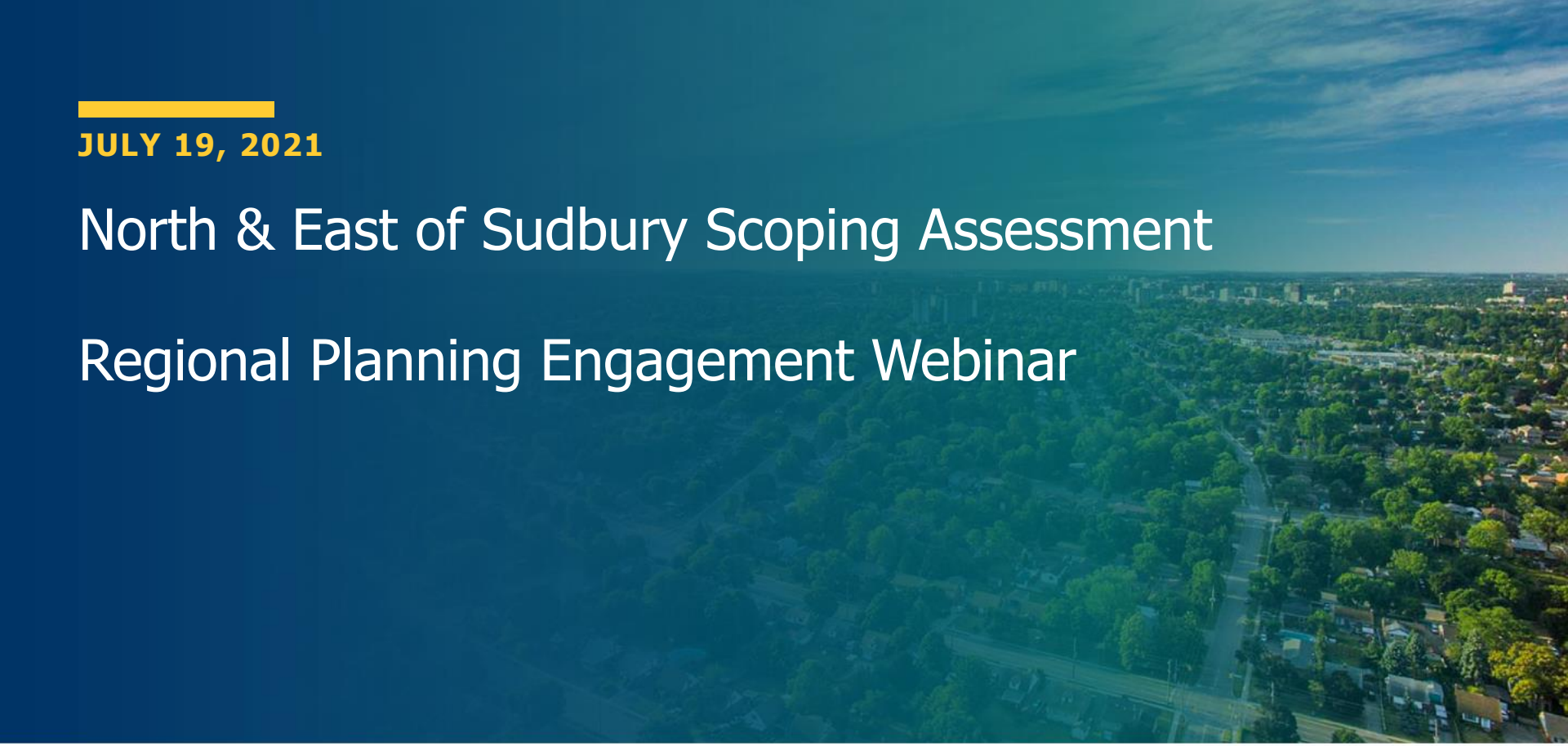
JULY 19, 2021

North & East of Sudbury Scoping Assessment

Regional Planning Engagement Webinar



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Objectives of Today's Engagement Webinar

