



JULY 29, 2026

Peterborough to Kingston Regional Electricity Planning

Public Webinar: Electricity Needs and Options Screening

Land Acknowledgement

The IESO acknowledges that Peterborough to Kingston is the traditional territory of many nations including the Anishinabeg, Haudenosaunee, and 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

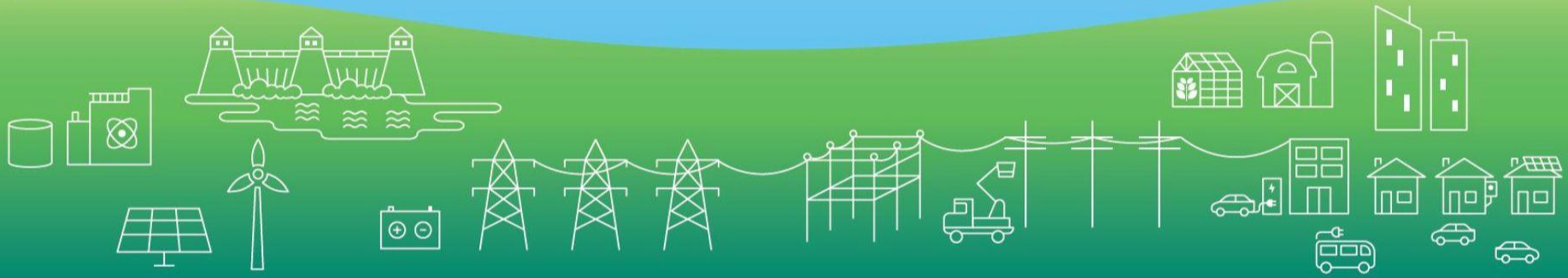
1. Ontario's Electricity Sector and IESO's Role
2. Recap: Regional Electricity Planning & the Demand Forecast
3. Electricity Needs
4. Options Screening
5. Next Steps & Discussion

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.



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We work with:



Summary

- Regional planning is underway to address transmission system needs in the Peterborough to Kingston electrical region.
- An Integrated Regional Resource Plan (IRRP) will be developed for Peterborough to Kingston by a Technical Working Group consisting of the IESO, Hydro One Networks Inc., Elexicon Energy Inc., Utilities Kingston and Lakefront Utilities Inc.
- In September 2025, the IESO hosted a public engagement webinar to share the draft electricity demand forecast scenarios. 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:

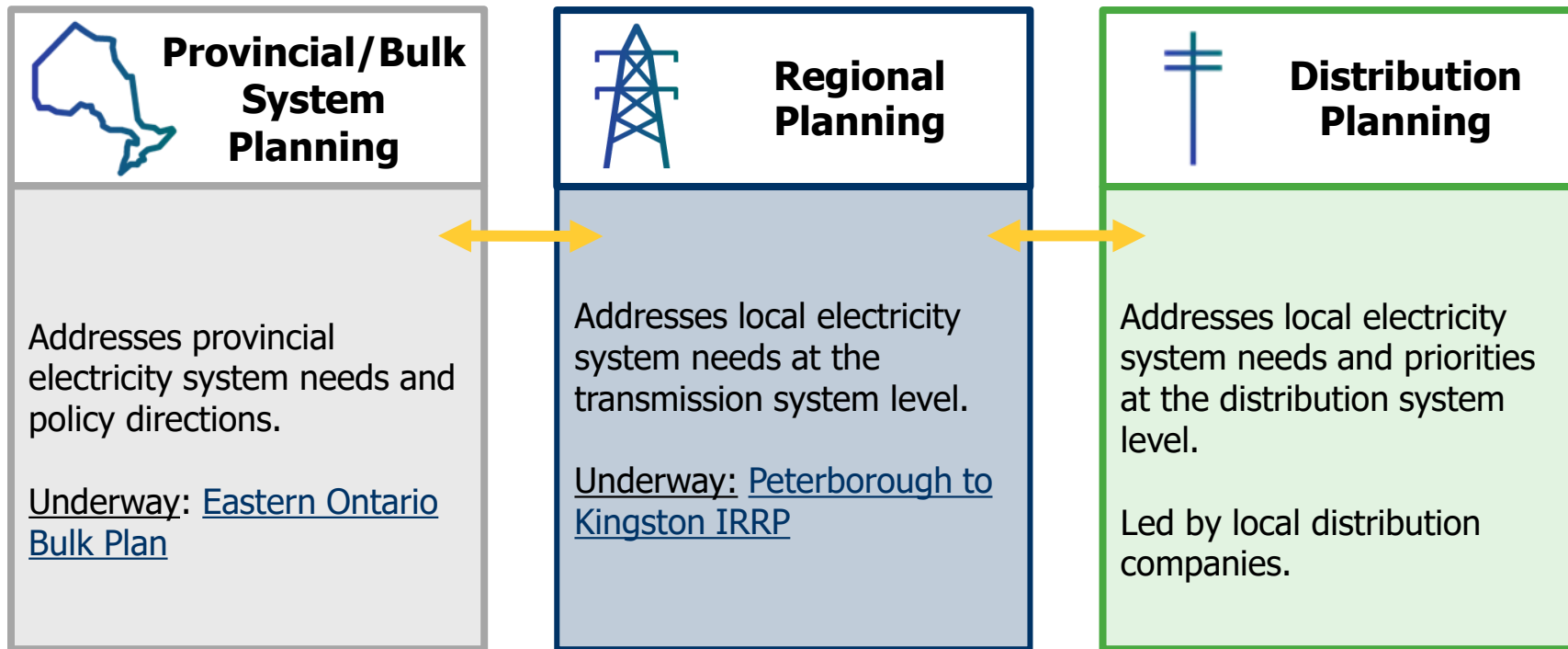
- What feedback do you have on the screening of wire and non-wire options?
- What additional information should be considered in the evaluation of wire and non-wire options?
- Is there any additional information that should be provided in future engagements to help understand community perspectives and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

