



FEBRUARY 16, 2023

Toronto Regional Planning

Scoping Assessment Engagement Webinar

Objectives of Today's Webinar


- To provide an overview of the regional planning work underway in the Toronto region
- To discuss the draft Toronto Scoping Assessment and seek feedback
- To provide a timeline and next steps

Seeking Input

Some key questions to consider when reviewing the Scoping Assessment:

- What additional information that should be considered as part of the Scoping Assessment?
- What other considerations should be made regarding the areas identified as requiring further study through a regional planning approach based on local developments?
- What other areas or specific considerations should be examined through regional planning?

Please submit your written comments by email to engagement@ieso.ca by **March 2**



Overview of the IESO and the Regional Planning Process

Ontario's Electricity Sector

Connecting Today. Powering Tomorrow.

The IESO works at the heart of Ontario's power system, ensuring that electricity is available where and when it is needed.

We oversee and evolve the electricity market, driving competition to maintain affordability.

We manage the grid in real-time, balancing supply and demand and directing the flow of electricity.



We plan for the future, forecasting demand and securing the resources required to meet Ontario's energy needs.



We work with:

Generators produce large amounts of electricity to meet Ontario's needs. Ontario has one of the cleanest energy supplies in the world.

→ **Transmitters** transport electricity over long distances from power plants to communities.

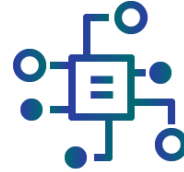
→ **Local Distribution Companies** (the "local hydro company") deliver electricity directly to homes and businesses in your community.

→ **Energy consumers** and the communities they live in count on electricity being available.

