

Recommended Scope for the
new Line to Pickle Lake
and
Supported Scope for the
Remotes Connection Project

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IESO

1. Background

On July 20, 2016, the Lieutenant Governor of Ontario, by Order in Council:

- (i) designated as priority transmission projects pursuant to section 96.1 of the *Ontario Energy Board Act, 1998* the construction of an electricity transmission line originating at a point between Ignace and Dryden and terminating at Pickle Lake (the “Line to Pickle Lake”) and the construction of electricity transmission lines extending north from Pickle Lake and Red Lake to connect 16 remote communities (the “Remote Communities”) (the “Remotes Connection Project”); and
- (ii) pursuant to section 28.6.1 of the *Ontario Energy Board Act, 1998* directed (the “Directive”) the Ontario Energy Board (the “OEB” or “Board”) to amend the electricity transmission license conditions of 2472883 Ontario Inc. on behalf of Wataynikaneyap Power LP (“Wataynikaneyap Power LP”) to develop and seek approvals for the Line to Pickle Lake and the Remotes Connection Project.

The Directive further mandated that “[t]he development of the Line to Pickle Lake shall accord with the scope recommended by the Independent Electricity System Operator” and, with regard to the Remotes Connection Project, “[t]he development of these transmission lines shall accord with the scope supported by the Independent Electricity System Operator.”

In response to the Board’s September 1, 2016 letter to the IESO and consistent with the IESO’s September 9, 2016 response, the IESO is providing the Board its *recommended scope* and *supported scope* as it pertains to the Line to Pickle Lake, and Remotes Connection Project, respectively. The IESO is also, as requested, providing its input to aid in the OEB’s determination of reporting requirements that may be appropriate for Wataynikaneyap Power LP with respect to budget, timing, and risks in relation to the Line to Pickle Lake and Remotes Connection Project.

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2. Recommended Scope for the Line to Pickle Lake

The recommended scope for the Line to Pickle Lake is as outlined in the IESO's 2015 North of Dryden Integrated Regional Resource Plan ("IRRP") and as further clarified and particularized below.

The IRRP recommended building a new single circuit 230 kV transmission line from the Dryden/Ignace area to Pickle Lake, and installing a new 230/115 kV autotransformer, related switching facilities and the necessary voltage control devices.

In accordance with the business case for connecting remote communities, and, as confirmed by the making of an Order in Council dated July 20, 2016 declaring the Line to Pickle Lake to be a priority transmission project under section 96.1 of the *Ontario Energy Board Act, 1998* the Line to Pickle Lake should be placed in-service as soon as the transmitter is reasonably able.

For additional clarity:

- The 230 kV line shall be built and operated at 230 kV by interconnecting to circuit D26A near Dryden/Ignace and terminating at a new or expanded existing transformer station near Pickle Lake (approximately 300 km).
- The 230 kV line shall be rated to accommodate at least 185 MVA of continuous power flow. This may be accomplished through the use of a Drake conductor (ASCR 795 kcmil, 26/7) on an H-frame wood-pole structure. Other transmission line designs, including use of other conductor types, structures, and configurations should be considered with a view to minimize costs for these facilities, having regard to technical and environmental feasibility, operability, permitting requirements and consistency with the outcome of any consultation and engagement processes relating to these facilities.
- The 230/115 kV autotransformer to be installed at a new or expanded existing transformer station in Pickle Lake shall be rated to accommodate at least 170 MVA of continuous power flow. This may be accommodated by the installation of a 230/115 kV autotransformer rated at 250 MVA.
- Switching facilities and related protection, control and metering equipment must be installed consistent with requirements of the Transmission System Code and consistent with any System Impact Assessment requirements. The IESO understands that these facilities may be owned and operated by another transmitter who will coordinate with Wataynikaneyap Power LP.
- Voltage control devices must be installed in order to control voltages consistent with the requirements of the Transmission System Code, Market Rules and Ontario Resource and Transmission Assessment Criteria. These devices may include but are not limited to, shunt reactors, shunt capacitors, static-var compensators, or other Flexible AC Transmission System devices.

- Detailed performance characteristics associated with the station facilities must be consistent with System Impact Assessment requirements for the connection of the Line to Pickle Lake. The proposed system configuration should not limit future connections to the IESO-controlled grid, such as the connection of remote communities that are economic to connect which are not currently included in the Wataynikaneyap Power LP Remotes Connection Project.

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3. Supported Scope for the Remotes Connection Project

The supported scope for the Remotes Connection Project is as follows:

Radial lines to the communities from system supply points at Red Lake and Pickle Lake to connect remote First Nation communities.

Facilitate the arrangement of backup electricity supply resources for connecting communities where: such facilities do not already exist, other arrangements have not been made or the community has not specifically requested an exemption. The backup supply resources, at a minimum, will maintain supply to essential loads within critical buildings (nursing station, airport, water treatment plant, and at least one of school/band office/community centre) in each community, consistent with each community's Emergency Preparedness Plan.

In accordance with the business case for connection, and, as confirmed by the making of an Order in Council dated July 20, 2016 declaring the Remotes Connection Project to be a priority transmission project under section 96.1 of the *Ontario Energy Board Act, 1998* the Remotes Connection Project, should be placed in-service as soon as the transmitter is reasonably able.