The IESO welcomes written feedback until **August 12, 2026**. Please submit feedback to engagement@ieso.ca.



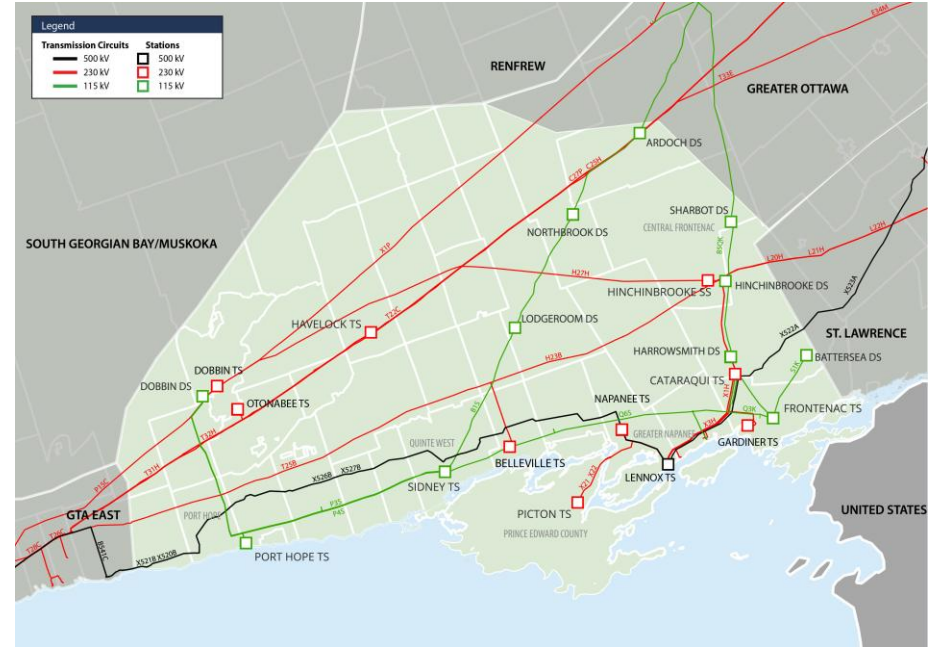
Recap: Regional Electricity Planning Process & the Demand Forecast

