



**JUNE 4, 2026**

# East Lake Superior Regional Electricity Planning

## Engagement Webinar: Options Analysis and Draft Recommendations

# 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, Electricity Needs and Screening of Options
4. Options Analysis and Draft Recommendations
5. Next Steps & Discussion

# Our Commitment to Respectful Participation

- One speaker at a time; please raise your hand to enter the speaking queue.
- Keep remarks concise (approximately 60-90 seconds) and focused on the agenda topic.
- Avoid repeating points already covered; detailed feedback may be submitted in writing for follow-up.
- Maintain a respectful tone at all times.
- The IESO may redirect discussion to keep the agenda on track.
- Participants that are unable to participate respectfully by adhering to these principles may have their microphone disabled.



Connecting Today.  
Powering Tomorrow.



We work with:



# 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:**

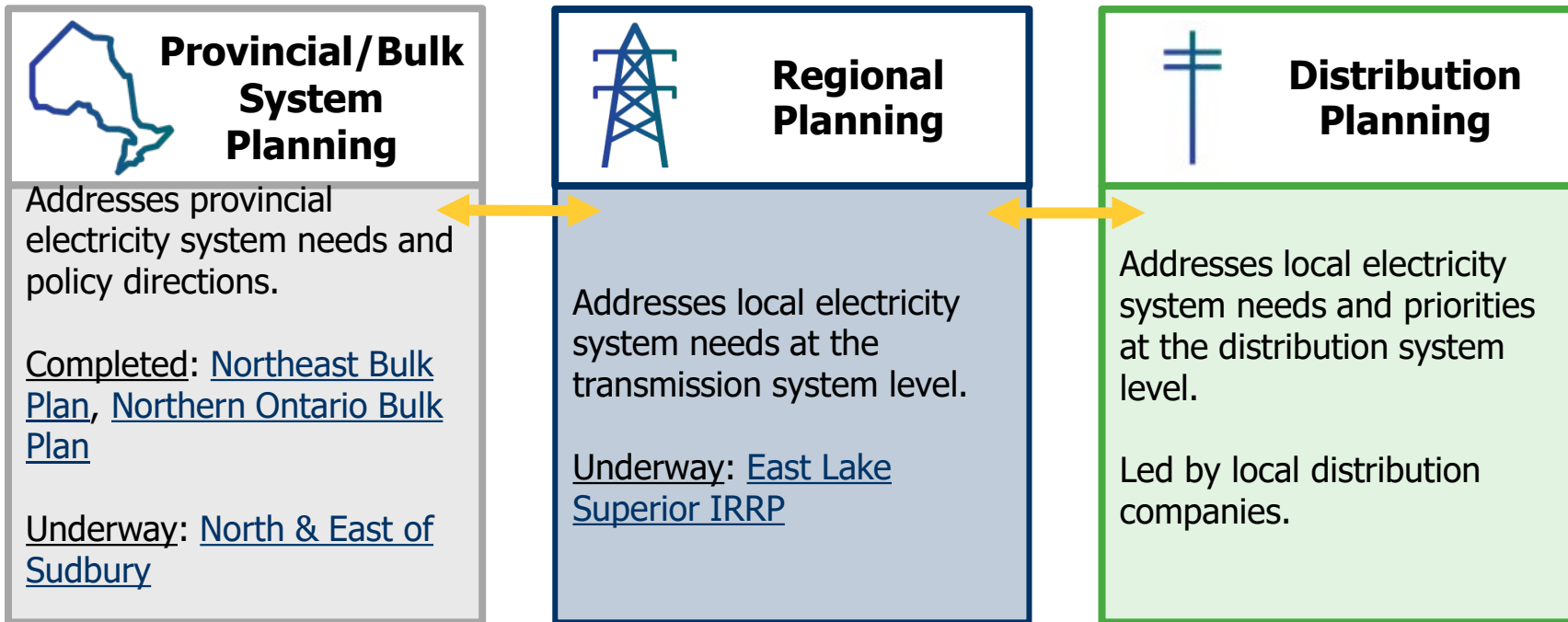
- What feedback is there on the draft recommendations?
- What information needs to be considered in the draft recommendations?
- How can the IESO continue to engage with communities and stakeholders as these recommendations are implemented, or to help prepare for the next planning cycle?

The IESO welcomes written feedback until **Thursday, June 25, 2026**. Please submit feedback to [engagement@ieso.ca](mailto:engagement@ieso.ca).



