right of way and the land rights necessary for the new line. AOLP has not done so. Neither AOLP's schedule nor its development budget can be fully relied upon in the absence of a substantive plan for the acquisition of land rights.

[184] AOLP Designation Application, Table 7.2-1 East-West Tie Line Schedule and Cost Risk Assessment, p. B-103.

AOLP's timeline for establishing the Project route and for acquiring the necessary land rights are problematic. AOLP's development schedule does not explicitly identify when land right acquisition or routing activities will occur.[185] It is also unclear how much time AOLP has allocated for public consultation before the Project route and line design are finalized. As mentioned above, AOLP's EA schedule seems to assume that the preferred route will be determined before any significant public consultation or land acquisition can reasonably occur. Although AOLP asserts that it will commence land acquisition activities early in the development process,[186] it estimates that it will spend $0 on land acquisition during the development stage of the Project.[187] Finally, AOLP's proposed route assumes land-use rights will be obtained to build the Project through Pukaskwa National Park, an assumption not without risk given that no consultation has been completed with the federal agencies who govern the park regarding an exception for development.[188] In contrast, as indicated in its application, EWT LP has briefly consulted with staff from Pukaskwa National Park to better understand how preserving the integrity of the Park will affect the routing of the new line and has found that there are potential restrictions regarding the development of a new line through the Park.[189]

Determining the route of the new line through the environmental assessment process with the agreement of the Crown and other land owners is fundamental to preparing an application for leave to construct. AOLP cannot meet the Board's requirements for filing a leave to construct application without first having established the proposed routing of the transmission line. Therefore, the lack of plan in particular to deal with potential risks in the land acquisition process can materially delay the leave to construct application and therefore cause AOLP to materially exceed its development schedule and budget. The fact that AOLP has not provided the Board

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185 See AOLP Designation Application, Appendix 16.

186 AOLP Designation Application, para. 323, p. B-117.

187 AOLP Designation Application, Table 8.2-1, p. B-109.

188 AOLP Designation Application, para. 337, p. B-121. AOLP's application contains no discussion regarding Section 67 of *Canadian Environmental Assessment Act, 2012* or the Federal Lands EA Requirement if the route goes through Pays Plat First Nation, the Michipicoten First Nation or the Pukaskwa National Park.

189 EWT LP Designation Application, Exhibit 9, p. 35.

with evidence of a comprehensive land acquisition strategy indicates a weakness in its development plan.

AOLP has proposed inadequate plans to consult with the public and Aboriginal communities

Recent energy projects both in Ontario and across Canada such as the proposed Oakville generating station did not fail because the project was technically deficient or the developer lacked the financial capacity; they failed as a result of public opposition. Consultation is a two-way communication process that involves affected and interested persons in the planning, implementation and monitoring of an undertaking.[190] In particular, consultation is an opportunity to identify concerns that might arise from the undertaking, and to improve the project design before implementation. It is for these reasons that EWT LP has based its development plan around a substantive consultation program, included a comprehensive consultation plan in its application, and engaged specialist Ontario resources to facilitate consultation.

In its designation application, AOLP does not propose a meaningful plan for consultation with the public or Aboriginal communities. Meaningful consultation depends on a number of factors, but in the least requires sufficient time for affected stakeholders to consider and comment on the proposals in question. AOLP's plan does not do this.

Rather, as mentioned above, AOLP proposes to submit the ToR and the environmental assessment for approval in a timeframe that hinders full consultation with interested stakeholders. For example, AOLP proposes to submit its ToR for approval as early as two months after designation, leaving little time to carry out any meaningful consultation on the ToR given the time necessary to organize consultation opportunities and to incorporate feedback received. In addition, although AOLP proposes five Public Information Centres during its EA, AOLP's short EA timeline leaves the public, Aboriginal communities and government agencies with little time to review and digest a the significant amount of information that could be expected at each of these events. Given the proposed timeline, it will be similarly difficult to

[190] MOE, Environmental Assessment and Approvals Branch, *Code of Practice - Consultation in Ontario's Environmental Assessment Process* (June 2007), p. iv.

ensure that input received from these stakeholders is accurately reflected in modifications to the Project design. AOLP's rushed consultation program therefore creates a significant risk that AOLP will be submitting documents for approval that have not been provided to the stakeholders with sufficient time for review and comment. This in turn creates a risk that AOLP's applications will be delayed or rejected.

AOLP's approach to Aboriginal consultation is also incomplete. In its application, AOLP provides no indications of when it intends to finalize a Memorandum of Understanding with the Crown with respect to the delegated aspects of duty to consult, nor how it will then engage Aboriginal communities. Rather, it appears that AOLP is proposing to develop significant aspects of its proposed Project without input from Aboriginal communities. As mentioned, it has developed draft ToR prior to consultation. AOLP also seemingly intends to rely primarily on certain Traditional Ecological Knowledge and Traditional Land Use studies to identify potential impacts to Aboriginal communities, rather than engaging in more meaningful consultation to assess these impacts. This approach to development can trigger significant opposition, and may create opponents of the Project in otherwise supportive stakeholders. These opponents may then seek opportunities to frustrate the Project or its development timeline and budget. Such challenges, when related to a failure of the proponent to discharge the procedural aspects of the Crown's duty to consult, may even result in the denial or quashing of key Project approvals.

AOLP has not identified and developed sufficient mitigation measures to address key development risks

AOLP's aggressive schedule and lack of details for a number of key development activities exposes AOLP's development plans to a number of risks. Yet AOLP has not proposed sufficient mitigation measures to address them. For example, AOLP does not include a comprehensive risk mitigation table in its application, the risk table having only seven entries in total.[191] Arguably

[191] See AOLP Designation Application, Table 7.2-1 East-West Tie Line Schedule and Cost Risk Assessment, p. B-103.

only one relates to development activities. In effect, AOLP has provided no evidence that it has taken into account the following risks:

- Public opposition whether caused by objections to the design of the line, the route of the line, the impact the new line will have on their existing land use or the designated transmitter's method of consultation;
- The need for expropriation and associated construction delays if the proposed route is opposed by land owners;
- Aboriginal communities objecting to the development of the Project whether because it fails to protect their Aboriginal and Treaty rights, or because they believe they have not been meaningfully consulted (i.e. the delegated aspects of the Crown's duty to consult has not been properly fulfilled because, for example, the designated transmitter rushed consultation);
- development is delayed due to AOLP's failure to properly complete essential technical assessments such as IESO system impact studies;
- development is delayed due to coordination issues among regulatory agencies; and
- specifically, the ToR or the environmental assessment itself are rejected by the Minister of the Environment.

There may be time in a balanced development schedule to address Project risks as they materialize. But in a schedule containing the number of aggressive and risky assumptions that AOLP has assumed, it is critically important to ensure those risks are identified and mitigated ahead of time and that contingency plans are established for any risk that remains outstanding. AOLP has not done so. Given that AOLP has provided no evidence of any plans to address the risks above, there must be doubt about the completeness and accuracy of its development schedule and budget.