Electricity Planning in Ontario



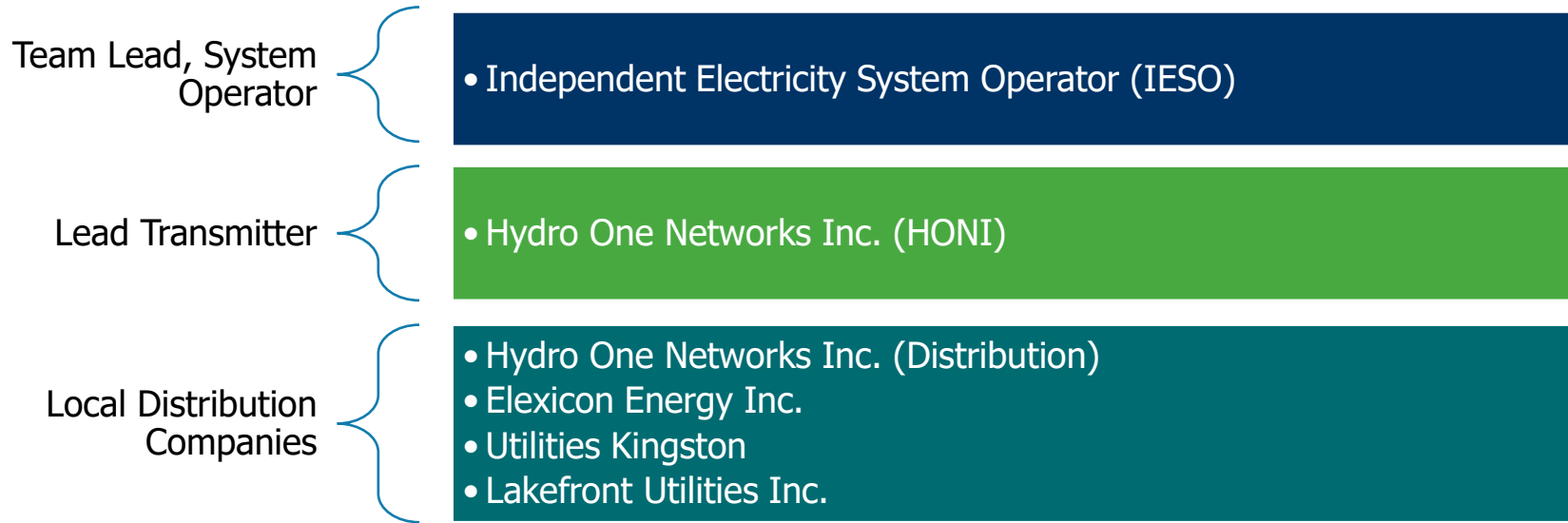
The Peterborough to Kingston Electrical Region

- Includes the Cities of Belleville, Kingston, Peterborough, Quinte West, Prince Edward County, the Municipality of Clarington in the Region of Durham, and the Counties of Frontenac, Hastings, Lennox and Addington, Northumberland, and Peterborough, as well as a number of Indigenous communities.
- The electrical area is served by several transformer stations (TS) from the 230 kilovolt (kV) and 115 kV transmission lines network.
- Area includes several local generation stations, and they play a crucial role in meeting local and provincial reliability during periods of peak demand, or transmission outages.
- The 500 kV system is part of the broader provincial bulk power system and is not studied as part of regional planning.



Technical Working Group

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



Background on Electricity Planning in Peterborough to Kingston

- Since 2013, the IESO has undertaken regional planning work to address electricity needs.
- Recommendations included energy efficiency, distributed generation, transmission refurbishments, and replacing end-of-life equipment to ensure a continued reliable supply of electricity.
- Current electricity planning:
 - The third regional electricity planning cycle is underway, with an Integrated Regional Resource Plan (IRRP) currently being developed to outline electricity needs and recommended solutions to ensure a reliable supply of electricity over the next 20 years.
 - The [Eastern Ontario Bulk Planning Study](#) was developed to assess the adequacy of the bulk transmission system to reliably serve demand in Eastern Ontario over the next 20 years. The study also explored how future transmission reinforcements enable exports and enhance transmission capability to enable new supply resources in the Eastern Ontario area.