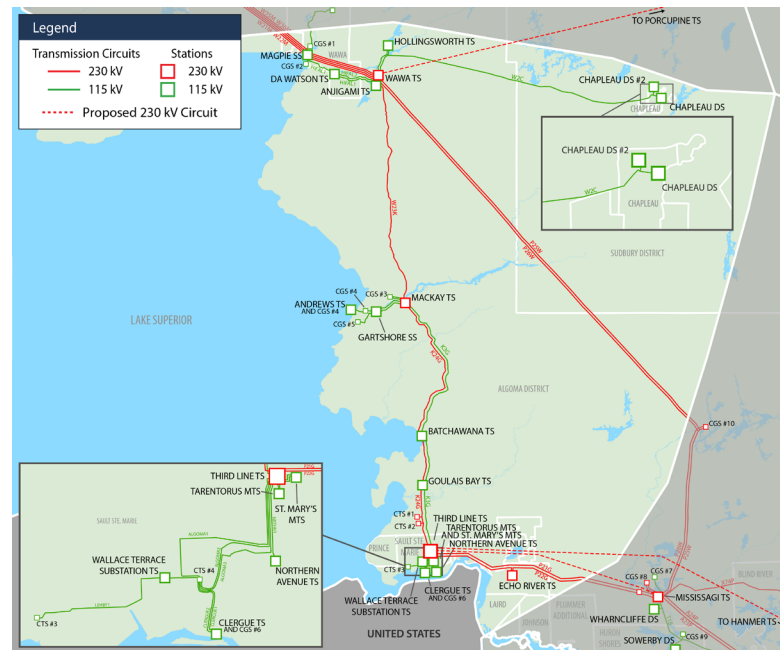
# Recap: Regional Electricity Planning Process, Demand Forecast, Electricity Needs and Screening of Options

# Electricity Planning in Ontario



# 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 carried out at regular intervals to ensure planning is flexible and responsive to a range of future outcomes.
- An Integrated Regional Resource Plan (IRRP) is being developed by a Technical Working Group coordinated by the IESO with Hydro One Networks Inc., Hydro One Sault Ste. Marie, PUC Services Inc., and Algoma Power Inc.



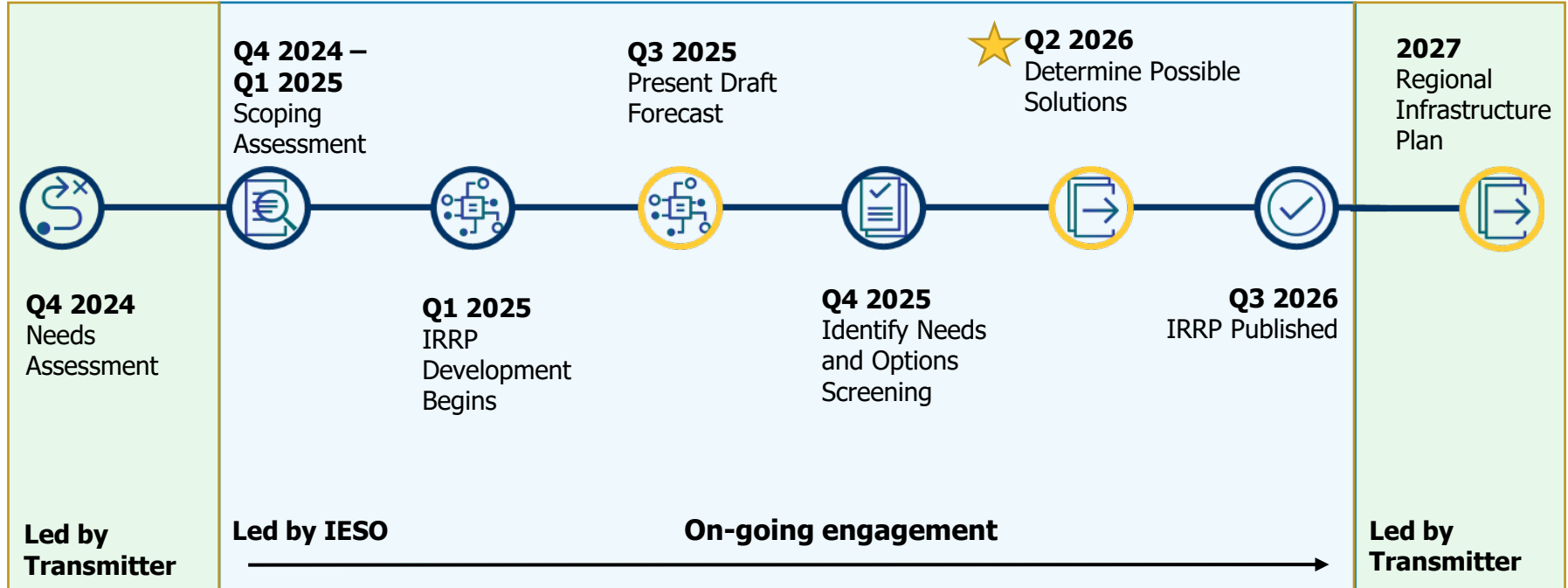
# Previous Electricity Planning for East Lake Superior