Who the IESO is and What We Do



Reliably operate Ontario's province-wide system 24/7



Support innovation



Create electricity market efficiencies



Work closely with communities to explore sustainable options

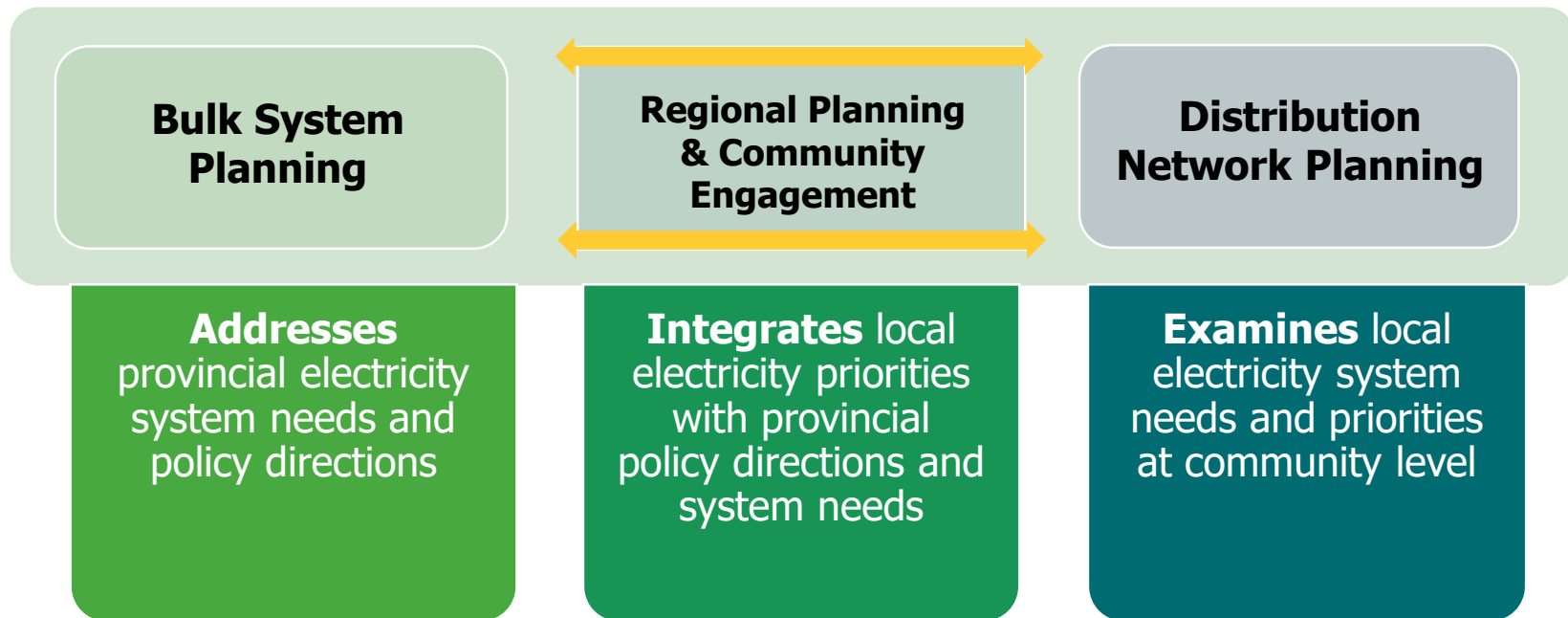


Plan for Ontario's future energy needs



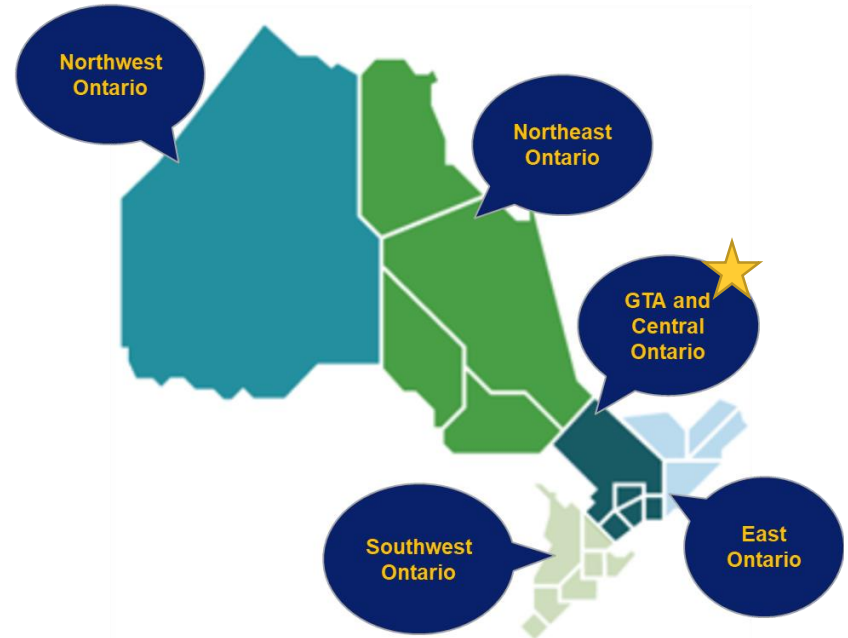
Enable province-wide energy efficiency

Electricity Planning in Ontario

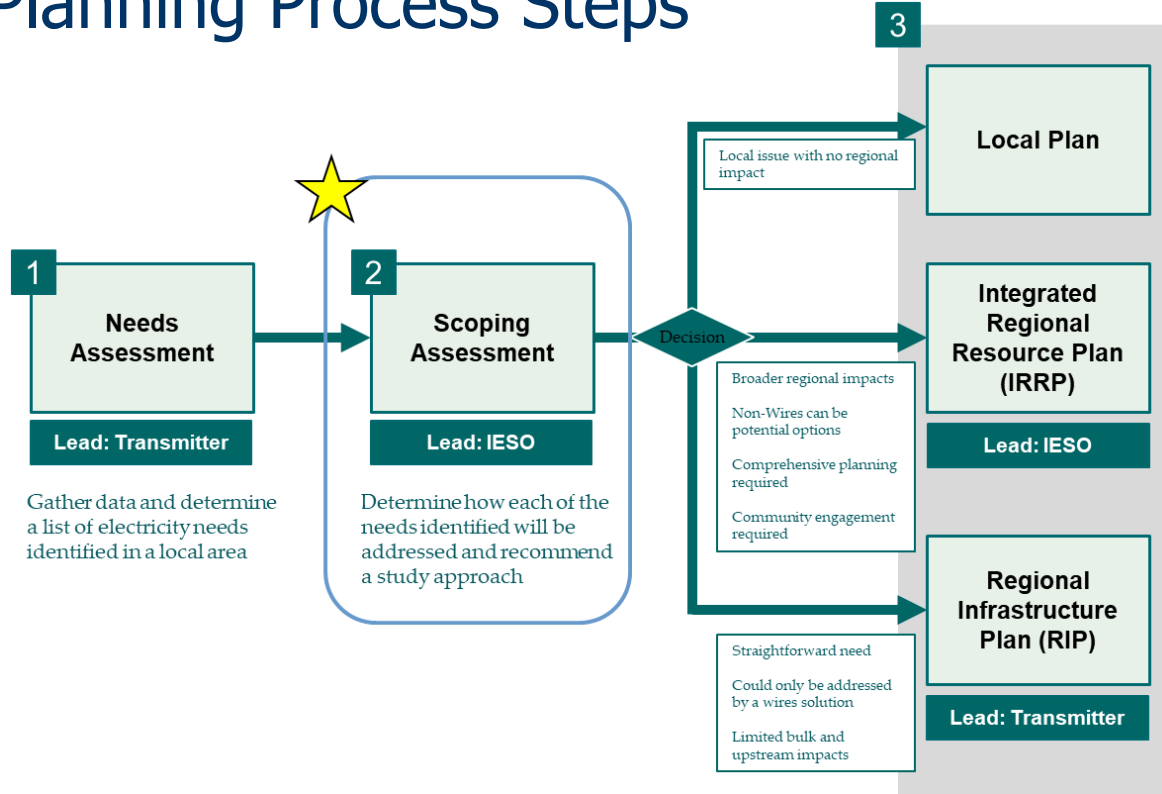


21 Electricity Regional Planning Regions

- Based on electricity infrastructure boundaries
- Planning based on each region's unique needs and characteristics



Regional Planning Process Steps



What is a Scoping Assessment?

- The Scoping Assessment is triggered following the completion of a Needs Assessment
- It is led by the IESO and includes the transmitter and local distribution companies (LDCs) in the region

Key Elements

