



**APRIL 20, 2026**

# GTA East Regional Electricity Planning

## Engagement Webinar: Electricity Needs and Options Screening

# GTA East Land Acknowledgement

The IESO acknowledges that the GTA East is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples, including those covered by the Williams Treaties.

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



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Powering Tomorrow.



We work with:



# Summary

- Regional planning is underway to address transmission system needs in the GTA East electrical region.
- An Integrated Regional Resource Plan (IRRP) will be developed for GTA East by a Technical Working Group consisting of the IESO, Hydro One Networks Inc., Elexicon Energy Inc., and Oshawa Power Utilities Corp.
- In July 2025, 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 have been screened in for further study in its ability 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:**

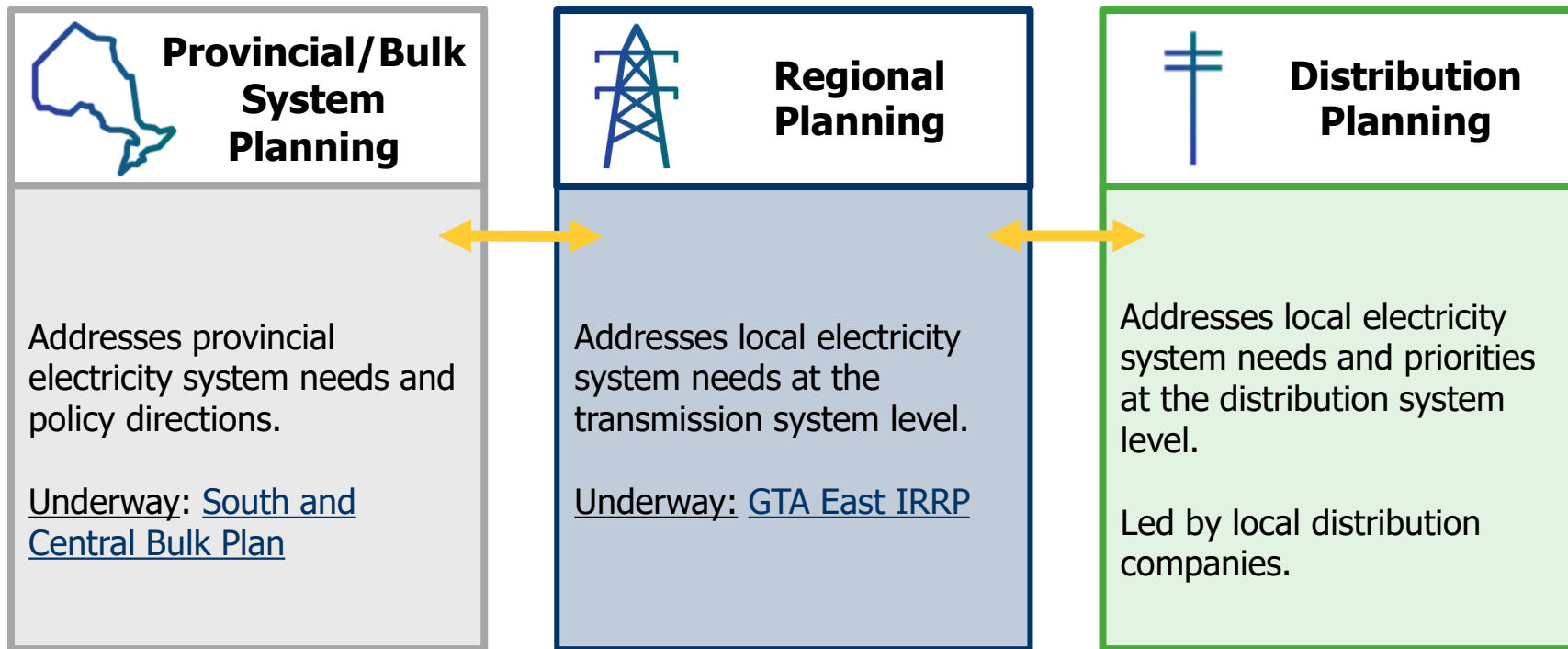
- What feedback do you have on the screening of wire and non-wire options?
- What additional information should be considered in the evaluation of wire and non-wire options?
- Are there any additional information that should be provided in future engagements to help understand community perspectives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

The IESO welcomes written feedback until **Monday, May 11, 2026**. Please submit feedback to [engagement@ieso.ca](mailto:engagement@ieso.ca).