East Lake Superior has been a focus of major transmission recommendations to meet increased economic growth and electricity demand within the region and throughout Northern Ontario. Previous recommendations include:

- **The East-West Tie Expansion:** new 230 kV line parallelling the existing East-West Tie Line between Wawa and Thunder Bay to increase capacity between Northeast and Northwest Ontario (in-service 2022).
- **2022 Northeast Bulk Plan:** three 230 kV lines: Hanmer-Mississagi, Mississagi -Third Line, and Porcupine-Wawa (planned completion in 2029-2030).
- **2023 Voltage Study-Reactive Devices:** installation at Porcupine, Lakehead, Machenzie, Mississagi and Algoma stations. These devices maintain voltage levels to support reliable power transfer over long distances (in-service from 2025-2029).
- **2025 Northern Ontario Bulk Plan:** new ~270 km line, with early development work of a potential second line to address bottlenecks and increase capacity in Northeastern Ontario.

These recommendations have strengthened reliability across the region. Continued demand growth will require further actions.

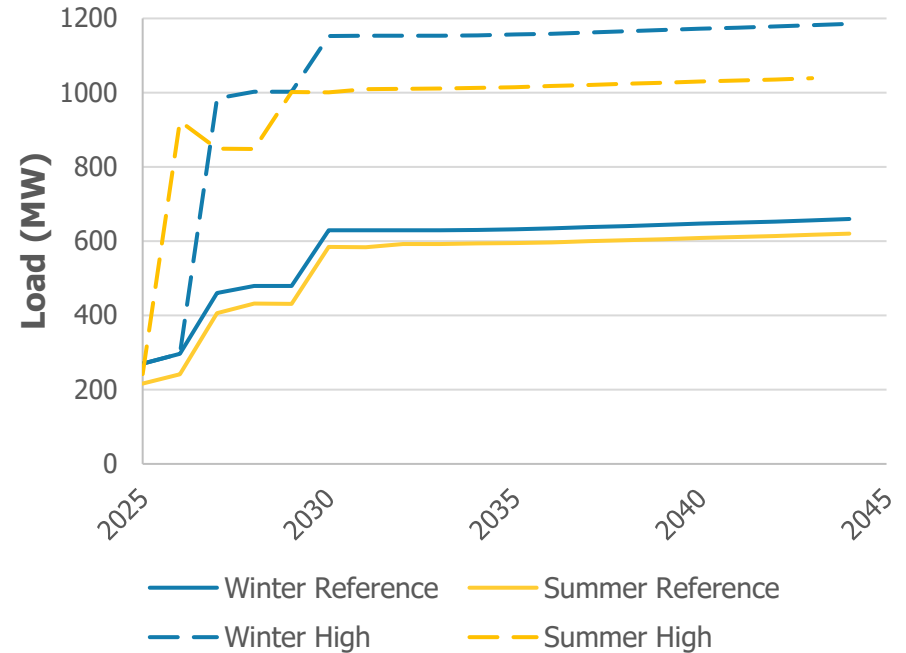
# 2024-2026 East Lake Superior Planning Timeline\*



\*Reflects typical 18-month IRRP timeline. Working Group has the flexibility to extend to 24 months where required

# Electricity Demand Forecast

- Electricity demand in East Lake Superior is expected to grow significantly, increasing by approximately 140% in summer and 110% in winter over the next 5 years
- This growth is primarily driven by industrial developments and broader electrification.



# Electricity Needs Summary

Electricity Need	Impacted Area	Description	Magnitude*	
			2025	2044
<b>Station Capacity:</b> the ability of a station to deliver power from grid to distribution system	Chapleau DS	Need no longer exists (previously reported 2 – 9 MW need).	N/A	N/A
<b>Supply Capacity:</b> the ability of the system to supply power through the transmission lines to a local area.	Chapleau Area	Increasing demand in the Chapleau area is resulting in pre-contingency voltage levels outside acceptable limits.	0 MW	5 MW
	Sault Ste. Marie 115kV Area	The Sault Ste. Marie 115 kV interface experiences voltage stability issues when both autotransformers at Third Line TS are out of service.	0 MW	95 MW
	Algoma 115kV Interface	Under certain contingency conditions, thermal overloads may occur at the Algoma interface and are currently managed using a Remedial Action Scheme (RAS). However, the existing scheme rejects more load than permitted under planning criteria, and under high growth conditions, this issue would evolve into a broader supply capacity need.	0 MW	0 MW