- Review needs that require comprehensive planning
- Determine the geographic grouping (sub-regions) of needs
- Determine the appropriate regional planning approach and scope
- Establish the draft terms of reference for an Integrated Regional Resource Plan, if one is required, and composition of the Technical Working Group

Identifying the Planning Approach

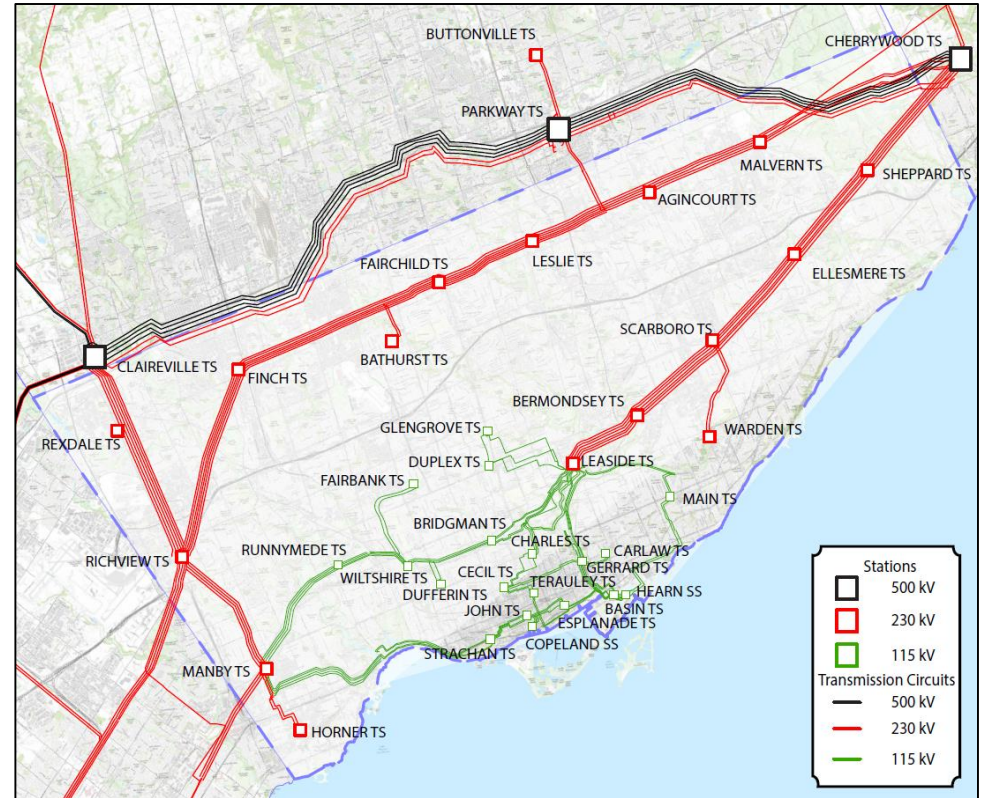
Approach	Typical Considerations	Parties Involved
Integrated Regional Resource Plan (IRRP)	Where a greater range of options, including non-wires, are to be considered, and/or closer coordination with communities and stakeholders is required	IESO (lead) Transmitter LDCs
Regional Infrastructure Plan (RIP)	Considers more straight-forward wires-only options with limited engagement	Transmitter (lead) LDCs IESO
Local Planning	No further regional coordination is needed	Transmitter LDCs