Summary of Eastern Ontario Bulk Plan Recommendations

Implementation Ready Recommendations (Belleville – Napanee Area)

Wires (Transmission):

- A new 33 km double-circuit 230 kV line from Napanee to Belleville
- A new switching station in Belleville, and addition of 100 Mvar of reactive compensation

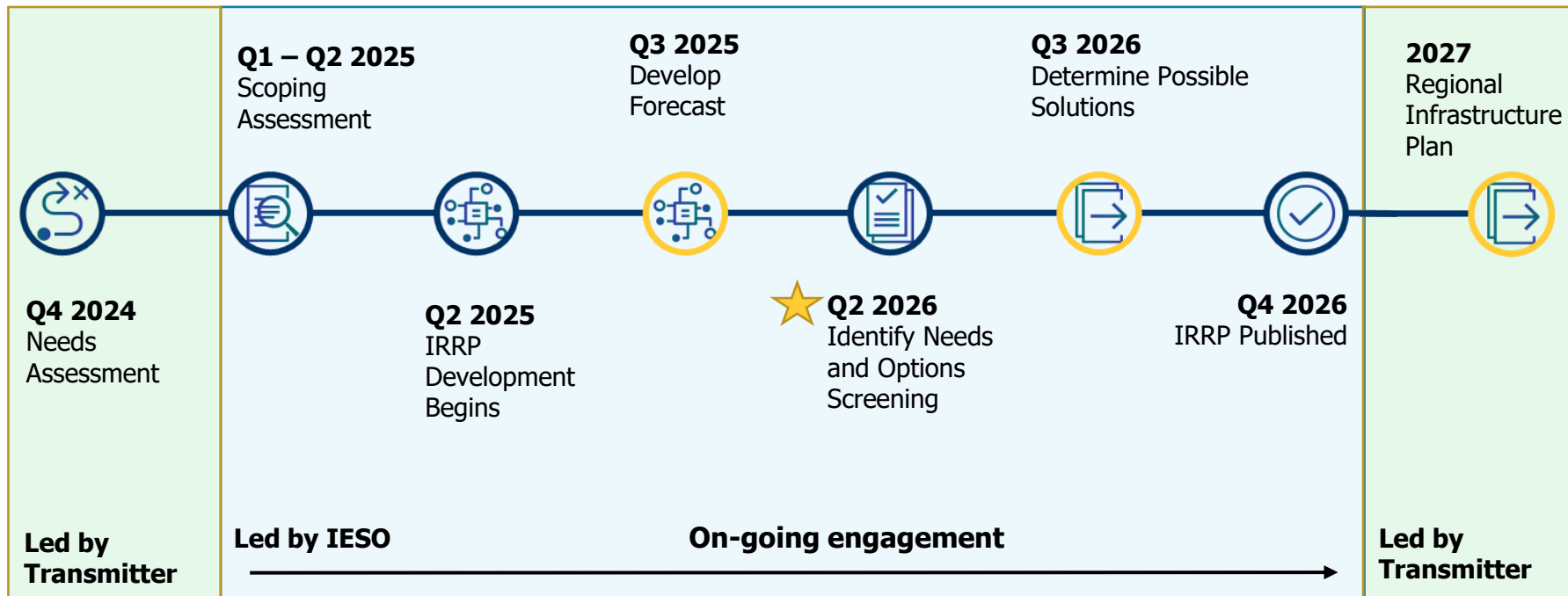
Non-Wires:

- Identification of opportunities to guide the development, within the IESO's existing Resource Adequacy Framework, of additional storage and solar supply resources, with a locational focus in the Belleville, Picton and Napanee areas.

Ongoing: Monitor demand growth, coordinate with resource procurement and ongoing regional plans and aligned with policy direction to trigger additional investments



Regional Planning Timeline*



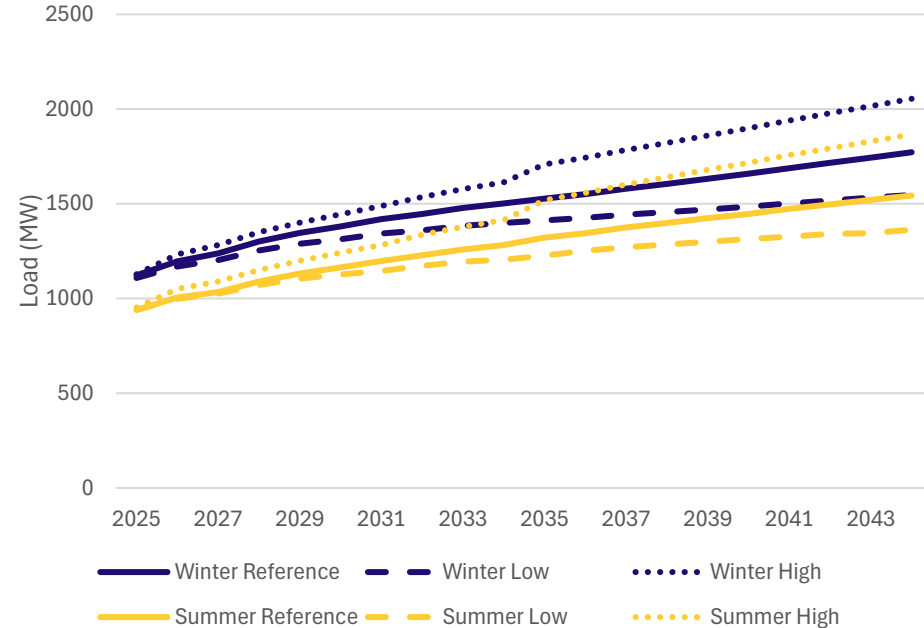
*Reflects typical 18-month IRRP timeline. Working Group has the flexibility to extend to 24 months where required