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

# Feedback Received

<b>Key Areas of Feedback</b>	<b>Outcome</b>
Share more information regarding forecast development including inputs in the reference versus high forecast scenarios.	A key assumption driving both scenarios is the expected load increase from Algoma Steel's Electric Arc Furnace. Under the high scenario, additional industrial projects and higher-than-expected electrification adoption further elevate demand beyond the reference case. Additional information on projections for the Electric Arc Furnace is available in the <a href="#">Data Tables</a> for Tagona West, the transmission station expected to enter service in 2027 to support those needs.
Community-identified priorities need to be clearly reflected in how options are developed and evaluated.	The Technical Working Group acknowledges the importance of community preferences during the options development. To ensure that the IRRP reflects the needs of the East Lake Superior region, all municipalities, Indigenous communities, community members and interested parties will have an opportunity to share feedback, reports and insights on these findings prior to completion of the IRRP.

Please see the [East Lake Superior engagement webpage](#) for the feedback and IESO response.



# Options Analysis and Draft Recommendations

# Options Evaluation

Wire and Non-Wire Options are evaluated based on the following key considerations:

## Technical Feasibility

- Can the option be executed? i.e., outlook for technology, proximity to customers, routing and spacing considerations, operation

## Ability to Address Needs

- Does it address the need while complying with the established reliability standards and criteria for the electric power system?

## Cost-Effectiveness

- Is there the ability to solve multiple needs simultaneously?
- How much can it cost and what are the benefits?

## Lead Time

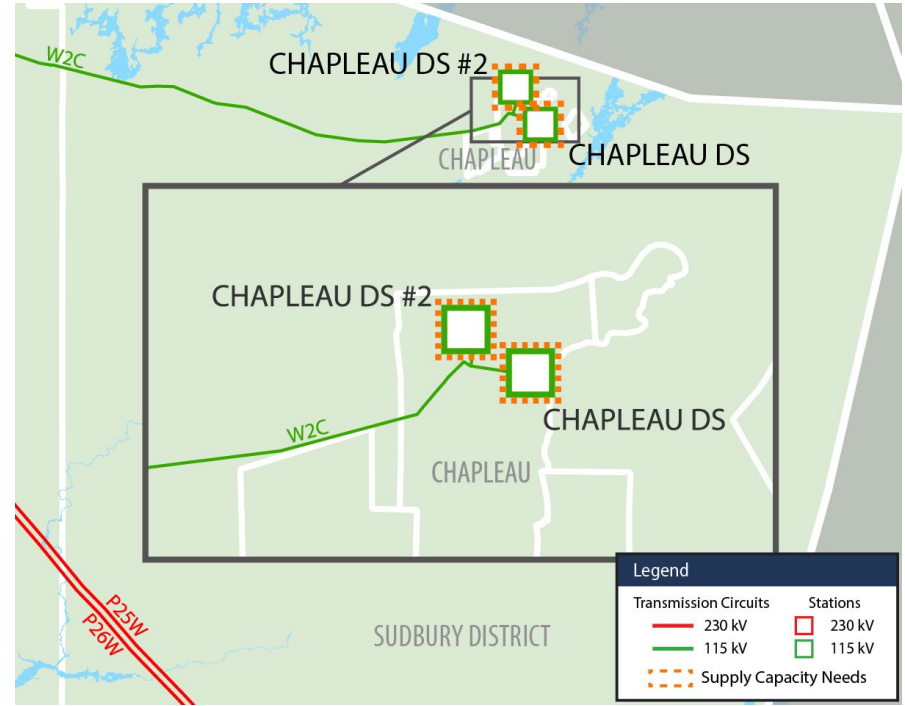
- New transmission infrastructure is expected to take at least 5-7 years – how does this compare to the timing of needs?

## Community Considerations

- Input from community preferences and feedback regarding potential options, for example does it improve resilience for extreme weather?

# Chapleau Area Supply Capacity Need

- A 5 MW supply capacity need has been identified in the Chapleau area (Chapleau DS and Chapleau DS#2), beginning in 2028 under peak demand conditions with all elements in service.
- As demand in the Chapleau area increases, voltage performance falls below acceptable limits.
- The Technical Working Group evaluated options to improve voltage performance and address the 2028 need.

