Burlington to Nanticoke Regional Electricity Planning

Engagement Webinar #1

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Agenda

1. Ontario's Electricity Sector and IESO's Role

2. Burlington to Nanticoke Region Electricity Planning

3. Preliminary Electricity Demand Forecast

4. Community Engagement and Next Steps

5. Discussion

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We work with:

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

<<< Communities >>>

Seeking Input

As you listen today, consider any additional factors for:

Determining the electricity demand forecast for your region
- What key developments, projects or initiatives should be considered? What other information should be taken into account that would influence the forecast?

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 to provide throughout the engagement?
- Does the proposed Engagement Plan provide sufficient scope and opportunities for input? What other engagement activities or methods should be considered?

Please submit your written comments by email to <u>engagement@ieso.ca</u> by October 2

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Burlington to Nanticoke Regional Electricity Planning

Electricity Planning in Ontario

Provincial/Bulk System Planning	**Regional Planning**	**Distribution Planning**
Addresses provincial electricity system needs and policy directions. Underway: Central-West Bulk Plan.	Addresses local electricity system needs at the transmission system level. Underway: Burlington to Nanticoke Regional Electricity Plan.	Addresses local electricity system needs and priorities at the distribution system level. Led by local distribution companies.

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Regional Electricity Planning

The regional system planning process ensures an affordable and reliable supply of electricity across Ontario. The process looks at the unique needs of each region, and considers a range of options and resources to keep the lights on.

A Technical Working Group, led by the IESO, and consisting of the local distribution companies and the transmitter, works together to develop a plan to address the electricity needs of each region.

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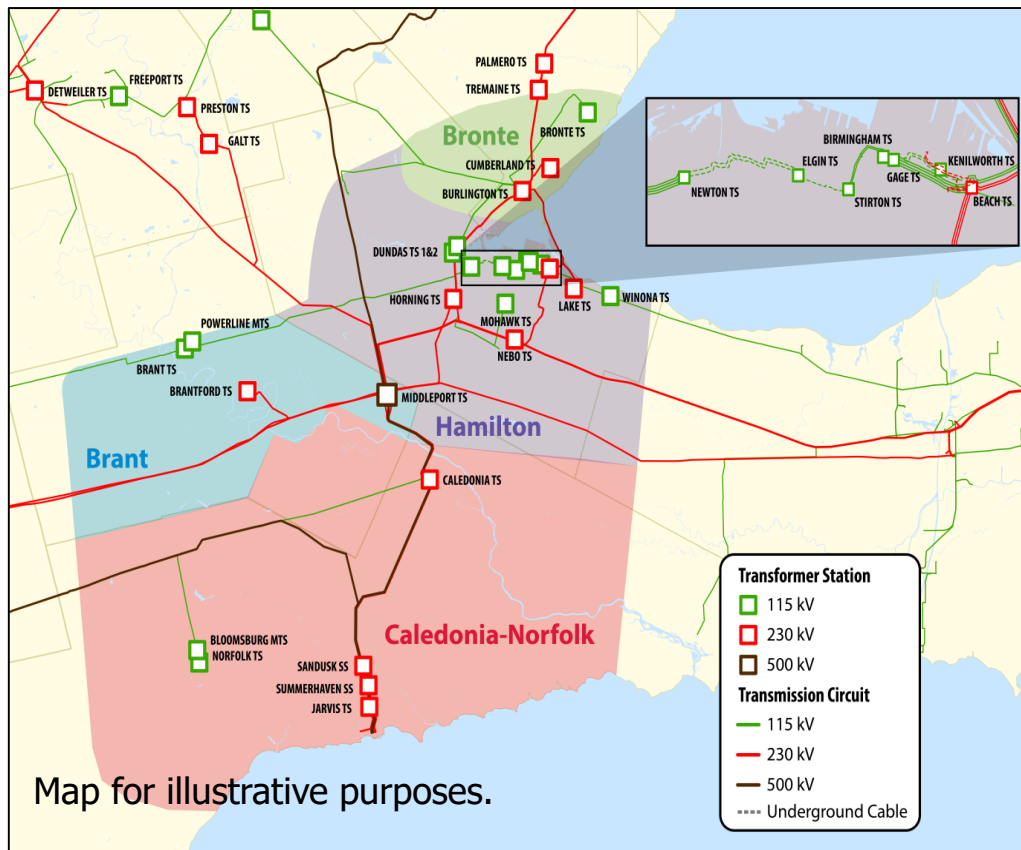Connecting Today. Powering Tomorrow.

Burlington to Nanticoke Region

Area is divided into 4 electrical sub-regions, and serviced by 230 kilovolt (kV) and 115 kV lines and transformer stations (TS).

The region encompasses a number of municipalities, Indigenous communities and Métis councils from Haldimand County and Norfolk County going north towards the City of Burlington.

