

Burlington to Nanticoke Region

Scoping Assessment Outcome Report

September 25, 2014

Prepared by Burlington to Nanticoke Region Team



Burlington to Nanticoke Study Team

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Scoping Assessment Outcome Report Summary			
Region:	Burlington to Nanticoke		
Start Date	June 24, 2014	End Date	September 22, 2014
1. Introduction			
<p>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 process timelines through changes to the Transmission System Code and Distribution System Code in August 2013.</p> <p>The first stage in the regional planning process, the Needs Screening, was carried out by Hydro One Networks Inc. (“Hydro One”) for the Burlington to Nanticoke region. The final Needs Screening report¹ was issued on June 4, 2014 and concluded that some needs in the region may require regional coordination, and these needs should be reviewed further under the OPA led Scoping Assessment process.</p> <p>The OPA, in collaboration with the Regional Participants, further reviewed the needs identified, in combination with information collected as part of the Needs Screening, and information on potential wires and non-wires alternatives, to assess and determine the best planning approach: an integrated regional resource plan (“IRRP”) or a regional infrastructure plan (“RIP”), and the scope of study for the sub-regions.</p> <p>This Scoping Assessment report:</p> <ul style="list-style-type: none"> • Defines the sub-regions for needs that may require regional coordination as identified in the Needs Screening report; • Determines the appropriate regional planning approach (RIP or an IRRP) and scope for each sub-region with identified needs that require regional coordination; • Establishes a terms of reference in the case where an IRRP is the recommended approach for the sub-region(s); • Establishes a working group for each sub-region recommended for an IRRP. 			
2. Team			
<p>The Scoping Assessment was carried out with the same Regional Participants that were involved in the Needs Screening process as follows:</p> <ul style="list-style-type: none"> • Ontario Power Authority (“OPA”) • Independent Electricity System Operator (“IESO”) • Hydro One Networks Inc. (“Hydro One Transmission”) • Hydro One Networks Inc. (“Hydro One Distribution”) • Brant County Power Inc. (“Brant County Power”) • Brantford Power Inc. (“Brantford Power”) • Burlington Hydro Inc. (“Burlington Hydro”) 			

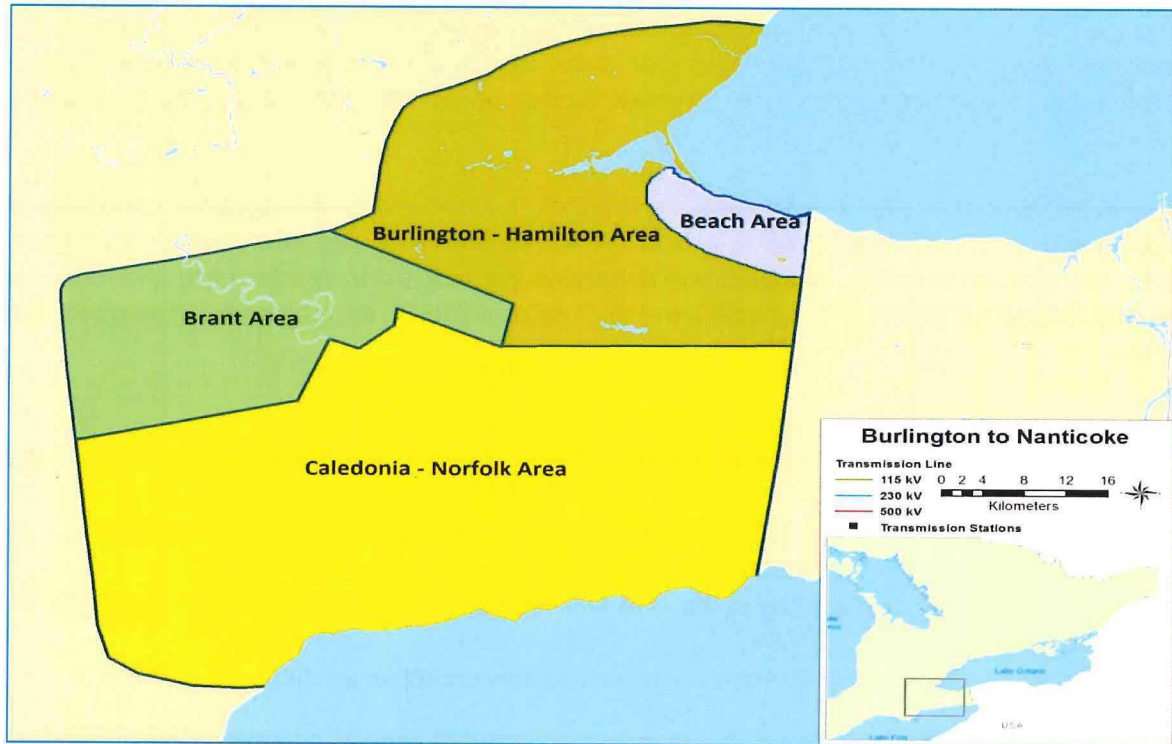
¹ The Needs Screening report for the Burlington to Nanticoke Region can be found at [http://www.hydroone.com/RegionalPlanning/Burlington/Documents/Needs%20Screening%20 Burlington%20to%20Nanticoke%20Region_May%2023%202014%20\(FINAL\).pdf](http://www.hydroone.com/RegionalPlanning/Burlington/Documents/Needs%20Screening%20Burlington%20to%20Nanticoke%20Region_May%2023%202014%20(FINAL).pdf)