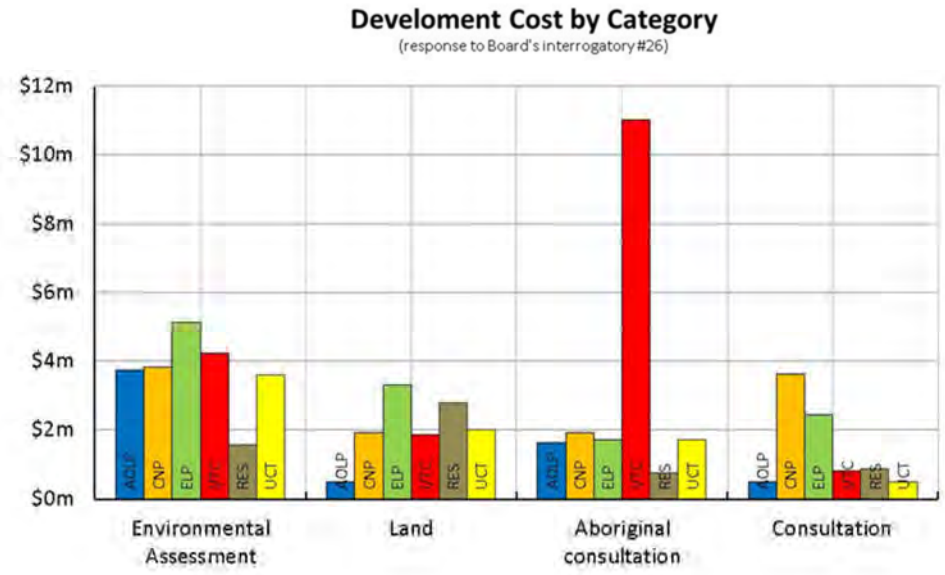
AOLP's proposed costs are not reasonable

AOLP's development and construction cost estimates may understate their true costs given the number of activities and risks that have not been fully identified. AOLP provides little evidence regarding how it will mitigate key development risks. Without such mitigation, AOLP's development risks are more likely to materialize in a way that adversely affects schedule and

ultimately cost. Given the risks in AOLP's proposal, the ultimate development costs are highly uncertain; budgets based on prudent assumptions are less likely to deviate significantly than those based on highly risky ones.

EWT LP has compared the development costs provided in response to the Board's interrogatory #26 – see Figure 8 below. Both AOLP's budgeted land acquisition and consultation costs are significantly lower than all other transmitters, yet AOLP did not explain how it would be able to file a complete application for leave to construct without undertaking at least some land acquisition activities – unless it is assuming that all land rights will be expropriated post-designation.

Figure 8 – Development Cost by Category



AOLP's budget should be judged taking into account the risks inherent in its proposed approach to the environmental assessment identified above; the limited time set aside for meaningful public consultation; the omissions relating to the land acquisition activities associated with an application for leave to construct; and the additional Project management costs that will arise as a result of delays in the development schedule, all of which are likely to increase AOLP's development budget.

AOLP does not provide evidence on how it will comply with the ARC

In its application, AOLP indicated it has made arrangements with its affiliates for the provision of services in respect of the Project. In particular, AOLP proposes that SNC Lavalin will provide planning and development services as well as engineering, procurement and construction (EPC).[192] The cost of development work would be $18.18m.[193] Construction management and similar services could be expected to cost approximately 10% of construction costs - e.g., $42 million to $55 million.[194] AOLP provided no evidence that it was paying no more than fair market price for these services.

Where a competitive market exists for a service, the ARC prohibits a utility (including an electricity transmitter) from paying an affiliate more than market price for the service.[195] It requires that a fair and open competitive bidding process be used to establish the market price before a utility enters into an agreement to acquire the service from an affiliate.[196] In addition, where the value of the proposed contract exceeds the greater of $500,000 and 0.5% of the utility's utility revenue, which would likely be the case here, the ARC prohibits a utility from awarding the contract to an affiliate without receiving a report from an independent evaluator on how the competing bids met the utility's criteria under the competitive bidding process.[197]

Since the expectation of the Board is that a development plan set out in a designation application is to be implemented by a licensed transmitter, a development plan should be consistent with the transmitter's obligations under applicable codes, including the ARC. AOLP's development plan provides no evidence regarding how it will ensure compliance with the ARC.

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[192] AOLP Designation Application, para. 12, p. B-5.

[193] AOLP Designation Application, p. B-109.

[194] AOLP Designation Application, p. B-112.

[195] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.1.

[196] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.2.

[197] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.4.

AOLP does not have sufficient experience relevant to Ontario

It is important for the designated transmitter to have experience and knowledge regarding the development of transmission lines in similar regulatory and physical environments. It is particularly important when for a transmitter to have such relevant experience when proposing a high risk development approach with minimal opportunity for consultation as AOLP is proposing. AOLP has not demonstrated that it has sufficient experience to identify and mitigate key Project risks and thus to successfully develop the Project as proposed.

AOLP's demonstrated experience is mainly in respect of its transmission system, a substantial portion of which located in the southern half of Alberta.[198] This experience is not sufficient. For example, AOLP is proposing to use screw pile foundations for the East-West Tie. As AOLP wrote, "Screw-piles are groups of 3 – 9 long metal pipes with flanges drilled into the ground until the prescribed torque is reached. Screw-piles can accommodate a broad range of soil types and terrain features."[199] Further in its application, AOLP wrote, "[The project area] is dominated by shallow soils and granite bedrock that stretch from the northern end of the Great-Lakes St. Lawrence forests through to the Hudson Bay Lowlands."[200] Yet it was only in response to the Board's Interrogatory #6 that AOLP admitted that its proposed foundation design, though very cost effective in southern Alberta, was not necessarily suitable for the Project: "AOLP is not aware of any examples of the successful use of screw-pile foundations in granite bedrock."[201]

Relevant experience helps ensures that these types of issues are identified and addressed before they have the potential to cause Project delays or cost overruns.

AOLP's lack of relevant experience extends to its familiarity with the regulatory environment that will govern the Project. AltaLink L.P.'s ("**AltaLink's**") experience obtaining government permits and regulatory approvals appears to be limited to the Alberta Utilities Commission and

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198 AOLP Designation Application, p. B-6.

199 AOLP Designation Application, para. 235, p. B-92.

200 AOLP Designation Application, Appendix 13, p. 30.

201 AOLP Response to Board Interrogatory #6 to AOLP, p. 62.

local municipalities in Alberta. In the least, it is not clear from the application whether AltaLink's management team has any experience from working outside of Alberta. AOLP's partially completed routing study provided in Appendix 15 appears to ignore key development restrictions, such as the *National Parks Act*, that could prohibit the development of new transmission lines across Pukaskwa Park.