For additional clarity:

- A radial single circuit 115 kV transmission line must be installed ("north of Pickle Lake Line"), in combination with radial lateral connections and transformer stations as discussed below. It should also be installed to connect to the provincial transmission system, at least the 10 communities¹ north of Pickle Lake that are economic to connect, via a new or expanded station at or near Pickle Lake.
- The north of Pickle Lake Line shall be rated to accommodate at least 40 MVA. This may be accomplished through the use of an ASCR 477kcmil conductor on an H-frame structure. However, other conductor and/or structure types and configurations should be considered with a view to minimize costs for these facilities, having regard to technical and environmental feasibility, operability, permitting requirements and consistency with the outcome of any consultation and engagement processes relating to these facilities. Other factors should be considered such as voltage performance, losses, and maintainability.
- A radial single circuit 115 kV transmission line ("north of Red Lake Line"), in combination with radial lateral connections and transformer stations as discussed below, must be installed. It should also connect to the provincial transmission system, at least

¹ Kitchenuhmaykoosib Inninuwug (Big Trout Lake) First Nation, Bearskin Lake First Nation, Sachigo Lake First Nation, Muskrat Dam First Nation, Kingfisher Lake First Nation, North Caribou Lake (Weagamow/Round Lake) First Nation, Wapekeka First Nation, Kasabonika Lake First Nation, Wawakepewin First Nation, Wunnamin Lake First Nation

the 6 communities² north of Red Lake that are economic to connect, via a new or expanded station at or near Red Lake.

- The north of Red Lake Line shall be rated to accommodate at least 40 MVA. This may be accomplished through the use of an ASCR 477kcmil conductor on an H-frame structure. However, other conductor and/or structure types and configurations should be considered with a view to minimize costs for these facilities, having regard to technical and environmental feasibility, operability, permitting requirements and consistency with the outcome of any consultation and engagement processes relating to these facilities. Other factors to be considered include voltage performance, losses and maintainability
- Multiple radial lateral connections to the north of Pickle Lake Line and north of Red Lake Line must be installed, and may be at either transmission-level voltage or sub-transmission voltage. The lines that are at sub-transmission voltage levels should be selected with a view to minimize costs while meeting the required technical performance standards, having regard to technical and environmental feasibility, operability, permitting requirements and consistency with the outcome of any consultation and engagement processes relating to these facilities. Other factors to be considered include voltage performance, losses and maintainability.
- Multiple step-down transformer stations must be installed to serve one or more communities, connected to the north of Pickle Lake Line, north of Red Lake Line, and/or radial lateral connections. The location and number of transformer stations should be selected to minimize costs while meeting the required technical performance standards outlined in the Transmission System Code and/or Distribution System Code, as appropriate.
- Wataynikaneyap Power LP should seek to minimize costs for the Remotes Connection Project through optimization of line length of transmission and sub-transmission facilities, the number and location of step-down transformer stations and line length of distribution feeders, with a view to minimize costs for these facilities, having regard to technical and environmental feasibility, operability, permitting requirements and consistency with the outcome of any consultation and engagement processes relating to these facilities.
- Switching facilities must be installed consistent with requirements of the Transmission System Code and consistent with any System Impact Assessment requirements.
- Voltage control devices must be installed in order to control voltages consistent with the requirements of the Transmission System Code, Market Rules, and Ontario Resource and Transmission Assessment Criteria. These devices may include but are not limited to, shunt reactors, shunt capacitors, static-var compensators, or other Flexible AC

² Sandy Lake First Nation, Keewaywin First Nation, Deer Lake First Nation, North Spirit Lake First Nation, Poplar Hill First Nation, Pikangikum First Nation

Transmission System devices, consistent with any System Impact Assessment requirements.

- Detailed performance characteristics associated with the station facilities must be consistent with any System Impact Assessment requirements for the connection of the Remotes Connection Project. The proposed system configuration should not limit future connections to the IESO-controlled grid, such as the connection of remote communities that are economic to connect which are not currently included in the Wataynikaneyap Power LP Remotes Connection Project.

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4. IESO Input for OEB Reporting Requirements

The following is the IESO's input to aid in the OEB's determination of reporting requirements that may be appropriate for Wataynikaneyap Power LP with respect to budget, timing, and risks in relation to the Line to Pickle Lake and the Remotes Connection Project.

The IESO recommends that Wataynikaneyap Power LP report to the Board on a quarterly basis, beginning no more than three months from the issuance of its amended transmission licence and ending when a leave to construct decision is issued (which will presumably have reporting requirements) for each of the Line to Pickle Lake and Remotes Connection Project. The report should address the following matters:

1. Overall project progress: An executive summary of work progress, cost and schedule status, and any emerging issues/risks and proposed mitigation.
2. Cost: An up-to-date overall project cost forecast, as well as a description of the reasons for any projected variances relative to the last cost forecast provided, and any mitigating measures.
3. Schedule: An up-to-date schedule to project in-service, as well as the milestones completed and the status of milestones in-progress. For milestones that are delayed relative to the last schedule provided, the reasons for the delay, the magnitude and impact of the delay in terms of the development schedule and cost, and any mitigating steps that have or will be taken to complete the task.
4. Risks and Issues Log: An assessment of the risks and issues, potential impact on schedule, cost or scope, as well as potential options for mitigating or eliminating the risks or issues.

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