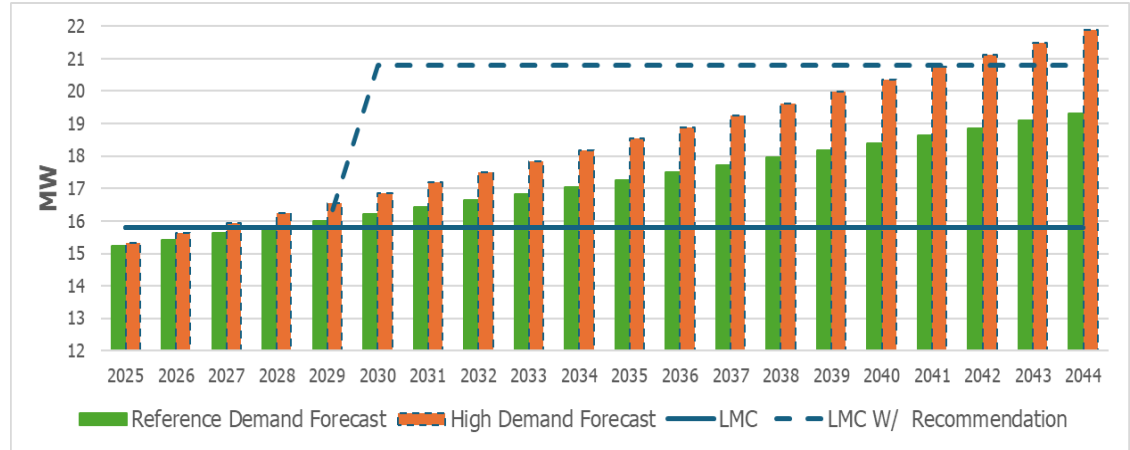


# Options Analysis for Chapleau Area

Option	Reactive Support (Capacitor)	Additional Electricity Demand Side Management (0.2 MW)	Wind + Battery Energy Storage System + eDSM (26 MW)	Gas Generation + eDSM (< 25MW)
<b>Technical Feasibility</b>	✓ Feasible as it directly injects reactive power at Chapleau DS	✓ Feasible as an interim solution from 2028 to 2029	✗ Not feasible due to long development timelines and limited connection capacity; load exceeds available connection room beyond 2033	✓ Feasible
<b>Ability to Address Need</b>	<ul style="list-style-type: none"> <li>✓ Directly addresses the need by providing reactive power deficiency and voltage control</li> <li>✓ Enables future growth</li> </ul>	✓ Can reduce peak load growth over the short term	<ul style="list-style-type: none"> <li>✓ Facility provides voltage benefits incidentally</li> <li>✗ Provides reactive support on demand; capability is limited by inverter capacity.</li> <li>✗ Will delay the need until 2034</li> </ul>	✓ Facility improves voltage indirectly through real power injection
<b>Estimate Cost (2026 CAD)*</b>	\$5M to \$10M	\$0 (already cost-effective on system benefits)	\$0M to \$18.2M	\$13M**
<b>Lead-Time</b>	3-4 years	0-2 years	5 years	2-3 years
<b>Other Considerations</b>	Predictable performance Long asset life Minimal footprint	Demand reductions depend on customer participation Minimal footprint	Provides reactive support on demand Capability is limited by inverter capacity	Over-capability relative to need Better suited for increasing capacity than voltage support

# Draft Recommendation for Chapleau Area

- A local voltage support device (e.g., capacitor) is the preferred option to address this need.
- This solution can be implemented at lower cost and with a smaller footprint than other options, while supporting future growth.
- In the near term, electricity demand-side management can help manage peak demand.
- Additional enhancements are being planned at Chapleau DS2, which will enable additional load transfers.



Note: After the completion of the IRRP, the Regional Infrastructure Plan (RIP) will be led by Hydro One and will assess a range of reactive power solutions between 6 MVAR and 10 MVAR, associated with incremental Load Meeting Capability (LMC) improvements from about 19.5 MW to 22 MW.

