

FEBRUARY 11, 2021

East Lake Superior

Integrated Regional Resource Plan (IRRP)

Engagement Webinar #3

Objectives of Today's Engagement Webinar

- To provide an update on the electricity planning underway in the East Lake Superior region
- To provide an overview of the options analysis and seek input on draft recommendations
- To outline next steps

Seeking Input

As you listen today, please consider the following questions to guide your feedback on the draft recommended plan for East Lake Superior:

- What information needs to be considered in these recommendations?
- Is there community feedback to the proposed recommendations?
- How can the East Lake Superior Technical Working Group continue to engage with communities as these recommendations are implemented, or to help prepare for the next planning cycle?

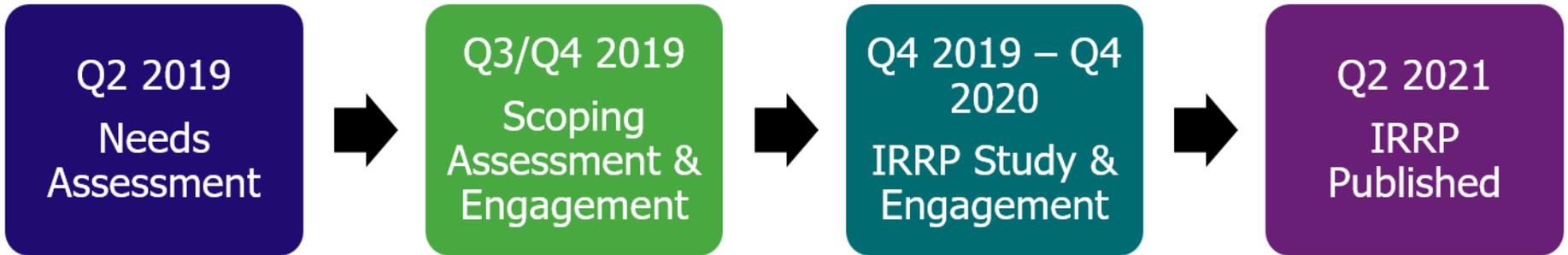
Please submit your written comments by email to engagement@ieso.ca by **March 4**



Long-term Electricity Plan Status Update

East Lake Superior Long-term Electricity Plan Status

- IRRP study work began in Q4 2019, and is on track for completion in early Q2 2021
 - Electricity demand forecast and needs have been determined, potential options identified and evaluated, and draft recommendations developed
 - The next focus is on finalizing recommendations



Recap: Engagement Activities to Date

- [Engagement launched](#) on East Lake Superior Scoping Assessment – August 2019
 - Draft report posted for public comment and [webinar](#) held – August 27, 2019
 - [Final report](#) posted with [IESO responses](#) to comments received – October 3, 2019
- [IRRPP engagement launched](#) – May 14, 2020
- Meetings with City of Sault Ste. Marie – December 3 2019, May 20 and October 29, 2020
- Public webinar #1 to seek input on draft electricity demand forecast and planned engagement activities – June 4, 2020; [responses to feedback](#) received during the webinar requesting further details/clarification posted
- Public webinar #2 to seek input on options screening and range of potential solutions to be examined – November 17, 2020; [responses to feedback](#) received posted

What we've heard so far...

- Planned industrial developments and expansions and initiatives are major economic drivers with potentially significant future electricity needs, and longer-term planning should consider this growth to identify system capacity and upgrades required.
- Strong local preference in alternative energy such as microgrids, biogas and renewables and other forms of non-wires alternatives (NWA) such as residential demand response to meet the region's future electricity needs
- Work underway to identify projects aimed at reducing corporate and community energy use and GHG emissions that may have impacts on the future electricity needs of the region (e.g. electrification of transit and heating processes)

Overarching Themes

- Needs identified are related to the risk of the local transmission network not meeting their technical requirements to deliver a reliable supply of electricity to the East Lake Superior region
- Specific electricity infrastructure has been identified as facing challenges with reliably supplying electricity as per planning criteria under certain contingency events

Overarching Themes (cont'd)