# Recap: Regional Electricity Planning Process & the Demand Forecast

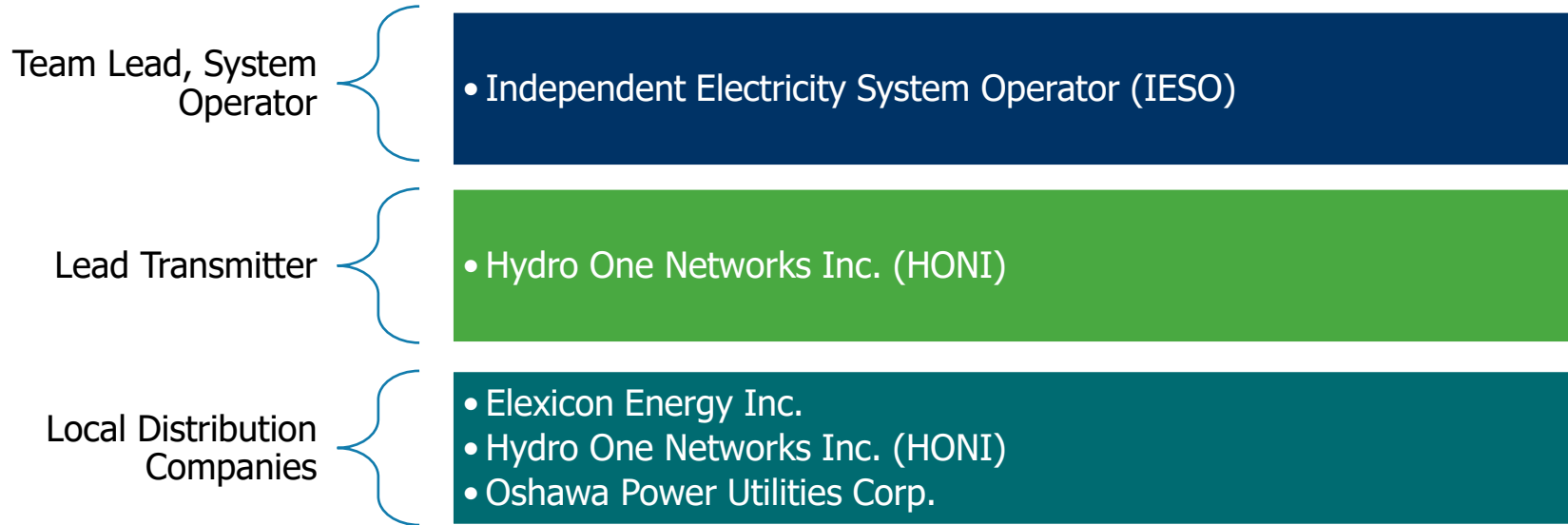
# Electricity Planning in Ontario





# Technical Working Group

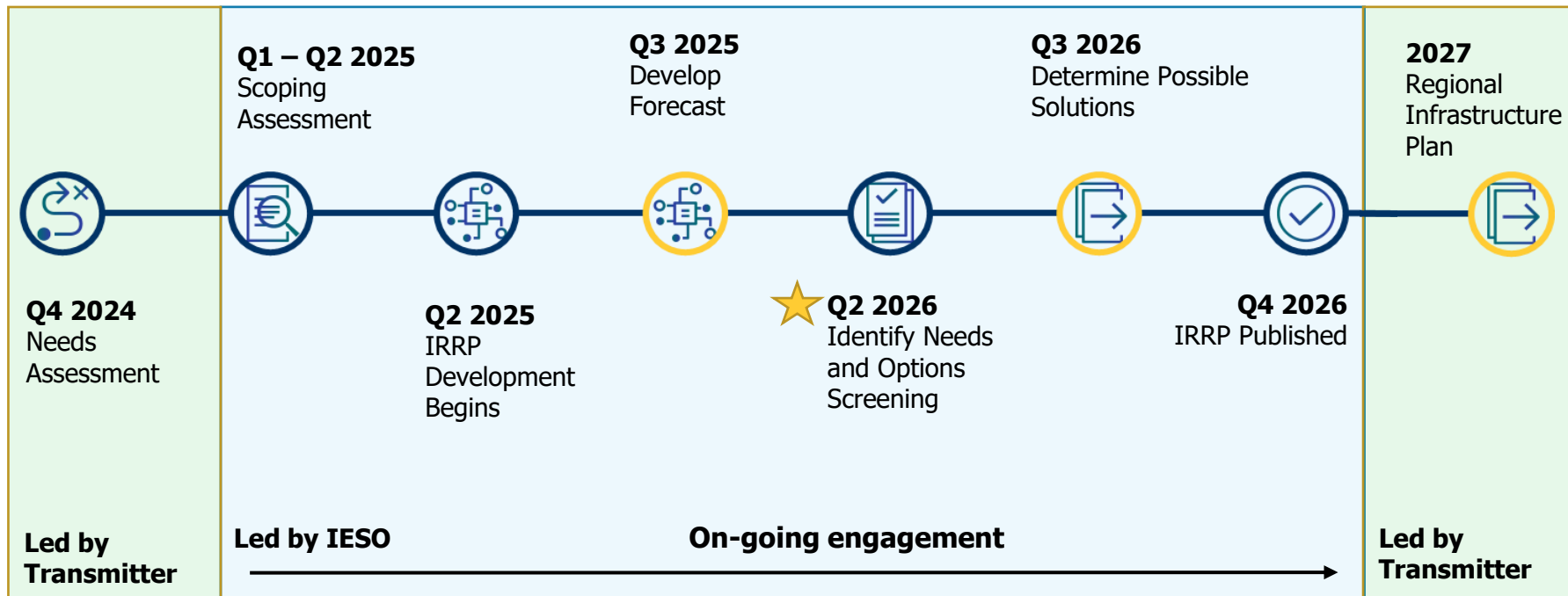
The regional planning process is conducted by a Technical Working Group, consisting of:



# Background on Electricity Planning for GTA East

- Previous electricity studies have recommended two new stations (Enfield TS, in-service 2019 and Seaton MTS, in-service 2023) a new double circuit 230 kV transmission line (Durham-Kawartha Power Line, in-service by the end of 2029) and a new double-circuit 