Burlington Nanticoke Region Scoping Assessment Outcome Report

December 5, 2022

ieso
Connecting Today.
Powering Tomorrow.

Table of Contents

1. Introduction

This Scoping Assessment Outcome Report is part of the Ontario Energy Board's (OEB or Board) regional planning process. The Board endorsed the Planning Process Working Group's Report to the Board in May 2013 and formalized the regional planning process and timelines through changes to the Transmission System Code and Distribution System Code in August 2013.

This is the third cycle of regional planning for the Burlington Nanticoke region, and was initiated in spring 2022. Information and links to earlier products are available on the IESO webpage, here. The Needs Assessment is the first step in the regional planning process and was carried out by the Study Team led by Hydro One. This report was finalized on September 6, 2022 and identified some needs that may require further regional coordination. This need information was an input into the Scoping Assessment. The Study Team reviewed the nature and timing of all the known needs in the region to determine the most appropriate planning approach. It also considered past or ongoing initiatives in the region.

The Scoping Assessment considers three potential planning approaches for the region (or sub-regions, if applicable), including: an IRRP – where both wires and non-wires options have potential to address needs; a RIP – which considers wires-only options; or a local plan undertaken by the transmitter and affected local distribution company – where no further regional coordination is needed.

This Scoping Assessment report:

- Lists the needs requiring more comprehensive planning, as identified in the Needs Assessment report;
- Reassesses the areas that need to be studied and the geographic grouping of the needs (if required);
- Determines the appropriate regional planning approach and scope where a need for regional coordination or more comprehensive planning is identified;
- Establishes a terms of reference for an IRRP, if an IRRP is required; and
- Establishes the composition of the Technical Working Group.

2. Study Team

The Scoping Assessment was carried out with the following participants:

- Independent Electricity System Operator (IESO)
- Hydro One Networks Inc. (Transmission)
- Hydro One Networks Inc. (Distribution)
- Alectra Utilities Corporation
- Burlington Hydro Inc.
- GrandBridge Energy Inc. (Formerly Energy+ and Brantford Power)
- Oakville Hydro Inc.

3. Categories of Needs, Analysis, and Results

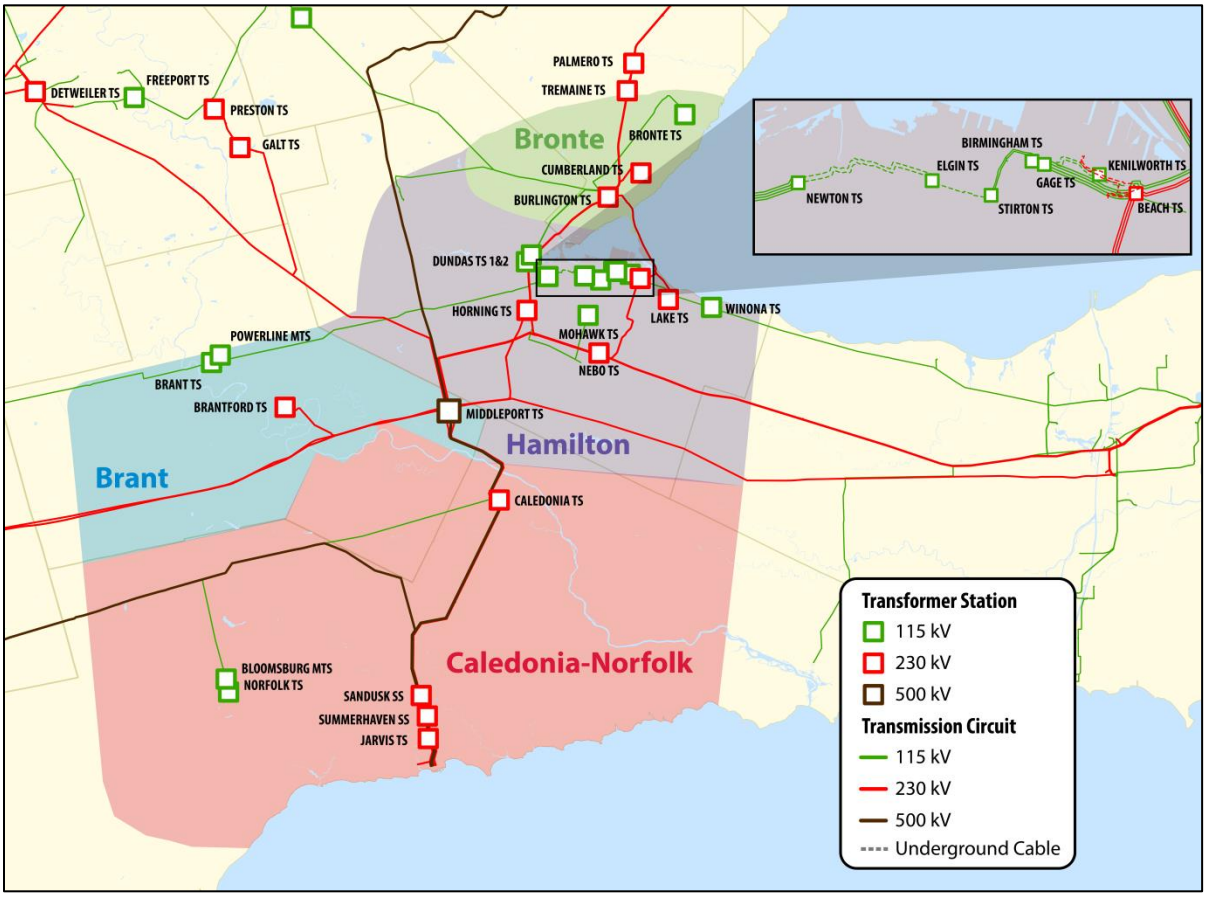
3.1 Overview of the Region

The Burlington to Nanticoke region is located in southwestern Ontario and includes all or part of the following Counties and Districts: City of Hamilton, Brant County, the City of Brantford, Haldimand County, Norfolk County, and the Regional Municipality of Halton. For electricity planning purposes, the planning region is defined by electricity infrastructure boundaries, not municipal boundaries.

Several Indigenous communities are located in or near the region including: 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, also has a historical interest in southern Ontario. A number of Métis Nation of Ontario (MNO) councils are also located within or near the region including MNO Clear Waters Métis Council (Brantford), MNO Credit River Métis Council (Mississauga) and MNO Niagara Region Métis Council.

The electricity infrastructure supplying the Burlington to Nanticoke region is shown in Figure 1. For the purposes of regional planning, the Burlington to Nanticoke region has historically been sub-divided into four sub-regions: Bronte, Hamilton, Brant, and Caledonia-Norfolk.

Figure 3-1 | Overview of the Burlington Nanticoke Region



NOTE: Region is defined by electricity infrastructure; geographical boundaries are approximate.

The Bronte sub-region includes Burlington TS and the 230 kV and 115 kV supply northeast of the station which services Cumberland TS and Bronte TS, respectively. The 115 kV supply southwest from Burlington TS and the 230 kV supply from Beach TS service the 115 kV network in the Hamilton sub-region, while 230 kV circuits between Burlington TS and Beach TS, Beach TS and Middleport TS, and Middleport TS and Burlington TS supply the Hamilton sub-region's 230 kV connected load supply stations. The Brant sub-region is supplied from the 230 kV supply west from Middleport TS and a 115 kV supply from Burlington TS. The 230 kV supply south from Middleport TS supplies the 230 kV connected stations in the Caledonia-Norfolk sub-region, including Caledonia TS. The 115 kV supply from Caledonia TS then supplies Bloomsburg MTS and Norfolk TS.

3.2 Background of the Previous Planning Process

The regional planning process was formalized by the OEB in August 2013. To prioritize and manage the process, Ontario was organized into 21 regions based on electricity infrastructure boundaries; each of which were assigned to one of three groups based on urgency of need, where Group 1 Regions were being reviewed first. When the Board formalized the regional planning process in 2013 planning work was already ongoing in the Brant area, a sub-region of the Burlington to Nanticoke

region. As such, Burlington to Nanticoke became one of the Group 1 planning regions, the first group to undergo the formalized regional planning process.

On May 23, 2014, Hydro One Transmission published the first needs assessment report for the region. Subsequently on September 25, 2014, the former OPA (now the IESO) published a scoping assessment report for the Burlington to Nanticoke region which specified the terms of reference for the Bronte IRRP, in addition to the already published terms of reference for the Brant IRRP which was already underway. No IRRP was required at the time for the Hamilton or Caledonia-Norfolk sub-regions. Regional plans were completed for the Brant and Bronte sub-regions in April 2015 and June 2016, respectively, and Hydro One completed a Local Planning Report for the broader region in October 2015, and a Burlington to Nanticoke RIP on February 7, 2017.

