NOVEMBER 26, 2024

GTA North (York Region) Regional Electricity Planning

Engagement Webinar #1

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Agenda

1. Ontario's Electricity Sector and the IESO's Role
2. Regional Electricity Planning Process
3. Draft Electricity Demand Forecast for York Region
4. Engagement and Next Steps
5. Discussion

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Connecting Today.
Powering Tomorrow.

We work with:

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

<<< **Communities** >>>

Summary

- Regional electricity planning has advanced in the GTA North (York Region) electrical area.
- In York Region, electricity demand could double by summer 2044, and triple by winter 2044, which is much faster than the rate of demand increase estimated for the province as a whole.
- Increased demand is primarily being driven by community growth, economic development and the electrification of buildings and vehicles.
- The electricity demand forecast includes decarbonization plans, municipal growth plans, community energy plans, economic development, data centers, and accounts for climate action initiatives.
- Meeting the pace of growth forecast in York Region will require significant investments in new electricity infrastructure, including large-scale wires and non-wires solutions.
- Understanding feedback and community perspectives is important throughout the process. The regional plan will examine the region's distinct electricity needs and consider a range of options to meet the growing electricity demand.

Seeking Input

As you listen today, your input is being sought to assist with:

Determining the electricity demand forecast for your region
What additional insights, if any, should be considered in the draft forecast scenario?
Are there any other scenarios that should be considered?

Identifying needs to be addressed
What areas of concern or interest about electricity should be considered as part of the planning process?

Engaging with communities and interested parties
What information is important for you throughout the engagement? Does the proposed Engagement Plan provide sufficient scope and opportunities to stay informed and to enable input? What other engagement activities or methods should be considered?

Please submit your written comments by email to engagement@ieso.ca by December 17, 2024

Regional Electricity Planning Process

Electricity Planning in Ontario

Provincial/Bulk System Planning

Addresses provincial electricity system needs and policy directions

Underway: South and Central Bulk Study

Regional Planning

Addresses local electricity system needs at the transmission system level

Underway: GTA North (York Region) Integrated Regional Resource Plan

Distribution Planning

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

Led by local distribution companies

Ontario's Regional Electricity Planning Process

Regional electricity planning aims to ensure affordable and reliable electricity to local areas across Ontario, considering the unique needs of each region, and a range of integrated resource options to keep the lights on. Typically, regional planning is completed on a cycle.

The GTA North electricity plan will be developed by a Technical Working Group, led by the IESO, with:

- Alectra Utilities
- Hydro One Networks Inc.
- Newmarket-Tay Power Distribution Ltd.

Background on Electricity Planning in GTA North

- Regional planning has been on-going in the GTA North (York Region) electrical area and across Ontario to address electricity needs.
- Previous recommendations to meet growing electricity needs included targeted funding for energy efficiency and innovation projects, and additional infrastructure (e.g. step-down stations) to address the modest growth that was forecasted.
- These solutions have ensured a reliable supply of electricity. Demand continues to grow, requiring more electricity planning.
- In parallel, a new South and Central bulk system study is also underway. In York Region, the study will focus on understanding the sufficiency of the bulk transmission system to enable future growth in electrical demand, decrease reliance on local natural gas-fired generation, and enable large scale new generation.

York Region Electricity System Overview

- The area is supplied by 500 and 230 kilovolt (kV) lines and transformer stations (TS).
- Majority of the electricity consumed in the region is generated outside of the region and brought to the region through existing transmission.
- The York Energy Centre provides local capacity - crucial to meeting local reliability during periods of peak demand, or transmission outages.
- Infrastructure built over previous decades is concentrated to the south.

Map for illustrative purposes.

Regional Planning Milestones for GTA North

Components of a Regional Plan

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?

Draft Electricity Demand Forecast

Developing the Demand Forecast

Forecast data is provided by the local distribution companies (LDCs) based on established forecasting assumptions and customer connection requests. Forecasts also include:

- Both summer and winter electricity demand broken down by transformer station.
- Insights from municipal and community energy plans.

In addition, the IESO, alongside the Technical Working Group:

- Adjusts for impacts of existing demand side management programs, distributed generation, and the effects of extreme weather on electricity demand.
- Works directly with customers and industry stakeholders to account for large electricity consumers that may seek connection on the transmission system.
- Engages to ensure additional insights from municipalities, customers, and other interested parties are incorporated in the demand forecast.