- The majority of needs are expected to be most effectively addressed through transmission solutions including ways to manage the demand on the system
- Ongoing monitoring of growth and development in the East Lake Superior region will be critical to ensuring the adequacy and reliability of the electricity infrastructure post-IRRP
- A Bulk Study will be undertaken by the IESO in 2021 to address the high industrial load growth in the Northeast area



Re-Cap of East Lake Superior Needs

Summary of East Lake Superior Needs

Location	Type of Need	Approximate Timing	Description
A) Electricity Supply to Sault Ste. Marie	Approaching Station Capacity	n/a	The 230 kV/115 kV transformer station supplying Sault Ste. Marie is approaching its supply capacity limits and remains close to capacity through the planning horizon
B) Electricity Supply to Sault Ste. Marie	Reliability	Immediate	Voltage performance issues are expected to arise should both of the transmission circuits supplying Sault Ste. Marie (P21G and P22G) be out of service
C) Electricity supply within Sault Ste. Marie	System Capacity	Immediate	Thermal issues are expected to arise on the No. 1 Algoma transmission circuit supplying load within Sault Ste. Marie should both of its companion circuits be out of service

Summary of East Lake Superior Needs (cont'd)

Location	Type of Need	Approximate Timing	Description
D) Electricity Supply within Sault Ste. Marie and the Mackay subsystem	System Capacity	2025	Thermal issues are expected to arise on the No. 3 Sault line between Sault Ste. Marie and the Mackay subsystem should two of the transmission circuits that support transfers into the Northwest be out of service



Options Analysis and Recommendations

Categories of Options

Need	Description
Non-wires	Local load modifying solutions such as distributed energy resources (including distributed generation/storage and demand response); and/or energy efficiency measures; and/or, large utility-scale generation facilities strategically located to alleviate a local reliability need
Wires	Traditional transmission assets such as switching stations, transformer stations, or transmission lines; may also include protection schemes and control and operational actions such as load rejection

Evaluating Options

- Once options for addressing needs have been identified, plan recommendations are developed and informed by:
 - The technical ability of the option to address the need
 - The cost of the option; preference is generally given to the least cost alternative that meets the identified need
 - Opportunities to address multiple needs with a single solution
 - Input from community engagement

A) Station Capacity to Supply Sault Ste. Marie

Options	Description	Analysis
Monitor	Monitor load growth in the region to ensure continued reliability of supply	While the station is reaching its capacity, it is sufficient over the planning horizon when considering the reference forecast
Non-wires (Generation)	Employ local generation to offset future growth to ensure that station capacity is sufficient for the region	No specific actions required at this time; however, uptake of non-wires resources will be monitored as part of ongoing planning
Non-wires (Conservation and Demand Management)	Employ incremental CDM beyond savings expected from the Provincial 2021-2024 CDM Framework	No specific actions required at this time; however uptake of non-wires resources will be monitored as part of ongoing planning

B) Reliability of System Supply to Sault Ste. Marie

Options	Description	Analysis
Wires	Modify the existing load rejection scheme to arm 75 MW of load rejection during periods of high demand in case the transmission circuits supplying Sault Ste. Marie (P21G and P22G) are both out of service	Approximate cost is \$50K as there is an existing scheme that can be modified to accommodate this scenario. The likelihood of rejecting the load as a result of both transmission circuits being out of service is low, but must be planned for as per planning standards
Non-wires (Generation and Demand Response)	Employ local generation and demand response to offset peak demand to eliminate the need	75 MW of strategically located generation / demand response could address the need; however, the cost is expected to be much higher than the wires option (estimated NPV of \$250M including consideration of system capacity value) and would require 3-5 years of lead time
Non-wires (Conservation and Demand Management)	Employ incremental CDM beyond savings expected from the Provincial 2021-2024 CDM Framework	This option was screened out based on the timing and the magnitude of the need. Incremental CDM can not meet the need of 75 MW within the required time frame (immediately)

