FEBRUARY 14, 2023

Greater Ottawa Region

Regional Planning Engagement Webinar

ieso
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Objectives of Today's Webinar

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

Seeking Input

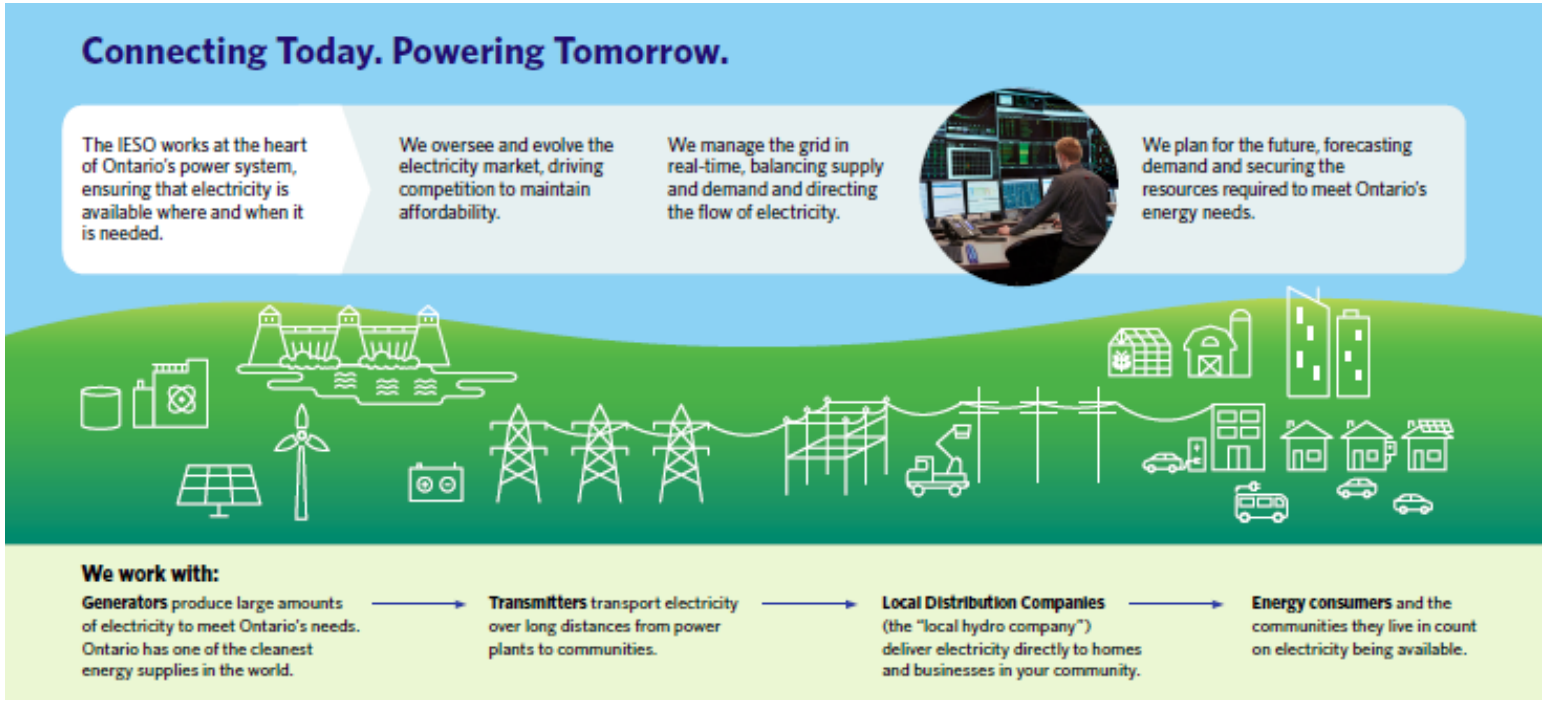
Some key questions to consider when reviewing the Scoping Assessment:

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

Please submit your written comments by email to engagement@ieso.ca by **February 28**

Overview of the IESO and the Regional Planning Process

Ontario's Electricity Sector



Who the IESO is and What We Do

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

Support innovation

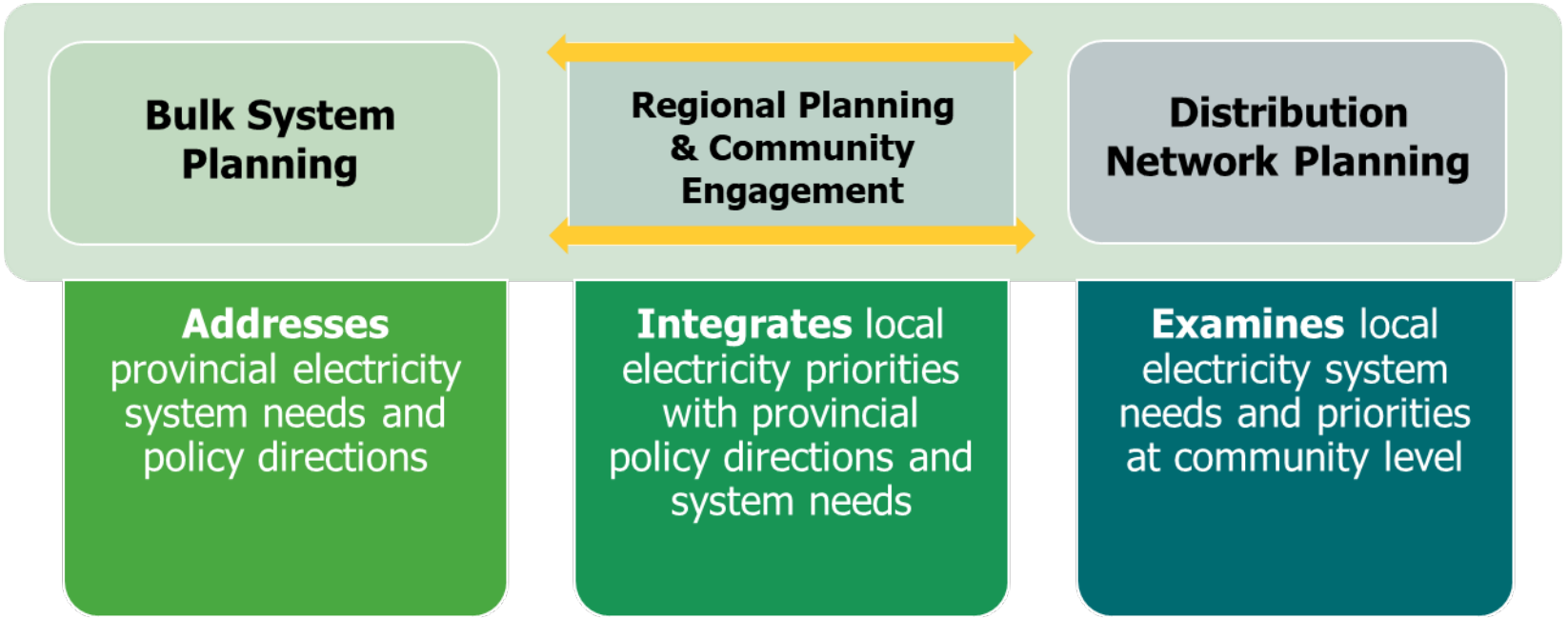