Draft Forecast Scenario Details

A reference forecast scenario has been developed for the GTA North electrical area. Key demand drivers include:


Municipal/regional growth plans


Climate change action plans


Community energy plans


Business plans of major electricity consumers or large projects, such as data centers


Distributed energy resources/energy projects

Local Distribution Company (LDC) Demand Forecast Methodologies

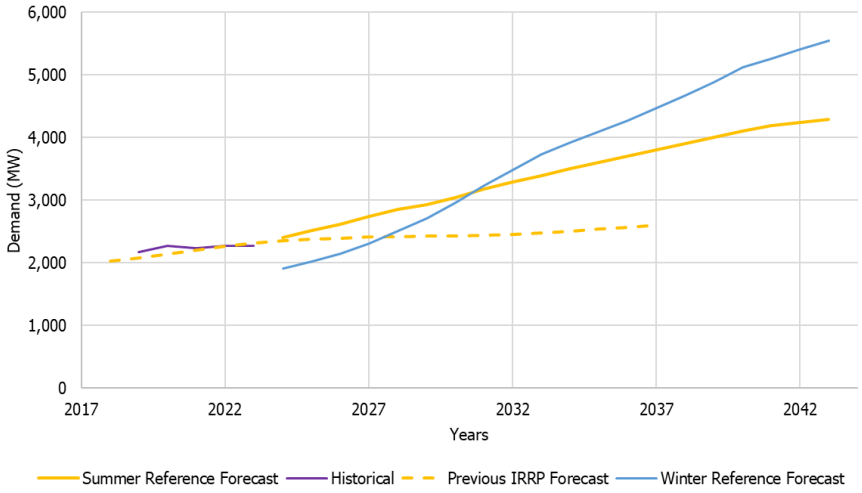
Documents have been submitted by LDCs describing their load forecast methodologies in greater detail and have been published on the IESO's website.

Highlights include:

- Reliance on assumptions from Federal, Provincial, Regional, and Municipal plans and targets for longer term forecasting, with connection applications, building permits, ICI and housing activity informing near term forecasts.
- Forecasting techniques included Trend, End Use, and Bottom-up analysis.
- Electrification is driven by fuel switching for heating and transportation, informed by government mandates and initiatives.

York IRRP Demand Forecasts

- The electricity demand forecasts are developed in partnership between local distribution companies and the IESO.
- The forecast is informed by municipal policies, including decarbonization plans, municipal growth plans, community energy plans, economic development, data centers etc.
- In York Region, demand could **double in the summer and triple in the winter by 2044** – by comparison, Ontario electricity demand could grow by 75% by 2050.
    - Electrification of buildings and vehicles are a significant contributor to increasing electricity demand.



Meeting Demand Growth

- The pace of growth forecasted in York Region and the province is significant.
- Approximately 3,000 MW increase in the peak demand is forecasted in York Region, equivalent to adding two cities of Ottawa.
- Meeting this demand growth will require significant investments in new electricity infrastructure, including large scale wire and non-wire solutions.
- Informed by feedback, the IRRP will examine the region's distinct electricity needs and consider a range of options and resources to meet the growing electricity demand.
- Large-scale solutions can have longer lead times. If the forecasted increase in electricity demand materializes before infrastructure is in place, system reliability could be impacted, and limits to new customer connections to the grid could be reached.
- The IESO will also evaluate a scenario for a future without York Energy Centre, by understanding the options and timing to ensure a reliable and affordable supply of power.

Engagement and Next Steps

Ongoing Engagement

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

Participate in upcoming public webinars

Subscribe to receive updates on the IESO website –> select GTA North Region

Follow the GTA North regional planning activities online

Engagement Key Areas for Input

Milestone	Timeline	Community Input
Electricity demand forecast and Engagement Plan	Current	What economic development or other growth or project plans might influence the regional load forecast? What additional information should be considered?
Electricity needs	2025	What additional information should be considered?
Screening of high-level potential options	2025	What additional information should be considered in the study assumptions? What community feedback is there to the potential solutions? What other options should be considered?
Options analysis and draft recommendations	2025	What community feedback is there on the draft recommendations? What information should be considered in the recommendations?
Final IRRP	2025	

Next Steps

The IESO will continue to engage and inform at these milestones:

December 17, 2024 – Written feedback on draft electricity demand forecast and Engagement Plan due.

Activities for 2025:

- Present needs based on the updated forecast, and solicit feedback
- Share the screening of high-level potential options based on the electricity needs identified, and solicit feedback
- Present detailed option analysis and draft recommendations to meet the electricity needs, and solicit feedback
- IRRP recommendations and report will be completed

We Want to Hear From You

Determine the electricity demand forecast for your region
What additional insights, if any, should be considered in the draft forecast scenario?
Are there any other growth scenarios that should be considered?

Identify needs to be addressed
What areas of concern or interest about electricity should be considered as part of the planning process?

Engage with communities and interested parties
What information is important for you throughout the engagement? Does the proposed Engagement Plan provide sufficient scope and opportunities to stay informed and to enable input? What other engagement activities or methods should be considered?