Regional Planning in the Toronto Region

Toronto Region

- Includes the area within the municipal boundary of the City of Toronto
- Electricity system consists of 230 kV and 115 kV transmission lines and stations
- Mississaugas of the New Credit, Six Nations of the Grand River, HCCC, York Region Métis Council and the Huron Wendat of Wendake, Quebec are located nearby or have interests in the area



Scoping Assessment Working Group

Team Lead,
System
Operator

- Independent Electricity System Operator

Lead
Transmitter

- Hydro One Networks Inc. (Transmission)

Local
Distribution
Companies

- Toronto Hydro Electric Systems Limited
- Alectra Utilities Corporation
- Elexicon Energy Inc.
- Hydro One Networks Inc. (Distribution)

Updates since previous Regional Plan for Toronto (1)

- The first cycle of regional planning resulted in an IRRP for Central Toronto which was completed in April 2015 with an update being made in February 2017
- The second cycle of regional planning was completed in March 2020 and focused on end-of-life needs
- An updated analysis on the Richview to Manby Upgrade (aka Etobicoke Greenway Project) was conducted in 2021. This analysis reaffirmed the findings in the IRRP.

Updates since previous Regional Plan for Toronto (2)

- This third cycle of regional planning was initiated in 2022. Hydro One undertook a Needs Assessment, published in December 2022, identifying needs that require further regional coordination.
- Pathways to Decarbonization report was released in December 2022 and laid the foundation to study decarbonization scenarios in regional plans, including the Toronto region. The IESO recognizes the government of Ontario is actively consulting on the report. Outcomes of this consultation may inform the IESO's approach to this regional plan.



Toronto Draft Scoping Assessment

Categories of Needs

Capacity Needs

- Station capacity refers to the ability to convert power from the transmission system down to distribution system voltages
- System capacity (or “load meeting capability”) refers to the ability of the electricity system to supply power to customers in the area, either by generating the power locally, or bringing it in through the transmission system

Load Restoration and Supply Security Needs

- Load restoration describes the electricity system’s ability to restore power to those affected by a major transmission outage within reasonable timeframes
- Supply security describes the total amount of load interrupted following major transmission outages

End-of-Life Asset Replacement Needs

- Based on the best available asset condition information at the time
- Evaluated to decide if the facility should be replaced “like-for-like”, “right-sized”, or retired

Needs Identified in the Toronto Region

- The Needs Assessment performed by Hydro One identified:
 - Station capacity needs
 - Line/system capacity needs
 - Load restoration needs
 - End-of-life needs
- These needs will be confirmed and additional needs may be identified in later stages of planning
- The identified needs are briefly outlined in the following slides
- For more details, please refer to the draft Scoping Assessment or the Needs Assessment

