DECEMBER 11, 2025

East Lake Superior Regional Electricity Planning

Engagement Webinar: Electricity Needs and Options Identification

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Land Acknowledgement

The IESO acknowledges that the East Lake Superior region is the traditional territory of the Anishinaabe, including the Ojibwe, the Odawa and the Potawatomi peoples, including those covered by the Robinson-Huron Treaty and Robinson-Superior Treaty.

The IESO would also like to acknowledge all First Nations, Inuit and Métis peoples and their valuable past and present contributions to this land.

Agenda

1. East Lake Superior Land Acknowledgement
2. Ontario's Electricity Sector and IESO's Role
3. Recap: Regional Electricity Planning & the Demand Forecast
4. Electricity Needs
5. Options Identification
6. Next Steps & Discussion

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We work with:

Generators >>> **Transmitters** >>> **Local Distribution Companies** >>> **Energy Consumers**

<<< **Communities** >>>

Summary

- Regional planning is underway to address transmission system needs within the East Lake Superior electrical region.
- An Integrated Regional Resource Plan (IRRP) will be developed for East Lake Superior and led by a Technical Working Group, consisting of the IESO, Hydro One Networks Inc., Hydro One Networks Sault Ste. Marie L.P., PUC Transmission L.P., Algoma Power Inc., and PUC Distribution.
- In July, the IESO hosted a public engagement webinar to share the draft electricity demand forecast. The IESO requested feedback and a response from the IESO was posted on the engagement webpage.
- The Technical Working Group has advanced the study and will share the detailed analysis of the region's electricity infrastructure needs and will provide an overview of the wire and non-wire options that will be considered to meet the needs.
- Your input will help ensure that any additional information or considerations are included as part of the decision-making process.

Seeking Input

Local considerations and feedback are a critical component to the development of an Integrated Regional Resource Plan (IRRP). The IESO wants to understand:

- What feedback do you have on the wire and non-wire options that will be considered to meet the region's electricity needs?
- What additional information should be considered in the evaluation of wire and non-wire options?
- Are there any additional information that should be provided in future engagements to help understand community perspectives and insights?

The IESO welcomes written feedback until **Friday, January 30, 2026.** Please submit feedback to engagement@ieso.ca.

Recap: Regional Electricity Planning Process & the Demand Forecast

Electricity Planning in Ontario

Provincial/Bulk System Planning

Addresses provincial electricity system needs and policy directions.

Completed: Northeast Bulk Plan

Completed: Northern Ontario Bulk Planning

Regional Planning

Addresses local electricity system needs at the transmission system level.

Underway: East Lake Superior IRRP

Distribution Planning

Addresses local electricity system needs and priorities at the distribution system level.

Led by local distribution companies.

Regional Planning in East Lake Superior

- The regional planning process ensures an affordable and reliable supply of electricity across Ontario.
- The process looks at the unique needs of each region and considers a range of options and resources to keep the lights on.
- Regional planning is currently underway in the East Lake Superior electrical region.
- East Lake Superior extends from the Township of Dubreuilville in the north to the town of Bruce Mines and includes the City of Sault Ste. Marie and the Township of Chapleau.

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Technical Working Group

The regional planning process is conducted by a Technical Working Group, consisting of:

Team Lead, System Operator	• Independent Electricity System Operator
Lead Transmitters	• Hydro One Sault Ste. Marie • Hydro One Networks Inc. • PUC Transmission LP
Local Distribution Companies	• Algoma Power Inc. • Hydro One Networks Inc. • PUC Distribution