In addition, AltaLink appears to have a significant number of projects under development or construction.[202] Given the significant resources that these projects will require, there is a risk that AltaLink could become resource constrained and not be able to dedicate sufficient resources to ensure the timely and cost-effective development of the Project. In the least, AOLP has not identified how it will manage multiple projects in multiple jurisdictions, or how it plans to mitigate the potential resource constraints this approach would likely involve.

With respect to SNC Lavalin's relevant experience, the application contains no evidence that SNC Lavalin has completed an environmental assessment (rather than a simple screening) in Ontario for any linear infrastructure project. For example, the environmental assessment work undertaken with respect to the Red Lake Gold Mine was in relation to only 11.7 km of 115 kV line; the Musselwhite Gold Mine project was only 3 km of 115 kV on a mine site; and the Victor Diamond Mine is a project for which SNC completed the engineering studies but AMEC Environmental completed the environmental studies.[203] Therefore, the application provides little evidence that AltaLink has supplemented its own inexperience with consultants familiar with the development of major transmission lines in northern Ontario or similar terrain.

Conclusion

In sum, AOLP's application proposes an unduly short development plan based on poorly judged assumptions and an inadequate consultation plan. Therefore, AOLP's proposal is vulnerable to schedule and cost overruns, and this creates a significant risk that AOLP will not be able to bring

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[202] See AltaLink L.P., Management's Discussion and Analysis (March 1, 2013), "Major Capital Projects", pp. 13-14.

[203] See AOLP Designation Application, Table 4.3-2 Sample SNC-Lavalin Transmission Projects Environmental Assessment, p. B-38.

a leave to construct application as it has proposed in its designation application. Therefore, if AOLP is designated, the Board is unlikely to meet its objective of designating a transmitter to develop the Project in a cost-effective and timely way.

D. I/TC

I/TC's designation application has a number of deficiencies. In particular, I/TC have not:

- presented reliable cost estimates;
- considered the requirements of the ARC;
- presented a reliable Project proponent;
- developed specific risk mitigation strategies;
- presented a reliable schedule; or
- demonstrated adequate relevant experience.

I/TC's Development Costs are Unrealistic and Unreliable

In their interrogatory responses, I/TC attempted to erase $12.996 million from their original $45.5 million development budget on the basis that these funds would be spent after I/TC intended to file its application for leave to construct.[204] This is an attempt to supplement I/TC's evidence and to mitigate the fact that I/TC's development costs are excessive. All applicants were aware that the purpose of this proceeding was to consider development up to leave to construct. All other applicants were able to provide their estimates on that basis. In its application, I/TC did not note anything to the contrary. This attempt by I/TC to restate its development costs should therefore be ignored by the Board.

Furthermore, I/TC have not justified by reference to a detailed development plan why its budgeted costs post-application are $12.996 million. Instead, the reduction is merely a simple prorating of I/TC's planned 2015 budget. There are no specifics given by I/TC as to why this is the correct number or an accurate reflection of development costs.

I/TC have also attempted to erase a further $1.8 million from their original development budget under the guise of "escalation" Nowhere in its interrogatory response or in Section 8.2 of its

[204] I/TC Response to Board Interrogatory #26 to All Applicants, p. 17, ft. 8.

application, which it references in its interrogatory response, does I/TC explain "escalation". Instead it uses it as a device to further reduce its excessive development costs and to look better relative to other applicants.

As neither of these proposed adjustments has been satisfactorily explained, it is reasonable to conclude I/TC's true development budget costs are $45.5 million as was originally stated in their application.

At $45.5 million, I/TC's development budget is very large and lacks detail.[205] It is approximately double the estimate of most other applicants yet I/TC have provided very little information to justify either its prudency or its value to ratepayers. For example, in its application I/TC budgeted $8.78 million for "Other significant expenditures".[206] In its interrogatory response, I/TC indicated that its "Other significant expenditures" were "A&G" (administrative and general). I/TC have not provided any information as to how it intends to spend $8.78 million administering the Project during development.[207]

I/TC's Construction Costs are Unreliable

I/TC's interrogatory responses also include an unexplained $2.2 million reduction from their original $526.3 million construction budget. This reduction should be ignored.[208]

I/TC's Application may not be consistent with the ARC

Furthermore, I/TC's plan to sole source Project construction to an affiliate may violate the ARC. I/TC indicate they intend to enter into a fixed fee EPC contract with Isolux Ingeniería, which is an affiliate of Iccon.[209] I/TC note that all services agreements with Isolux and its affiliates, with

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[205] I/TC Designation Application, Exhibit 8, p. 2, Table 5.

[206] I/TC Designation Application, Exhibit 8, p. 2, Table 5.

[207] I/TC Response to Board Interrogatory #26 to All Applicants, p. 17.

[208] See I/TC Designation Application, Exhibit 8, p. 6, Table 7 (Construction Total: $526,348,000) and I/TC Response to Board Interrogatory #26 to All Applicants, p. 19 (Construction Total: $524,101,000).

[209] Iccon and Isolux Ingeniería are both affiliates of Grupo Isolux Corsán, S.A. See I/TC Designation Application, Exhibit 1, pp. 1-2.

the exception of the EPC contract, will be at cost on a transparent basis without any mark-up for profit.[210] As a result, its EPC contract will have a profit mark-up. Where a competitive market exists for a service, the ARC prohibits a utility (including an electricity transmitter) from paying an affiliate more than market price for the service.[211] It requires that a fair and open competitive bidding process be used to establish the market price before a utility enters into an agreement to acquire the service from an affiliate.[212] In addition, where the value of the proposed contract exceeds the greater of $500,000 and 0.5% of the utility's utility revenue,[213] which would be the case here, the ARC prohibits a utility from awarding the contract to an affiliate without receiving a report from an independent evaluator on how the competing bids met the utility's criteria under the competitive bidding process.[214]

Since the expectation of the Board is that a development plan set out in a designation application is to be implemented by a licensed transmitter, a development plan must be consistent with the transmitter's obligations under applicable codes, including the ARC.[215] I/TC's development plan and its designation application are predicated on non-compliance.

Given that the partnership arrangement between Iccon and TransCanada is not yet real, as noted above, it is a clear and apparent risk to the Project that the parties may not proceed as intended if I/TC were required to be ARC-compliant.

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[210] I/TC Designation Application, Exhibit 2, p. 3, lines 24-27 [emphasis added].

[211] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.1.

[212] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.2.

[213] The fixed fee for the EPC contract is not identified in I/TC's application, but their estimated construction budget allocates $11.8 million for engineering, $65.6 million for procurement, and $250.5 million for construction. See I/TC Designation Application, Exhibit 8, p. 2, Table 5.

[214] Ontario Energy Board, *Affiliate Relationship Code for Electricity Distributors and Transmitters* (May 16, 2008), s. 2.3.3.4.