- Haldimand County Hydro Inc. (“Haldimand County”)
- Horizon Utilities Corporation (“Horizon”)
- Oakville Hydro Electricity Distribution Inc. (“Oakville Hydro”)
- Norfolk Power Distribution Inc. (“Norfolk Power”)

3. Categories of Needs, Analysis and Results

The Hydro One led Needs Screening divided the Burlington to Nanticoke Region into the four following areas: Brant, Burlington-Hamilton, Beach and Caledonia-Norfolk areas as shown in Figure 1.

Figure 1: Burlington to Nanticoke Region and Area Boundaries



Regional Overview

230 kV and 115 kV Connection Facilities

The Brant Area is currently part of an IRRP study, being led by the OPA. Regional planning in this area was initiated prior to the formalization of the OEB’s regional planning process, and prior to the Needs Screening process for the Burlington-Nanticoke region.

There is an immediate need to provide capacity to Brant’s 115 kV subsystem. Due to the urgent nature of the need, the OPA initiated the implementation of capacitor banks at Powerline MTS by way of letter to Hydro One in February 2014, for an in-service date of summer 2015. Options to address the remaining needs in the Brant Area are being developed by the Working Group and will form part of the recommendations of the IRRP.

For the Caledonia-Norfolk Area, the Regional Participants agreed that the needs identified do not require regional coordination.