- To provide an overview of the regional planning activities underway in the North & East of Sudbury region
- To discuss and seek feedback on the draft North & East of Sudbury Scoping Assessment that sets out the regional planning approach for the needs identified for further assessment
- To outline next steps

Seeking Input

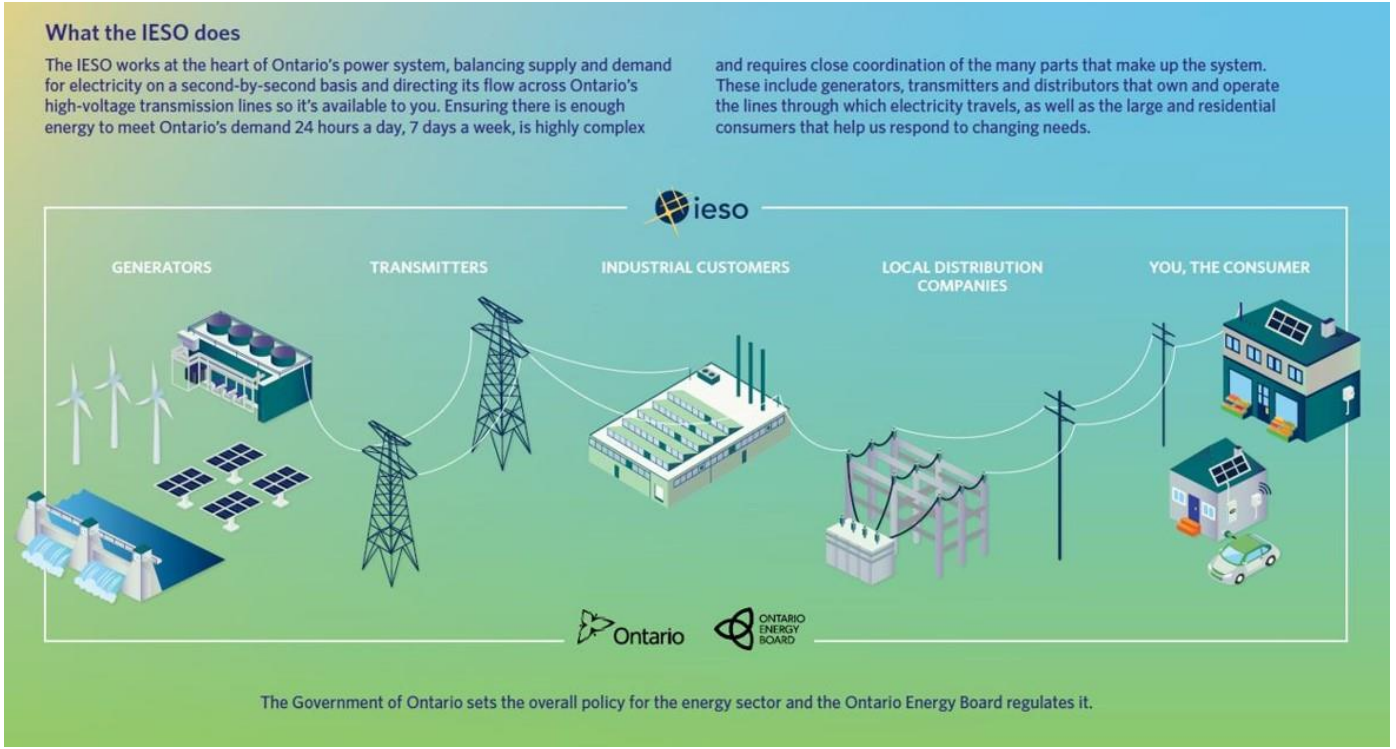
Some key questions to consider when reviewing the Scoping Assessment:

- What additional information that should be considered as part of the Scoping Assessment?
  - *What key developments, projects or initiatives in your community should be considered in the electricity planning for the region? What other information should be taken into account that would influence the demand forecast? (e.g. growth, expansion or retirement of large customers/electricity users, industry trends or other local activities)*
- 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 that should be examined?