Integrated Regional Resource Plan (IRRP) will be developed for Hamilton, Brant and Caledonia-Norfolk sub-regions.

Map for illustrative purposes.

Timeline

Q3 2022
Needs Assessment

Q4 2022
Scoping Assessment and Engagement

We are here

Q1 2023 – Q2 2024
IRRP Development and Engagement

Q2 2024
Final IRRP Published

Led by Transmitter

Lead by IESO

*These timelines may be subject to change

Components of an IRRP

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?

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Preliminary Electricity Demand Forecast

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Local Planning Drivers

Important considerations that influence the load forecast:

Municipal/regional growth plans

Climate change action plans

Community energy plans

Business plans of major electricity consumers or large projects

Local Generation/Energy Projects

Local Distribution Companies incorporate these drivers into the electricity demand forecast.

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, and assuming median weather conditions (demand is weather-sensitive).

2. **Estimating** impact of conservation and demand management targets.

3. **Calculating** the forecast peak demand contribution of contracted distributed generation.

4. **Adjusting** the forecast to account for extreme weather conditions.

Preliminary Gross Forecast

Gross forecast is based on information from distributors and transmission-connected loads about demand growth such as new residential and commercial developments and electrification projects.

Key takeaway:

- On average, an annual growth of 3%, 4% & 5% is expected for the Hamilton, Brant & Caledonia-Norfolk electrical sub-regions, respectively.

- Industrial electrification projects contribute to the increase in the Hamilton and Caledonia-Norfolk demand forecast.
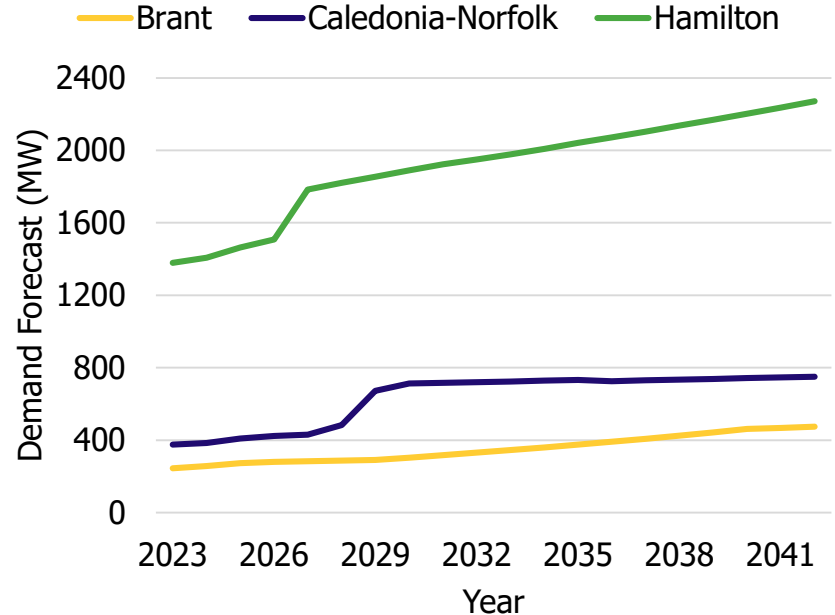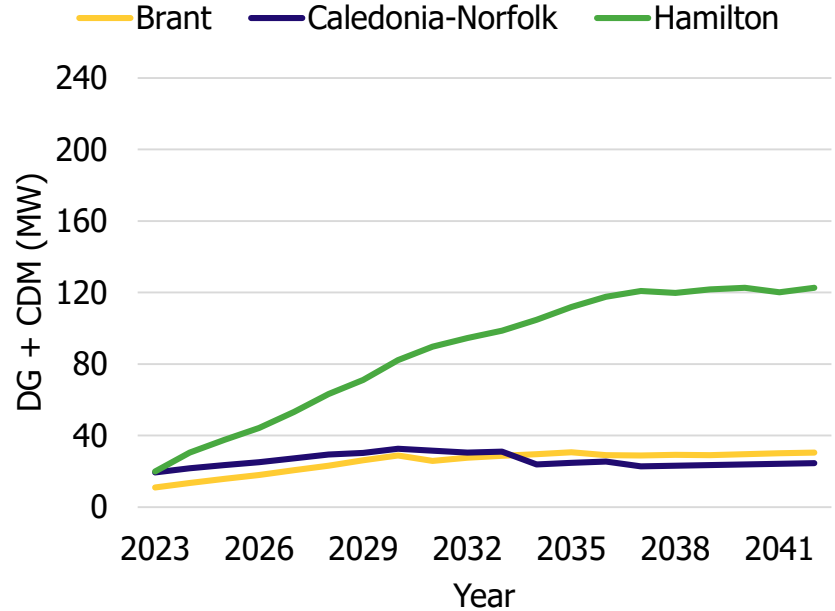
Generation and Conservation Considerations

In order to develop the net forecast, Distributed Generation (DG) and Conservation and Demand Management (CDM) are considered.