The second round of regional planning for Burlington-Nanticoke began with a Hydro One led Needs Assessment, completed in May of 2017. Based on these needs, the subsequent Scoping Assessment recommended the initiation of a Hamilton IRRP, which was completed in February 2019. This IRRP focused heavily on the large number of assets in the Hamilton area which were approaching their expected end-of-life. The IRRP explored opportunities to "right-size" equipment; that is, refurbish with a higher or lower rating depending on how capacity needs in the area have changed since it was originally installed. Capacity needs at two area stations were also studied, with recommendations ranging form upsizing at end-of life, and implementation and monitoring of CDM and non wires alternatives to defer the need for further infrastructure investment.

Additional information and links to reports form previous cycles are available on the IESO regional planning website for Burlington Nanticoke, available here.

Hydro One completed the most recent needs assessment for the Burlington to Nanticoke region on September 6th, 2022. The needs identified form the basis of the analysis for the scoping assessment and are discussed in further detail in section 3.3.

3.3 Needs Identified

Hydro One's Needs Assessment provided an update on needs identified in the previous planning cycle and the implementation of projects recommended to address them. It also identified new needs in the Burlington Nanticoke region based on the most up-to-date sustainment plans and a new 10-year demand forecast. A summary of the current projects and plans underway to respond to existing needs, plus the new needs, are outlined below.

3.3.1 Projects and Plans underway to address previously identified Needs

The Needs Assessment report lists the needs identified from the previous planning cycle, and provides an update on the status of project implementation. Table 3-1 below summarizes this. These projects provide a basis for future assessments and should be accounted for in this planning cycle.

Table 3-1 | Needs Identified in the Previous Cycle and Implementation Plan Update

Need	Solution and Timing
115kV B7/B8 section from Burlington TS to Nelson Jct	Planned refurbishment for 2024 in-service
Dundas TS	Load transfers and balancing Planned 2023 in-service
Gage TS	Replacement of T3/T4 and T5/T6 transformers and switchgear, planned Q4 2023 in-service
Kenilworth TS	Power factor correction planned for 2023-2024 timeframe
Norfolk area Supply Capacity[1]	Load transfers from Norfolk TS to Jarvis TS planned by the end of 2022 Additional reactive support planned for Norfolk TS in 2023-2024 timeframe Jarvis TS upgrade with additional feeders to enable additional Norfolk area transfers, planned for 2027-2032 timeframe

Since the previous regional planning cycle, solutions to address the following needs have also been implemented:

- Cumberland TS: Power factor correction
- 115kV B3/B4 section from Horning Mountain Jct to Glanford Jct refurbishment
- Elgin TS: Transformer & switchgear replacement
- Newton TS: Transformer replacement
- Kenilworth TS: Transformer & switchgear replacement

3.3.2 Needs identified in the Current Planning Cycle

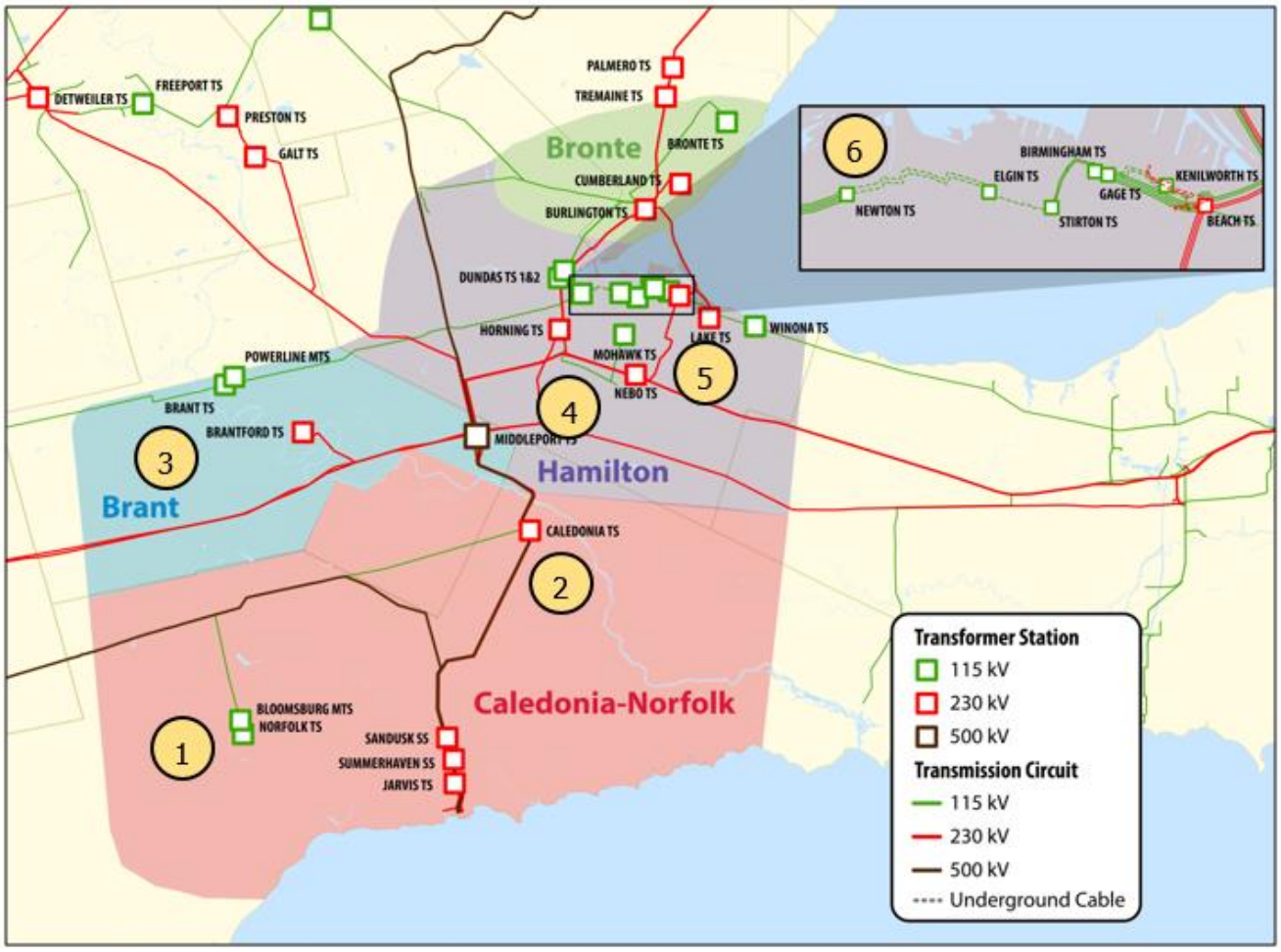
The Needs Assessment then identified new or updated needs in the Burlington to Nanticoke region using the 10-year station-level demand forecast provided by the local distribution companies (LDCs), updated end-of-life asset condition information from Hydro One, as well as the conservation and demand management (CDM) and distributed generation (DG) forecast provided by the IESO. Table 3-2 below lists these regional needs and their timing. Their locations are shown in Figure 3-3.

Table 3-2 | Updated Regional Needs Identified in the Needs Assessment

[1] These needs were identified between planning cycles due to changes in the forecast growth for the sub-region.

Need #	Station/Circuit	Description of Need
1	Norfolk TS and Bloomsburg DS	• Station capacity expected to be exceeded 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	• Station capacity expected to be exceeded in 2030
3	Brant Area Supply	• The coincident load of the Brant area is expected to exceed the LMC of the three 115 kV supply circuits supplying the area within the study period (2022-2032)
4	Nebo TS	• Station capacity expected to be exceeded over planning horizon. However, this station is expected to be refurbished in the 2027-2032 timeframe, and 75 MVA transformers could potentially be replaced with 100 MVA units at that time to increase capacity
5	Mohawk TS	• Station capacity expected to be exceeded in 2024
6	Newton TS 115 kV breakers	• Have been identified for replacement based on asset condition assessment • Refurbishment recommended as part of Needs Assessment

Figure 3-3 | Geographic Location of Needs Identified in the Needs Assessment



3.3.3 Analysis of Needs and Identification of Region

The Study Team has discussed the needs in the Burlington Nanticoke region and potential planning approaches to address them. The preferred planning approach is generally informed by:

- Timing of the need, including lead time to develop solutions
- The potential linkages between needs and their required coordination, particularly if across overlapping LDC territories or planning Regions
- The opportunity for public engagement to inform outcomes
- 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

In general, the more complex a series of needs and the greater the need for coordination and engagement, the more likely an IRRP will be selected. If needs have few available solutions, are relatively straight forward, and can be implemented without affecting neighbouring areas or the bulk

power system, then a more streamlined planning approach with a narrower scope may be appropriate.