C) System Capacity Within Sault Ste. Marie

Options	Description	Analysis
Wires	New load rejection scheme designed to arm 75 MW of load rejection automatically during periods of high demand in case the companion transmission circuits to No. 1 Algoma are both out of service	Approximate cost is \$5M - \$10M. This is an existing issue that is addressed via a temporary manual scheme
Wires	Re-terminate the transmission circuits such that both companion transmission circuits are not simultaneously lost under certain planning scenarios	This solution does not address the planning scenario in which the companion circuits are lost sequentially and thus ruled out
Non-wires (Generation and Demand Response)	Employ local generation and demand response to offset peak demand to eliminate the need	Refer to need B)
Non-wires (Conservation and Demand Management)	Employ incremental CDM beyond savings expected from the Provincial 2021-2024 CDM Framework	Refer to need B)

D) System Capacity in Sault Ste. Marie and Mackay

Options	Description	Analysis
Wires	Employ control actions to open the No. 3 Sault Line between Sault Ste. Marie and the Mackay subsystem when there is an outage of one of the bulk transmission circuits transferring power into the Northwest	This will address the need on the No. 3 Sault Line; however, it will overload the companion bulk transmission circuit. This will be considered further as part of IESO's bulk planning process
Non-wires (Generation and Demand Response)	Employ local generation and demand response to offset peak demand to eliminate the need	This will be further considered as part of the IESO's bulk planning process
Non-wires (Conservation and Demand Management)	Employ incremental CDM beyond savings expected from the Provincial 2021-2024 CDM Framework	This will be further considered as part of the IESO's bulk planning process

Preferred Options

Need

Preferred Option

A) Station Capacity to Supply Sault Ste. Marie

Monitor load growth in the region to ensure continued reliability of supply. Monitor development and uptake of non-wires alternatives and solutions in the region

B) Reliability of System Supply to Sault Ste. Marie

Modify the existing load rejection scheme to arm 75 MW of load rejection during periods of high demand in case the transmission circuits supplying Sault Ste. Marie (P21G and P22G) are both out of service

C) System Capacity Within Sault Ste. Marie

New load rejection scheme designed to arm 75 MW of load rejection automatically during periods of high demand in case the companion transmission circuits to No. 1 Algoma are both out of service

D) System Capacity in Sault Ste. Marie and Mackay

Employ control actions to open the No. 3 Sault Line between Sault Ste. Marie and the Mackay subsystem when there is an outage of one of the bulk transmission circuits transferring power into the Northwest and further study as part of a bulk plan

Summary of Recommendations



Monitor load growth in the East Lake Superior region to ensure continued reliability of supply; monitor uptake and development of non-wires resources and solutions

Implement operational measures to ensure reliability of system supply within the region and coordinate with outcomes of the bulk planning process, as required

Study industrial growth scenarios through IESO bulk planning process



Next Steps

Your Feedback is Important

As you prepare your feedback, consider the following questions to guide feedback your feedback on the draft recommended plan for the East Lake Superior IRRP:

- What information needs to be considered in these recommendations?
- Is there community feedback to the proposed recommendations?
- How can the Working Group continue to engage with communities as these recommendations are implemented, or to help prepare for the next planning cycle?

**Please submit your written comments by email to
engagement@ieso.ca by **March 4****

Next Steps for Engagement

- Written feedback due period on options analysis and draft recommendations – March 4
- Final East Lake Superior IRRP posted with IESO responses to feedback received – April 4
- Ongoing discussion is encouraged through the Northeast Network to prepare for the next planning cycle and to facilitate monitoring

Keeping in Touch

- [Subscribe](#) to receive updates on the East Lake Superior regional electricity planning initiatives on the IESO website – select East Lake Superior
- Follow the [East Lake Superior regional planning](#) activities on the dedicated engagement [webpage](#)
- Join the Northeast Regional Electricity Network on [IESO Connects](#) provide a platform for ongoing engagement on electricity issues

Questions?

Do you have any questions for clarification on the material presented today?

Submit questions via the web portal on the webinar window, or by email to engagement@ieso.ca

Seeking Input on the Webinar

- Tell us about today
- Was the material clear? Did it cover what you expected?
- Was there enough opportunity to ask questions?
- Is there any way to improve these gatherings, e.g., speakers, presentations or technology?

Chat section is open for comments

Questions