500 kV transmission line (an early action recommended from the [South and Central Bulk Plan](#) with expected in-service by late 2032).
- These recommendations will enable customer connections, maintain reliability and increase economic development and growth in and around the region.
- Continued demand growth within the GTA East electrical region will require more electricity planning through the regional planning process.

# Regional Planning Timeline\*



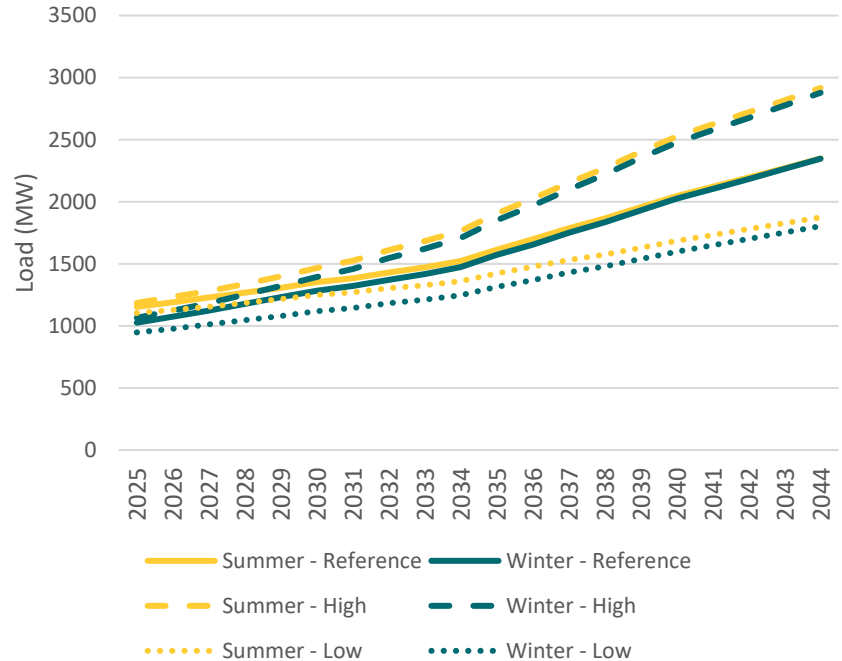
\*Reflects typical 18-month IRRP timeline. Working Group has the flexibility to extend to 24 months where required

