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**ENVIRONMENTAL ASSESSMENT REPORT FOR THE PHASE 1  
NEW TRANSMISSION LINE TO PICKLE LAKE PROJECT  
SECTION 13.0: FINAL CORRIDOR ROUTING ANALYSIS AND  
CONCLUSION**

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# **APPENDIX 13A**

## **Evaluation Criteria**



**Table 13A-1: Rationale for Selection of Cost and Constructability Criteria and Appreciable Differences for Final Corridor Routing Analysis**

Criterion	Indicator	Rationale for Selection of Criterion	Difference Considered to be Appreciable <sup>(a)</sup>	Rationale for Appreciable Difference
Route Length	Length (km) of corridor.	Line length directly effects construction costs and constructability risk. Increasing the length of the line will increase the cost of construction.	5 km	Based on professional judgement, experience, and potential effects to Project feasibility/economics.
Access Roads	Total length (km) of access roads/trails.	Road access may potentially improve constructability and maintenance; however, it is recognized that helicopters are widely used in the construction and operation of transmission lines. The greater the existing road access for construction of the new transmission line, the lower the need for constructing new access roads or the use of helicopters for access.	5 km	<ul style="list-style-type: none"> <li>■ Based on professional engineering experience on transmission line projects.</li> <li>■ A difference of 5% can represent a substantial increase in cost for access roads.</li> </ul>
Large Watercourse Crossings	Number of watercourse crossings with a span between 200 m and 400 m.	Large watercourse crossings (i.e., 200 m to 400 m) would require steel structures, which will increase the cost and risk of construction.	One crossing	<ul style="list-style-type: none"> <li>■ Based on professional engineering experience on transmission line projects.</li> <li>■ A difference of one large waterbody crossing can represent a substantial increase in cost for installation of steel structures.</li> <li>■ Substantial potential increase in cost between wood structures and steel structures.</li> </ul>

**Table 13A-1: Rationale for Selection of Cost and Constructability Criteria and Appreciable Differences for Final Corridor Routing Analysis**

Criterion	Indicator	Rationale for Selection of Criterion	Difference Considered to be Appreciable <sup>(a)</sup>	Rationale for Appreciable Difference
Very Large Watercourse Crossings	Number of watercourse crossings with a span greater than 400 m and up to 600 m.	Very large watercourse crossings (i.e., 400 m to 600 m) require large steel structures, which will increase the cost and risk of construction. In addition, there are substantial potential aesthetic effects.	One crossing	<ul style="list-style-type: none"> <li>■ Based on professional engineering experience on transmission line projects.</li> <li>■ A difference of one very large waterbody crossing can represent a substantial increase in cost and risk for the installation of large lattice steel structures.</li> <li>■ Substantial increase in cost between wood poles and steel structures.</li> <li>■ Aesthetic effects could result in implementation challenges; greater construction building over large water areas.</li> </ul>
Infrastructure Crossings	Number of highway crossings, power line crossings and railway crossings.	Infrastructure crossings (e.g., railways, highways, power lines) may require permitting, which will increase the cost of construction. Construction is more difficult around other structures.	Five crossings	<ul style="list-style-type: none"> <li>■ Based on professional engineering experience on transmission line projects.</li> <li>■ A difference in five infrastructure crossings can represent a substantial constraint to timing for construction and cost for obtaining permits.</li> </ul>

**Table 13A-1: Rationale for Selection of Cost and Constructability Criteria and Appreciable Differences for Final Corridor Routing Analysis**

Criterion	Indicator	Rationale for Selection of Criterion	Difference Considered to be Appreciable <sup>(a)</sup>	Rationale for Appreciable Difference
Angle Points	Number of angle points that are greater than 10 degrees.	Angle points greater than 10 degrees require three-pole structures, which will increase the cost of construction.	One angle point	<ul style="list-style-type: none"> <li>Based on professional engineering experience on transmission line projects.</li> <li>A difference of five angle points can represent a substantial increase in cost and risk for the installation of three-pole structures.</li> <li>Substantial increase in cost between wood poles and three-pole structures.</li> </ul>
Relative Cost	Cost based on current design, construction and materials. Lowest cost for each area used as baseline.	Preliminary and basic cost estimate. If cost and constructability constraints are too high, the Project may not be feasible.	5%	<ul style="list-style-type: none"> <li>Based on professional engineering experience on transmission line projects.</li> <li>A difference of 5% relative cost can affect the feasibility of the Project</li> </ul>
First Nation Reserves	Length (km) of First Nation Reserves traversed by the 40-m-wide transmission line alignment ROW.	If construction occurs on First Nations Reserve lands, associated easements may affect Project schedule, cost and constructability.	5 km	<ul style="list-style-type: none"> <li>Based on professional engineering experience on transmission line projects.</li> <li>A difference of 5 km in Reserve lands can represent a substantial increase in cost and risk for acquiring easements, and a constraint to timing for construction.</li> </ul>