[215] See Ontario Energy Board, EB-2010-0324 (TransCanada Transmission License Application), Decision and Order (June 22, 2011), pp. 9-11.

I/TC do not satisfy the threshold conditions for designation

I/TC have proposed to form a new limited partnership upon designation, which will include a general partner equally owned by Iccon and TransCanada.[216] I/TC's proposed limited partnership is not a licensed transmitter and cannot be designated by the Board. The Board required proponents to be licensed transmitters as a prerequisite to participating in the East-West Tie designation process.[217] Even if the Board wished to designate I/TC, there is no basis in the conditions established by the Board, and to which all applicants are bound, for the Board to designate an unlicensed, non-existent entity or to designate a licensed entity on behalf of an unlicensed entity to be formed in the future. The conditions by which all applicants sought their licence and registered their interest was well known by all applicants, including I/TC.[218]

The fact that Iccon and TransCanada formed an alliance after the September 2011 deadline and before the January 4, 2013 filing date, should be no excuse for I/TC to be entitled to deviate from the rules applicable to all other applicants. To permit them to do so would be unfair.

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[216] Despite the fact that the general partner does not yet exist, the I/TC designation application is to be read as the general partner's plans for carrying out the development of the Project on behalf of I/TC. See I/TC Designation Application, Exhibit 2, p. 1, ft. 2 ("Hereinafter, references to the "Applicants" and the Applicants' plans for carrying out development of the East-West Tie are, as applicable, references to the GP on behalf of the Applicants.") In those circumstances where a licenced transmitter carries on business as a limited partnership, the licence is granted in the name of the general partner on behalf of the limited partnership. As no general partner exists, there is no licenced transmitter that will be responsible to carry on the development. As a corporate general partner exists as a separate person in law, Iccon or TransCanada cannot argue that they as licenced transmitters are substitutes for the general partner.

[217] See Ontario Energy Board, Board calls for interest in designation for the East-West Tie (August 22, 2011), p. 2 ("The Board finds it advisable to invite licensed transmitters and those who have applied for a transmission licence (collectively "**transmitters**") to indicate their interest in filing a plan for the development of the E-W Tie. Parties who file a transmitter licence application before the deadline for registering interest below may also register and participate."); Ontario Energy Board, EB-2011-0140, Board announcement of a designation process for the East-West Tie (December 20, 2011), p. 1 ("As described in the Ontario Energy Board's policy Framework for Transmission Project Development Plans a designation process is a hearing of the Board, convened to identify a licensed transmitter who will be entitled to recover its prudently incurred development costs for a specific transmission project."); and Ontario Energy Board, EB-2011-0140, Phase 1 Decision and Order (July 12, 2012), p. 24 ("THE BOARD ORDERS THAT:…3. A licensed transmitter seeking designation to undertake development work for the East-West Tie line must file its application for designation no later than January 4, 2013") [emphasis added].

[218] EWT LP was the only applicant that fully disclosed its corporate structure, including partners, at the time of licensing, demonstrating interest and filing of the designation application. All other applicants introduced new shareholders or partners without full disclosure prior to the application date.

Furthermore, I/TC's designation application is predicated on Iccon and TransCanada each taking on different roles. However, they intend to do so through a partnership yet to be created. This will require negotiated arrangements to establish a partnership and a conclusion of commercial arrangements. It is not definitive as to whether these arrangements will ever be put in place. This risk was not identified in I/TC's application.

If they cannot establish such a partnership it is not clear who will carry out the designation plan. It is not clear as to how the planned contribution of each will deviate from the original plan or if they in fact will be the entities that will carry out the plan. If commercial terms are not reached, the Project could be abandoned by the parties. It is also important to note that formulating the commercial arrangements of the partnership and delineating rules, rights and obligations can take time to establish and determine. These aspects are not included in I/TC's schedule. I/TC did not describe how it would initiate its development schedule if commercial arrangements and partnership responsibilities have not been defined. As such, I/TC's schedule for development will almost certainly be longer than it has indicated and for this, and other reasons noted below, is unreliable.

I/TC have not mitigated material risks

In addition, I/TC have not mitigated several likely risks to its schedule and costs. For example, despite acknowledging that the risk that the "EA process takes longer than anticipated or is not accepted by [the] Minister" has a "High" probability and a "High" cost impact,[219] I/TC do not identify any specific mitigation strategy to address this risk. I/TC simply observes that "any delay that causes the Applicants to miss a critical season [for environmental assessment] could result in a delay of 9 to 12 months."[220] By not identifying any mitigation measures for this schedule risk, I/TC has adversely affected the reliability of their development schedule.

Similarly, I/TC have identified "Landowner Issues" as a potential Project risk, including the risk that landowners will not allow access to land, but have neglected to identify the probability or

[219] I/TC Designation Application, Exhibit 7, Appendix D - Risk Register, Item #1.03.

[220] I/TC Designation Application, Exhibit 7, p. 3, lines 19-21.

cost impact of this risk or to develop a specific mitigation strategy.[221] I/TC have not developed any early landowner engagement protocols, incentive-based land acquisition compensation principles,[222] or a plan for meaningful landowner consultation.[223] In contrast, EWT LP has developed a detailed landowner consultation plan, committed to early landowner consultation, and developed transparent and fair incentive-based compensation principles. Given the length of the proposed line and I/TC's inadequate land issue mitigation strategies, this risk will also likely affect the reliability of their development schedule.

I/TC acknowledge "[a]ny delay in the schedule risks creating a greater than day-for-day impact on the completion of the development process."[224] However, as discussed above, I/TC have failed to mitigate significant and likely development risks. As a result, their schedule and cost estimates are not reliable.

Iccon/TransCanada do not have sufficient relevant experience

I/TC have not put forward a team with sufficient experience in Ontario or experience that would be relevant to Ontario. First, as discussed above, I/TC have proposed to form a new limited partnership upon designation, despite the fact that the Board required proponents to be licensed transmitters as a prerequisite to participating in the East-West Tie designation process. The designation filing requirements required significant detail regarding the Project proponent's organization and capacity. The Board may benefit from such information when determining which applicant presents greatest value and least risk for ratepayers. In the case of an entity yet

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221 I/TC Designation Application, Exhibit 7, Appendix D - Risk Register, Item #2.06.

222 I/TC make only a brief reference that "[c]ompensation for easement agreements will be based on land value." See I/TC Designation Application, Exhibit 9, p. 3, line 9.

223 I/TC's landowner consultation plan consists only of the following three sentences: "The Applicants will work with TransCanada's land team and other third party subcontractors to identify landowners whose properties will be directly impacted by the transmission line ROW. In addition to municipal consultation activities such as community Open Houses, directly impacted landowners will be more extensively consulted on the specific effects the Project may have on their properties. These consultation efforts could lead to negotiations regarding reasonable changes in the design of the line and/or use of property." See I/TC Designation Application, Exhibit 9, p. 9, lines 16-22.