# Approach to Developing the Demand Forecast

- The electricity demand forecast for GTA East is developed collaboratively by the IESO and Local Distribution Companies (LDCs) Elexicon Energy Inc., Hydro One Networks Inc. and Oshawa Power Utilities Corp.
- The forecast is informed by key inputs including decarbonization and climate policies, growth and land-use plans, community energy plans, economic development initiatives and emerging loads, ensuring it reflects expected local conditions.
- Additional information on these inputs are on the [IESO's engagement webpage](#) including:
  - The forecast methodologies developed by each LDC.
  - Public feedback received for consideration.
- Three forecast scenarios will be used to reflect a range of potential future conditions: **a reference forecast** based on today's trends and policies, along with **high** and **low** demand scenarios that support flexible, resilient planning.

# Final GTA East Demand Forecast

- Electricity demand in GTA East could grow by 104% in summer and 129% in winter by 2044, this growth is aligned with what we're seeing on a provincial scale.
  - High growth scenario: 146% in summer and 170% in winter
  - Low growth scenario: 70% in summer and 90% in winter
- The growth is primarily driven by electrification and economic growth across several sectors including residential, commercial and industrial.
- Planning recommendations will primarily be based on the reference forecast. High and low scenarios will be developed and used to inform the potential timing of options.



# Feedback Received

Key Areas of Feedback	Outcome
Ensure there is strategic scenario planning to support community development.	In the GTA East Regional Plan, three forecast scenarios are being considered. A <b>reference forecast</b> based on today's trends and policies, along with <b>high</b> and <b>low</b> demand scenarios that support flexible, resilient planning. Planning recommendations will primarily be based on the reference forecast, with the high and low scenarios used to inform the potential timing of options. The region's local distribution companies play a key role in ensuring these forecast scenarios best reflect the regions they serve to help identify potential future needs.
Apply a climate resilience lens to ensure new infrastructure are designed and built to withstand extreme weather.	In regional planning, the Technical Working Group develops an electricity demand forecast that reflects extreme weather conditions in various scenarios to ensure reliable supply of electricity for the province. This includes the system's ability to respond to disturbances which can be caused by extreme weather events. For details about extreme weather methodology in the demand forecast, please read more <a href="#">here</a> .