**Table 13A-1: Rationale for Selection of Cost and Constructability Criteria and Appreciable Differences for Final Corridor Routing Analysis**

Criterion	Indicator	Rationale for Selection of Criterion	Difference Considered to be Appreciable <sup>(a)</sup>	Rationale for Appreciable Difference
Crown Land	Percent of overall length (km) of Crown Land area traversed by the 40-m-wide transmission line alignment ROW, including MNRFP unpatented land, non-freehold dispositions and acquisitions within the ROW. It is noted that the First Nations entered into a treaty relationship with the Crown within the spirit and intent of Indigenous Peoples' understanding based on respect, friendship and mutuality. It is always understood that there would be sharing of lands and resources. Any references to Crown Land in the final corridor routing analysis are without prejudice to the positions of First Nations in relation to Treaty and Aboriginal rights.	<ul style="list-style-type: none"> <li>■ Consideration of potential for effects on land use.</li> <li>■ The option with the largest area of Crown Land is preferred, as this land is not First Nation Reserve land, Provincial Park or private land.</li> </ul>	10%	The corridor with the largest area of Crown Land is preferred because acquisition is simpler than other land uses (e.g., provincial parks and First Nations Reserve land).
Private Land	Area (ha) of private land, including mining claims, traversed by the 40-m-wide transmission line alignment ROW.	If construction occurs on Private lands, associated easements may affect Project schedule, cost and constructability.	5 ha	<ul style="list-style-type: none"> <li>■ Based on professional engineering experience on transmission line projects.</li> <li>■ A difference of 5 hectares (ha) in private lands can represent a substantial increase in cost and risk for acquiring easements, and a constraint to timing for construction.</li> </ul>

Note:

a) The difference considered to be appreciable is the difference  $\geq$  the appreciable difference value between two corridor options that would be considered noticeable for the criteria.

ha = hectare; km = kilometre; kV = kilovolt; m = metre; ROW = right-of-way; % = percent.

**Table 13A-2: Rationale for Selection of Technical Criteria and Appreciable Differences for Final Corridor Routing Analysis**

Criterion	Indicator	Rationale for Selection	Difference Considered to be Appreciable <sup>(a)</sup>	Rationale for Appreciable Difference
Pickle Lake Short Circuit Level	Pickle Lake Short Circuit Level	Line transfer capability. Measure of useable capacity. If a line has too high a level, it limits how much load you can put on it. A low level requires more control. The short circuit level is a measure of the strength of the transmission system. The higher the short circuit level, the stronger the system.	10 MVA	<ul style="list-style-type: none"> <li>Based on past professional engineering experience on transmission line projects.</li> <li>10 MVA represents a substantial increase in the strength of the system and line transfer capability.</li> </ul>
Length of Corridor close to E1C	Length of Corridor close to E1C	The longer the section within 1 km of existing E1C, the higher the potential for a loss of both lines (forest fire risk).	20 km	<ul style="list-style-type: none"> <li>Based on past professional engineering experience on transmission line projects.</li> <li>20 km represents a substantial distance susceptible to concurrent outages between transmission lines due to weather or other extreme incidences.</li> </ul>
Connection to Dryden TS	Connection to Dryden TS	Connection at substation may potentially be more reliable and some equipment may be used to support the new transmission facilities.	n/a	n/a
Potential New Load Customers	Potential New Load Customers along Corridor Route	Increase transmission reliability and growth for industries and communities adjacent the transmission line alternatives.	One customer	The highest number of potential load customers represents the highest potential for new load supply and economic growth.

**Table 13A-2: Rationale for Selection of Technical Criteria and Appreciable Differences for Final Corridor Routing Analysis**

<b>Criterion</b>	<b>Indicator</b>	<b>Rationale for Selection</b>	<b>Difference Considered to be Appreciable<sup>(a)</sup></b>	<b>Rationale for Appreciable Difference</b>
Distance of Tap from Dryden TS	Distance of Tap from Dryden TS	Shorter distance means better switching reliability, maintenance and restoration, as operators are present at Dryden. Potential for greater voltage stability.	20 km	<ul style="list-style-type: none"> <li>■ Based on past professional engineering experience on transmission line projects.</li> <li>■ 20 km represents substantial difference in the increase in switching reliability.</li> </ul>
Waterpower Potential within 30 km	Waterpower Potential within 30 km	Amount of generation capacity that could potentially link into the circuit.	10 MW	10 MW represents a substantial difference for the potential in waterpower potential to facilitate economic growth.

Note:

a) The difference considered to be appreciable is the difference  $\geq$  the appreciable difference value between two corridor options that would be considered noticeable for the criteria

IESO = Independent Electricity Systems Operators; km = kilometres; kV = kilovolt; m = metres; MVA = megavolt ampere; MW = megawatt; n/a = not applicable; TS = transformer station.