Please submit your written comments by email to engagement@ieso.ca by August 3

Overview of the IESO and Regional Planning Activities

The Players in Ontario's Electricity Sector



Who We Are 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

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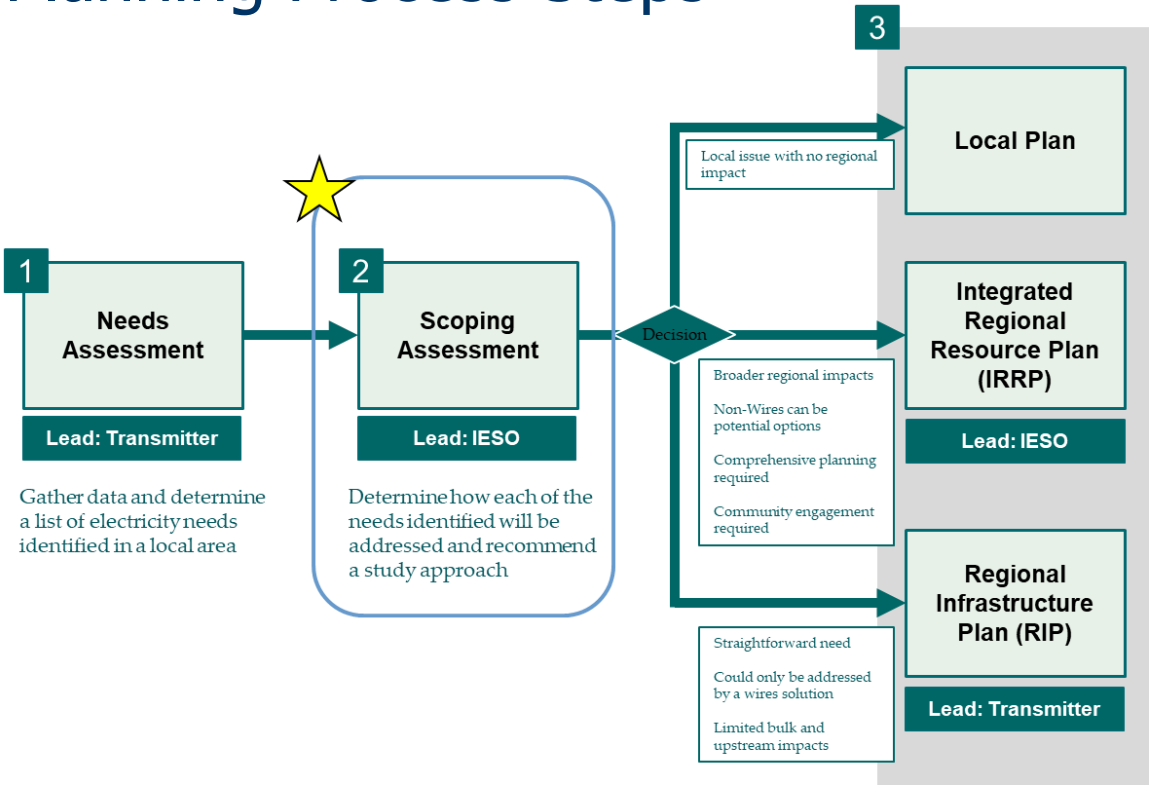
Regional Planning Process Steps



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 (IRRP); if one is required, and composition of the Technical Working Group