224 I/TC Designation Application, Exhibit 7, p. 3, lines 16-19 [emphasis added].

to be formed that has not undergone the licensing process, it would be difficult to evaluate such an entity's technical or financial capacity.

Second, I/TC have not proposed a team with any relevant experience developing transmission lines in Canada. Isolux's transmission development experience is in locations such as Brazil, Texas, India, Syria, Kenya, and Qatar. I/TC have not provided any justification as to why Isolux's experience in such jurisdictions is relevant to developing transmission lines in northern Ontario.

TransCanada's experience operating natural gas pipelines in Canada is also not relevant to this transmission project. TransCanada has not provided sufficient information to evaluate the transmission experience it has offered. It claims to have constructed and operated 115 kV, 230 kV and 345 kV transmission systems in Canada and the United States but does not include information regarding the location or length of these projects. Details regarding the "associated electrical connection facilities" related to the Halton Hills Generating Station and the Portlands Energy Centre are not provided.[225] TransCanada also claims to have "familiarity with Northern Ontario",[226] but does not provide examples of any recent project experience in northern Ontario.[227]

I/TC's routing, permitting and consultation experience is also from outside Ontario. I/TC indicate that Isolux, as EPC contractor, will be responsible for route selection.[228] Isolux has no experience routing transmission lines in Canada or northern Ontario. I/TC have retained KP Environmental "because of KP's considerable experience in the siting of transmission lines across the United States and throughout the world."[229] However, KP's references were almost exclusively from the southern United States, and principally from Arizona, Texas and California where KP has offices. KP offered no experience working in Canada. TransCanada's experience

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[225] I/TC Designation Application, Exhibit 4, p. 16, lines 10-13.

[226] I/TC Designation Application, Exhibit 4, p. 18, line 22.

[227] To the extent TransCanada intended to reference its Canadian Mainline natural gas pipeline, the construction of this pipeline was completed in 1958 and this experience is not relevant to electricity transmission.

[228] I/TC Designation Application, Part 4, p. 3, line 7.

[229] I/TC Designation Application, Exhibit 2, p. 3, lines 19-21.

routing underground pipelines is not directly relevant to an overhead transmission project, and in recent years has primarily been gained through projects in British Columbia, Alberta and small portions of southern Saskatchewan and Manitoba. I/TC's lack of experience is further evidenced from the fact that, as noted above, no mitigation strategy is considered for material environmental permitting assumptions and risks.

Conclusion

The weaknesses in I/TC's application are detrimental to ratepayers. I/TC's development costs are excessive. The failure of key development assumptions will likely have significant impacts on I/TC's schedule and cost projections. It is questionable whether I/TC are even eligible for designation.

E. CNP

CNP has not provided sufficient information to permit other applicants to adequately evaluate its plan or its ability to deliver the Project. It particular, CNP has not:

- provided an Aboriginal consultation plan;
- provided a detailed development plan;
- performed sufficient risk identification and risk mitigation analysis;
- substantiated schedule estimates;
- provided reliable cost estimates; or
- presented adequate relevant experience.

CNP has not proposed an adequate development plan

CNP has failed to demonstrate a workable plan to the deliver the Project. It has provided little or no information regarding key Project development activities. It has also provided minimal risk mitigation analysis and unsubstantiated schedule and cost estimates.

CNP has not prepared an Aboriginal consultation plan and does not intend to do so until the beginning of its environmental assessment process.[230] The existing Fortis policy for "dealing" with First Nation, Metis and other communities,[231] presumably the document included as Appendix W to its application, is a one-page general statement of principles - not a detailed consultation policy. It is therefore not possible to evaluate the adequacy of CNP's intended consultation plans.

CNP's Project development schedule is a superficial and unsubstantiated overview of eight milestones, only five of which actually occur prior to obtaining leave to construct.[232] Its

[230] CNP Designation Application, p. 10, lines 16-17 and p. 148, lines 15-16.
[231] CNP Designation Application, p. 67, line 7.
[232] See CNP Designation Application, p. 98, lines 14-21.

entire Project development and construction plan includes only 15 tasks.[233] In contrast, EWT LP's development schedule details approximately 300 development tasks alone.[234] CNP has not prepared a detailed schedule of development tasks such as that prepared by EWT LP, and does not intend to do so until designation.[235] It is therefore not possible to assess the sufficiency and prudency of CNP's development schedule.

CNP has projected that it would require approximately 80 months to complete the Project,[236] which is the longest timeline of any applicant. Despite noting that, if designated, CNP would "attempt to expedite the completion of the Project to the best of its abilities", it has offered no specific plan or examples of how it could compress its proposed schedule or a detailed schedule of development tasks in general.[237]

In addition, CNP has not conducted adequate analysis of potential Project risks, particularly development risks. Its cursory risk summaries[238] do not identify specific types of risks within such general categories as "Legal or environmental challenges", and CNP does not present specific mitigation strategies for its identified development risks.[239] For example, CNP's mitigation strategy for legal issues is that it "has retained Davies and Andrew Taylor to address legal and regulatory matters."[240]

Furthermore, certain CNP construction risk mitigation strategies may create additional Project risks. For example, CNP's plan to use multiple construction contractors to minimize the probability of labour shortages could result in significant issues with construction coordination,

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233 See CNP Designation Application, Appendix S.

234 See EWT LP Designation Application, Appendix 7C - Development Gantt Chart.

235 CNP Designation Application, p. 98, lines 25-26.

236 CNP Designation Application, p. 9, lines 2-5.

237 CNP Designation Application, pp. 9 and 104.

238 CNP Designation Application, p. 100, lines 10-18; p. 104, lines 17-21; p. 114, lines 11-15; and p. 118, lines 7-19.

239 See CNP Designation Application, pp. 100-102.

240 CNP Designation Application, p. 101, lines 9-10.

consistency, safety and quality-management.[241] Ratepayers cannot have confidence that CNP is prepared to address risks to Project schedule and costs.

CNP has not provided reliable cost estimates

CNP's development cost estimate is uncertain. In its interrogatory responses, CNP attempted to erase $57.2 million from its original $584 million construction budget on the basis that this budget had not been accounted for in 2012 dollars.[242] There is no evidence in CNP's designation application that its construction estimate was presented using anticipated dollar values. Rather, at least in relation to O&M costs, CNP noted, that its estimate was presented in 2012 dollars.[243] The inconsistency is unexplained. There is nothing in its designation application to support such an assertion. CNP's attempted restatement of construction costs is an attempt to supplement its evidence and should be ignored by the Board.

CNP's construction cost estimate is uncertain. In its designation application, CNP estimated its construction costs to be $584 million, within an accuracy range of -25% to +50% or $438 million to $876 million.[244] These proposed construction costs are significantly higher than those of any other applicant, and their basis is not clear. For example, CNP anticipates using helicopters to set several, if not all, structures.[245] However, since CNP notes that ground access will still be required and utilized to install foundations and tower legs for these structures,[246] it is not clear that the proposed use of helicopters is necessary or cost-effective for ratepayers. CNP also provides no breakdown of its material volumes or costs similar to that provided by EWT LP.[247]

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241 CNP Designation Application, p. 105.