Of the six updated regional needs identified in the Needs Assessment, most have a fairly limited geographic impact, which makes them suitable to be considered in more discrete blocks:

1. Needs 1 and 2 (Norfolk TS, Bloomsburg DS, and Caledonia TS) are both primarily driven by increases in local peak electrical demand. Given the rate of growth is expected to be somewhat modest, these needs may be good candidates to consider non wires alternatives as a way to defer the need for infrastructure investments. The potential to shift load between stations in this pocket also makes it a good candidate for a shared scope of study.
2. Need 3 (Brant area supply), is another area whose needs are primarily driven by increases in peak demand. Because the need is expected to be triggered by the combined load of supply circuits, the combined step down stations in the sub region must be considered as a collective unit, and transfers between stations would not be an effective option to address supply needs. Instead, non wires alternatives may be considered as a potential deferment strategy compared to traditional wires infrastructure.
3. Needs 4, 5, and 6 (Hamilton area), are primarily driven by growth in peak capacity or aging infrastructure needs with consideration of a number of refurbishment opportunities within the planning timeline. 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 would include conventional infrastructure and non wires alternatives. The area is also in close proximity, and shares key infrastructure, with parts of the bulk power system. This may require more detailed analysis during a study to understand potential impacts of needs or solutions on the regional vs bulk system.

The associated timelines for these needs vary, but are all within the near- (0-5 years) to mid-term (5-10 years), which suggests planning should be undertaken within the current regional planning cycle to ensure options can be evaluated and a preferred outcome selected and implemented in time.

Recommendation: Given the shared geographic impact of certain needs, and opportunities which may arise from considering solutions to those needs in a coordinated manner, separate studies should be undertaken for each of three sub-regions: Hamilton, Brant, and Caledonia-Norfolk. Due to the greater number of potential solutions to consider, the potential bulk system impact, and additional end of life opportunities, the full 18 months' timeline is expected to be required for the more complex Hamilton IRRP. The more limited number of needs and potential solutions, in addition to a smaller area of interest with limited bulk system impact, suggests the Brant and Caledonia-Norfolk IRRPs could be completed with an expedited 12-month timeline.

4. Conclusion and Next Steps

The Scoping Assessment concludes that:

- Further coordinated regional planning is required to identify, evaluate, and recommend solutions to address needs in three sub-regions of the Burlington-Nanticoke Region:
    1. A full scope IRRP is recommended for Hamilton, with a focus on accommodating overall demand growth, potential interactions with the local bulk system, and addressing options for equipment end of life. This will include needs identified in the Needs Assessment, as well as potential needs identified in the 2019 Hamilton IRRP as requiring monitoring.
    2. A reduced scope IRRP is recommended for Brant, with a focus on supply to the pocket and station capacity needs.
    3. A reduced scope IRRP for Caledonia-Norfolk, with a focus on station capacity and refurbishment needs.
- No further coordinated regional planning is required at this time for the Bronte sub-region

All IRRPs will include opportunities for engagement with local communities and stakeholders, as well as include discussion of any local initiatives focused on energy and/or reducing GHG emissions, and how the IRRP can coordinate with these plans. This could include Community Energy Plans, Net-Zero strategies, or similar. Particular attention will be paid to opportunities for information sharing and/or coordination of goals and outcomes.

The draft Terms of Reference for the Hamilton IRRP, Brant IRRP, and Caledonia-Norfolk IRRP are attached in Appendix 2.

Appendix 1 – List of Acronyms

Acronym	Definition
CDM	Conservation and Demand Management
DG	Distributed Generation
FIT	Feed-in-Tariff
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
kV	kilovolt
LAPS	Local Achievable Potential Study
LDC	Local Distribution Company
MNO	Métis Nation of Ontario
MW	Megawatt
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB	Ontario Energy Board
ORTAC	Ontario Resource and Transmission Assessment Criteria
RIP	Regional Infrastructure Plan
TS	Transformer Station

Appendix 2 – Brant Sub-Region Integrated Regional Resource Plan (IRRP) Terms of Reference

1. Introduction and Background

These Terms of Reference establish the objectives, scope, key assumptions, roles and responsibilities, activities, deliverables, and timelines for an IRRP of the Brant sub-region.

Based on the potential for demand growth within this region, limits on the capability of the transmission capacity supplying the area, and opportunities for coordinating demand and supply options, an integrated regional resource planning approach is recommended.

Brant Sub-region

The Brant sub-region is one of the four sub-regions within the larger Burlington to Nanticoke planning region. The Burlington to Nanticoke region includes the 500 kV, 230 kV, and 115 kV electricity infrastructure located in Southwestern Ontario. The region is split into four smaller sub-regions for planning purposes: Bronte, Brant, Hamilton, and Caledonia-Norfolk. The Brant sub-region is a summer-peaking region that is serviced by 230 kV, and 115 kV circuits and transformer stations. The approximate geographical boundaries of the sub-region are shown in Figure A-3.

Figure A-3 | Overview of the Sub-region

The Brant sub-region includes the County of Brant, City of Brantford, and the surrounding areas. For electricity planning purposes, the planning region is defined by electricity infrastructure boundaries, not municipal boundaries.

Indigenous communities located in or near the Brant sub-region are: Mississaugas of the New Credit, Six Nations of the Grand River and the Haudenosaunee Confederacy Chiefs Council. Three Métis Nation of Ontario (MNO) councils are also located within or near the region: MNO Clear Waters Métis Council (Brantford), MNO Credit River Métis Council (Mississauga) and MNO Niagara Region Métis Council.

Engagement on this regional plan may be extended to include additional communities outside of the IRRP area boundaries.

Brant Sub-Region Electricity System

The electricity system supplying the Brant sub-region is shown in Figure A-4.

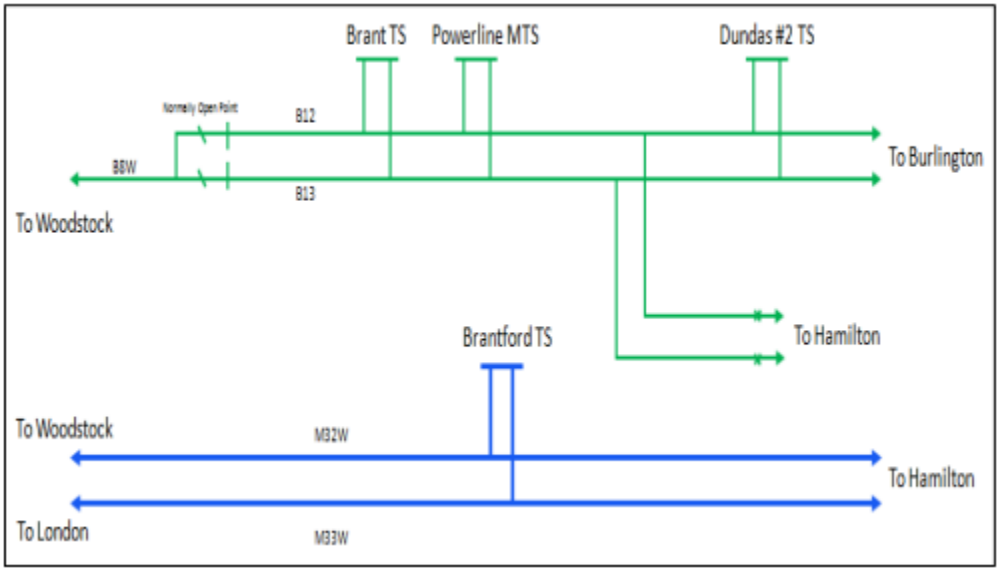


Figure A-4 | Brant Sub-Region Electricity System

The Brant sub-region is comprised of three transformer stations and a number of 115 kV and 230 kV circuits. The Brant sub-region is supplied from the 230 kV supply west from Middleport TS (located in Hamilton) and a 115 kV supply from Burlington TS (located in Bronte).

Background

In the last regional planning cycle for the Burlington to Nanticoke region, a needs assessment was conducted for the entire region and was published in 2017. This needs assessment concluded that further regional planning was required for the Hamilton sub-region only. The Hamilton sub-region IRRP was published in 2019, while local planning was implemented in the other three sub-regions.

In September 2022, Hydro One completed the 3rd Cycle Needs Assessment report for the Burlington to Nanticoke region. A system capacity need, for the 115 kV system that supplies the Brant area, was

identified in the sub-region. This need is dependant on the load levels in Hamilton, specifically the load levels at the Dundas DESNs. It was determined that this need required regional coordination and the consideration of non-wires alternatives, and as such, an IRRP would be required for the sub-region. The load forecasting for the Brant IRRP will coincide with the Hamilton IRRP load forecast which will be incorporated in the load flow simulations to capture the impact on the supply capacity to the Brant area.