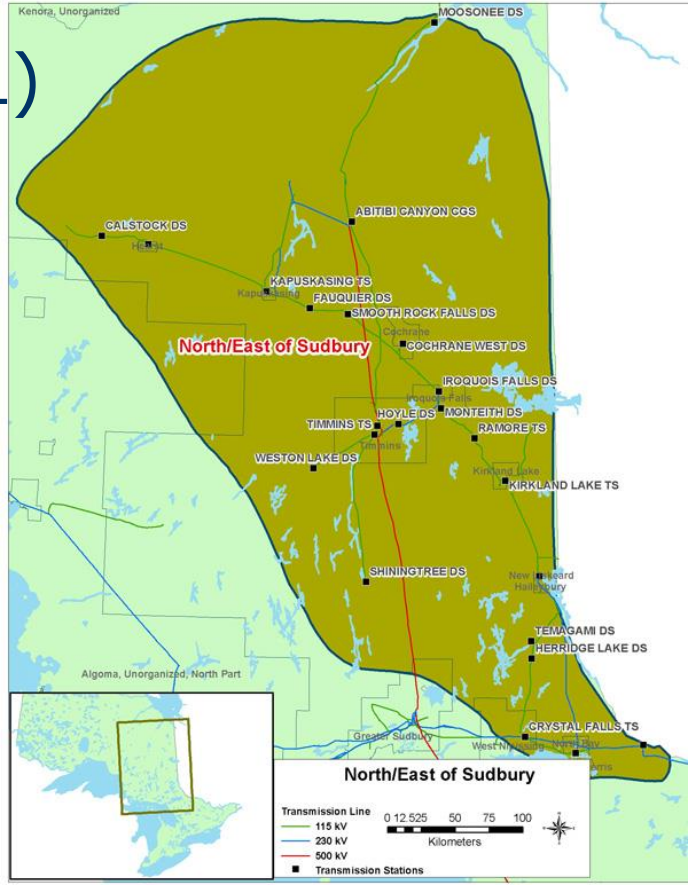
Identifying the Planning Approach

Approach	Typical Considerations	Parties Involved
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

Draft North & East of Sudbury Scoping Assessment

North & East of Sudbury Region (1)

- Located in Northeast Ontario, local municipalities encompassed in the region include: Town of Moosonee, Town of Hearst, Municipality of East Ferris, Town of Kirkland Lake, Town of Kaspuskasing, Town of Cochrane, Town of Iroquois Falls, City of Timmins, City of Temiskaming Shores, City of Greater Sudbury, Municipality of West Nipissing, and City of North Bay



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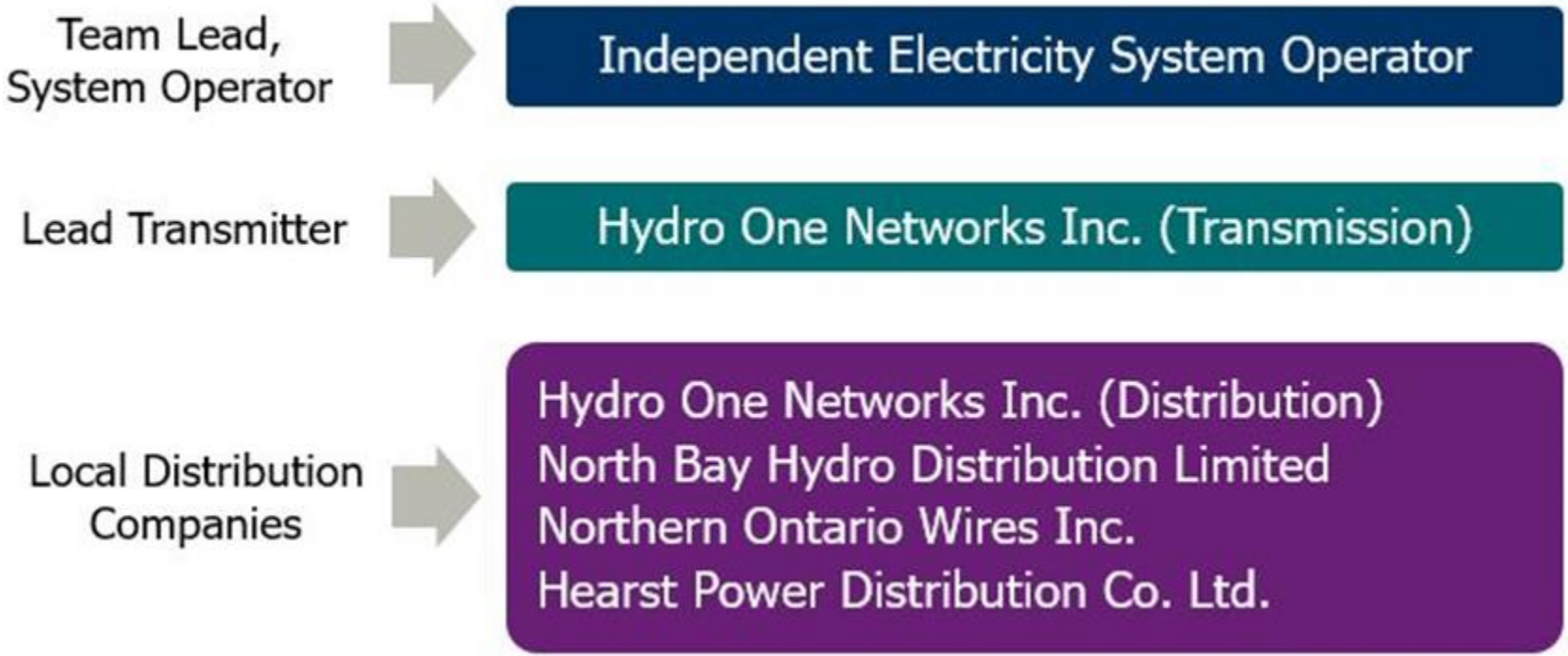
North & East of Sudbury Region (2)