242 CNP Response to Board Interrogatory #27 to All Applicants, pp. 2-3.

243 CNP Designation Application, p. 122, line 9.

244 CNP Designation Application, p. 116, lines 6-7.

245 CNP Designation Application, p. 105, lines 22-23.

246 CNP Designation Application, p. 105, lines 23-24.

247 See EWT LP Designation Application, Exhibit 6, Appendix 6A - Reference Option Report, Appendix A - Construction Cost Estimate, Figures 1 (Reference Option Cost Estimate) and 2 (Long Span Reference Option Cost Estimate).

CNP's O&M cost estimate is uncertain. First, CNP did not include regulatory and administrative costs in its O&M estimate in its designation application.[248] Every other applicant in this proceeding understood that these costs were expected by the Board to be included in their O&M estimate.[249] Second, CNP subsequently proposed a budget of $25,000 for regulatory costs,[250] which is insufficient for a public utility that will be before the Board in regulatory matters.

CNP does not have sufficient relevant experience

CNP has also not demonstrated sufficient relevant experience to deliver the Project. Natural gas storage projects[251] and projects currently under construction[252] do not demonstrate an ability to successfully deliver an electricity transmission project. Fortis's Okanagan and Nk'Mip Transmission Projects, at 40 km (230 kV) and 18 km (63 kV), respectively,[253] do not demonstrate an ability to deliver a project of the East-West Tie's magnitude. CNP has provided little information regarding Newfoundland Power's transmission rebuild project, but based on publicly available information it is clearly dissimilar to the Project and does not demonstrate relevant experience.[254] CNP's own 36 km of 115 kV transmission lines also fail to demonstrate an ability to deliver a project of the scale of the Project.[255]

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[248] CNP Response to Board Interrogatory #29 to All Applicants, p. 1.

[249] See EWT LP Designation Application, Exhibit 8, p. 30 and EWT LP Response to Board Interrogatory #26 to All Applicants, p. 41; UCT Designation Application, p. 122 and UCT Response to Board Interrogatory #26 to All Applicants, Attachment 1; AOLP Designation Application, p. B-114 and AOLP Response to Board Interrogatory #26 to All Applicants, p. 40; RES Designation Application, Exhibit P, Tab 6, Schedule 2, p. 1 and RES Response to Board Interrogatory #26 to All Applicants, p. 42; and I/TC Designation Application, Exhibit 8, p. 9, lines 11-12 and I/TC Response to Board Interrogatory #26 to All Applicants, p. 19.

[250] CNP Response to Board Interrogatory #26 to All Applicants, p. 4.

[251] Mt. Hayes Natural Gas Project, CNP Designation Application, p. 29, lines 8-25.

[252] Waneta Hydro Project, CNP Designation Application, p. 28, lines 23-30.

[253] CNP Designation Application, p. 29, lines 3-7 and lines 16-26.

[254] For example, the Newfoundland project is confined to 66 kV and 138 kV voltage lines with wood pole construction, as compared to the Project's 230 kV voltage with steel lattice construction; it is a refurbishment / rebuild project, rather than the construction of a new line; its capital cost is only approximately $43 million; and the it is confined to the use of existing rights of way, not the acquisition and development of new rights of way. See Newfoundland Power, application to the Newfoundland and Labrador Board of Commissioners of Public Utilities, *Transmission Line Rebuild Strategy* (June 2005), <http://www.pub.nf.ca/np2006cap/files/applic/np2006capApplicTransmission.pdf>.

[255] CNP Designation Application, Appendix B - Overview of Fortis' Transmission Systems.

In addition, CNP's proposed engineer, TRC Engineers, has no transmission experience in Ontario. Its only Canadian experience is in very different terrain than that of the Project area.[256]

Finally, EWT LP notes CNP's initiative in forming a partnership with Lake Huron Anishinabek Transmission Company Inc. ("**LHATC**"). However, most LHATC constituent First Nation communities[257] are located hundreds of kilometers from the Project area. LHATC cannot provide the same degree of benefit to the Project that EWT LP will receive through its partner BLP.

Conclusion

CNP has minimized the amount of development work it is willing to perform prior to designation. As a result, it has failed to demonstrate a workable plan to the deliver the Project.

[256] CNP Designation Application, p. 59, line 17.

[257] See CNP Designation Application, p. 39, lines 3-13.

IV. Board Staff

EWT LP would like to comment briefly on some aspects of Board staff's April 8 submissions.[258] First, EWT LP agrees with Board staff regarding the importance of adhering to schedule milestone and progress reporting requirements. EWT LP has no objection to the milestones proposed by Board staff. In its application, EWT LP has already included almost all of these suggested milestones as either formal milestones or internal management objectives that will enable EWT LP to track its own progress. In particular:

Milestone proposed by Board Staff	Task ID in EWT LP's Gantt Chart	Date (accelerated schedule)	Date (standard schedule)
Signing of an MoU with the Ministry of Energy regarding the delegation of certain procedural aspects of consultation with Aboriginal peoples	28	January 2014	January 2014
Commencement of negotiation or discussions with all land owners and permitting agencies	32, 52[259]	January 2014	January 2014
Signing of an engineering contract for design of the line, if an engineering contractor is to be used and not already signed	N/A[260]	N/A	N/A
Approval of the Route and structure Configuration proposal by senior management of designated transmitter	257	March 2015	November 2015
Completion of Conductor Optimization Study	253[261]	December 2014	November 2015
Filing of ToR for the Environmental Assessment	135	March 2014	July 2014
Filing of request for a System Impact Assessment with the IESO	300[262]	April 2014	March 2015
Approval of the ToR for the Environmental	139	June 2014	October 2014

[258] Board Staff Submissions, EB-2011-0140 (April 8, 2013).

[259] EWT LP plans to have completed initial consultation with all permitting agencies and major land owners by this date. It may be necessary to negotiate with other land owners as the route is developed and refined in consultation with government agencies, First Nations, land owners and community members.

[260] EWT LP already has its owners' engineer under contract.

[261] The preferred conductor will have been identified as early as November 2013. See EWT LP Designation Application, Appendix 7C, Task 64.

[262] EWT LP also plans to work with IESO staff to complete a feasibility study early 2014 which will inform consultation and the environmental assessment. See EWT LP Designation Application, Appendix 7C, Task 91.

Assessment			
Receipt of the final system impact Assessment from the IESO	306	October 2014	October 2015
Filing of a leave to construct application with the Board	332	July 2015	March 2016

EWT LP is therefore readily able to make schedule and reporting commitments align with Board staff's suggested milestones.