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



# Electricity Needs

# Identifying Electricity Needs

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

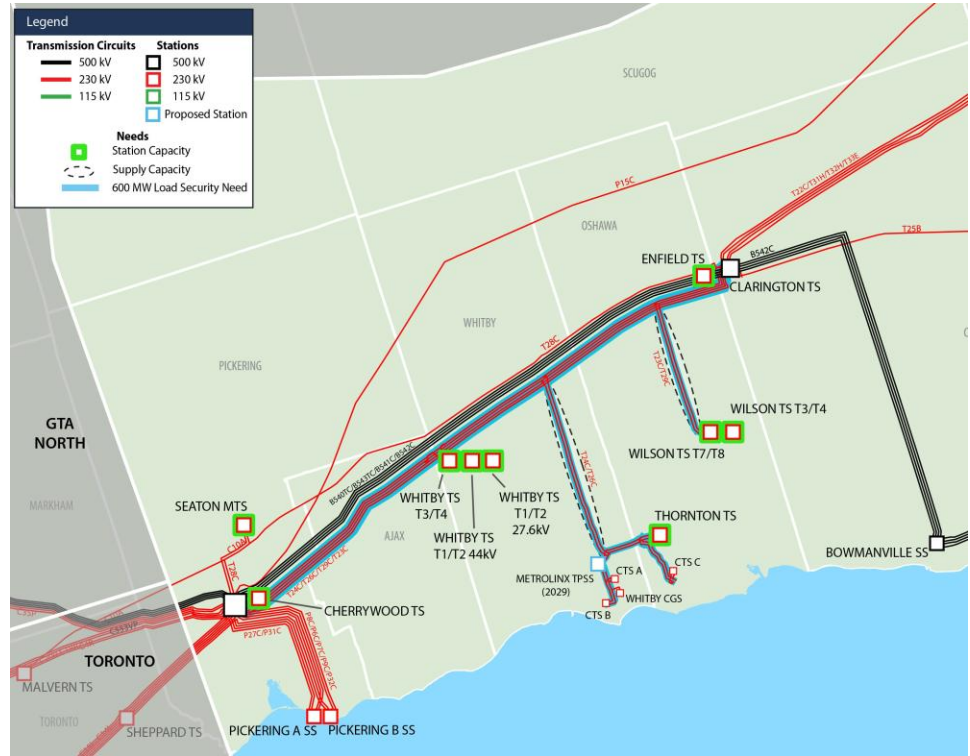
- **Station capacity:** Ability of a station to deliver power from the grid down to the distribution systems.
- **Supply capacity:** Ability of the system to supply power through the transmission lines to a local area.
- **Asset replacement:** Infrastructure that has reached its end of life based on asset condition assessment.
- **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 the GTA East region, station capacity, supply capacity and load supply security needs have been identified at various locations across the transmission system.

# Overview of Electricity Needs

In GTA East, 13 electricity system needs have been identified over the 20-year planning timeframe:

- There are five station capacity needs in the near term, with four more emerging in the medium term. The station capacity needs are primarily because of new community developments.
- The two supply capacity needs that emerge in the medium term and reflect transmission constraints.
- There are two load security needs throughout the system that emerge in the medium term.



# Station Capacity Needs

There are five stations in Pickering, Oshawa and Whitby reaching capacity in the near term with gradual load growth anticipated from electrification and increase of residential and industrial loads. There are four additional stations in Oshawa and Whitby reaching capacity in the long term that the study will consider.

Station	Location	Need Year		Summer Magnitude		Winter Magnitude	
		Summer	Winter	2026	2044	2026	2044
Cherrywood TS	Pickering	2025	-	6 MW	26 MW	-	-
Enfield TS	Clarington	2036	2038	-	62 MW	-	41 MW
Seaton MTS	Pickering	2038	2037	-	115 MW	-	161 MW
Thornton TS	Oshawa	2025	2033	26 MW	130 MW	-	87 MW
Whitby TS T1/T2 (27.6kV)	Whitby	2036	2037	-	123 MW	-	137 MW
Whitby TS T1/T2 (44kV)	Whitby	2032	2030	-	77 MW	-	112 MW
Whitby TS T3/T4	Whitby	2025	2035	3 MW	106 MW	-	83 MW
Wilson TS T7/T8	Oshawa	2025	2032	15 MW	170 MW	-	128 MW
Wilson TS T3/T4	Oshawa	2025	2025	51 MW	295 MW	23 MW	267 MW

# Supply Capacity Needs

The study identified two supply capacity needs expected to arise in the medium term.

Supply Capacity Need	Circumstance of Need	Need Year		Summer Magnitude		Winter Magnitude	
		Summer	Winter	2025	2044	2025	2044
230 kV supply to Wilson TS in Oshawa	Thermal overloads	2033	2038	-	254 MW	-	129 MW
230 kV supply to Thornton TS and industrial customers in South Whitby	Thermal overloads	2035	-	-	110 MW	-	-

# Load Supply Security Needs

The study identified two load supply security needs expected for the medium term.