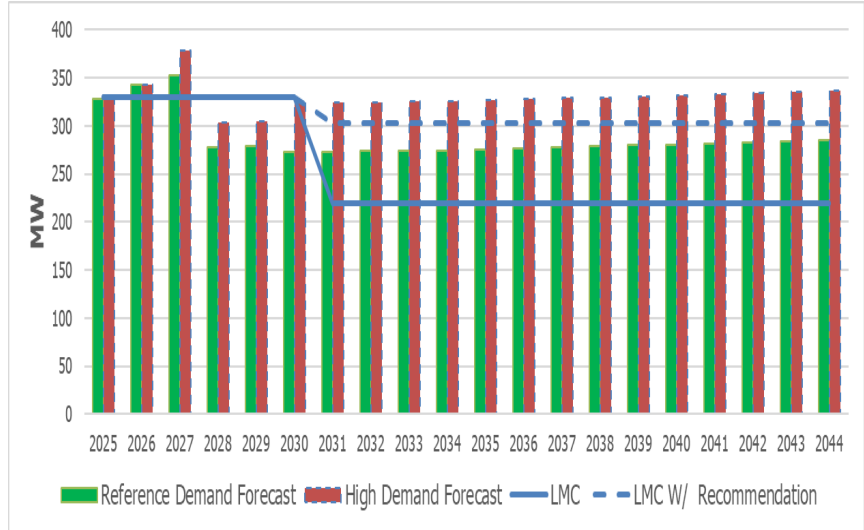


# Options Analysis for Sault Ste. Marie 115kV Area

Option	Dispatchable Generation + eDSM	Install a Third Autotransformer	Wind + Battery Energy Storage System + eDSM (233 MW)
<b>Technical Feasibility</b>	✓ Feasible	✓ Feasible	✗ Not feasible due to deliverability limits from IBR limits and circuit congestion
<b>Ability to Address Need</b>	✓ Mitigates risk	✓ Directly resolves the root cause of contingency violations ✓ Able to support unexpected load growth in area	✗ Can meet MVar requirements if sized appropriately ✗ Requires significant capacity
<b>Estimate Cost (2026 CAD)*</b>	\$0M**	\$40M	\$0 to 194M
<b>Lead-Time</b>	Immediate to 4 years	4-5 years	5 years
<b>Other Considerations</b>	Must not be energy limited (i.e., always be available)	Eliminates planning criteria violations Improves long-term resilience and durability	Reactive capability limited by inverter capacity Requires significant sizing to meet the identified need

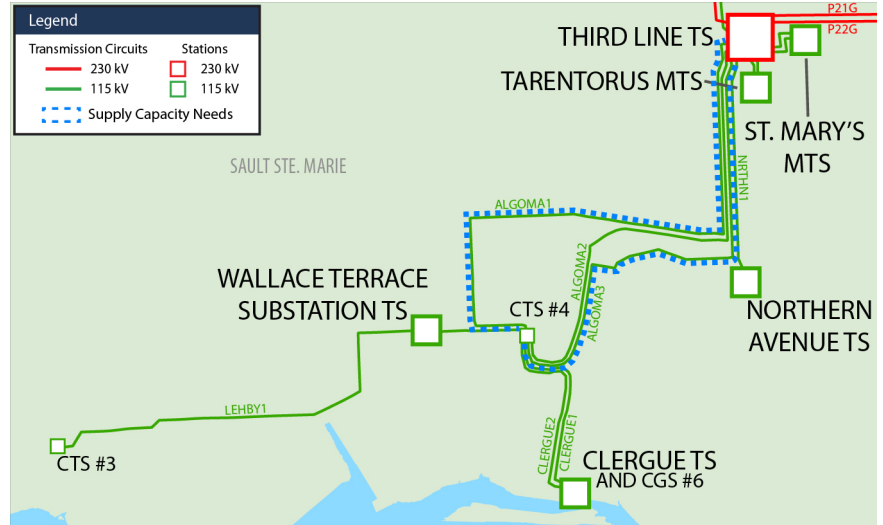
# Draft Recommendation for Sault Ste. Marie Area

- Dispatchable generation has been identified as the preferred option to meet the need.
- It can provide local supply to the area, reduce reliance on the transmission interface and improve voltage stability under contingency conditions.
- This approach provides a cost-effective and flexible solution, particularly when considering the net system benefits associated with generation.
- Where procurement is required, solutions will be pursued through technology-agnostic processes, aligned with the operational characteristics of the identified need.
- As demand grows, the Technical Working Group will monitor load growth and system performance. Advancement of a third autotransformer would be triggered if load growth exceeds the capability of the generation solution, or if system performance does not meet reliability criteria under contingency conditions.



# Algoma 115 kV Area Need

- The Algoma 115 kV interface is constrained by thermal limitations on the underlying transmission circuits, impacting supply to industrial customers.
- The Algoma interface is defined by the three Algoma 115 kV transmission lines supplying load to the Algoma industrial area.
- Under certain contingency conditions (e.g. breaker failures), thermal overloads may occur on the transmission circuits supplying the Algoma interface and are currently managed using a Remedial Action Scheme (RAS). However, the existing scheme requires load rejection levels that exceed those permitted under planning criteria.
- Under higher demand growth, these conditions cannot be managed within acceptable limits, resulting in a supply capacity need and the potential requirement for additional system capability.