Previous Electricity Planning for East Lake Superior

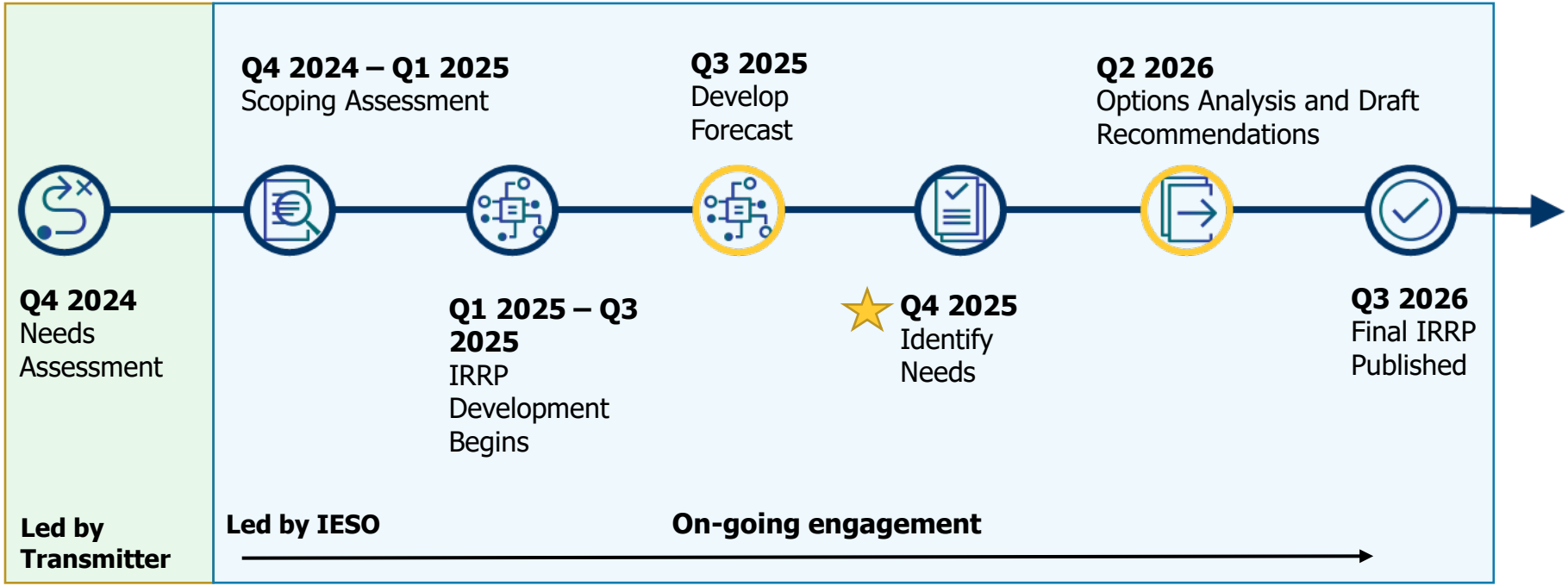
East Lake Superior has been at the centre of several significant transmission recommendations to meet increased economic growth and electricity demand within the region and throughout Northern Ontario.

Previous recommendations includes:

- **The East-West Tie Expansion:** new 230kV transmission line parallelling the existing East-West Tie Line between Wawa and Thunder Bay to increase capacity between Northeast and Northwest Ontario (in-service 2022).
- **The April 2021 East Lake Superior IRRP**: monitor and utilize operational measures to manage the gradual demand locally while deferring electricity needs due to large industrial growth to the Northeast Bulk Plan.
- **Northeast Bulk Plan:** three transmission lines (planned completion in 2029-2030) to increase capacity to the area and a subsequent **voltage study** to identify locations for static and dynamic reactive devices (in-service from 2025-2029).
- **Northern Ontario Bulk Plan:** new ~270km of a single circuit transmission line with early development work on a possible second line to address bottlenecks and increase capacity in Northeastern Ontario.

These solutions have ensured a reliable supply of electricity to the area and more broadly throughout Northern Ontario. Continued demand growth within the East Lake Superior electrical region will require more electricity planning.

2024-2026 East Lake Superior Planning Timeline



Forecast Scenarios

Two forecast scenarios have been developed for East Lake Superior:

- The **reference** scenario will drive firm recommendations.
- The **high** scenario will help plan for potential load growth, guide early development work and identify triggers for further investment.

While plan recommendations will primarily be driven by the reference demand forecast, the high forecast scenario will be considered to test the robustness of the plan, identify signposts to monitor changes, and contemplate additional actions required if higher demand growth materializes.

Insights have been incorporated from customers and other interested parties. More details can be found in the Public Webinar #1 recording on the engagement webpage.