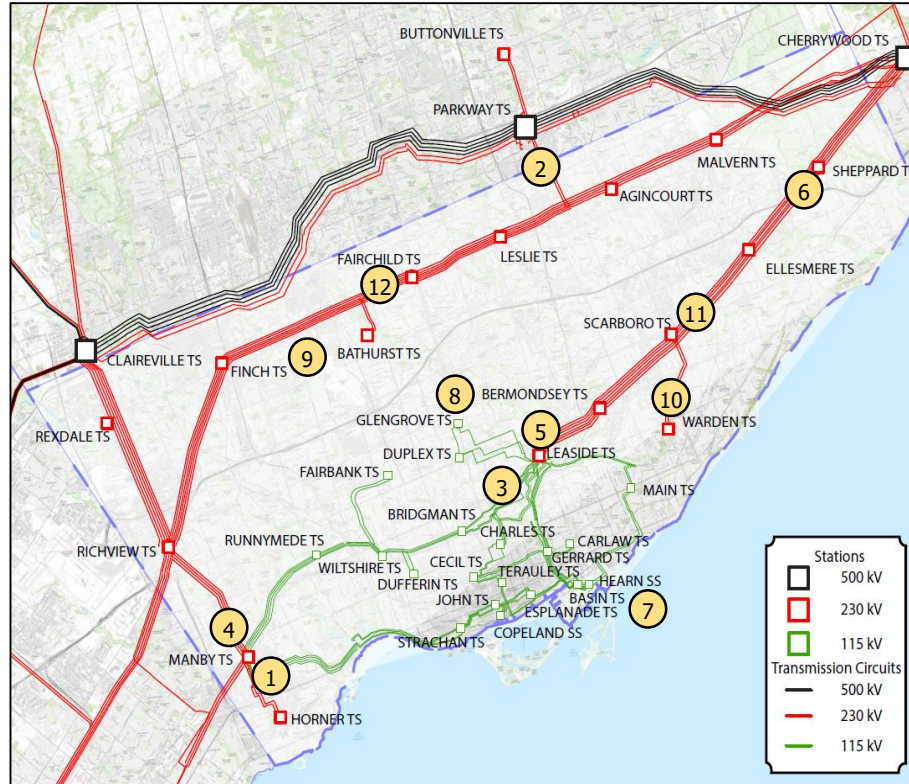
2022 Needs Assessment Findings requiring Coordination (1)

	Need	Need Type	Description
1	115 kV Manby TS to Riverside Jct. Corridor	Line Capacity	Section of the 115 kV circuits K13J and K14J between Manby TS and Riverside Jct to be overloaded by 2026
2	230 kV Parkway TS to Richview TS Corridor	Line Capacity	Sections of the 230 kV circuits P21R and P22R near the Parkway TS end are approaching limit by 2031
3	115kV Leaside TS to Wiltshire TS Corridor	Line Capacity	The Bayview Jct. x Balfour Jct. underground section of the 115 kV circuit L15 is potentially overloaded in the long term
4	230/115kV Manby W Autotransformers	Autotransformer Capacity	Restricted by the lowest rated autotransformer unit T12. This unit is planned to be replaced by 2030
5	230/115kV Leaside TS Autotransformers	Autotransformer Capacity	Autotransformer T16 is potentially overloaded following circuit C14L, C15L, or C17L contingency, assuming that two of the three units at Portlands Energy Centre GS are out-of-service, and total plant generation is 160 MW
6	Sheppard TS	Station Capacity	Consideration may be given to utilizing the idle winding on transformers T1/T2

2022 Needs Assessment Findings requiring Coordination (2)

	Need	Need Type	Description
7	Basin TS	Station Capacity	Station capacity will increase when transformers T3/T5 will be replaced with 60/100 MVA units by 2027
8	Glengrove TS	Station Capacity	Glengrove TS is almost at capacity in 2031. The transformer replacement with higher rated units at Duplex TS will provide relief
9	Finch TS / Bathurst TS	Station Capacity	Total load at Finch TS and Bathurst TS is almost reaching the combined station capacity in 2031
10	Warden TS	Station Capacity	Load demand near Warden TS exceeds its capacity from 2024. To be managed by load transfer to Scarboro TS at distribution level in the near/medium term
11	Loss of C14L/C17L	Load Restoration	Loss of these two circuits can lead to a total load loss of 379 MW by 2031. There will not be adequate capacity to restore load within 30 minutes per ORTAC
12	Loss of C18R/P22R	Load Restoration	Loss of these two circuits can lead to a total load loss of 350 MW by 2031. There will not be adequate capacity to restore load within 30 minutes per ORTAC