# Options Analysis for Algoma 115kV Area

Option	Operational Measures (Exemptions/Increased Load Rejection)	Enhancements to the Existing Remedial Action Scheme	Upgrading Algoma #1 Circuit and Algoma #3
<b>Technical Feasibility</b>	✓ Feasible	✓ Feasible	✓ Feasible
<b>Ability to Address Need</b>	✓ Will meet the need	✓ Will meet the need	✓ Will meet the need
<b>Estimate Cost (2026 CAD)*</b>	No cost	\$5M	\$10 to 30M
<b>Lead-Time</b>	Immediate	2 years	4-5 years
<b>Other Considerations</b>	Will impact industrial customers Requires load curtailment of ~116 MW under contingency conditions	Indirect customer impact Improve reliance on current operation Requires modification of RAS control logic to enable more granular load rejection	Lowest long-term customer impact, short-term construction impact Supports high growth forecast conditions Improves long-term system reliability Increases thermal capacity of Algoma #1 and Algoma #3 circuits by 108 MW and 102 MW respectively

\* net values are used for generation options where applicable.

# Draft Recommendation for Algoma 115kV Area

- Under contingency conditions, thermal overloads may occur at the Algoma interface and are currently managed using a Remedial Action Scheme (RAS).
- The existing RAS rejects more load than permitted under planning criteria; enhancements are recommended to reduce load rejection while maintaining system reliability.
- Due to the lead time required to implement these enhancements, an interim measure is required, and the Technical Working Group will work with impacted customers to implement a load rejection exemption to maintain compliance with operating limits.
- As demand grows, the Technical Working Group will monitor load growth and system performance and has identified circuit uprate options that can be advanced if needed to maintain compliance with reliability criteria.

# Summary of Draft Recommendations

To meet growing demand, and to ensure the system is meeting reliability and planning criteria, the Technical Working Group recommends to:

- Install a **reactive device (capacitor)** to improve supply capacity and voltage performance for the Chapleau area, supported by electricity demand side management as an interim measure.
- **Pursue generation options** at the Sault Ste. Marie 115 kV interface. The Technical Working Group will **monitor load growth in the area to determine whether an additional autotransformer is required** in the future.
- Obtain an **operational measure exemption** at the Algoma 115 kV interface as **enhancements to the existing remedial action scheme (RAS)** is implemented.
- The Technical Working Group will monitor load growth and system performance and has identified additional system improvements that can be advanced if needed to maintain compliance with reliability criteria.

These recommendations will meet the identified supply capacity needs, maintain compliance with reliability and planning criteria, and enable growth.



## 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 continue to expand – to stay informed, [sign up for the quarterly newsletter](#).

# Next Steps

## Participants can expect to hear from the IESO at these milestones:

- **June 25, 2026:** Deadline for feedback to the IESO on the options analysis and draft recommendations.
- **July 9, 2026:** IRRP will be completed and published on the [engagement webpage](#).

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.

# 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 is there on the draft recommendations?
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- How can the IESO continue to engage with communities and stakeholders as these recommendations are implemented, or to help prepare for the next planning cycle?

The IESO welcomes written feedback until **Thursday, June 25, 2026**. Please submit feedback to [engagement@ieso.ca](mailto:engagement@ieso.ca).

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# Thank You

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# Appendix

# Summary

- Electricity demand in the region is expected to grow significantly driven by industrial development and electrification.
- Existing and committed infrastructure is not sufficient to meet forecasted demand under all planning conditions, with several localized areas of need identified. A range of wire and non-wire options have been evaluated to address these needs.
- Draft recommendations have been developed to address these needs while maintaining reliability and enabling growth.
- Your input will help ensure local considerations are reflected in the final plan.

# Components of an IRRP



## Demand Forecast

How much power is needed over the planning timeframe?



## Needs

What needs are emerging in the region that need to be addressed?



## Potential Solutions

What kinds of solutions can meet the future needs for the region?