Load Supply Security Need	Circumstance of Need	Timing of the Need	
		Summer	Winter
Transmission circuits T23C and T29C in Whitby and Oshawa	When T23C and T29C are out of service, more than 600 MW of load served by Wilson TS and Whitby TS (T3/T4) is lost by configuration.	2033	2036
Transmission circuits T24C and T26C in Whitby and Oshawa	When T24C and T26C are out of service, more than 600 MW of load served by Whitby TS T1/T2 (27.6kV and 44kV), Thornton TS and four customer stations is lost by configuration.	2037	2037



# Options Screening

# Background: Determining Options

A combination of wire and non-wire options will be needed to address the needs, and over the course of the planning process, the Technical Working Group will:

- **Screen wire and non-wire options** to address the region's near- and medium-term electricity needs for the reference forecast, including:



Traditional wires option to supply local area



Non-wires alternatives (NWA), such as transmission and/or distribution-connected generation and/or energy storage, conservation and demand management or demand response

- **During this webinar, the IESO will share the outcomes of the screening and seek community feedback** to enhance development of options.
- **In the next webinar, the IESO will share the detailed options analysis and draft recommendations and seek community feedback** before making a final recommendation.

# Options Overview

In the regional planning process, the following wire and non-wire options are considered to meet the region's needs:

- **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.
- **Demand Response:** Reducing or eliminating electricity use during times where the electricity system is experiencing high demand.
- **Electricity demand-side management (eDSM):** Implementing additional eDSM programs and initiatives to reduce electricity needs.
- **Transmission and/or distribution-connected storage and/or generation:** 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 and/or upgraded transmission lines/stations and voltage support devices to improve system capability and reliability.

# Steps for Screening Options

## Type of Need

Evaluate the compatibility of the need with the various option types, based on technical requirements and permissibility under planning standards and criteria

## Need Traits

Further filter compatible options with high-level need traits (such as timing, size, and coincidence with system needs)





## Additional Considerations

Take into account local factors that may require further analysis of non-wire alternatives, even if earlier steps haven't identified non-wires alternatives as suitable.

# Screening Results

Type of Need	Need Traits	Screened In	Screened Out
<b>Station Capacity:</b> the ability of a station to deliver power from grid to distribution system	5 stations in the near-term and 3 stations in the medium-term throughout Pickering, Oshawa and Whitby	<ul style="list-style-type: none"> <li>• Distribution-level load transfers</li> <li>• Demand response</li> <li>• eDSM</li> <li>• Wires options (new and/or upgraded stations)</li> <li>• Distribution- connected generation and/or storage</li> </ul>	
<b>Supply Capacity:</b> the ability of the system to supply power through the transmission lines to a local area	Two transmission lines in Whitby and Oshawa with medium-term needs	<ul style="list-style-type: none"> <li>• Distribution-level load transfers</li> <li>• Demand response</li> <li>• eDSM</li> <li>• Wires options (new and/or upgraded stations)</li> <li>• Transmission- and distribution- connected generation and/or storage</li> </ul>	
<b>Load Supply Security:</b> the maximum amount of power that can be lost during select contingencies	Four transmission circuits in Oshawa and Whitby with medium-term needs; only wires options can meet load security needs	<ul style="list-style-type: none"> <li>• Wires options (new and/or upgraded transmission lines)</li> </ul>	<ul style="list-style-type: none"> <li>• All non-wire alternative options screened out</li> </ul>

# Next Steps for the Detailed Analysis of 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., <a href="#">ORTAC</a> , <a href="#">Guide to Assessing Non-Wires Alternatives</a> , 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.



## 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. [Learn how Lear Corporation in Ajax used the retrofit program to save on annual costs.](#)
  - [Energy Affordability Program](#) – Support for income-eligible electricity customers to better manage monthly electricity costs and increase their home comfort.
- To stay informed on new or updated programs, [sign up for the quarterly newsletter](#).

# Ongoing Engagement

Your input plays an important role in developing the electricity plan.



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Participate in upcoming public engagement webinars



Follow the GTA East regional planning activities [online](#)

# Summary of Initial Options Screening for GTA East

- Electricity demand in the GTA East electrical region could increase by up to 104% in summer and 129% in winter due to new housing, industrial growth, and electrification. This growth is aligned with what is taking place at a provincial scale.
- Based on the Technical Working Group's analysis, the existing infrastructure will have constraints in the near- to medium-term. The Technical Working Group recommends planning now to address future demand growth.
- To meet the needs, wire and non-wire options will be considered. Options screened-in for further evaluation include distribution-level load transfers, demand response, eDSM, transmission- and distributed-connected generation and/or storage, and new and/or upgraded transmission stations and lines. We encourage you to share your feedback on the screening of options.
- As a next step, options will be evaluated on their ability to meet reliability standards, cost-effectiveness, and alignment with the timing of needs with consideration to the low and high growth scenarios. Updates will be shared and feedback will be collected to help shape the development of options before making a final recommendation.