Geographic Location of Identified Needs



Option Categories

Option Type	Description
Wires	Traditional transmission assets such as switching stations, transformer stations, or transmission lines; may also include protection schemes and control and operational actions such as load rejection
Non-wires	Local load modifying solutions such as distributed energy resources (including distributed generation/storage and demand response) or energy efficiency measures - and/or - Large, utility-scale resource options located to alleviate a local reliability need

- Past IRRPs have identified potential non-wires options based on assessment of hourly forecasts and the timing and characteristics of the need (magnitude, duration, frequency)
- Technology type and sizing of non-wires options are based on capacity and energy requirements; a high-level cost estimate can then inform whether more detailed analysis is required

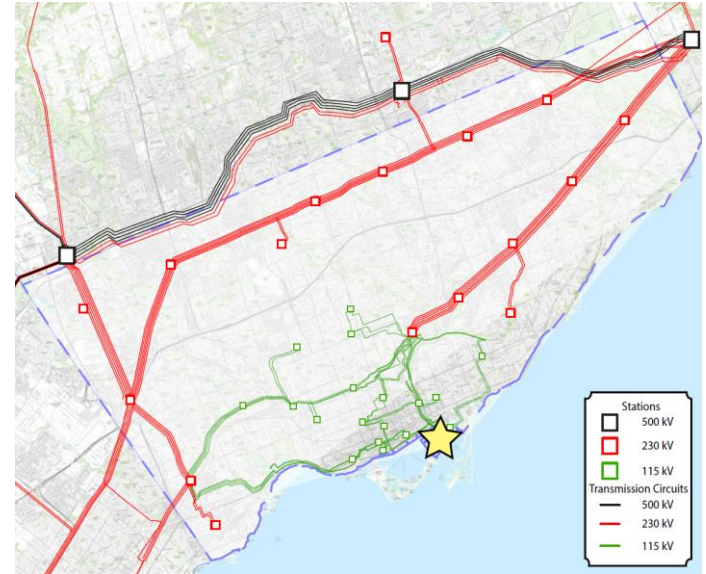
Draft Scoping Assessment Considerations

When determining the planning approach for needs requiring coordination, consideration was given to whether these needs:

- Have the potential to be addressed by non-wires solutions
- Could be impacted by varying bulk systems flows
- Could potentially be addressed in an integrated manner
- Impact multiple LDCs in the region
- Would require engagement and coordination with community-level energy planning activities

Considerations associated with Growth and Electrification (1)

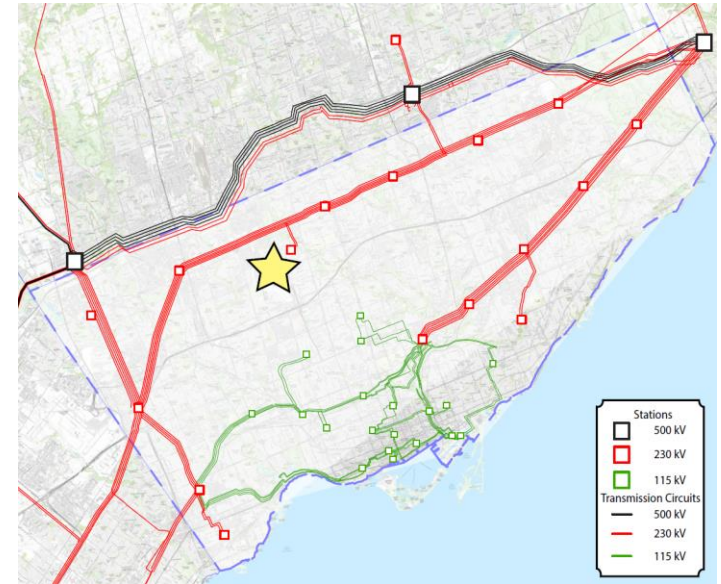
- The City of Toronto has identified certain areas of the city that will undergo further development and growth
- One area of interest is the Port Lands which is being promoted as a future “home to sustainable new communities”¹
- Redevelopment of the Port Lands is expected to result in significant increase in electricity demand