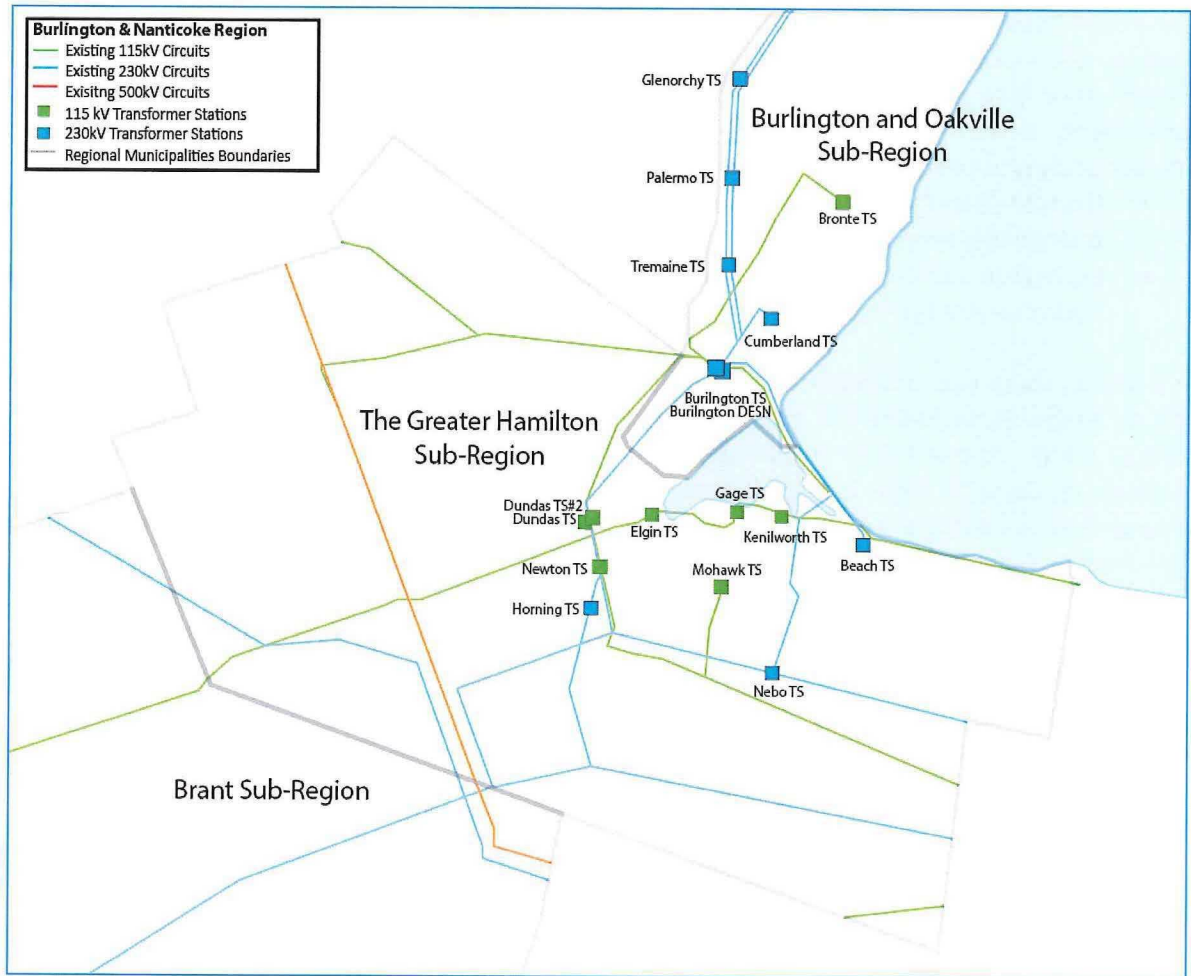
The Needs Screening report recommended that some of the identified needs in the Burlington-Hamilton Area be addressed at the regional level. The affected Regional Participants agreed that these needs should move forward into the Scoping Assessment process led by the OPA. As part of the scoping assessment, it was also agreed that the Burlington-Hamilton and Beach areas should be more appropriately grouped into the two study sub-regions as follows:

- Greater Hamilton Sub-Region fully encompassing Horizon Utilities Inc. and Hydro One Distribution service territory.
- Burlington and Oakville Sub-Region (Bronte Area) encompassing Burlington Hydro and Oakville Hydro service territory.

As a whole, these two sub-regions include the 230 kV supply West from Burlington TS to Middleport TS and to Beach TS, including the stations Horning TS, Cumberland TS, Burlington DESN, and Nebo TS (230/27.6 kV). At the 115 kV level this area includes supply to Bronte TS, Dundas TS, Dundas TS #2, Mohawk TS, Gage TS, Elgin TS, CTS-4, Nebo TS (230/13.8 kV) and Newton TS. The area has also been expanded in this Scoping Assessment to include the adjacent 230 kV step-down stations of Palermo TS, Tremaine TS, Glenorchy MTS and Oakville TS#2 in Burlington and Oakville.