Create electricity market efficiencies

Work closely with communities to explore sustainable options

Plan for Ontario's future energy needs

Enable province-wide energy efficiency

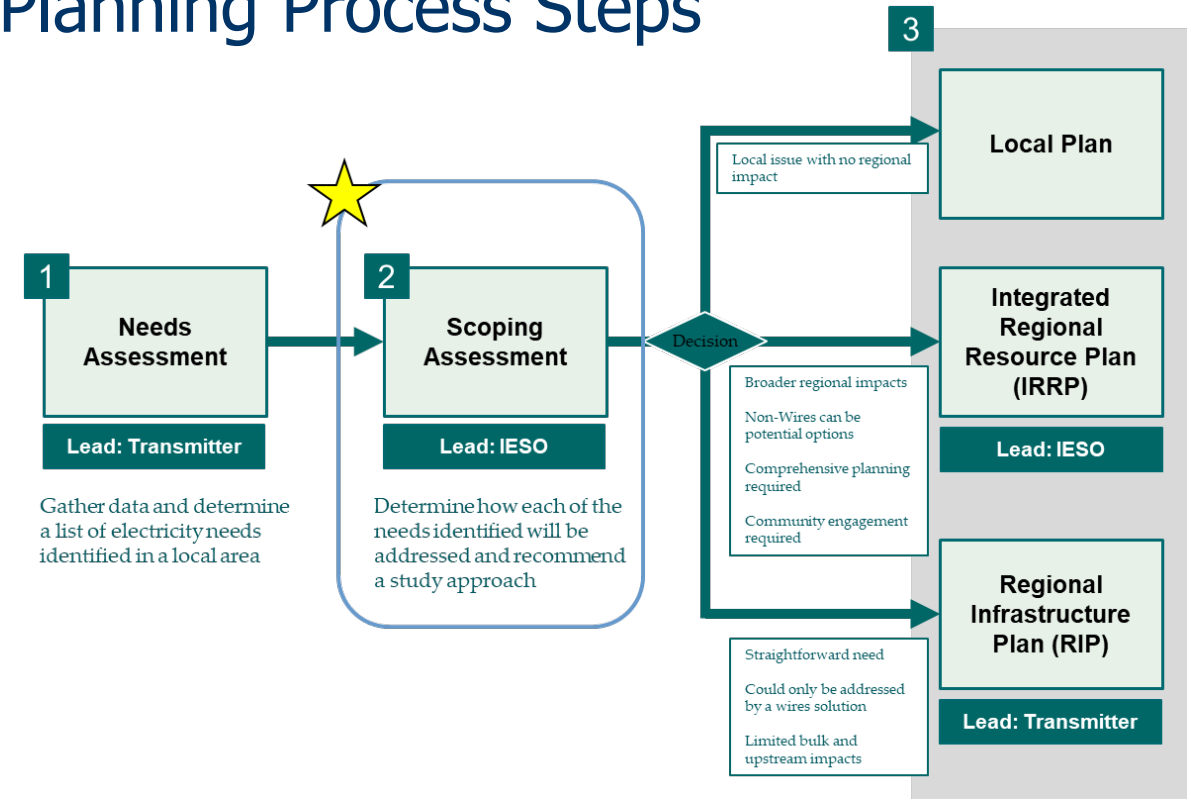
Electricity Planning in Ontario



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

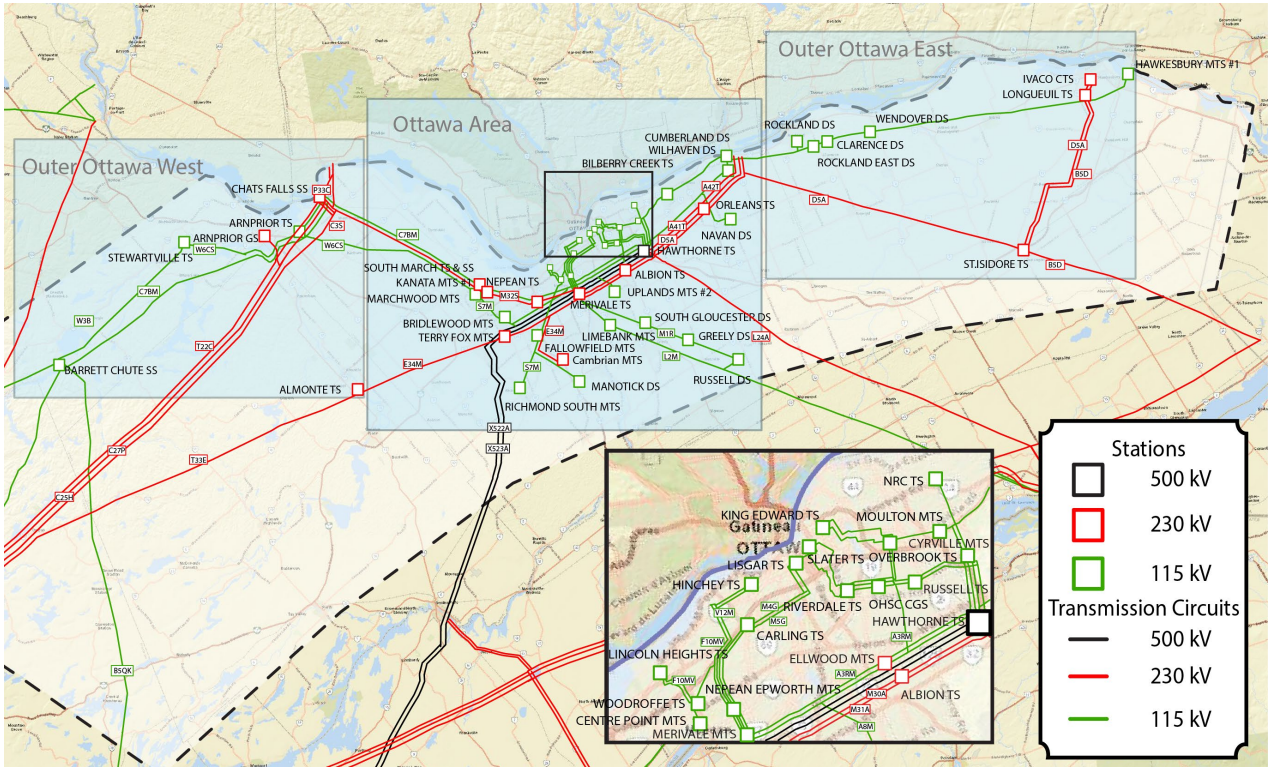
- Review needs that require comprehensive planning
- Determine the geographic grouping (sub-regions) of needs
- Determine the appropriate regional planning approach and scope
- Establish the draft terms of reference for an Integrated Regional Resource Plan, if one is required, and composition of the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