¹Waterfront Toronto: <https://www.waterfronttoronto.ca/our-projects/scope-scale/port-lands>

Considerations associated with Growth and Electrification (2)

- The Downsview area, particularly the area surrounding the Downsview Airport, is another area of interest
- An update to the secondary plan, called Update Downsview², aims to develop a new community and reconnect Downsview with surrounding neighborhoods.
- Plans to facilitate new housing, jobs, and other community services would significantly increase electricity demand and affect nearby infrastructure



²Update Downsview: <https://www.toronto.ca/city-government/planning-development/planning-studies-initiatives/update-downsview/>

Pathways to Decarbonization Report

- The IESO published the Pathways to Decarbonization (P2D) Report in December 2022 which identifies risks and opportunities arising from the energy transition, including risks to Toronto. In the Report, the IESO commits to ensuring “that regional planning processes for Toronto and York Region address the unique challenges for local reliability of phasing out natural gas.”
- The IESO recognizes the government of Ontario is actively consulting on the report. Outcomes of this consultation may inform the IESO’s approach to this regional plan.

GTA Bulk Supply Study

- In December 2022, the IESO published the 2022 Annual Planning Outlook (APO) which forecasts system needs and explores the province's ability to meet them
- The APO identified possible issues that could arise due to increasing demand and planned retirement of the Pickering Nuclear Generating Station
- The IESO will begin a GTA Bulk Supply Study in 2023 to review the capability of the GTA bulk power system
- This study will be conducted in coordination with the Toronto IRRP

Draft Scoping Assessment Recommendations

Similar to the previous planning cycle, the Toronto region includes the area within the City of Toronto. No sub-regions were created for the purpose of developing a comprehensive plan

An Integrated Regional Resource Plan (IRRP) is recommended due to:

- The potential linkages between needs and their required coordination
- The opportunity for public engagement
- The potential for exploring multiple types of options to meet the needs (including non-wires alternatives)
- The potential for regional changes having implications on the upstream bulk power system
- The opportunity to explore effects of high electrification in the Toronto Region

Reasons for Recommending an IRRP for Toronto

- Needs are primarily driven by growth in peak capacity needs, but also consider a number of refurbishment opportunities within the planning timeframe
- The close proximity of loads, high anticipated growth rates from new development and intensification, and potential opportunity for right sizing of infrastructure during refurbishment all present opportunities to consider needs in a coordinated manner
- Options to address needs may include conventional infrastructure and non-wires alternatives
- Uncertainties around demand growth from electrification/decarbonization of industry located in the City
- The area is also in close proximity, and shares key infrastructure, with parts of the bulk power system

IRRP Scoping and Sizing

- Due to the significant anticipated scope of the study, the full 18-month timeline for completion is required
- The composition of the IRRP Working Group will include the IESO, Toronto Hydro, and Hydro One Transmission
 - Other Local Distribution Companies in the region will be informed of any needs or solutions that may affect their facilities or customers

IRRP Timelines (1)

Schedule of Activities	Lead Responsibility	Time Frame
Finalize Terms of Reference and Scoping Assessment	IESO	March 2023
Develop planning forecast for region	IESO and Toronto Hydro	Q2-Q4 2023
Provide information on load transfer capabilities under normal and emergency conditions and any end-of-life assets	Toronto Hydro and Hydro One Transmission	Q1 2024
Provide and review relevant community plans, if applicable	Toronto Hydro and IESO	Q1 2024

IRRP Timelines (2)