- First Nation communities including Flying Post, Matachewan, Mattagami, Missanabie Cree, Nipissing, Wahnapitae, Taykwa Tagamou, Constance Lake, Moose Cree, Temagami and Wahgoshig
- Métis communities including MNO Northern Lights Métis Council, MNO Timmins Métis Council, MNO Temiskaming Métis Council and MNO Chapleau Métis Council

Scoping Assessment Study Team



Previous Regional Planning Cycle: North & East of Sudbury

The previous planning cycle was completed in 2017 following the assessment of needs by the local transmitter (Hydro One) for this region and found that there were no needs that required regional coordination

- Needs Assessment was completed in April 2016
- Local Planning report was completed in August 2016

Local Plan and Needs Assessment report formed the RIP for the region

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

Previous Regional Planning Cycle Recommendations

Need	Recommendation
Loss of Porcupine TS K1K4 and K1K2 may create voltage decline at Timmins TS 115 kV bus in excess of 10%	• Local plan – no immediate action required • Established operating measures to be utilized if Porcupine breaker K1K4 or K1K2 is out of service • Continue to monitor Timmins area load growth to ensure load growth does not make situation worse
Loss of Ansonville T2 and D3K may result in voltage decline at Kirkland Lake TS 115 kV bus in excess of 10%	• Local plan – no immediate action required • Continue to monitor load growth in area and take corrective action if required

Current Regional Planning Cycle

- The regional planning cycle is triggered at least every five years
- Needs Assessment (led by Hydro One) was completed in May 14th, 2021
  - The Needs Assessment reviewed needs from previous cycle and identified new system needs, some of which should be considered for regional coordination
- Scoping Assessment (led by IESO) report to be published by August 12th, 2021

2021 Regional Planning Cycle for North & East of Sudbury – Preliminary Needs

- The following categories of needs were identified/reaffirmed in the Needs Assessment:
  - System capacity
  - Asset end-of-life (EOL)
- The definition, timing and location of these needs are described at a high-level in the following slides
- A more detailed description of the needs is included in the draft Scoping Assessment (posted on the engagement page) and in the Needs Assessment (available online)

System Capacity: Area Voltage Control

Reliability risk in the management of high voltage at Hunta TS, Porcupine TS, Pinard TS and Kapuskasing TS during outage conditions