Approach to Developing the Demand Forecast

- The electricity demand forecast for this region was developed collaboratively by the IESO and Local Distribution Companies (LDCs) Elexicon Energy Inc., Hydro One Networks Inc., Lakefront Utilities and Utilities Kingston.
- The forecast is informed by key regional 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**, along with **high** and **low** demand scenarios that support flexible, resilient planning based on today's trends and policies.

Final Peterborough to Kingston Demand Forecast

- Electricity demand in Peterborough to Kingston expected to grow by 64% in summer and 58% in winter by 2044, this growth is aligned with what we are seeing on a provincial scale.
 - High growth scenario: 96% in summer and 82% in winter
 - Low growth scenario: 45% in summer and 40% 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 (1/2)

Key Areas of Feedback	Outcome
Confirm whether relevant regional inputs, such as local planning, projects, and programs, have been included in the forecasts.	• To develop the draft demand forecasts, forecast data is provided by each of the local distribution companies (LDCs) in the Peterborough to Kingston electrical area to the IESO. • The IESO shared details of the planning, projects, and programs provided by municipalities with the LDCs who confirmed that these projects have been considered in the draft electricity demand forecast scenarios. • The IESO is committed to continuing to engage to ensure upcoming projects are considered as the IRRP is finalized.
Consider specific areas of concern such as reliability, capacity, electrification impacts, municipal housing plans, and severe weather impacts	• As a key component of the regional planning process, forecast scenarios, which includes electrification and input from municipalities, LDCs, and interested parties have been developed. • Station capacity, supply capacity, and end-of-life asset replacement needs have been determined, after which the IESO conducts screening and evaluation of wire and non-wire options to meet the identified needs. • The IESO looks forward to receiving feedback on the needs and screening of potential options. • The IESO recognizes that weather has a large influence on the demand for electricity, and forecasts to extreme weather conditions for peak demand, which has been taken into account in the demand forecast scenarios.

Feedback Received (2/2)

Key Areas of Feedback	Outcome
Provide more information regarding the load forecast methodology, modeling approach, and a comprehensive grid study.	• The IESO published the <u>detailed methodology and load forecasts</u> to enable more purposeful community and stakeholder participation and input. • As the IRRP progresses, the IESO will present and engage on needs and options for input.
Capture the range of uncertainty of growth by considering trends associated with EVs, housing permits, industrial projects.	• The Technical Working Group developed three forecast scenarios, including a Reference Scenario which includes current and planned loads and organic growth and a High Scenario that incorporates potential demand growth that is less certain, in terms of timelines, magnitude, and location. • The reference forecast will drive firm near- and mid-term recommendations to address needs identified in the 0 to 10-year timeframe. • The high forecast scenario will be considered to test the robustness of the plan, identify signposts to monitor forecast changes, and contemplate additional actions required if higher demand growth materializes.