# 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:**

**May 11, 2026:** Deadline for feedback.

**Q3 – Q4 2026:** Complete the detailed options analysis to identify where non-wire options can be integrated and share draft recommendations in a public engagement webinar with an opportunity to provide feedback. IRRP report will be completed and published on the 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.

# 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 screening of wire and non-wire options?
- 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 municipal perspectives and insights?

The IESO welcomes written feedback until **Monday, May 11, 2026**. Please submit feedback to [engagement@ieso.ca](mailto:engagement@ieso.ca).

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# Thank You

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# Appendix

# 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.

# 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?

# 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.

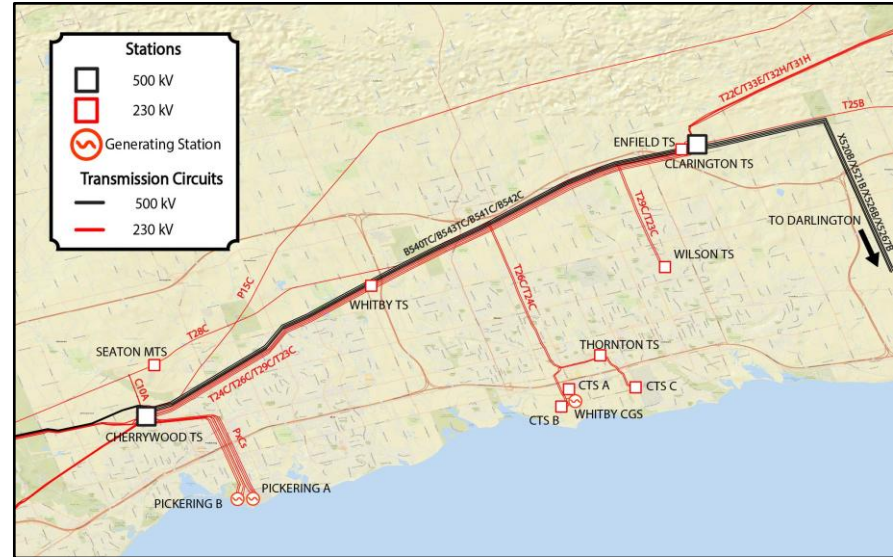
## **In addition to LDC forecast, the IESO and the Technical Working Group:**

- 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.

# Determining Electricity Needs

To identify electricity needs, the IESO:

- Modeled the 230 kilovolt (kV) and 115 kV transmission lines, stations and supply points within the GTA East electrical region.
- Applied the performance criteria from the various North American regulatory standards to determine the capability of existing lines and stations.
- Used the forecast scenarios to determine when the capabilities of existing transmission lines and stations will be exceeded and the magnitude of those exceedances.