Final East Lake Superior Demand Forecast

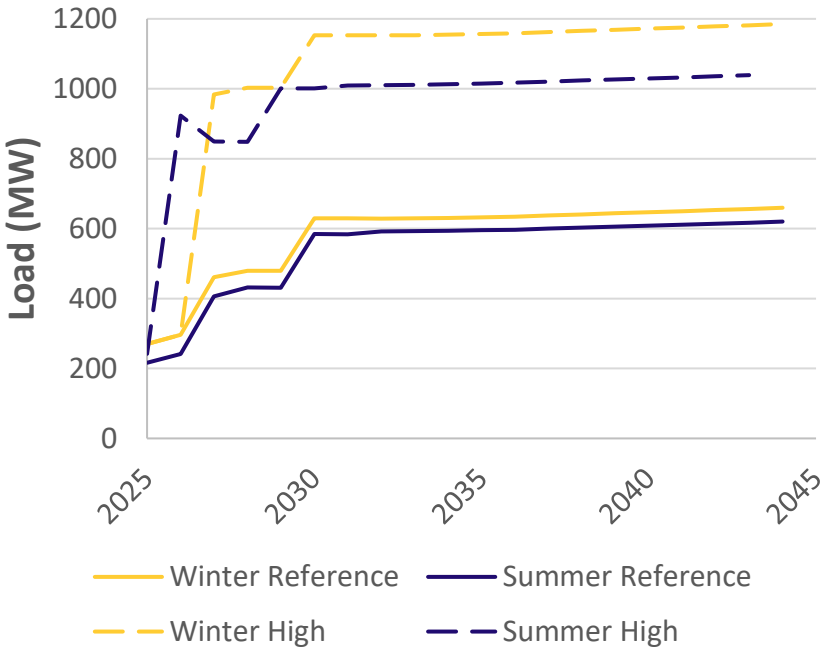
Two forecast scenarios have been developed:

- **Reference Scenario**: Between 2026 to 2030, electricity demand is forecasted to increase by 142% in summer and 112% in winter.
- **High Scenario**: Over the same period, electricity demand could rise by 314% in summer and 289% in winter.

Growth is primarily driven by various industrial loads and electrification.

For context and scale, Ontario's electricity demand could grow by 65% by 2050.

To meet the needs, both wires and non-wires options will be evaluated.



Feedback Received

Key Areas of Feedback	Outcome
Ensure climate impacts are accounted for throughout the development of the IRRP.	Climate considerations, such as temperature trends, extreme weather risks, and long-term system impacts are integrated throughout the development of the IRRP, and in evaluating new and upgraded infrastructure. At this phase of the IRRP's development, the Technical Working Group has developed forecast scenarios based on known drivers, including, Climate Change Action Plans and accounts for extreme weather adjustments. More details about extreme weather methodology is available here.
Share strong justification for all new or upgraded infrastructure developments.	The IESO acknowledges the importance of community and stakeholder preferences during the development of options, including new or upgraded infrastructure, and appreciates these insights. Throughout the development of the IRRP, the IESO welcomes feedback, preferences, reports and insights from Indigenous communities, municipalities and interested stakeholders.

Please see the East Lake Superior engagement webpage for the feedback and IESO response.

Regional Electricity Needs

Electricity Needs in East Lake Superior

The Technical Working Group used the final demand forecast to assess if the existing transmission stations and lines can meet the forecasted growth within safe operating standards. If it cannot, the shortfall is categorized into one of five needs:

- **Station capacity:** Ability of a station to deliver power from the grid down to the distribution systems.
- **Supply capacity:** Ability of the system to supply power through the transmission lines to a local area.
- **Asset replacement:** Station or transmission equipment has reached end of life.
- **Load restoration:** Ability of the system to restore power after an interruption or loss of load.
- **Load supply security:** Maximum amount of power that can be lost during select contingencies.

In East Lake Superior, the electricity system has station and supply capacity needs, resulting in constraints throughout the transmission lines and stations.

Station Capacity Needs

Electricity Need	Impacted Asset	Circumstance of Need	Magnitude*	
			2025	2044
Station Capacity: the ability of a station to deliver power from grid to distribution system	Chapleau DS	Chapleau DS is expected to exceed capacity in 2028 as expiry of the Chapleau Cogeneration Facility contract increases load on the station.	2 MW	9 MW

* MW (megawatts) represents active power, which is the amount of electricity to supply customer demand. Mvar (megavolt-amperes reactive) represents reactive power, which is required to maintain voltage levels and system stability for reliable electricity delivery.