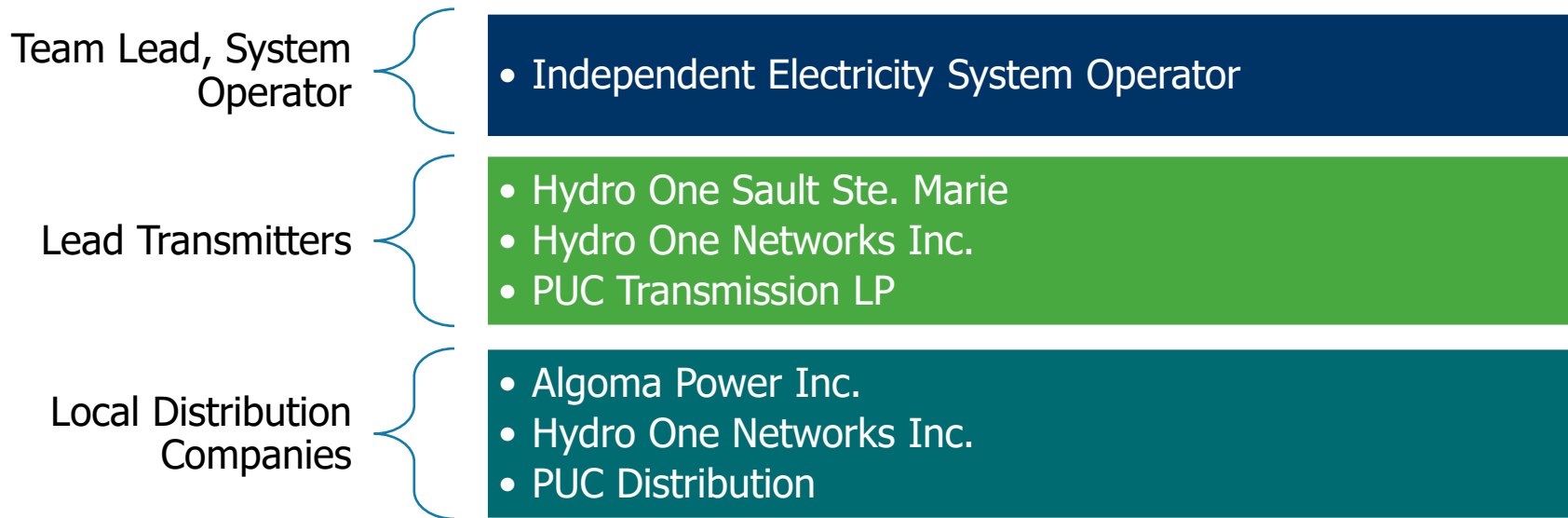


## Recommendations

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?

# Technical Working Group

The IRRP is conducted by a Technical Working Group, consisting of:



# 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.

# Overview of Electricity Needs

The Technical Working Group used the final demand forecast to assess if the existing transmission stations and lines can meet the forecasted growth within reliability requirements as part of NERC, NPCC and ORTAC. If it cannot, the shortfall is categorized into one of five needs:

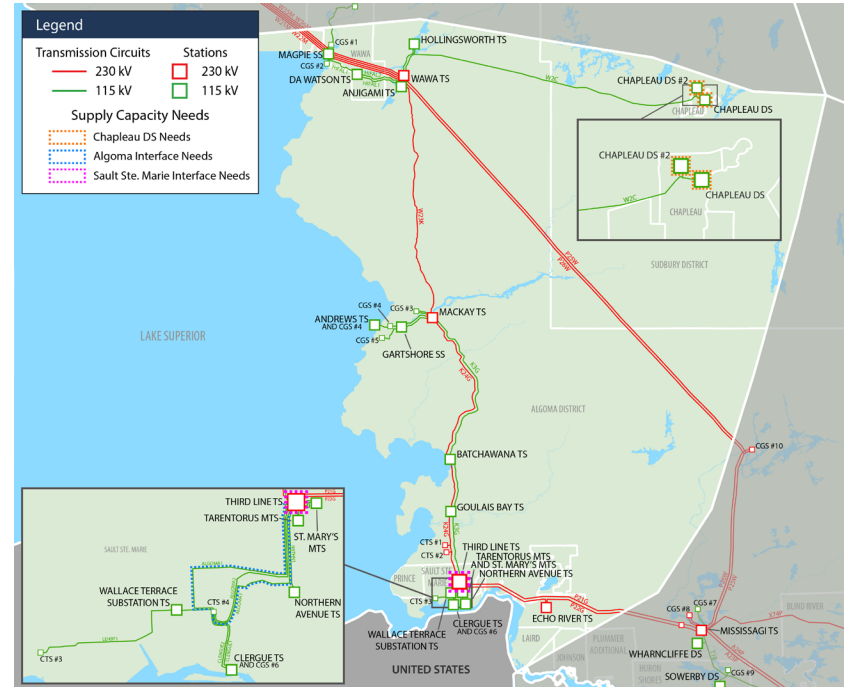
- **Station capacity:** Ability of a station to deliver power from the grid down to the distribution systems.
- **Supply capacity:** Ability of the system to supply power through the transmission lines to a local area.
- **Asset replacement:** Station or transmission equipment has reached end of life.
- **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 supply capacity needs.

# Summary of Needs

In East Lake Superior, four electricity system needs were initially identified:

- The previously identified station capacity need at Chapleau DS has been resolved
- Supply capacity needs have been identified in the Chapleau area, as well as at the Algoma and Sault Ste. Marie interfaces .





# Northern Ontario Bulk Plan

# Northern Ontario Bulk Plan

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.