DG refers to small-scale generation located within a community.

CDM programs help consumers reduce electricity use.

Both measures can reduce the amount of electricity the system needs to provide.
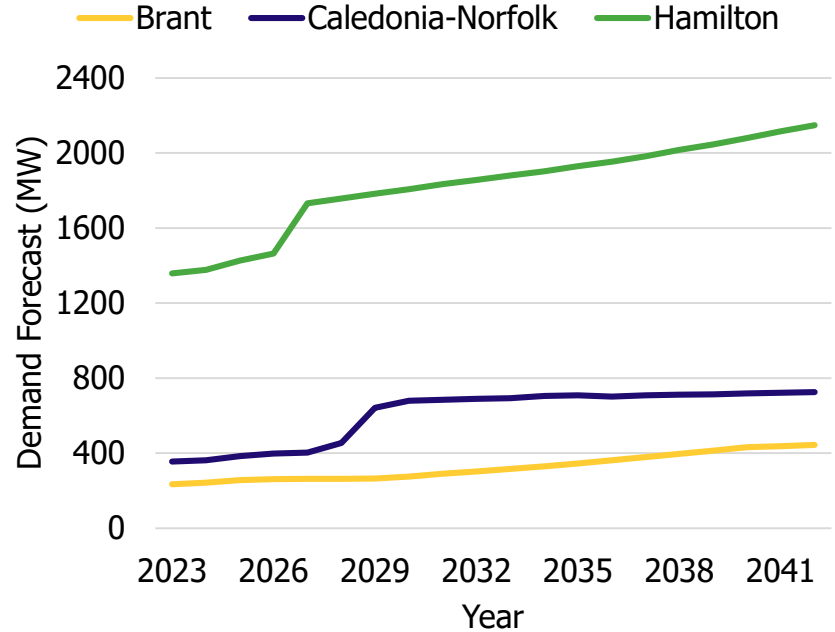
Preliminary Net Forecast

Net forecast is created by layering the impacts of conservation and demand management (CDM), distributed generation (DG), and extreme weather conditions into the gross forecast.

Key takeaway:

- Impact of DG and CDM is less than 10%.

- The average growth rate does not change much from gross to net forecast.

Identifying Needs

Once the electricity demand forecast has been created, the IESO conducts an assessment to determine needs. Generally, needs studied in this process fall under the following categories:

- **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:** Station or transmission equipment has reached end of life.

- **Load restoration:** Ability of the system to restore power after select contingencies.

- **Load supply security:** Maximum amount of power that can be lost during select contingencies.

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Preliminary Identified Needs

Type	Description	Locations
Station Capacity	Ability of station to deliver power from the grid down to the distribution systems.	Three stations within Caledonia-Norfolk, and two stations within Hamilton
System Capacity	Ability of the system to supply power through the transmission lines.	Within Brant electrical area
Asset Replacement	Station equipment has reached end of life.	One station within Hamilton

Preliminary identified needs could be further refined, and new needs identified, as part of the detailed forecasting and evaluations.

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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 <u>website</u> –> select Burlington to Nanticoke Region

Follow the Burlington to Nanticoke regional planning activities <u>online</u>

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Key Areas for Input in Plan Development

Milestone	Timeline	Community Input
Electricity demand forecast and Engagement Plan	September 2023	What economic development or other growth or project plans might influence the regional load forecast? What additional information should be considered?
Electricity needs and potential options	Q4 2023	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	Q1 2024	What community feedback is there on the draft recommendations? What information should be considered in the recommendations?
Final IRRP	Q2 2024	

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Who Should Participate in the Engagement Process?

- Municipalities

- Indigenous communities and Métis councils

- Communities, including community groups and associations, and general public

- Chambers of Commerce/Boards of Trade

- Large energy users

- Academia and research organizations

- Energy service providers

- Environmental and sustainability organizations

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What we Heard so Far

Early outreach conducted with certain community stakeholders to understand issues and trends related to economic development and local energy solutions.