Supply Capacity Needs

			Magnitude*	
Electricity Need	**Impacted Asset**	**Circumstance of Need**	**2025**	**2044**
Supply Capacity: the ability of the system to supply power through the transmission lines to a local area.	Chapleau DS, Chapleau MS	Voltage at Chapleau are below acceptable thresholds due to load increase in the area.	0 MW	10 MW
	Sault Ste. Marie 115kV Interface	The Sault Ste. Marie interface consists of 115kV line from Goulais Bay TS to Third Line TS and Third Line TS autotransformers. The interface faces voltage stability issues when both autotransformers at Third Line TS are out.	0 MW	95 MW
	Algoma 115kV Interface	The Algoma interface consists of three lines: Algoma #1, #2 and #3. The interface is limited by Algoma #1's thermal rating, which overloads under certain contingencies. This need impacts radially connected industrial customers. Under the high forecast, needs may appear.	0 MW	0 MW

*The need represents the MW need over and above the system's supply capacity based on the reference forecast.

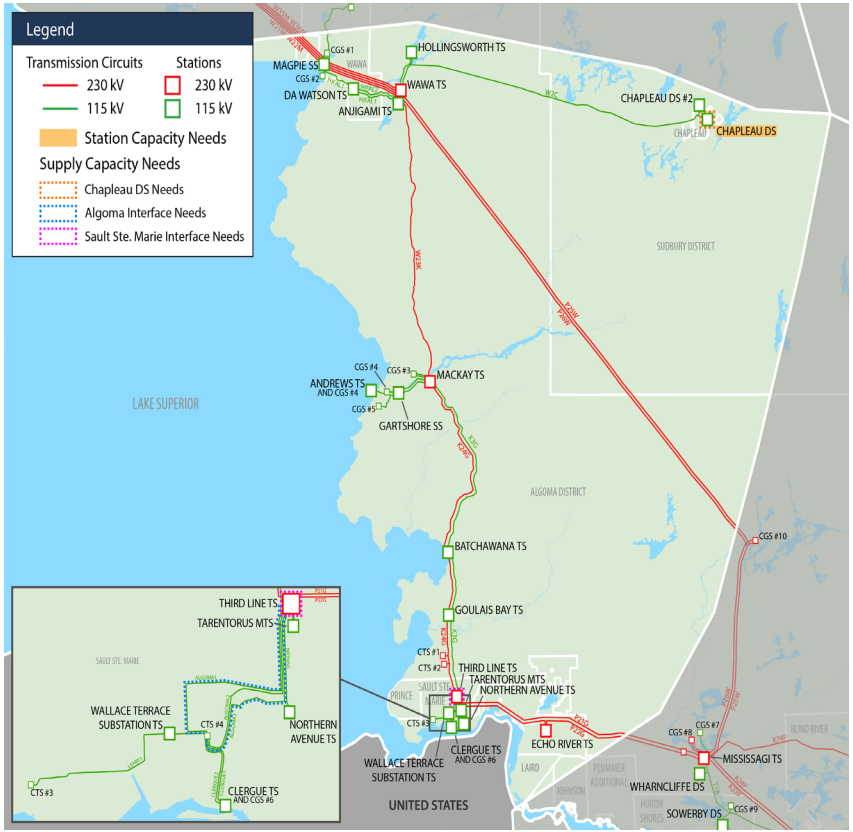
Overview of Electricity Needs

In East Lake Superior, four electricity system needs have been identified:

- The station capacity need at Chapleau DS emerge in 2028 and relates to capacity limitations.
- The three supply capacity needs along transmission lines at Chapleau DS, in the Algoma interface and in the Sault Ste. Marie interface emerge in the near-term and reflect supply constraints across the system.

The electricity needs are winter-peaking.

Today, the electricity system can meet reliability standards. With the forecasted growth, the Technical Working Group recommends to plan reinforcement to maintain reliability.