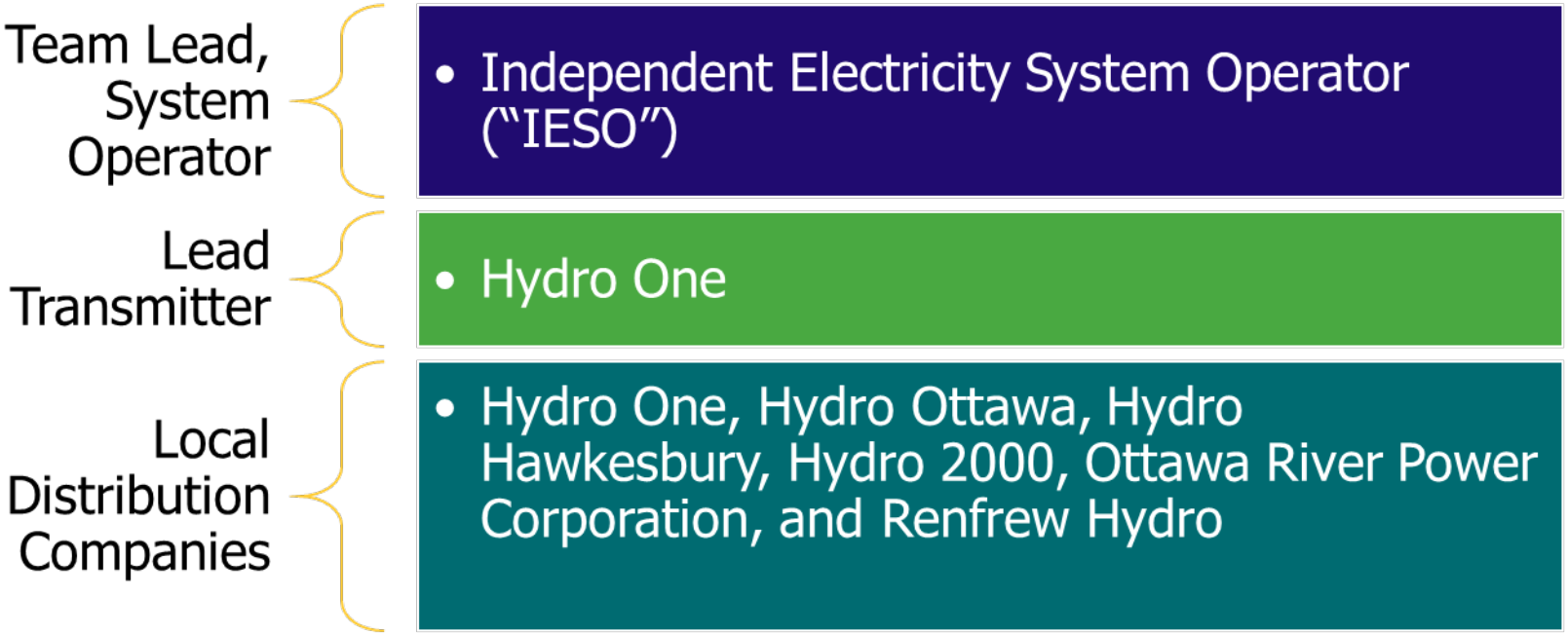
Greater Ottawa Region Diagram



Greater Ottawa Region

- Greater Ottawa Region is located in eastern Ontario and covers the municipalities bordering the Ottawa River from Stewartville in the west to Hawkesbury in the east and north of Highway 43
- Electricity system consists of 230 kV and 115 kV transmission and stations
- Ottawa Health Sciences Center, a cogeneration plant, provides additional supply to the area
- Indigenous communities including the Chippewas of the Thames, Mississaugas of the New Credit, Munsee-Delaware Nation, Oneida Nation of the Thames, Six Nations of the Grand River and the Haudenosaunee Confederacy Chiefs Council. The Huron Wendat Nation, now located in Wendake, Quebec, has a historical interest in southern Ontario.
- Métis Nation of Ontario (MNO) councils including the MNO Clear Waters Métis Council (Brantford); MNO Credit River Métis Council (Mississauga) and MNO Niagara Region Métis Council.

Technical Working Group



Previous Regional Planning for Greater Ottawa

- Since the Ontario Energy Board formalized the regional planning process in 2013, there have been two previous cycles of regional planning for the Greater Ottawa region
- Both cycles resulted in an IRRP for the Ottawa Area Sub-region which is where most of the transmission system issues were forecasted
- Local plans were created for the Outer Ottawa East and Outer Ottawa West Sub-regions by the transmitter and respective distributors in the previous cycle of regional planning
- The Greater Ottawa region technical working group met in early 2022, and after reviewing the updated forecast trends determined that regional planning would need to be triggered early. Consequently, the third cycle of regional planning was initiated in August 2022
- Hydro One undertook a Needs Assessment, published in December 2022, identifying that further regional coordination was required
- The IESO has initiated the Scoping Assessment as a result.