2. Objectives

1. To assess the adequacy of electricity supply to customers in the Brant sub-region over the next 20 years.
2. To address the sub-region's system capacity needs, and develop a flexible, comprehensive, integrated electricity plan for the sub-region.
3. To develop an implementation plan, while maintaining flexibility in order to accommodate changes in key assumptions over time. The implementation plan should identify actions for near-term needs, preparation work for mid-term needs, and the planning direction for long-term needs.

3. Scope

This IRRP will develop and recommend an integrated plan to meet the needs of the Brant sub-region. The plan is a joint initiative involving GrandBridge Energy Inc., Hydro One Distribution, Hydro One Transmission, and the IESO, and will incorporate input from community engagement. The plan will focus on the identified system capacity need in the sub-region. It will also integrate forecast electricity demand growth, conservation and demand management in the area with transmission and distribution system capability, end-of-life of major facilities in the area, relevant community plans, any relevant bulk system developments, and generation uptake.

This IRRP will address regional needs in the Brant sub-region. Specifically, the following existing infrastructure is included in the scope of this study:

- 115 kV connected transformer stations: Brant TS, Powerline MTS
- 230 kV connected transformer stations: Brantford TS
- 115 kV transmission circuits: double circuit B12BL(B12)/B13BL(B13), B2(B8W)
- 230 kV transmission circuits: double circuit M32W/M33W

The Brant IRRP will:

- Prepare a 20-year electricity demand forecast for the appropriate stations and establish needs over this timeframe;
- Examine the load meeting capability and reliability of the existing transmission system supplying the sub-region, taking into account facility ratings and performance of transmission elements, transformers, local generation, and other facilities such as reactive power devices;

- Establish feasible integrated alternatives including a mix of CDM, generation, transmission and distribution facilities, and other electricity system initiatives in order to address the needs of the sub-region; and
- Evaluate options using decision-making criteria including but not limited to: technical feasibility, economics, reliability performance, and environmental and social factors.

4. Data and Assumptions

The plan will consider the following data and assumptions:

- Demand Data
  - Historical coincident peak demand information for the region
  - Historical weather correction, median and extreme conditions
  - Gross peak demand forecast scenarios by region and TS, etc.
  - Coincident peak demand data, including transmission-connected customers
  - Identified potential future load customers
  - Customer/load segmentation information (e.g. residential, commercial, industrial) by TS
- Conservation and Demand Management
  - Conservation forecast for LDC customers, based on region's share of current energy efficiency programs and/or those reflected in the forecast for the most recent Annual Planning Outlook
  - Potential for CDM at transmission-connected customers' facilities
- Local resources
  - Existing local generation, including distributed generation, district energy, customer-based generation, Non-Utility Generators, and hydroelectric facilities as applicable
  - Existing or committed renewable generation from Feed-in-Tariff (FIT) and non-FIT procurements
  - Future district energy plans, combined heat and power, energy storage, or other generation proposals
- Relevant local plans, as applicable
  - LDC Distribution System Plans
  - Community Energy Plans and Municipal Energy Plans
  - Municipal Growth Plans
  - Indigenous Community Energy Plans
- Criteria, codes and other requirements
  - Ontario Resource and Transmission Assessment Criteria (ORTAC)

    - Supply capability
    - Load security
    - Load restoration requirements
    - NERC and NPCC reliability criteria, as applicable
    - OEB Transmission System Code
    - OEB Distribution System Code
    - Reliability considerations, such as the frequency and duration of interruptions to customers
    - Other applicable requirements
- Existing system capability
    - Transmission line ratings as per transmitter records
    - System capability as per current IESO PSS/E base cases
    - Transformer station ratings (10-day LTR) as per asset owner
    - Load transfer capability
    - Technical and operating characteristics of local generation
- End-of-life asset considerations/sustainment plans
- Other considerations, as applicable

5. Technical Working Group

The core Technical Working Group will consist of planning representatives from the following organizations:

- GrandBridge Energy Inc.
- Independent Electricity System Operator *(Team Lead for IRRP)*
- Hydro One Networks Inc. (Distribution)
- Hydro One Networks Inc. (Transmission)

Authority and Funding

Each entity involved in the study will be responsible for complying with regulatory requirements as applicable to the actions/tasks assigned to that entity under the implementation plan resulting from this IRRP. For the duration of the study process, each participant is responsible for their own funding.

6. Engagement

Integrating early and sustained engagement with communities and stakeholders in the planning process was recommended to and adopted by the provincial government to enhance the regional planning and siting processes in 2013. These recommendations were subsequently referenced in the 2013 Long Term Energy Plan. As such, the Technical Working Group is committed to conducting plan-level engagement throughout the development of the Brant Sub-region IRRP.

The first step in engagement will consist of the development of a public engagement plan, which will be made available for comment before it is finalized. The data and assumptions as outlined in Section 4.0 will help to inform the scope of community and stakeholder engagement to be considered for this IRRP.

7. Activities, Timeline, and Primary Accountability

Activity	Lead Responsibility	Deliverable(s)	Timeframe
1. Prepare Terms of Reference considering stakeholder input	IESO	Finalized Terms of Reference	Q4 2022
2. Develop the summer planning forecast for the sub-region[2]		Long-term planning forecast scenarios	Q1 2023
Establish historical coincident (for the sub-region and the 115 kV system) peak demand information	IESO		
Establish historical weather correction, median and extreme conditions	IESO		
Establish gross peak demand forecast	LDCs		
Establish existing, committed, and potential DG	IESO, LDCs		
Establish near- and long-term conservation forecast based on planned energy efficiency activities and codes and standards	IESO		

[2] Will be coordinated with the forecasting activities for the Hamilton IRRP.

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Develop a high planning forecast scenario for sensitivity analyses, as appropriate (including but not limited to: consideration of electric vehicle/transportation trends and potential impact on Brant sub-region demand)	IESO		
3. Confirm load transfer capabilities under normal and emergency conditions – for the purpose of analyzing transmission system needs and identifying options for addressing these needs	LDCs	Load transfer capabilities under normal and emergency conditions	Q3 2023
4. Provide and review relevant community plans, if applicable	LDCs, public stakeholders, and IESO	Relevant community plans	Q3 2023
Complete system studies to identify needs over a 20-year time horizon Obtain PSS/E base case Apply reliability criteria as defined in ORTAC to demand forecast scenarios Confirm and refine the need(s) and timing/load levels	IESO, Hydro One Transmission	Summary of needs based on demand forecast scenarios for the 20-year planning horizon	Q3-Q4 2023
6. Develop options and alternatives		Develop flexible planning options for forecast scenarios	Q4 2023
Conduct a screening to identify which non-wires options warrant further analysis	IESO		
Verify the LMC of the 115 kV system to better determine timing of needs and support options development	IESO		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Develop screened-in energy efficiency options	IESO and LDCs		
Develop screened-in local generation/demand management options	IESO and LDCs		
Develop the transmission and distribution alternatives (i.e., alignment with EOL sustainment plans, load transfers)	IESO, Hydro One Transmission, and LDCs		
Develop portfolios of integrated alternatives	IESO, Hydro One Transmission, and LDCs		
Technical comparison and evaluation	IESO, Hydro One Transmission, and LDCs		
7. Plan and undertake community & stakeholder engagement		Community and Stakeholder Engagement Plan Input from local communities, First Nation communities, and Métis Nation of Ontario	Ongoing as required IRRP engagement would be launched in Q3 2023
Early engagement including with local municipalities and First Nation communities within study area, First Nation communities who may have an interest in the study area, and the Métis Nation of Ontario	IESO, Hydro One Transmission, and LDCs		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Develop communications materials	IESO, Hydro One Transmission, and LDCs		
Undertake community and stakeholder engagement	IESO, Hydro One Transmission, and LDCs		
Summarize input and incorporate feedback	IESO, Hydro One Transmission, and LDCs		
8. Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Implementation plan Monitoring activities and identification of decision triggers Procedures for annual review	Q1 2024
9. Prepare the IRRP report detailing the recommended near, medium, and long-term plan for approval by all parties	IESO	IRRP report	Q2 2024

Appendix 3 – Caledonia - Norfolk Sub-Region Integrated Regional Resource Plan (IRRP) Terms of Reference

1. Introduction and Background

These Terms of Reference establish the objectives, scope, key assumptions, roles and responsibilities, activities, deliverables, and timelines for an IRRP of the Caledonia-Norfolk sub-region.

Based on the potential for demand growth within this region, limits on the capability of the transmission capacity supplying the area, and opportunities for coordinating demand and supply options, an integrated regional resource planning approach is recommended.

Caledonia-Norfolk Sub-region

The Caledonia-Norfolk sub-region is one of the four sub-regions within the larger Burlington to Nanticoke planning region. The Burlington to Nanticoke region includes the 500 kV, 230 kV, and 115 kV electricity infrastructure located in Southwestern Ontario. The region is split into four smaller sub-regions for planning purposes: Bronte, Brant, Hamilton, and Caledonia-Norfolk. The Caledonia-Norfolk sub-region is the southern-most portion of the Burlington to Nanticoke region, and includes 115 kV and 230 kV circuits and transformer stations. The approximate geographical boundaries of the sub-region are shown in Figure A-3.