Key themes emerged:

Organic growth and economic development projects across the region

Significant community energy initiatives are planned

Strong industrial growth and interest in ensuring electricity infrastructure can accommodate economic development

Interest in new generation and leveraging existing local generation

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We Want to Hear from you

Determining the electricity demand forecast for your region
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Next Steps

- Written feedback on draft electricity demand forecast and Engagement Plan due – October 2, 2023

- Final engagement plan and responses to written feedback posted

- Additional engagement opportunities will be hosted at key milestones

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Appendix

Technical Working Group

Team Lead, System Operator
- Independent Electricity System Operator

Lead Transmitter
- Hydro One Networks Inc. (Transmission)

Local Distribution Companies
- Oakville Hydro Electricity Distribution Inc.
- Burlington Hydro Inc.
- GrandBridge Energy Inc.
- Alectra Utilities Corporation
- Hydro One Networks Inc. (Distribution)

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Determining the Need for an IRRP
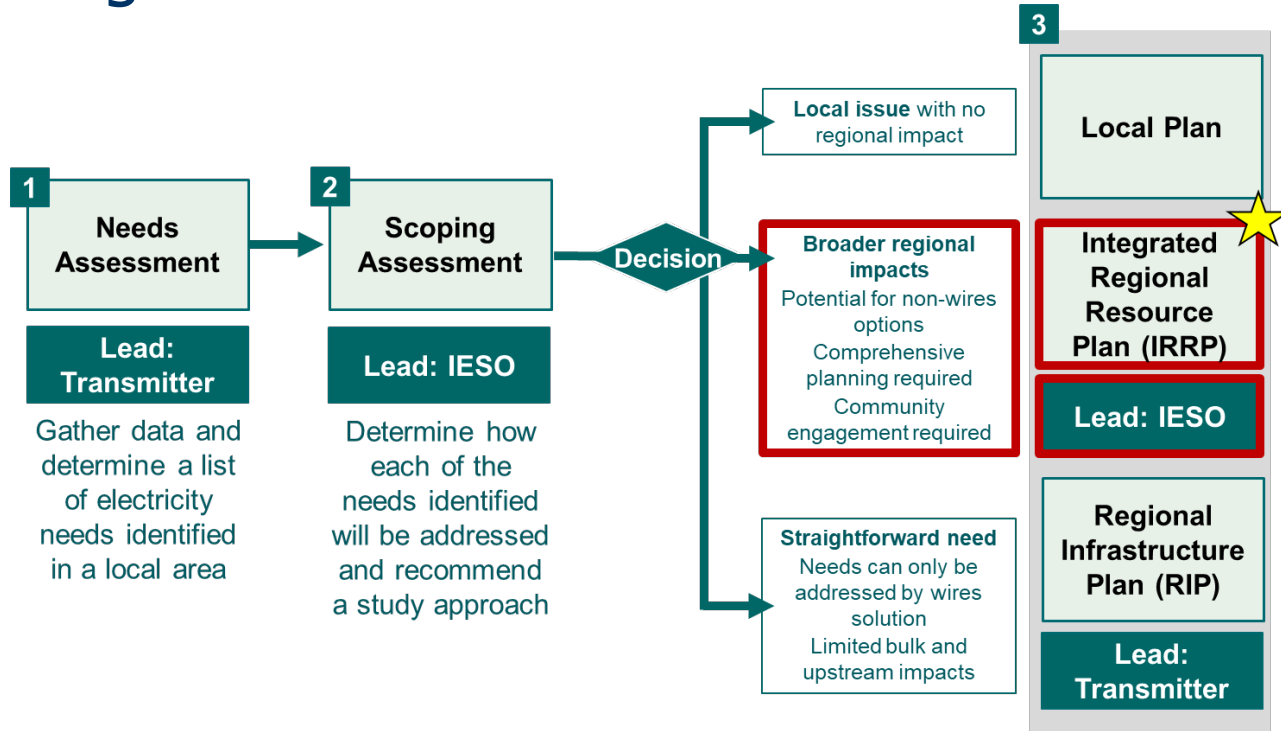
Previous Cycles of Regional Planning

Two cycles of planning have been completed for the Burlington to Nanticoke region:

- First cycle focused on the Brant and Bronte sub-regions and completed in April 2015 and June 2016 respectively

- Second cycle focused on the Hamilton sub-region and completed in February 2019

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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

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

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

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Preliminary Needs in Burlington to Nanticoke Region

	Need	Sub-region	Need Type	Description
1	Norfolk TS and Bloomsburg DS	Caledonia-Norfolk	Station Capacity	Forecasted to exceed its supply capacity in 2030 and 2025 respectively. Currently planned to be addressed through load transfers to upgraded Jarvis TS and new feeder connections in the 2027-2032 timeframe
2	Caledonia TS	Caledonia-Norfolk	Station Capacity	Forecasted to exceed its supply capacity by 2030
3	Brant Area Supply	Brant	Line/System capacity	The 115 kV system that supplies the Brant area (Brant TS and Powerline MTS) has a LMC of 165 MW. This LMC may be exceeded by 2032
4	Nebo TS	Hamilton	Station Capacity	Load at T3/T$ 230/13.8 kV DESN at Nebo TS is forecasted to exceed its supply capacity by 2032
5	Mohawk TS	Hamilton	Station Capacity	Forecasted to exceed supply capacity by 2024
6	Newton TS	Hamilton	Asset end-of-life	115 kV breakers at Newton TS need to be replaced

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