The needs identified in the sub-regions are further reviewed in the sections below to determine the scope and type of regional planning study if appropriate.

Figure 2: Relevant Transmission Facilities in the Region



230/115 kV Autotransformers

The Needs Screening report also identified that for the loss of one autotransformer at Burlington TS, equipment loadings and restoration times were expected to be within criteria.

It was agreed that the loadings and restoration capability for the loss of two autotransformers will be assessed by an OPA led study team. As Burlington TS serves a number of areas including Guelph, Brant, Burlington and Hamilton, and is impacted by the load growth in these areas, the assessment for the loss of two autotransformers will be conducted as a separate study.

Load Security and Restoration Assessment

Based on the Ontario Resource and Transmission Assessment Criteria (“ORTAC”), load on a number of double circuits in the region is close to the 150 MW and 250 MW thresholds. The criteria indicates that the amount of interrupted load in excess of 150 MW to be restored within approximately 4 hours, and

the amount of load in excess of 250 MW to be restored within approximately 30 minutes. The treatment of the affected double circuits is discussed in further detail in the applicable sub-region sections below.

Aging Infrastructure and Replacement Plan

Based on information provided by Hydro One, there is no end-of-life replacement need for major facilities in the region within the period assessed by the scoping report.

4. Conclusion

The Scoping Assessment concludes that an IRRP be undertaken to further assess the needs in the Burlington-Oakville sub-region (Bronte area). The draft terms of reference are attached. Additionally, the needs identified in the Greater Hamilton sub-region will be addressed between the transmitter and relevant LDC (s) and do not require an IRRP.

The Brant IRRP is currently underway and the finalized terms of reference can be found [here](#).

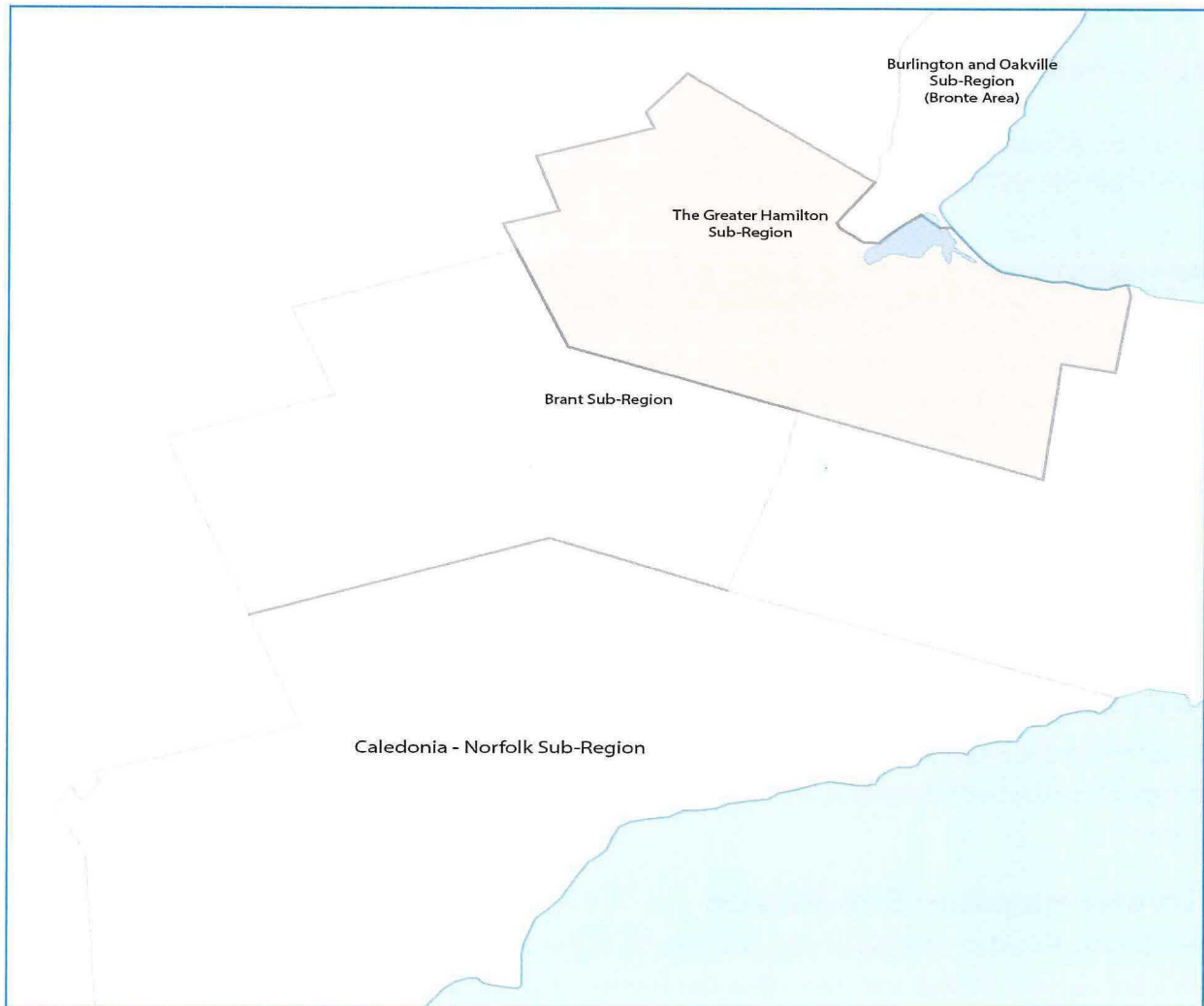
The section below provides a summary of the relevant needs and describes the sub-regions.