Interdependencies with Other Ongoing Electricity Planning

- Due to higher then expected forecasted demand on the Ottawa 115 kV system, Hydro Ottawa, Hydro One and the IESO have re-visited the 2020 IRRP recommendation to refurbish the EOL Bilberry Creek TS
- The team is reconsidering one of the previously proposed alternatives which involves reconfiguring the transmission supply to the Orleans area, upgrading existing Orleans TS and building a new supply station to the west of Orleans TS
- The IESO has been engaged in a study of the Ottawa 115 kV system, this study will continue as part of the upcoming IRRP activities, leveraging updated demand forecasts as well as other potential system improvements being considered; the IESO is targeting to publish this plan in Q3 2023
- The IESO will be launching a new bulk system study for an area stretching from Lennox and Addington County to Cornwall[1]; due to the interdependencies of the two areas, the regional planning activities will be coordinated with the new bulk study

[1] More information about upcoming studies is available in the Schedule of Planning Activities from the IESO's Annual Planning Outlook (link)

Greater Ottawa 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

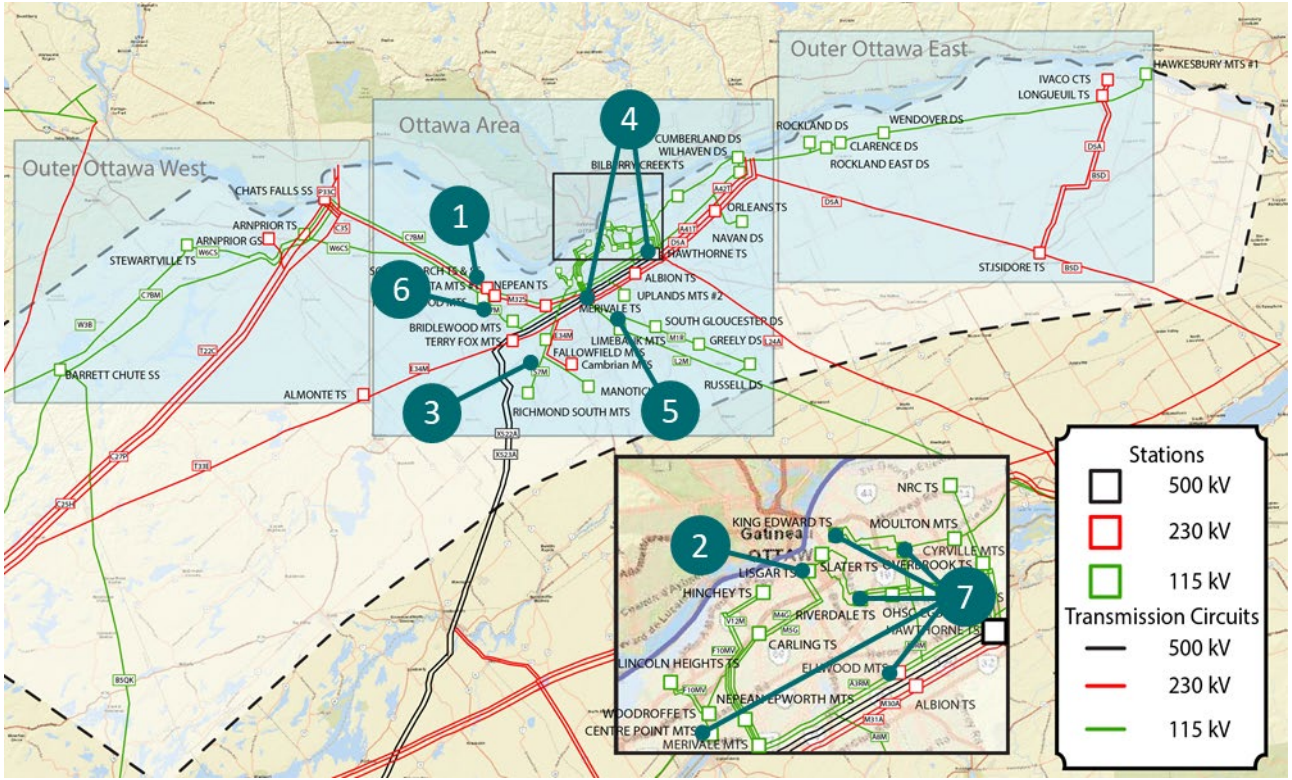
Needs in Greater Ottawa

- The Needs Assessment performed by Hydro One identified:
  - Station capacity needs
  - Line/system capacity needs
  - End-of-life needs
- These needs could be altered, and additional needs may be identified in later stages of planning
- These needs are briefly outlined in the following slides
- For a more detailed description of the needs, refer to the draft Scoping Assessment and the Needs Assessment available on the Greater Ottawa dedicated engagement

Needs Assessment Findings

Need #	Need	Timing	Need Description
1	South March TS: T1/T2 EOL	2030-32	Transformers are nearing EOL and requires replacement in the medium-term
2	Lisgar TS: T1 EOL	2031-33	Transformers are nearing EOL and requires replacement in the medium-term
3	S7M EOL	TBC	Two sections of 115 kV circuit S7M are nearing EOL and requires replacement over the near-term
4	Regional 115 kV System Capacity	> 2032	Auto-transformers at Hawthorne are approaching their long-term emergency ratings and may become overloaded beyond the 10 year forecast period
5	L2M Supply Capacity	2029-2031	Circuit becomes overloaded, additional supply capacity needed