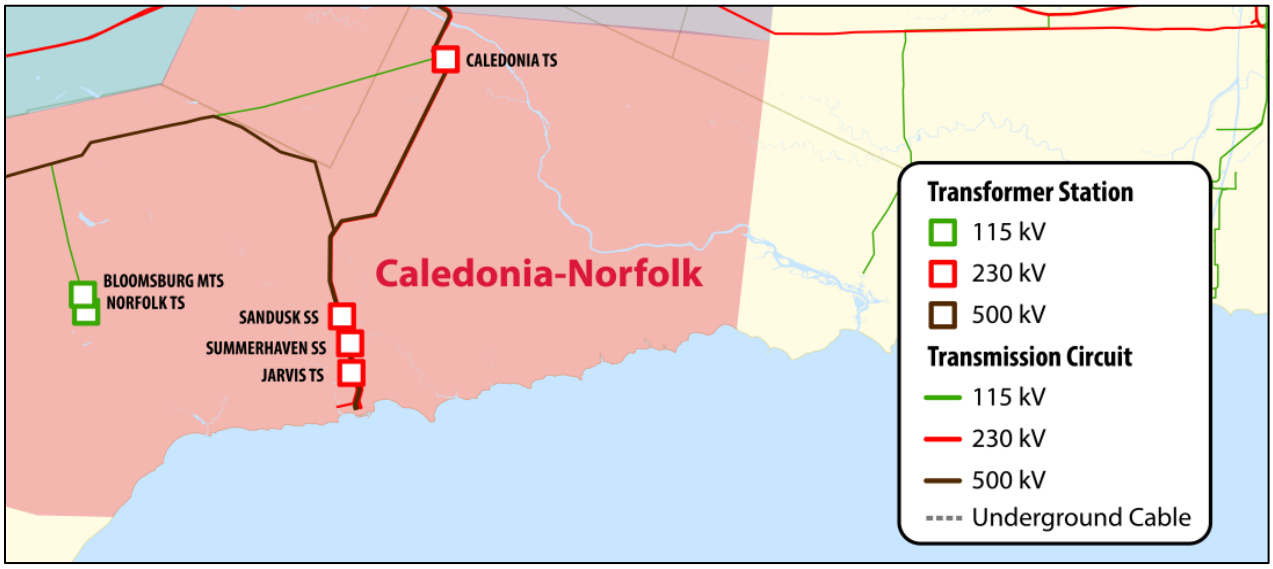


Figure A-3 | Overview of the Sub-region

The Caledonia-Norfolk sub-region covers the eastern part of Norfolk County and the western part of Haldimand County. For electricity planning purposes, the planning region is defined by electricity infrastructure boundaries, not municipal boundaries.

Indigenous communities located in or near the Caledonia-Norfolk sub-region are: Mississaugas of the New Credit, Six Nations of the Grand River and the Haudenosaunee Confederacy Chiefs Council. Three Métis Nation of Ontario (MNO) councils are also located within or near the region: MNO Clear Waters Métis Council (Brantford), MNO Credit River Métis Council (Mississauga) and MNO Niagara Region Métis Council.

Engagement on this regional plan may be extended to include additional communities outside of the IRRP area boundaries.

Caledonia-Norfolk Sub-Region Electricity System

The electricity system supplying the Caledonia-Norfolk sub-region is shown in Figure A-4.

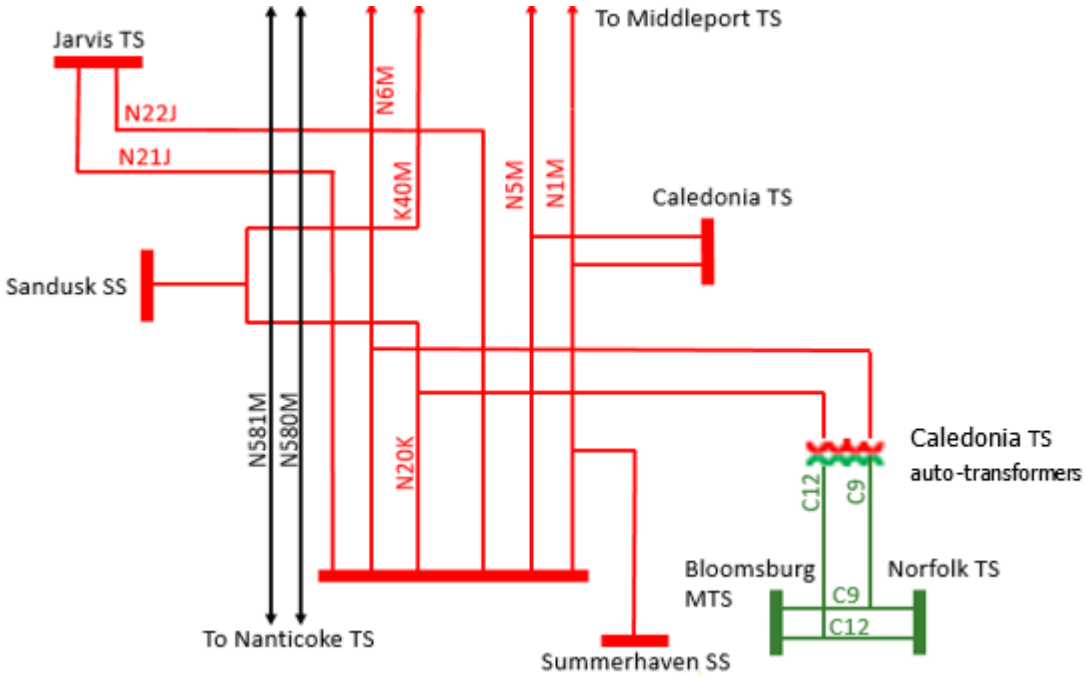


Figure A-4 | Burlington to Nanticoke Electricity System

The Caledonia-Norfolk sub-region is supplied by the 230 kV corridor that runs between Middleport TS, a 500/230 kV station located in the centre of the Burlington to Nanticoke region, and Nanticoke TS. The sub-region is comprised of six transformer stations. Specifically, the sub-region contains four 230 kV stations: Caledonia TS, Jarvis TS, and two customer owned transformer stations; in additon to two 115 kV transformer stations: Bloomsburg MTS and Norfolk TS. The 115 kV transformer stations are supplied by two 115 kV circuits: C9 and C12 which are supplied from Caledonia TS 230/115 kV autotransformers.

Background

In the last regional planning cycle for the Burlington to Nanticoke region, a Needs Assessment was conducted for the entire region and was published in 2017. This needs assessment concluded that further regional planning was required for the Hamilton sub-region only. The Hamilton sub-region

IRRP was published in 2019, while local planning was implemented in the other three sub-regions. Three needs were identified and recommended to be addressed through local planning in the Caledonia-Norfolk sub-region: the end-of-life of the LV switchgear at Norfolk TS, the end-of-life of the T1 transformers at Caledonia TS, and the end-of-life of the T3 and T4 transformers at Jarvis TS.

During the final step of regional planning in the last cycle – the Regional Infrastructure Plan ("RIP"), emerging capacity needs were identified in the Caledonia-Norfolk sub-region due to the new load growth in the Norfolk area. The RIP recommended near term solutions to address the overloads observed in the Norfolk area which include a new capacitor bank at Norfolk TS and load transfers from Norfolk TS to Jarvis TS. The RIP recommended a further assessment be carried out by the IESO and Hydro One to further examine the load growth, examine options and identify a recommended plan.

However, a large portion of the emerging capacity needs was driven by forecast load growth in the cannabis sector and load forecast uncertainty emerged before any planning reports were finalized, putting planning work on hold for the sub-region.

In September 2022, Hydro One completed the newest needs assessment for the Burlington to Nanticoke region. Two station capacity needs were identified in the Caledonia-Norfolk sub-region, at Norfolk TS (and Bloomsburg DS) and Caledonia TS. It was determined that these needs required regional coordination and as such, an IRRP would be required for the sub-region.

2. Objectives

1. To assess the adequacy of electricity supply to customers in the Caledonia-Norfolk sub-region over the next 20 years.
2. To address the sub-region's long-term capacity needs and demand forecast, and develop a flexible, comprehensive, integrated electricity plan for the sub-region.
3. To develop an implementation plan, while maintaining flexibility in order to accommodate changes in key assumptions over time. The implementation plan should identify actions for near-term needs, preparation work for mid-term needs, and the planning direction for long-term needs.