SUB-REGIONS FOR SCOPING

As agreed by the Regional Participants, the Burlington-Hamilton and Beach areas are more appropriately grouped into the two following study regions: Greater Hamilton sub-region and Burlington-Oakville sub-region.

Greater Hamilton Sub-Region

The Greater Hamilton sub-region encompasses the City of Hamilton and surrounding areas. The relevant LDCs are Horizon Utilities and Hydro One Distribution. Figure 3 shows the geographical area under the scope of this sub-region.

Figure 3. Greater-Hamilton Sub-Region

Categories of Needs, Analysis, and Results

A Scoping Assessment meeting was held on June 23, 2014 between the relevant LDCs and Hydro One Transmission, OPA and IESO to further discuss the needs identified in the Needs Screening report for the Greater Hamilton Sub-Region.

A summary of the relevant needs as identified in the Needs Screening is summarized below:

Capacity Needs

The two existing Dual-Element Spot Networks (DESN) at Dundas TS (Dundas TS and Dundas TS #2) are expected to have sufficient capacity for the next 10 years, until 2023; however, there is a need to balance load between the two DESNs. As per the Needs Screening study team recommendation, this need will be addressed by localized planning between Hydro One Transmission, Hydro One Distribution and Horizon Utilities.

Nebo TS 230/13.8-13.8 kV (T3/T4) is expected to have sufficient capacity for the next 10 years, until 2023. However, there is a provision for a second switchgear to fully utilize the capacity of the TS. As per the Needs Screening study team recommendation, this need will be addressed by localized planning.

The Needs Screening identified that Mohawk TS is above its normal supply capacity and this is a known issue to Horizon Utilities and Hydro One Transmission. The Needs Screening study team agreed that this need does not require further regional planning. Future loading and growth at this TS will continue to be monitored. In addition, the area served by Mohawk TS could provide a good opportunity for custom Conservation and Demand Management (“CDM”) programs. Conservation and Demand Management programs that could be tailored to the area will be discussed between Horizon Utilities and the OPA.