6	Kanata-Stitsville Area Capacity	2027-2031	The transformer stations supplying the Kanata-Stitsville area which include Kanata MTS, Marchwood MTS, and Terry Fox MTS are overloaded, additional supply capacity needed
7	King Edward TS, Riverdale TS, Ellwood MTS, Cyrville MTS, Centrepoint MTS Station Capacity	2022-2029	Various transformer stations across Ottawa becomes overloaded, additional supply capacity needed
8	Voltage on Circuit 79M1	N/A	The voltage on circuit 79M1, which supply Rockland DS, Rockland East DS, Clarence DS, Wendover DS, and Hawkesbury MTS, approaches the low voltage limit post-contingency (loss of circuit A2). While this is an existing issue, need is being mitigated through planned transmission upgrades in the Orleans area.

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 - Transmission connected generation facilities located to alleviate a local reliability need

- Past IRRPs have identified potential non-wires options after assessing hourly forecasts and characteristics of the need (magnitude, duration, frequency)
- Regional planning typically carries out high-level non-wires options analysis based on capacity/energy requirements and benchmark technology costs which informs 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 sub-region
- Would require engagement and coordination with community-level energy planning activities

Decarbonization

- The IESO published the Pathways to Decarbonization report in December 2022 to evaluate a moratorium on new natural gas generation and to develop an achievable path to decarbonization
- The Ottawa Area Sub-region IRRP will include a de-carbonization scenario, which is consistent with the recommendation made in the Pathways to Decarbonization report to incorporate planning for the decarbonization of the grid/economy in regional planning
- In the previous cycle of regional planning the Technical Working Group recommended monitoring the City of Ottawa's Energy Evolution plan and exploring the potential for alignment between integrated regional planning and the Energy Evolution plan
- To help support this work, the City of Ottawa, the local distribution companies, and the IESO will participate in focused discussions on the impacts of Energy Evolution and GHG emission reduction targets on the demand forecast. Outcomes of these discussions seek to inform considerations (e.g., timing and magnitude of electrification and effective tracking against the EE plan) that can be used to make refinements to the demand forecast scenario(s) to be contemplated as part of the upcoming Ottawa Area Sub-region IRRP.