- Post contingency voltage control in the Ansonville, Hunta area for loss Ansonville T2 and Canyon GS units
- Existing practices to control voltages on 500/ 230 kV buses at Hanmer/Porcupine/Pinard during shunt reactor and SVC outages
- Porcupine TS 115 kV is currently being operated continuously at voltages up to 135 kV; the maximum is 127 kV as per ORTAC criteria

System Capacity: Thermal Limits

System operations to reliably supply critical loads during 500kV circuit outage conditions

- Potential interest from new transmission connected customers (particularly in the mining sector) in the Kirkland Lake / Dymond and Timmins / Porcupine areas could increase load in area and stress thermal capabilities of circuits
- Difficulties in maintaining thermal limits during outages to 500 kV circuits P502X and D501P

End-of-Life Asset Replacement

End-of-Life replacement strategy for the following circuits

- 115 kV D2H/D3H circuit section Pinard TS by Hunta SS refurbishment
  - New conductor will be larger than existing conductor
  - Need to see if upgrade beyond a base refurbishment plan is required
- 115 kV A4H/A5H circuit section Tunis JCT x Fournier JCT refurbishment
  - No intention of ampacity increase
  - Need to see if upgrade beyond a base refurbishment plan 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

Recommendation to Proceed with an IRRP

- An IRRP is recommended for the region because:
  - The needs identified for further regional coordination broadly impact the region
  - An IRRP can consider opportunities for upsizing the identified EOL circuits while considering industrial load growth scenarios in the region
  - Options, such as non-wires alternatives, are a potential consideration for meeting industrial load growth scenarios
  - An IRRP will provide an opportunity to engage with Stakeholders in the region and determine whether additional needs should be brought into scope
- Are there any other issues that should be included in IRRP?