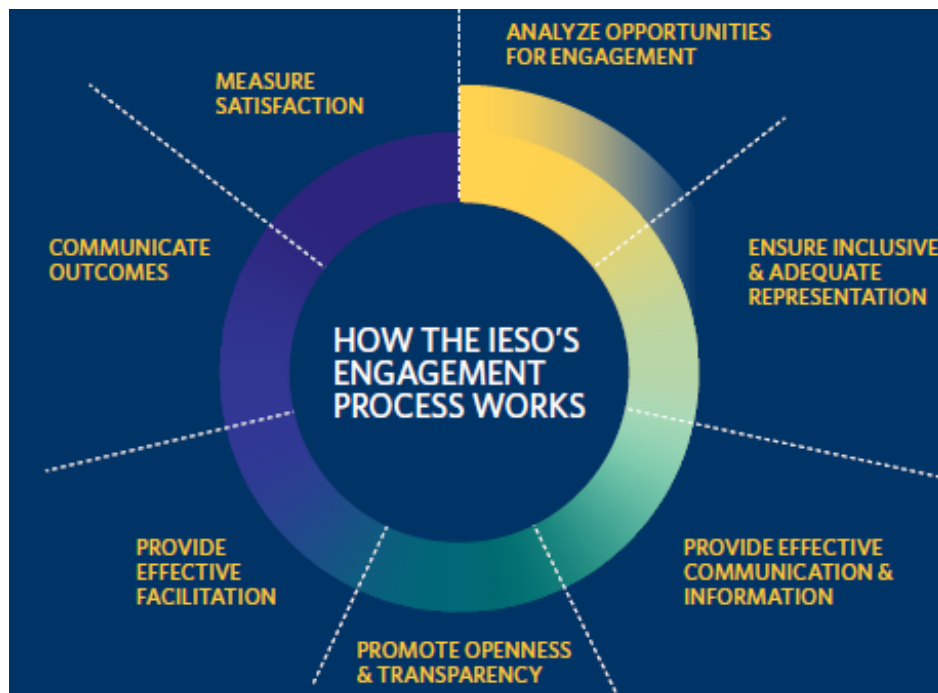
Schedule of Activities	Lead Responsibility	Time Frame
Complete system studies to identify needs	IESO, Hydro One Transmission	Q1 – Q2 2024
Develop options and alternatives	All	Q2 2024
Plan and undertake community & stakeholder engagement	IESO	Ongoing as required
Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Q1-Q2 2024
Prepare the IRRP report detailing the recommended near, medium and long-term plan for approval by all parties	IESO	September 2024



Engagement

Regional and Community Engagement

- Broaden community engagement efforts
- Increase communication channels
- Enhance engagement process for regional planning



Who Should Participate?

- Indigenous Communities
- Municipalities
- Chambers of Commerce/Boards of Trade
- Large energy users
- Community groups and associations (e.g., community/resident associations, Business Improvement Areas, home builders' associations)
- Academia and research organizations
- Energy service providers

Future Engagement Opportunities

- Further opportunities for engagement may include seeking input on the following major components of the IRRP:
 - Identifying needs
 - Considering options
 - Proposed recommendations
- The IESO is committed to increasing the information available to stakeholders and communities throughout the IRRP development process
 - For example, the engagement plan will seek to include enhanced detail about the objectives of each engagement activity and the type of supporting data that will be made available. The draft engagement plan will be posted for public comment.

Reminder- Seeking Input

Some key questions to consider when reviewing the Scoping Assessment:

- What additional information that should be considered as part of the Scoping Assessment?
- What other considerations should be made regarding the areas identified as requiring further study through a regional planning approach based on local developments?
- What other areas or specific considerations should be examined through regional planning?

Please submit your written comments by email to engagement@ieso.ca by **March 2.**

Questions?

Do you have any questions for clarification on the material presented today?

Submit questions via the web portal on the webinar window, or by email to engagement@ieso.ca

Next Steps

- Feedback due to engagement@ieso.ca by **March 2**
- IESO to post and respond to feedback, as well as the final Scoping Assessment by **March 21**
- Further engagement to follow

How You Can Stay Involved:

- Subscribe to receive updates on the Toronto regional initiatives on the IESO website <http://www.ieso.ca/subscribe>
- Follow the Toronto regional planning activities online
Comments and questions on the draft Scoping Assessment Outcome Report can be submitted to engagement@ieso.ca by **March 2**

Thank You

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