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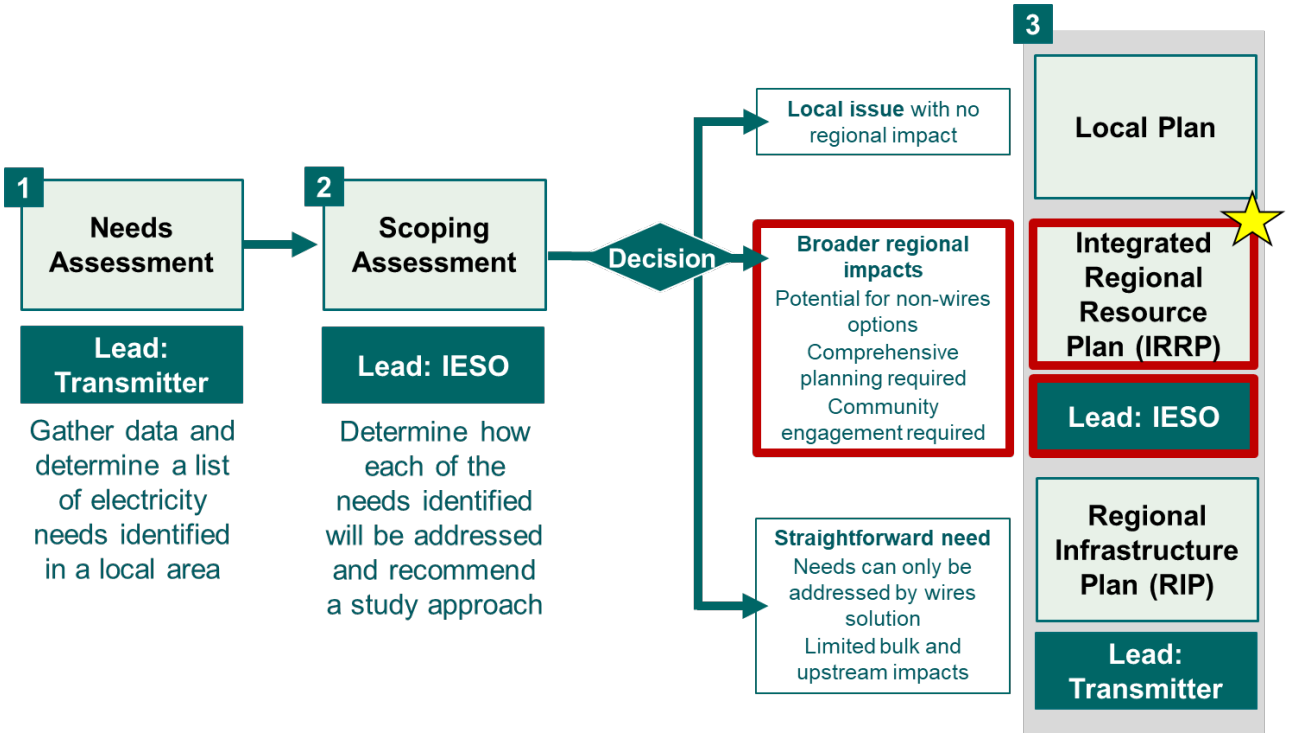
Appendix

IRRP Technical Working Group

Team Lead, System Operator	• Independent Electricity System Operator
Lead Transmitter	• Hydro One Networks Inc. (Transmission)
Local Distribution Companies	• Alectra Utilities Corporation • Newmarket-Tay Power Distribution Ltd. (NT Power) • Hydro One Networks Inc. (Distribution)

Determine the Need for an IRRP



Data Gathering – Demand Forecast

The region's needs are assessed based on a 20-year forecast of peak electricity demand. The peak demand forecast is created by:

1. **Collecting** gross demand forecast information from local distribution companies:
   - Near term informed by customer connection requests
   - Longer term informed by demographic/employment targets, and various official plans and policy direction affecting electricity use assumptions
2. **Estimating** impact of conservation and demand management targets and median peak weather conditions (demand is weather-sensitive).
3. **Calculating** the forecast peak demand contribution of contracted distributed generation.
4. **Adjusting** the forecast to account for extreme peak weather conditions.

Summary of 2020 York Region IRRP Needs

Location	Type / Approximate Date	Description
Markham/ Richmond Hill	Station capacity / 2025	• Capacity of existing stations forecast to be exceeded in 2025 • New step-down station needed in Markham to supply local growth
Northern York Region	Station capacity / 2027	• Capacity of existing stations forecast to be exceeded in 2027 • New step-down station needed in Northern York Region to supply local growth (proximity to East Gwillimbury recommended)
Vaughan	Station capacity / 2030	• Capacity of existing stations forecast to be exceeded in 2030 • New step-down station needed in Vaughan to supply local growth
York Region	System Capacity / 2033	• Growth driving need for new step-down stations will cause stress to the system • Once triggered, need accelerates quickly to ~120 MW capacity gap in late 2030s, equivalent to demand of ~47,000 homes • New transmission or large-scale resource solution required in long term to supply regional growth