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Options Identification

Background: Meeting Electricity Needs

To address the identified electricity system needs, both wire and non-wire options will be considered. Over the course of the regional planning process, the Technical Working Group will:

- **Complete the detailed options analysis to identify the wire and non-wire options** that can meet the needs under the reference forecast, including:
  -  Traditional wires option to supply local area
  -  Non-wires alternatives (NWAs), such as transmission and/or distribution-connected generation and/or energy storage, electricity demand-side management or demand response
- **Share the options analysis to gather feedback and enhance the development and evaluation of options** before making a final recommendation.

Key Considerations for Determining Options

Considerations	Key Details
Technical Feasibility	The Technical Working Group will screen all options, including wires and non-wires alternatives, with respect to established criteria and guidelines (e.g., ORTAC, Guide to Assessing Non-Wires Alternatives, etc.). Only options that can meet technical criteria will be considered further.
Economics	All technically feasible options are assessed for their cost-effectiveness. Typically, the options with the lowest net present value of annual net consumer costs are usually selected as the preferred recommendations in IRRPs. Preferred options that have similar economic performance would be subject to other considerations before arriving at a recommendation.
Timing	The IRRP recommendations will depend on timing of need and lead time of most appropriate solution. E.g., energy efficiency programs can be implemented quickly, while transmission reinforcement projects require 7-10 years.
Community Considerations	Community preferences and feedback regarding potential options, for example resiliency.

Options Overview

The following wire and non-wire options will be considered to meet the electricity needs in East Lake Superior:

- **Distribution-level load transfers:** Moving load from one station to another station that has available capacity – these are typically low cost and can be quickly implemented.
- **Electricity demand side management (eDSM):** Implementing additional eDSM programs and initiatives to reduce electricity needs.
- **Local generation and/or storage options:** Exploring opportunities for new or expanded local generation including battery storage that can provide capacity, energy or voltage support to the area.
- **Wire options:** Considering system reinforcements such as new or upgraded transmission facilities, additional autotransformer capacity, advanced control actions, and Remedial Action Schemes (RAS) enhancements to improve system capability and reliability.

Next Steps & Discussion

Energy Efficiency Opportunities

- To help meet the province's rapidly growing demand for electricity, the IESO's energy efficiency programs, through Save on Energy, has been expanded from $1 billion over four years, to $10.9 billion over 12 years.
- Key programs of interest to your municipality, residents and small businesses include:
  - Peak Perks – Residential and small business electricity customers with an eligible smart thermostat can be rewarded for reducing their energy use when demand for electricity is high in the summer.
  - Home Renovation Savings – Homeowners can get rebates up to 30% for home energy efficiency renovations and improvements.
  - Retrofit – Facility/building owners and lessees can get up to 50% of eligible project costs covered for targeted energy efficiency retrofits.
  - Energy Affordability Program – Support for income-eligible electricity customers to better manage monthly electricity costs and increase their home comfort.
- Some programs will expand later in 2025 – to stay informed, sign up for the quarterly newsletter.

Ongoing Engagement

Your input plays an important role in developing the electricity plan

Subscribe to receive updates → select East Lake Superior

Participate in upcoming public engagement webinars

Follow the East Lake Superior regional planning activities online

Next Steps

The IESO will continue to engage and inform throughout the IRRP's development. Participants can expect to hear from the IESO at these milestones:

December 11, 2025: Electricity needs and options identification presented in a public engagement webinar.

January 30, 2026: Deadline for feedback to the IESO.

Q2 2026: Complete the detailed options analysis and share draft recommendations in a public engagement webinar with an opportunity to provide feedback.

Q3 2026: IRRP report will be completed and published on engagement webpage.

After IRRP: Depending on the recommendations of the IRRP, the following next steps can be expected:

- For wires solutions, the local transmitter will lead the development of a Regional Infrastructure Plan, which assesses and develops a detailed plan on how wire options can be implemented.
- For non-wire solutions, implementation mechanisms for new resources and energy efficiency programs will be determined following plan publication.