Second, Board staff recommends, with certain limited exceptions, that the Board should not adjust the schedule of the designated transmitter. EWT LP submits that the Board should evaluate the applicants on the evidence that they have included with their applications, and not assume that scheduling adjustments can be made post-designation to compensate for a proposed schedule that lacks credibility. In this regard, EWT LP disagrees with Board staff's option of having the Board impose a single development schedule on the designated transmitter. Doing so would diminish the importance of selecting a transmitter that possesses the experience and knowledge to produce a credible and prudent development schedule.

Board staff does propose certain limited adjustments, including a reset of the designated transmitter's Project schedule to align it with the date of designation. EWT LP objects to such a simple day-for-day adjustment. A credible development schedule has certain steps that can only be completed in certain seasons. For example, certain environmental field studies can only be completed in the spring. Therefore, a proposed schedule like AOLP's that contemplates a designation date in late April 2013, and that is premised on field studies beginning in April 2013 as well, cannot simply be adjusted to reflect a designation date of August 1, 2013. Such an adjustment would mean the schedule would contemplate completing spring field studies in late summer or fall, which is impossible. Those studies would have to be completed in spring 2014. To the extent that these studies have to be completed before an important Project milestone, such as the filing of the ToR, a four month adjustment in the designation date could result in up to one year of delay in achieving that milestone (e.g., if the April studies are required to file the ToR, the ToR could only be filed after April 2014 if designation occurred after April 2013). This in turn could result in a corresponding delay in the timeline to file a leave to construct application.

Thus, if it chooses to adjust development schedules, the Board must take a nuanced look at how the adjustment will affect time- or season-sensitive development milestones. Because schedule and costs are interrelated, changes to schedule will likely impact costs.

Third, EWT LP would like to emphasize the Board staff's recommendation that a 10% cost overrun would be sufficiently material to warrant a review of development costs. Board staff submits, and EWT LP agrees, that it is reasonable to ask for an explanation of this level of overage for a major capital project. This is why EWT LP has taken a comprehensive, bottom-up approach in preparing its development cost estimate. Unlike UCT or AOLP, EWT LP has not made unduly risky assumptions in its schedule and budgets with an expectation to be compensated for cost overages at a later date. And unlike UCT and CNP, EWT LP has not left important parts of its plan to be written post-designation. EWT LP agrees with Board staff's proposal because EWT LP is confident that its estimates are prudent and, to the extent possible, reflective of the true cost of developing the Project.

Fourth, EWT LP agrees with Board staff's submission that the designated transmitter should report quarterly under the seven proposed headings. These are consistent with the seven reporting topics proposed by EWT LP.

Finally, EWT LP agrees with Board staff's submission that the designated transmitter should comply with all applicable regulatory requirements as soon as these requirements become applicable. EWT LP has not and will not request any exemptions from these requirements, such as the ARC. EWT LP does not believe that the designated transmitter should have this opportunity for exemption. It will be important for the designated transmitter to comply with the ARC immediately on designation,[263] as the Board will be approving recovery of development expenses and it is important that any affiliate services provided during development are provided in compliance with the ARC to achieve cost-effectiveness for ratepayers.

[263] See Ontario Energy Board, EB-2010-0324 (TransCanada Transmission License Application), Decision and Order (June 22, 2011), pp. 9-11.

V. Conclusion

In summary, EWT LP has proposed the development plan that achieves the Board's objectives of ensuring the development in the Project in a cost-effective and timely way for the benefit of ratepayers. EWT LP's development plan achieves this by:

- incorporating detailed knowledge of the geophysical and environmental conditions of the Project area;
- applying extensive experience with the regulatory regime governing transmission infrastructure in Ontario;
- assembling a strong and experienced team of technical advisors;
- putting in place meaningful participation arrangements with local First Nations partners;
- proposing a comprehensive, reliable development schedule and cost estimates;
- identifying opportunities for schedule compression and cost savings;
- undertaking detailed risk analysis and mitigation planning to prevent schedule and cost overruns;
- proposing a strong set of technical design alternatives and a comprehensive plan for evaluating those alternatives further in the development phase;
- developing effective plans for Aboriginal and public consultation; and
- advancing an effective land acquisition strategy, together with a comprehensive routing plan.

All of which is respectfully submitted this 18th day of April, 2013.

Charles Keizer

Counsel to EWT LP

Appendix

Affidavit of Peter Catchpole

See attached.

ONTARIO ENERGY BOARD

IN THE MATTER OF sections 70 and 78 of the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF a Board-initiated proceeding to designate an electricity transmitter to undertake development work for a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie Line.

EB-2011-0140

EWT LP
Designation Application

AFFIDAVIT OF PETER CATCHPOLE

(SWORN APRIL 18, 2013)

I, Peter Catchpole, of the City of Hailey, in the State of Idaho, MAKE OATH AND SAY:

I am the Senior Project Manager of Power Engineers Inc. ("Power Engineers"), and, as such, have knowledge of the matters to which I depose.

1. Power Engineers has reviewed the technical aspects of the proposal of RES Canada Transmission LP ("**RES**") with respect to the use and attributes of the proposed ACSS/TW conductor and RES's use and attributes of tubular H-Frame Steel Structures for purpose of the East-West Tie Line (the "Project").

ACSS Attributes

2. Exhibit H-4-1 of RES's application states that the preferred "Potomac" 1557 kcmil ACSS/TW conductor is designed to operate continuously to 200°C thus enabling it to deliver up to 786 MVA on the emergency basis. This point is also declared in the table H-3: Filing Compliance. Exhibit G-1-1, page 3 of 8 declares *that the proposed 1557 ACSS/TW conductor possessed superior capabilities relative to the (Grackle) 1192.5 ACSR conductors. These superior capabilities include: a larger capacity to transfer current (ie: higher ampacity); reduced line sag during situations of emergency electrical load, an ability to operate at higher temperatures; and excellent self-damping vibration properties.*

3. Using PLS-CADD software, Power Engineers considered the difference between the RES preferred ACSS Conductor and the ACSR conductor assumed as part of the Reference design. Power Engineers compared the Potomac ACSS/TW conductor to the EWT project's other assumed conductor Grackle ACSR. The results of the analysis is set out below.

Conductor	1192 Grackle ACSR	1557 Potomac ACSS/TW
Span (m)	355 m	355 m
Equal Sag at -20 C (C , Sag)	1,900 m, 8.3 m	1,900 m, 8.3 m
Compared Factors: green = better performer		
Alcoa Span Limit: 1 damper	478 m (basic need)	247 m
Alcoa Span Limit: 2 dampers	957 m	494 m (basic need)
Max. Design Tension (H)	8,725 kg	7,895 kg
Max. Tension, 1" ice (%RTS))	46%	61%
Sag at 1" ice	11.9 m	14.6 m
%RTS initial @ -30 C	24%	39%
%RTS final @ 15 C	18%	35%
Design Sag at 100 C	13.8 m	15.1 m
Sag at 250 C	NA	17.2 m
Sag at 40 C final	11.8 m	14.2 m
CSA Rule Blowout	3.9 m	4.3 m
Estimated unit purchase cost	100%	136%

4. In this comparison, we held the two conductor choices to a common span – that being RES's suggested span of 355 m and we held both conductors to a common, cold temperature Catenary Constant value of 1,900 m. The Catenary Constant is a broadly understood 'best indicator' of the need for vibration dampers and is effectively the parameter used in the assessment by Alcoa, a well-respected supplier of vibration dampers.