3. Scope

This IRRP will develop and recommend an integrated plan to meet the needs of the Caledonia-Norfolk sub-region. The plan is a joint initiative involving Hydro One Distribution, Hydro One Transmission, and the IESO, and will incorporate input from community engagement. The plan will focus on the identified capacity needs in the sub-region. It will also integrate forecast electricity demand growth, conservation and demand management in the area with transmission and distribution system capability, end-of-life of major facilities in the area, relevant community plans, any relevant bulk system developments, and generation uptake.

This IRRP will address regional needs in the Caledonia-Norfolk sub-region. Specifically, the following existing infrastructure is included in the scope of this study:

- 230 kV connected transformer stations: Caledonia TS, Jarvis TS and two customer owned transformer stations
- 115 kV connected transformer stations: Bloomsburg MTS and Norfolk TS
- 115 kV transmission circuits: C9 and C12
- 230 kV transmission circuits: N5M, N6M, N20K, N21J, N22J, K40M, and S39M

The Caledonia-Norfolk IRRP will:

- Prepare a 20-year electricity demand forecast for the appropriate stations and establish needs over this timeframe;
- Examine the load meeting capability and reliability of the existing transmission system supplying the sub-region, taking into account facility ratings and performance of transmission elements, transformers, local generation, and other facilities such as reactive power devices;
- Establish feasible integrated alternatives including a mix of CDM, generation, transmission and distribution facilities, and other electricity system initiatives in order to address the needs of the sub-region; and
- Evaluate options using decision-making criteria including but not limited to: technical feasibility, economics, reliability performance, and environmental and social factors.

4. Data and Assumptions

The plan will consider the following data and assumptions:

- Demand Data
  - Historical coincident peak demand information for the region
  - Historical weather correction, median and extreme conditions
  - Gross peak demand forecast scenarios by region and TS, etc.
  - Coincident peak demand data, including transmission-connected customers
  - Identified potential future load customers
  - Customer/load segmentation information (e.g. residential, commercial, industrial) by TS
- Conservation and Demand Management
  - Conservation forecast for LDC customers, based on region's share of current energy efficiency programs and/or those reflected in the forecast for the most recent Annual Planning Outlook
  - Potential for CDM at transmission-connected customers' facilities
- Local resources
  - Existing local generation, including distributed generation, district energy, customer-based generation, Non-Utility Generators, and hydroelectric facilities as applicable

    - Existing or committed renewable generation from Feed-in-Tariff (FIT) and non-FIT procurements
    - Future district energy plans, combined heat and power, energy storage, or other generation proposals
- Relevant local plans, as applicable
    - LDC Distribution System Plans
    - Community Energy Plans and Municipal Energy Plans
    - Municipal Growth Plans
    - Indigenous Community Energy Plans
- Criteria, codes and other requirements
    - Ontario Resource and Transmission Assessment Criteria (ORTAC)
    - Supply capability
    - Load security
    - Load restoration requirements
    - NERC and NPCC reliability criteria, as applicable
    - OEB Transmission System Code
    - OEB Distribution System Code
    - Reliability considerations, such as the frequency and duration of interruptions to customers
    - Other applicable requirements
- Existing system capability
    - Transmission line ratings as per transmitter records
    - System capability as per current IESO PSS/E base cases
    - Transformer station ratings (10-day LTR) as per asset owner
    - Load transfer capability
    - Technical and operating characteristics of local generation
- End-of-life asset considerations/sustainment plans
- Other considerations, as applicable

5. Technical Working Group

The core Technical Working Group will consist of planning representatives from the following organizations:

- Independent Electricity System Operator *(Team Lead for IRRP)*

- Hydro One Networks Inc. (Distribution)
- Hydro One Networks Inc. (Transmission)

Authority and Funding

Each entity involved in the study will be responsible for complying with regulatory requirements as applicable to the actions/tasks assigned to that entity under the implementation plan resulting from this IRRP. For the duration of the study process, each participant is responsible for their own funding.

6. Engagement

Integrating early and sustained engagement with communities and stakeholders in the planning process was recommended to and adopted by the provincial government to enhance the regional planning and siting processes in 2013. These recommendations were subsequently referenced in the 2013 Long Term Energy Plan. As such, the Technical Working Group is committed to conducting plan-level engagement throughout the development of the Caledonia-Norfolk IRRP.

The first step in engagement will consist of the development of a public engagement plan, which will be made available for comment before it is finalized. The data and assumptions as outlined in Section 4.0 will help to inform the scope of community and stakeholder engagement to be considered for this IRRP.

7. Activities, Timeline, and Primary Accountability

Activity	Lead Responsibility	Deliverable(s)	Timeframe
1. Prepare Terms of Reference considering stakeholder input	IESO	Finalized Terms of Reference	Q4 2022
2. Develop the summer planning forecast for the sub-region		Long-term planning forecast scenarios	Q4 –Q1 2023
Establish historical coincident (for the sub-region) and non-coincident (for Norfolk TS and Caledonia TS) peak demand information	IESO		
Establish historical weather correction, median and extreme conditions	IESO		
Establish gross peak demand forecast	LDCs		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Establish existing, committed, and potential DG	IESO, LDCs		
Establish near- and long-term conservation forecast based on planned energy efficiency activities and codes and standards	IESO		
Develop a high planning forecast scenario for sensitivity analyses, as appropriate (including but not limited to: consideration of electric vehicle/transportation trends and potential impact on Caledonia-Norfolk sub-region demand)	IESO		
3. Confirm load transfer capabilities under normal and emergency conditions – for the purpose of analyzing transmission system needs and identifying options for addressing these needs	LDCs	Load transfer capabilities under normal and emergency conditions	Q1 2023
4. Provide and review relevant community plans, if applicable	LDCs, public stakeholders, and IESO	Relevant community plans	Q1 2023
5. Complete system studies to identify needs over a 20-year time horizon - Obtain PSS/E base case - Apply reliability criteria as defined in ORTAC to demand forecast scenarios - Confirm and refine the need(s) and timing/load levels	IESO, Hydro One Transmission	Summary of needs based on demand forecast scenarios for the 20-year planning horizon	Q1 – Q2 2023
6. Develop options and alternatives		Develop flexible planning options for forecast scenarios	Q2 2023

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Conduct a screening to identify which non-wires options warrant further analysis	IESO		
Produce hourly forecasts for Norfolk TS and Caledonia TS to enable detailed needs characterization and support options development	IESO		
Develop screened-in energy efficiency options	IESO and LDCs		
Develop screened-in local generation/demand management options	IESO and LDCs		
Develop the transmission and distribution alternatives (i.e., alignment with EOL sustainment plans, load transfers)	IESO, Hydro One Transmission, and LDCs		
Develop portfolios of integrated alternatives	IESO, Hydro One Transmission, and LDCs		
Technical comparison and evaluation	IESO, Hydro One Transmission, and LDCs		
7. Plan and undertake community & stakeholder engagement		Community and Stakeholder Engagement Plan Input from local communities, First Nation communities, and Métis Nation of Ontario	Ongoing as required

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Early engagement including with local municipalities and First Nation communities within study area, First Nation communities who may have an interest in the study area, and the Métis Nation of Ontario	IESO, Hydro One Transmission, and LDCs		
Develop communications materials	IESO, Hydro One Transmission, and LDCs		
Undertake community and stakeholder engagement	IESO, Hydro One Transmission, and LDCs		
Summarize input and incorporate feedback	IESO, Hydro One Transmission, and LDCs		
8. Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Implementation plan Monitoring activities and identification of decision triggers Procedures for annual review	Q2 – Q3 2023
9. Prepare the IRRP report detailing the recommended near, medium, and long-term plan for approval by all parties	IESO	IRRP report	Q2 – Q3 2023

Appendix 4 – Hamilton Sub-Region Integrated Regional Resource Plan (IRRP) Terms of Reference

1. Introduction and Background

These Terms of Reference establish the objectives, scope, key assumptions, roles and responsibilities, activities, deliverables, and timelines for an IRRP of the Hamilton sub-region.

Based on the potential for demand growth within this region, limits on the capability of the transmission capacity supplying the area, and opportunities for coordinating demand and supply options, an integrated regional resource planning approach is recommended.

Hamilton Sub-region

The Hamilton sub-region is one of the four sub-regions within the larger Burlington to Nanticoke planning region. The Burlington to Nanticoke region includes the 500 kV, 230 kV, and 115 kV electricity infrastructure located in Southwestern Ontario. The region is split into four smaller sub-regions for planning purposes: Bronte, Brant, Hamilton, and Caledonia-Norfolk. The Hamilton sub-region is a summer-peaking region that includes the City of Hamilton and is serviced by 230 kV, and 115 kV circuits and transformer stations. The approximate geographical boundaries of the sub-region are shown in Figure A-3.