East Lake Superior Regional Planning Key Takeaways

- Electricity demand could rise by 142% in summer and 112% in winter between 2026 to 2030. Growth is primarily driven by various industrial loads and electrification.
- The Technical Working Group has identified one station capacity need (Chapleau DS by 2028) and three supply capacity needs in the near-term.
- The nature of the electricity needs include station overload, thermal limits on key lines and voltage stability risks at key interfaces. Today, the electricity system can meet reliability standards. With the forecasted growth, the Technical Working Group recommends to plan reinforcement to maintain reliability.
- To meet the needs, wire and non-wire options, including new and/or upgraded stations and transmission lines, distributed generation, energy storage and electricity demand-side management will be considered.
- Options will be evaluated on its ability to meet reliability standards, cost-effectiveness and alignment with the timing of needs.
- Community feedback will inform the options analysis before recommendations are final.

Seeking Input

Local considerations and feedback are a critical component to the development of an Integrated Regional Resource Plan (IRRP). The IESO wants to understand:

- What feedback do you have on the wire and non-wire options that will be considered to meet the region's electricity needs?
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The IESO welcomes written feedback until **Friday, January 30, 2026.** Please submit feedback to engagement@ieso.ca.

Thank You

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Appendix

Components of an IRRP

Demand Forecast	Needs	Potential Solutions	Recommendations
How much power is needed over the planning timeframe?	What needs are emerging in the region that need to be addressed?	What kinds of solutions can meet the future needs for the region?	Based on an assessment of potential options, what recommended actions will ensure a reliable and adequate electricity supply for the region over the long-term?

Developing the Demand Forecast

Local distribution companies (LDCs) are the main source for the demand forecast, and they:

- Provided summer and winter demand forecasts for each station their areas are supplied from,
- Incorporated municipal and community plans into their forecasts, and
- Established forecasting assumptions based on customer growth plans.

In addition to LDC forecast, the IESO and the Technical Working Group:

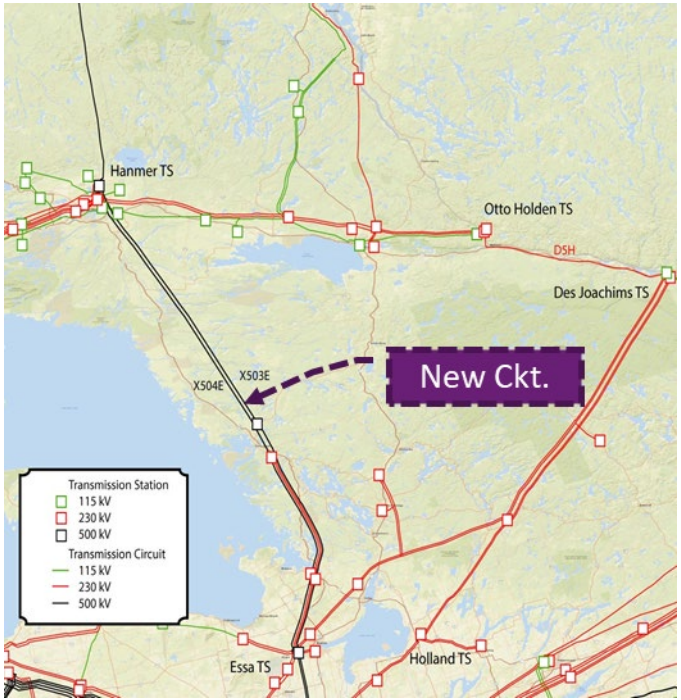
- Accounts for impacts of existing demand side management programs, planned distributed generation, and extreme weather conditions in the electricity demand forecasts.
- Works directly with customers and industry stakeholders to create demand forecasts for large electricity consumers that may seek connection on the transmission system.
- Works with the LDC to ensure that additional insights from municipalities, customers, and other interested parties have been incorporated in the demand forecasts for the regional planning process.

Northern Ontario Bulk Study

Northern Ontario Bulk Study

In September 2025, the North-South Transmission Reinforcement Plan was published. Key findings included:

- Electricity demand from the industrial sector in Northern Ontario is forecast to grow at a rapid pace, driven by mining developments and electrification initiatives.
- The existing transmission system has insufficient capability to reliably supply forecasted demand.
- Key recommendations include ~270km of a single circuit transmission line with early development work on a possible second line.



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