Draft Scoping Assessment Recommendations

The Greater Ottawa region is divided into three planning sub-regions to better address their needs: Outer Ottawa West, Ottawa Area, and Outer Ottawa East

It is recommended that an Integrated Regional Resource Planning (IRRP) be performed for the Ottawa Area Sub-region

No further coordinated regional planning is necessary for Outer Ottawa West and Outer Ottawa East Sub-regions as no needs were identified

Integrated Regional Resource Planning 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

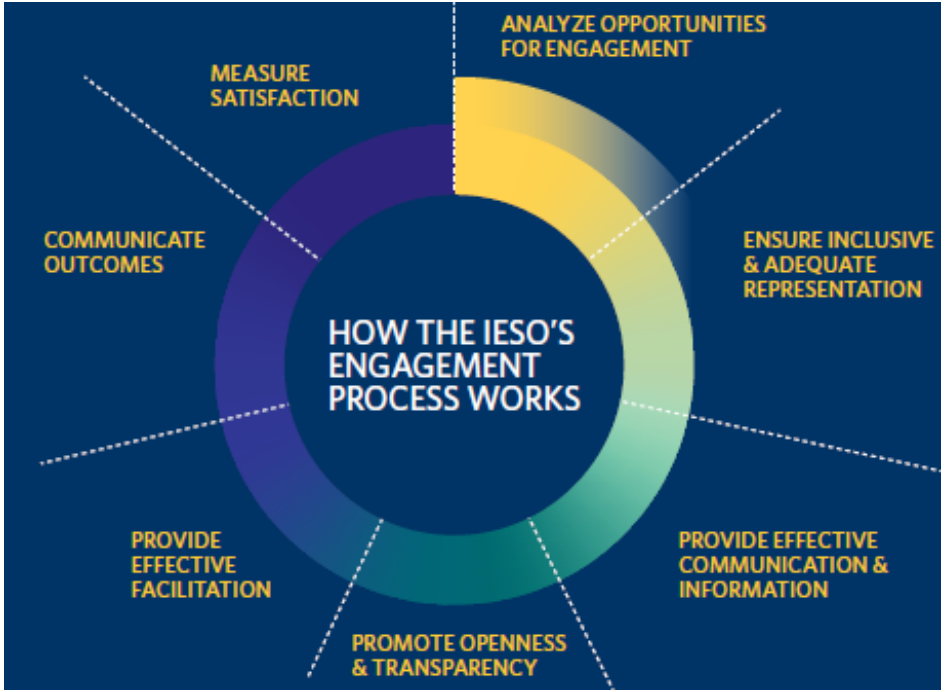
Reasons for Recommending IRRP for Ottawa Area Sub-region

- Needs are primarily driven by growth in peak capacity needs, but also consider a number of refurbishment opportunities within the 20-year planning horizon.
- The close proximity of loads, high anticipated growth rates from new development and infill development, and potential opportunity for right sizing of infrastructure during refurbishment all present opportunities to consider needs in a coordinated manner.
- Options to address needs would 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.

Engagement

Regional and Community Engagement

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



Who Should Participate?

- Municipalities
- Indigenous communities
- Chambers of Commerce/Boards of Trade
- Large energy users
- Community groups and associations (e.g., resident associations, Business Improvement Areas, home builders' associations, etc.)
- 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 based on local developments should be made regarding the areas identified as requiring further study?
- What other areas or specific considerations should be examined through regional planning?

Please submit your written comments by email to engagement@ieso.ca by **February 28**

Next Steps

- Feedback due to engagement@ieso.ca by **February 28**
- IESO to post and respond to feedback, as well as the final Scoping Assessment by **March 20**
- Further engagement to follow

How You Can Stay Involved:

- Subscribe to receive updates on the Greater Ottawa regional initiatives on the IESO website http://www.ieso.ca/subscribe
- Follow the Greater Ottawa regional planning activities online at https://www.ieso.ca/en/Get-Involved/Regional-Planning/East-Ontario/Greater-Ottawa
- Comments and questions on the draft Scoping Assessment Outcome Report can be submitted to engagement@ieso.ca by **February 28**

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

Thank You

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