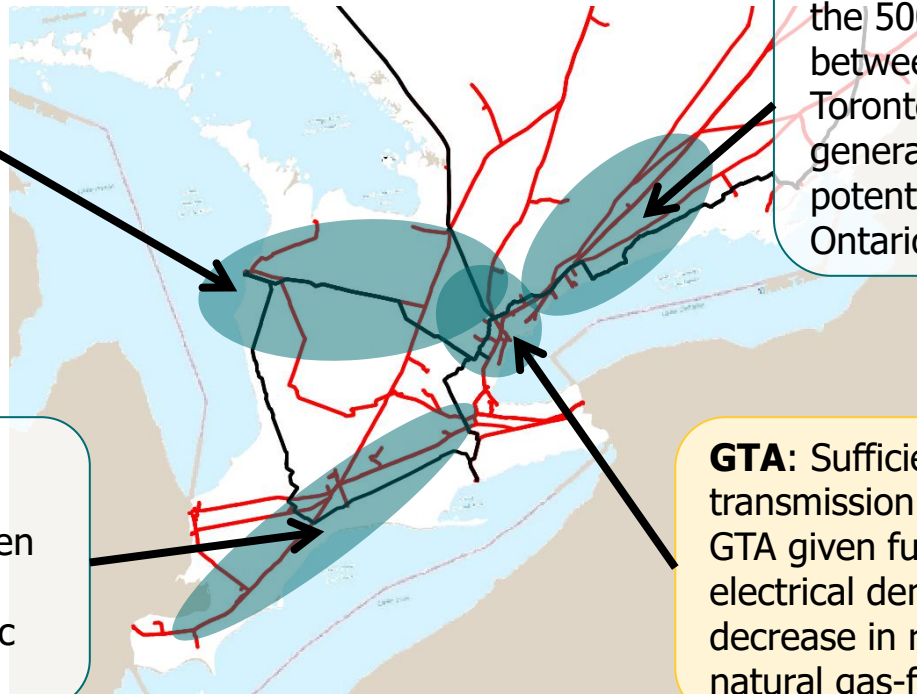


# South and Central Bulk Plan

# Four Modules for Study

**Bruce:** Transmission expansion to enable Bruce C NGS, considering potential Meaford PS

**Windsor to Hamilton:** Sufficiency of the bulk transmission system between the Windsor and Hamilton areas given future economic development



**East of Toronto:** Expansion of the 500 kV transmission system between Bowmanville and Toronto to enable expansion of generation, including SMRs and potential storage, in eastern Ontario

**GTA:** Sufficiency of the bulk transmission system to the GTA given future growth in electrical demand, and decrease in reliance on local natural gas-fired generation

# Potential Transmission Reinforcements

## Options under evaluation in GTA East include:

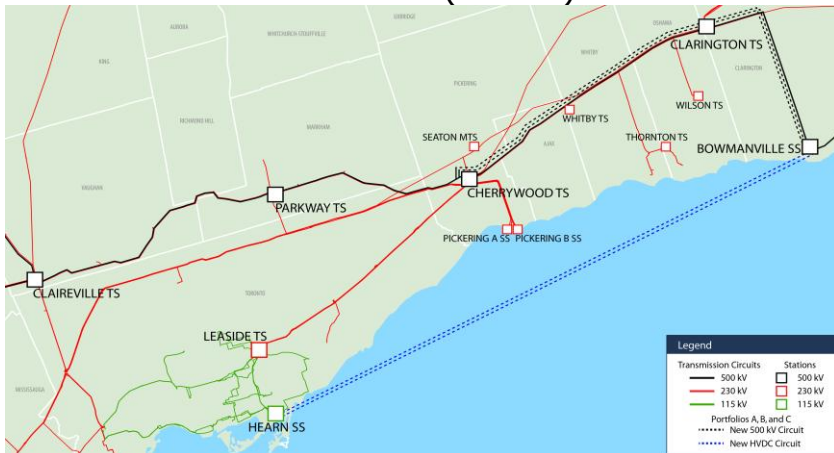
- Connection of the Small Modular Reactors (SMRs) project at Darlington nuclear generation station (Bowmanville) into the GTA, highlighted in grey on the map.
- Examining possible new bulk routes into the GTA including Durham to enable load growth, including third supply option. Highlighted in green on the map.
- Enabling economic growth in Region of Durham with generation and transmission growth.



# Bowmanville SS to Parkway TS Upgrade

## Draft Recommendations Impacting GTA East:

- New ~45km 500kV double circuit transmission line from Bowmanville SS bypassing Cherrywood TS towards Parkway TS (Toronto/York).
- New ~65km submarine HVDC Third Supply from Bowmanville SS to Hearn SS (Toronto).



## Considerations and Linkages:

These recommendations enable growth and enhances system reliability in GTA East:

- New 500kV circuit utilizes existing corridors to improve east-west transfer capability.
- HVDC line reduces congestion at Cherrywood TS and enables growth in the surrounding regions including Durham, York, Kawartha Lakes and Peterborough.

As the GTA East IRRP progresses, it'll remain aligned with the recommendations in the South and Central Bulk Plan to ensure efficient investment and optimized infrastructure.

Learn more about this in the [South and Central Bulk Planning engagement](#).