Please see the [Peterborough to Kingston engagement webpage](#) for additional feedback and the IESO's 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:

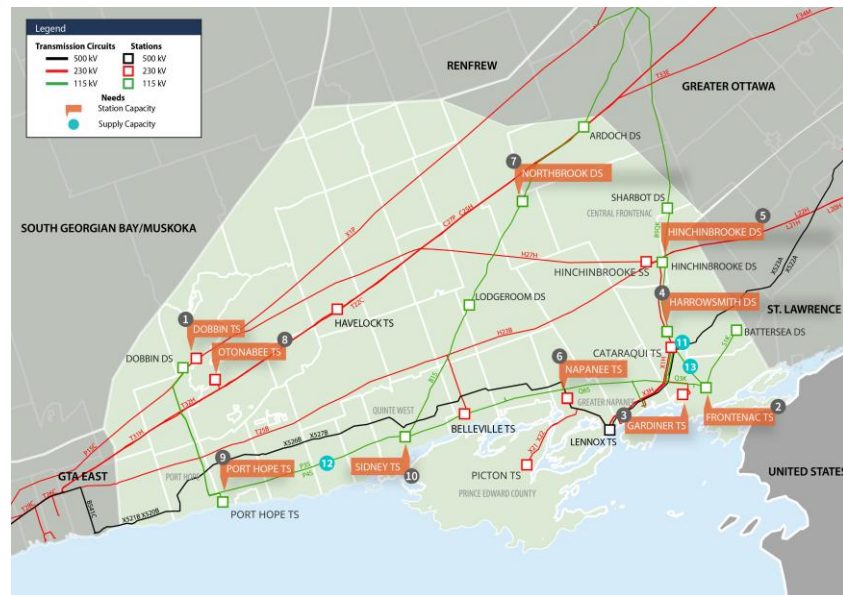
- **Station capacity:** Ability of a station to deliver power from the grid down to the distribution systems.
- **Supply capacity:** Ability of the system to supply power through the transmission lines to a local area.
- **Asset replacement:** Infrastructure that has reached its end of life based on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

Overview of Electricity Needs

In Peterborough to Kingston, 13 electricity system needs have been identified over the 20-year planning timeframe:

- Station capacity: three needs in the near term (within five years), three in the medium term (within five to ten years). and four more in the long term (ten to twenty years).
- Supply capacity: three needs in the near term.



Station Capacity Needs

Station	Location	Need Year		Summer Magnitude (MW)		Winter Magnitude (MW)	
		Summer	Winter	2026	2044	2026	2044
Dobbin TS	Peterborough	2029	2037	-	60	-	20
Frontenac TS	Kingston	2029	2027	-	60	-	70
Gardiner TS (T1/T2)	Kingston	2041	2037	-	20	-	45
Harrowsmith DS	South Frontenac	-	2043	-	-	-	1
Hinchinbrooke DS	Central Frontenac	2026	2036	-	2	-	1
Napanee TS	Greater Napanee	2035	2037	-	10	-	10
Northbrook DS	Northbrook	2041	-	-	1	-	-
Otonabee TS (T1/T2) 27.6kv	Peterborough	2042	-	-	3	-	-
Otonabee TS (T1/T2) 44kv	Peterborough	2031	2032	-	25	-	10
Port Hope TS (T1/T2)	Port Hope	2039	2039	-	10	-	15
Port Hope TS (T3/T4)	Port Hope	-	2040	-	-	-	10
Sidney TS	Quinte West	-	2032	-	-	-	20

Supply Capacity Needs

The study identified three 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
Catarauqui Autotransformer	Thermal overload	2027	2041	-	70 MW	-	17 MW
Peterborough to Quinte West 115 kV	Thermal overload & voltage violation	2029	2027	-	110 MW	-	130 MW
Kingston 115 kV Supply	Thermal overload	2028	2030	-	75 MW	-	70 MW



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 (NWAs), 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
Station Capacity: the ability of a station to deliver power from grid to distribution system	3 stations in the near-term 3 stations in the medium-term 4 stations in the long-term	• Distribution-level load transfers • Demand response • eDSM • Wires options (new and/or upgraded stations) • Distribution- connected generation and/or storage	
Supply Capacity: the ability of the system to supply power through the transmission lines to a local area	3 needs in the near-term	• Distribution-level load transfers • Demand response • eDSM • Wires options (new and/or upgraded stations) • Transmission- and distribution- connected generation and/or storage	

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., 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.



Next Steps & Discussion

Summary of today's Session

- Electricity demand could increase by up to 96% in summer and 82% in winter due to growth in the region. 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:

August 12, 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 (IRR). The IESO wants to understand:

- What feedback do you have on the screening of wire and non-wire options?
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The IESO welcomes written feedback until **August 12, 2026**. Please submit feedback to engagement@ieso.ca.

Ongoing Engagement

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



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ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca



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Appendix

Components of an IRRP