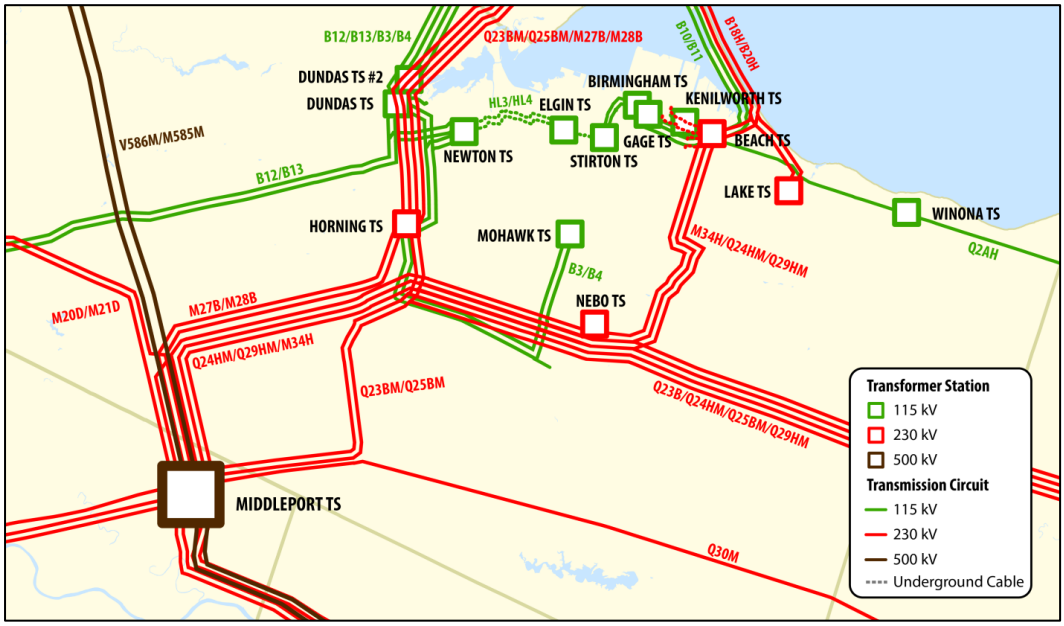


Figure A-3 | Overview of the Sub-region

The City of Hamilton includes the communities of Hamilton, Flamborough, Dundas, Ancaster, Glanbrook, Binbrook, Waterdown, and Stoney Creek. For electricity planning purposes, the planning region is defined by electricity infrastructure boundaries, not municipal boundaries.

Indigenous communities located in or near the Hamilton sub-region are: Mississaugas of the New Credit, Six Nations of the Grand River and the Haudenosaunee Confederacy Chiefs Council. Three Métis Nation of Ontario (MNO) councils are also located within or near the region: MNO Clear Waters Métis Council (Brantford), MNO Credit River Métis Council (Mississauga) and MNO Niagara Region Métis Council.

Engagement on this regional plan may be extended to include additional communities outside of the IRRP area boundaries.

Hamilton Sub-Region Electricity System

The electricity system supplying the Hamilton sub-region is shown in Figure A-4.

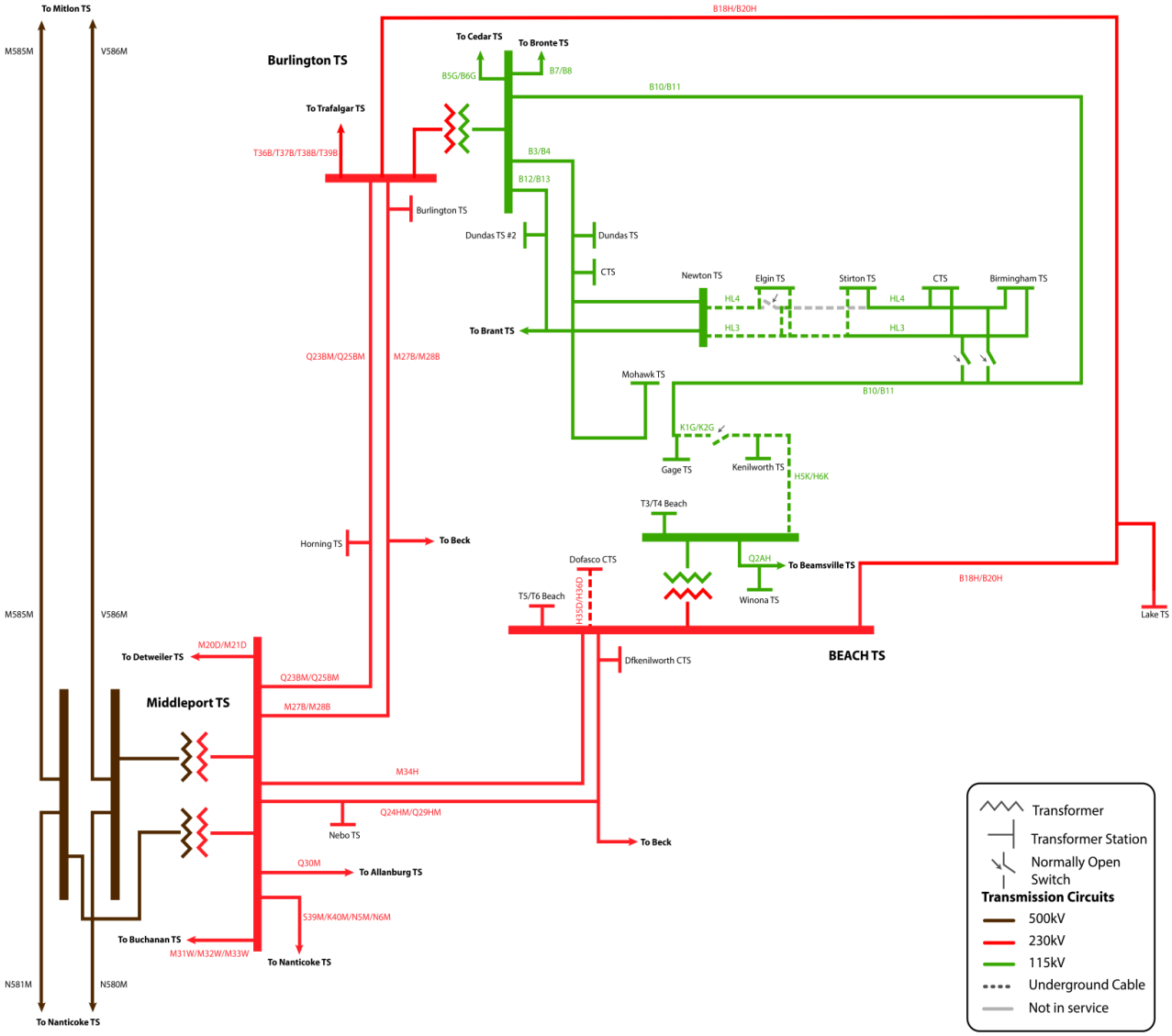


Figure A-4 | Hamilton Sub-Region Electricity System

The Hamilton sub-region is comprised of eighteen transformer stations and a number of 115 kV and 230 kV circuits. The 115 kV system in the sub-region is supplied by the 115 kV supply from Burlington TS (located north of Hamilton in Bronte) and the 230 kV supply from Beach TS. The primary 230 kV circuits between Burlington TS and Beach TS, Beach TS and Middleport TS, and Middleport TS and Burlington TS supply the sub-region's 230 kV connected load supply stations.

Background

In the last regional planning cycle for the Burlington to Nanticoke region, a needs assessment was conducted for the entire region and was published in 2017. This needs assessment concluded that further regional planning was required for the Hamilton sub-region only. The Hamilton sub-region IRRP was published in 2019, while local planning was implemented in the other three sub-regions. The 2019 Hamilton Sub-region IRRP recommended replacements of multiple pieces of equipment reaching the end-of-life, including the switchgear at Lake TS T1/T2, the transformers and the low voltage switchgear at Newton TS, the T5/T6 low voltage switchgear at Beach TS, the Beach TS 230 kV/115 kV autotransformers, and various underground cables (H5K/H6K, K1G/K2G, HL3/HL4).

In September 2022, Hydro One completed the newest needs assessment for the Burlington to Nanticoke region. Two station capacity needs, at Nebo TS and Mohawk TS, and one asset end-of-life need at Newton TS were identified in the Hamilton sub-region. It was determined that these needs required regional coordination. In the last cycle of regional planning, a study of the 115 kV cable in Hamilton was recommended, however, study work was postponed due to updated equipment condition information from Hydro One. An IRRP was identified as required for the sub-region to review needs requiring regional coordination along with conducting the deferred assessment of the 115 kV cable for the sub-region.

2. Objectives

To assess the adequacy of electricity supply to customers in the Hamilton sub-region over the next 20 years.