Vibration and Damper Requirements

5. Using the input parameters noted above and holding other input values equal, the span limits for the ACSS conductor are much less than for the ACSR as the table notes. A 'span limit' is a span length value above which additional dampers are recommended by the vendor, in this case: Alcoa. For the proposed design span of 355 m, two dampers per span are recommended for the ACSS installation and one damper per span for the ACSR conductor choice.

6. This recommendation conflicts with the proponent's statement of excellent self-damping properties. The basis for the disagreement can be expressed as this: while a conductor may be less prone to vibration due to its self-damping capabilities, this does not imply that once vibrating, it also has equal or better survivability against fatigue damage.

Tension Limits and sag

7. At the design tension with 25 mm of radial ice, the ACSS sag is within 0.5 m of the thermal design sag at 100°C. The ACSR sag using the same criteria is 1.9 m less than the thermal design sag. This means that the clearance margin against any extraordinary ice event sags is much less with the ACSS conductor. This is a risk issue in respect of electrical clearance and failure during ice conditions.

8. At 25 mm of ice, the tensions are at 46% of the ACSR's rated strength and 61% of the ACSS's rated strength. On an everyday basis, the ACSR tension is 18% of RTS and the ACSS tension is twice that at 35% of RTS. These too represent relative risks of conductor tensile rupture.

9. The 100°C design sag of the ACSR conductor, if used at these span lengths by the proponent would be 13.8 m. The 100°C design sag of the proposed ACSS conductor is greater by 1.3 m at 15.1 m. To rectify the line sag and mitigate the risk, the ACSS conductor would have to be tightened and this would cause the vibration damage risk to be increased accordingly. These larger sags could be reduced by increasing the design tension but doing so, further increases the vibration activity and raises the %RTS "usage" of the ACSS conductor choice – values that are already quite high.

10. As noted, to rectify the line sag and mitigate the associated risk, the ACSS conductor could be tightened but this results in the risk associated with increased tension. As a result, to compensate for the sag, the ACSS conductor can employ the alternate solution of taller towers than the ACSR conductor choice.

11. We also note that while the ACSS conductor can run much hotter and deliver up to 786 MVA, this capability comes at the added cost of another (near) 2.0 m of sag and tower height. As noted below, the higher tower height creates additional issues related to RES's proposed foundations and their costs. There is also the need to provide for the high capacity within the applicable station. In other words, it is not capacity that comes free of charge.

Foundation Costs

12. In Tab G-1-1, RES notes that their preferred structure for the project is a single circuit, tubular steel H-Frame.

13. On page 5 of 8 of G-1-1, the proponent makes the claim that the foundation cost for the tubular steel pole H-Frames are lower than for the four legged latticed tower based on the count of two foundations compared to four foundations for the latticed tower. They note: *where the preferred design uses single circuit H-Frame structures, there would be a further cost savings from constructing two rather than four foundations for each tower...*

14. However, RES ignores the fundamental factor of soil and rock conditions. The height and weight of the tower, the type of forces imposed on the foundations from the structure together with the soil and rock conditions, determine the foundation which directly affect costs. The number of legs of a structure is not a valid determinant of cost as stated by RES. When soils are unpredictable and rock is quite likely to be somewhere within the depth of the foundation required or the soil is otherwise soft or unknown, an installed cost

comparison between a four legged latticed tower design and a tubular pole design will not result in the tubular design being the lowest cost option.

15. Foundation design forces under trussed (latticed) structures (such as in the Reference Design) are largely compression (down), uplift (up) and shear (lateral) but there are no significant bending moment forces. The design forces under H-Frame structures include large bending moment forces with comparatively modest compression, uplift and shear forces. Defending against bending moment forces with foundations is very expensive compared to defending against compression, uplift and shear forces. Thus the 'two replacing four' argument is quite inappropriate.

16. Under the typical soil conditions, a leg of an H-Frame shell structure will require a concrete pier of approximately 1.5 m in diameter and 5-10 m deep. Where bedrock is within the depth to which a foundation should exist, the transmitter would blast the rock to a useful depth or bolt the tower to the bedrock using a significantly large bolt pattern about 1.5 m in diameter and each bolt would be approximately 2.5 m feet in length. Each bolt would have to be drilled in place. Either way, the design and installation process is quite expensive.

17. A lattice structure on the other hand requires less of a foundation as significant bending forces are absent from the design parameter set and the important forces are primarily compression and tension (uplift), both of which as comparatively inexpensive to design and install. Concrete piers under tower legs that support only tension and compression forces are significantly shallower and smaller in diameter than similar designs that support bending moment. They are accordingly much less expensive as well. In addition, there are other types of foundation systems such as screw piles, micropiles, slam concrete pads, rock bolts and even steel grillages than can support the tension-compression force sets very cost-effectively in difficult (very soft or hard rock) conditions but that are not cost-effective to support the bending moment forces that tubular structures impose on them.

18. RES's cross-braced H-Frame structure is partly a truss structure and subject to wind loads perpendicular to the line. It is also a frame (cantilevered column) and vulnerable to longitudinal forces – forces along the line caused by tension unbalances including uneven ice loads and broken wire events.

19. As is expected when comparing latticed towers to tubular pole options, the design span for the tubular pole option is lower – in this case: 355 m vs. 410 m. As a result, RES offers the shortest design spans for the project. This in turn means that more structures are required and a higher cost since it cost a considerable amount to access each tower site. In summary, it would appear that RES has significantly underestimated the cost of its project proposal.

20. As a result, notwithstanding a lattice structure will require foundations under each of its four legs, the nature of the H-Frame structure will require larger and deeper foundations that are more costly to install. A comparison on the basis of number of legs is not a proper technical approach. The only possible way for an H-Frame foundation costs to be

comparable to latticed towers is for the structure to have no strength against tension imbalances thus making the structure very vulnerable to longitudinal collapse, inviting a cascade line failure event.

Cascade Failure Risk

21. Because of both the higher tension due to the use of ACSS and also to longitudinal forces to which the H-Frame structures are subject, there is a greater cascade failure risk with RES's design.

SWORN BEFORE ME at the City of Hailey, in the State of Idaho this 18 day of April, 2013.

A Commissioner for taking Affidavits

Peter Catchpole

JANIS JAMES NOTARY PUBLIC STATE OF IDAHO