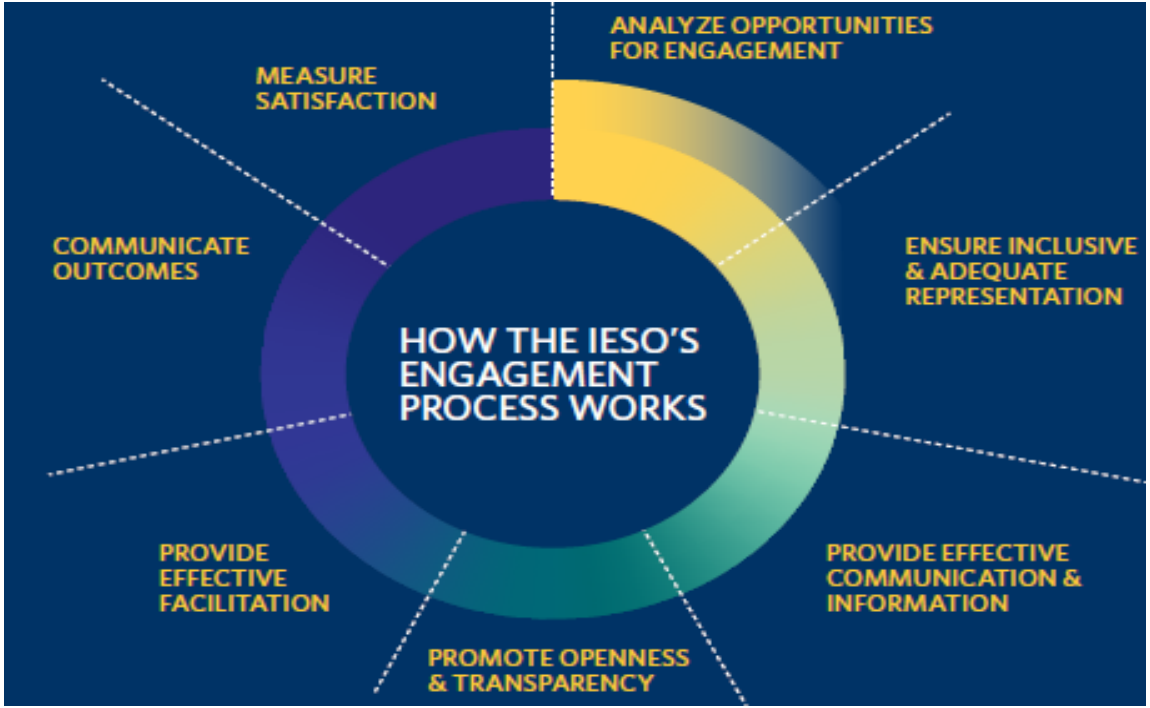
IRRP Scope & Study Area

- IRRP that geographically covers the entire region that:
  - Carries out a fulsome needs identification study with consideration of industrial load forecast scenarios
    - The needs identification study will be informed by the Needs Assessment
    - Opportunities for leveraging existing studies for Kirkland Lake Area will be explored; these are the studies that underpin the IESO recommendation to Hydro One to upgrade circuits A8K/A9K between Ansonville TS and Kirkland Lake TS at EOL
  - Considers ORTAC and NERC planning reliability standards in determining needs.
  - Considers additional needs identified by Stakeholders

Stakeholder Engagement and Next Steps

Regional and Community Engagement

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



Who Should Participate?

- Municipalities
- Indigenous and Métis communities
- Chambers of Commerce/Boards of Trade
- Large energy users
- Community groups and associations (e.g. community/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

Seeking Input

Some key questions to consider when reviewing the Scoping Assessment:

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  - *What key developments, projects or initiatives in your community should be considered in the electricity planning for the region? What other information should be taken into account that would influence the demand forecast? (e.g. growth, expansion or retirement of large customers/electricity users, industry trends or other local activities)*
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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 August 3
- IESO to post and respond to feedback, as well as the final Scoping Assessment by August 12
- Further engagement to follow

How You Can Stay Involved:

- Subscribe to receive updates on the North & East of Sudbury regional initiatives on the IESO website
- Follow the North & East of Sudbury regional planning activities online
- Comments and questions on the draft Scoping Assessment Outcome Report can be submitted to engagement@ieso.ca by **August 3**

Seeking Input on the Webinar

- Tell us about today
- Was the material clear? Did it cover what you expected?
- Was there enough opportunity to ask questions?
- Is there any way to improve these gatherings, i.e. speakers, presentations or technology?

Chat section is open for comments

Appendix

Needs Assessment Outcomes (New Needs)

Need	Recommendation
Management of high voltage at Hunta TS, Porcupine TS, Pinard TS and Kapuskasing TS during outage conditions	• Perform transmission studies to investigate pre and post contingency area voltages performance, with consideration of industrial customer demand growth and ORTAC and NERC criteria for the continuous voltage issues at Porcupine TS
Thermal limits in the area	• Perform transmission studies to investigate thermal performance , with consideration of industrial customer demand growth
EOL for D2H/D3H and A4H/A5H sections	• Examine opportunities to align the replacement with other regional and potential bulk system needs while considering industrial customer demand growth

IRRP Activities, Timelines, & Accountabilities (1)

Activity or Deliverable	Lead Responsibility	IRRP Timeframe
1. Develop long-term planning forecast for the region	IESO	Aug 2021 – Dec 2021
2. Provide information on load transfer capabilities under normal and emergency conditions	LDCs	Aug 2021 – Dec 2021
3. Provide and review relevant community plans, if applicable	LDCs and IESO	Aug 2021 – Dec 2021
4. Complete system studies to identify needs over a 20-year time horizon	IESO	Q1 – Q2 2022
5. Develop options and alternatives to address needs; issue hand-off letter for wires option if required	All	Q3 2022

IRRP Activities, Timelines, & Accountabilities (2)

Activity or Deliverable	Lead Responsibility	IRRP Timeframe
6. Plan and undertake community & stakeholder engagement	All	Ongoing, as required
7. Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Q3 – Q4 2022
8. Prepare the IRRP report detailing recommended near-, medium, and long-term plan for approval by all parties	IESO	February 2023

More detailed timelines can be found in the Terms of Reference.

Thank You

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1.888.448.7777

customer.relations@ieso.ca

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