To address the sub-region's asset renewal and capacity needs, and develop a flexible, comprehensive, integrated electricity plan for the sub-region. To develop an implementation plan, while maintaining flexibility in order to accommodate changes in key assumptions over time. The implementation plan should identify actions for near-term needs, preparation work for mid-term needs, and the planning direction for long-term needs.

3. Scope

This IRRP will develop and recommend an integrated plan to meet the needs of the Hamilton sub-region. The plan is a joint initiative involving Alectra Utilities Inc., Hydro One Distribution, Hydro One Transmission, and the IESO, and will incorporate input from community engagement. The plan will focus on the identified asset end-of-life and capacity needs in the sub-region. It will also integrate forecast electricity demand growth, conservation and demand management in the area with transmission and distribution system capability, end-of-life of major facilities in the area, relevant community plans, any relevant bulk system developments, and generation uptake.

This IRRP will address regional needs in the Hamilton sub-region. Specifically, the following existing infrastructure is included in the scope of this study:

- 230 kV Connected Stations: Beach TS (T3/T4), Horning TS, Lake TS
- 115 kV Connected Stations: Newton TS, Dundas TS, Dundas #2 TS, Mohawk TS, Elgin TS, Stirton TS, Birmingham TS, Gage TS, Kenilworth TS, Beach TS (T5/T6), Winona TS
- 4 customer owned transformer stations
- 230 kV Transmission Lines: B18H/B20H, H35D/H36D, Q24HM/Q29HM, M27B/M28B
- 115 kV Transmission Lines: B12/B13, Q2AH, B10/B11, B3/B4, HL3/HL4
- 115 kV Transmission Cables: H5K/H6K, K1G/K2G, HL3/HL4
- 230/115 kV auto-transformers at Beach TS and Burlington TS

The Hamilton IRRP will:

- Prepare a 20-year electricity demand forecast for the appropriate stations and establish needs over this timeframe;
- Examine the load meeting capability and reliability of the existing transmission system supplying the sub-region, taking into account facility ratings and performance of transmission elements, transformers, local generation, and other facilities such as reactive power devices;
- Establish feasible integrated alternatives including a mix of CDM, generation, transmission and distribution facilities, and other electricity system initiatives in order to address the needs of the sub-region; and
- Evaluate options using decision-making criteria including but not limited to: technical feasibility, economics, reliability performance, and environmental and social factors.

4. Data and Assumptions

The plan will consider the following data and assumptions:

- Demand Data
  - Historical coincident peak demand information for the region
  - Historical weather correction, median and extreme conditions
  - Gross peak demand forecast scenarios by region and TS, etc.
  - Coincident peak demand data, including transmission-connected customers
  - Identified potential future load customers
  - Customer/load segmentation information (e.g. residential, commercial, industrial) by TS
- Conservation and Demand Management
  - Conservation forecast for LDC customers, based on region's share of current energy efficiency programs and/or those reflected in the forecast for the most recent Annual Planning Outlook
  - Potential for CDM at transmission-connected customers' facilities

- Local resources
    - Existing local generation, including distributed generation, district energy, customer-based generation, Non-Utility Generators, and hydroelectric facilities as applicable
    - Existing or committed renewable generation from Feed-in-Tariff (FIT) and non-FIT procurements
    - Future district energy plans, combined heat and power, energy storage, or other generation proposals
- Relevant local plans, as applicable
    - LDC Distribution System Plans
    - Community Energy Plans and Municipal Energy Plans
    - Municipal Growth Plans
    - Indigenous Community Energy Plans
- Criteria, codes and other requirements
    - Ontario Resource and Transmission Assessment Criteria (ORTAC)
    - Supply capability
    - Load security
    - Load restoration requirements
    - NERC and NPCC reliability criteria, as applicable
    - OEB Transmission System Code
    - OEB Distribution System Code
    - Reliability considerations, such as the frequency and duration of interruptions to customers
    - Other applicable requirements
- Existing system capability
    - Transmission line ratings as per transmitter records
    - System capability as per current IESO PSS/E base cases
    - Transformer station ratings (10-day LTR) as per asset owner
    - Load transfer capability
    - Technical and operating characteristics of local generation
- End-of-life asset considerations/sustainment plans
- Other considerations, as applicable

5. Technical Working Group

The core Technical Working Group will consist of planning representatives from the following organizations:

- Alectra Utilities Inc.
- Independent Electricity System Operator *(Team Lead for IRRP)*
- Hydro One Networks Inc. (Distribution)
- Hydro One Networks Inc. (Transmission)

Authority and Funding

Each entity involved in the study will be responsible for complying with regulatory requirements as applicable to the actions/tasks assigned to that entity under the implementation plan resulting from this IRRP. For the duration of the study process, each participant is responsible for their own funding.

6. Engagement

Integrating early and sustained engagement with communities and stakeholders in the planning process was recommended to and adopted by the provincial government to enhance the regional planning and siting processes in 2013. These recommendations were subsequently referenced in the 2013 Long Term Energy Plan. As such, the Technical Working Group is committed to conducting plan-level engagement throughout the development of the Hamilton Sub-region IRRP.

The first step in engagement will consist of the development of a public engagement plan, which will be made available for comment before it is finalized. The data and assumptions as outlined in Section 4.0 will help to inform the scope of community and stakeholder engagement to be considered for this IRRP.

7. Activities, Timeline, and Primary Accountability

Activity	Lead Responsibility	Deliverable(s)	Timeframe
1. Prepare Terms of Reference considering stakeholder input	IESO	Finalized Terms of Reference	Q4 2022
2. Develop the summer planning forecast for the sub-region		Long-term planning forecast scenarios	Q1 2023
Establish historical coincident (for the sub-region) and non-coincident (for Nebo TS and Mohawk TS) peak demand information	IESO		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Establish historical weather correction, median and extreme conditions	IESO		
Establish gross peak demand forecast	LDCs		
Establish existing, committed, and potential DG	IESO, LDCs		
Establish near- and long-term conservation forecast based on planned energy efficiency activities and codes and standards	IESO		
Develop a high planning forecast scenario for sensitivity analyses, as appropriate (including but not limited to: consideration of electric vehicle/transportation trends and potential impact on Hamilton sub-region demand)	IESO		
3. Confirm load transfer capabilities under normal and emergency conditions – for the purpose of analyzing transmission system needs and identifying options for addressing these needs	LDCs	Load transfer capabilities under normal and emergency conditions	Q1 2023
4. Provide and review relevant community plans, if applicable	LDCs, public stakeholders, and IESO	Relevant community plans	Q1 2023
5. Complete system studies to identify needs over a 20-year time horizon - Obtain PSS/E base case - Apply reliability criteria as defined in ORTAC to demand forecast scenarios - Confirm and refine the need(s) and timing/load levels	IESO, Hydro One Transmission	Summary of needs based on demand forecast scenarios for the 20-year planning horizon	Q2 2023

Activity	Lead Responsibility	Deliverable(s)	Timeframe
6. Develop options and alternatives		Develop flexible planning options for forecast scenarios	Q3 2023
Conduct a screening to identify which non-wires options warrant further analysis	IESO		
Produce hourly forecasts for Nebo TS and Mohawk TS to enable detailed needs characterization and support options development	IESO		
Develop screened-in energy efficiency options	IESO and LDCs		
Develop screened-in local generation/demand management options	IESO and LDCs		
Develop the transmission and distribution alternatives (i.e., alignment with EOL sustainment plans, load transfers)	IESO, Hydro One Transmission, and LDCs		
Develop portfolios of integrated alternatives	IESO, Hydro One Transmission, and LDCs		
Technical comparison and evaluation	IESO, Hydro One Transmission, and LDCs		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
7. Plan and undertake community & stakeholder engagement		Community and Stakeholder Engagement Plan Input from local communities, First Nation communities, and Métis Nation of Ontario	Ongoing as required
Early engagement including with local municipalities and First Nation communities within study area, First Nation communities who may have an interest in the study area, and the Métis Nation of Ontario	IESO, Hydro One Transmission, and LDCs		
Develop communications materials	IESO, Hydro One Transmission, and LDCs		
Undertake community and stakeholder engagement	IESO, Hydro One Transmission, and LDCs		
Summarize input and incorporate feedback	IESO, Hydro One Transmission, and LDCs		
8. Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Implementation plan Monitoring activities and identification of decision triggers Procedures for annual review	Q4 2023

Activity	Lead Responsibility	Deliverable(s)	Timeframe
9. Prepare the IRRP report detailing the recommended near, medium, and long-term plan for approval by all parties	IESO	IRRP report	Q1 2024

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900
Toll-free: 1.888.448.7777
E-mail: customer.relations@ieso.ca

ieso.ca

@IESO_Tweets
facebook.com/OntarioIESO
linkedin.com/company/IESO

ieso
Connecting Today.
Powering Tomorrow.