The Needs Screening report also identified that the power factor at Beach TS and Kenilworth TS may be below the 0.9 power factor under peak load conditions based on historical data provided by the IESO. As per the Needs Screening study team recommendation, this need will be addressed by localized planning and does not require further regional coordination.

System Security and Restoration Needs

A number of double-circuits in the area may be close to the 250 MW and 150 MW load thresholds:

- 250 MW thresholds: Q24/29HM, B3/4
- 150 MW threshold: Q23/25BM, H35/36D, and HL3/4 (Beach TS section)

Loads at these circuits will continue to be monitored by the relevant LDCs and Hydro One Transmission. Further assessment and planning will also be coordinated between the relevant LDCs and Hydro One Transmission.

Conclusion

The affected Regional Participants agreed that the identified needs in the Greater Hamilton Sub-Region do not require further regional coordination at this time, and any necessary infrastructure investments are to be planned directly by Horizon Utilities, Hydro One Distribution and Hydro One Transmission.

Burlington and Oakville Sub-Region (Bronte Area)

The Needs Screening report identified needs in the southern part of Burlington and Oakville. Going forward, the study area in this sub-region will be referred to as the Bronte Study Area or Bronte area, encompassing the service territories of Burlington Hydro and Oakville Hydro. The scope of the study area is defined as the area served by Bronte TS (Bronte TS is served by the 115 kV circuits B7/8 from Burlington TS) and Cumberland TS. The study will also consider the utilization of the remaining facilities in the area as options to address the identified needs. Thus, the study also includes the adjacent stations of Palermo TS, Tremaine TS, Glenorchy MTS, Oakville TS #2 and Burlington TS (DESN). Figure 4 shows the geographic scope of the Bronte Study Area.

Figure 4. Burlington and Oakville Sub-Region (Bronte Area)

Categories of Needs, Analysis, and Results

A Scoping Assessment meeting was held on June 26, 2014 between the relevant LDCs and Hydro One Transmission, OPA and IESO to further discuss the needs identified in the Burlington-Oakville area.

A summary of the relevant needs is summarized below:

Capacity Needs

The Needs Screening report identified that Bronte TS may reach its normal supply capacity before the end of 2023. It also indicated that the supply circuits B7/B8 to Bronte TS from Burlington TS have already reached their Load Meeting Capability (“LMC”), and/or can be constrained by voltage issues and require further assessment.

The load at Bronte TS is a combination of Burlington Hydro and Oakville Hydro loads. Burlington Hydro confirmed that load will be constant at Bronte TS, while Oakville Hydro is expecting to connect additional load at Bronte TS through the study period. A number of adjacent stations such as Tremaine TS and Glenorchy MTS have sufficient unused capacity and load transfer as an option was suggested to alleviate loading at Bronte TS and to manage new growth. However, Burlington Hydro and Oakville Hydro confirmed that these stations are expected to supply new load growth in the respective cities, such as downtown re-intensification in Oakville, residential developments in Burlington, and more. Additionally, the LDCs informed the Regional Participants that paths for distribution feeders from Bronte TS in order to transfer load are congested.

The Needs Screening report also indicated that the power factor at Cumberland TS is below the 0.9 power factor under peak load conditions based on historical data provided by the IESO. As per the Needs Screening study team recommendation, this need will be addressed by localized planning and does not require further regional coordination.

System Security and Restoration Needs

One double-circuit in the area may be close to the 150 MW load threshold:

- 150 MW threshold: B7/B8

The level of load at this circuit will be further investigated in the course of the Bronte Study Area IRRP.

Conclusion

As the needs identified for the Bronte Study Area may be met by a combination of CDM, DG, and wires solution (Transmission and Distribution), an integrated regional resource plan or an IRRP, lead by the OPA is recommended for this area.

Scoping Assessment Outcome Report Summary Addenda: Results of Public Comment Period

Region:	Burlington to Nanticoke
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Introduction

As part of the Ontario Energy Board's ("OEB" or "Board") formalized Regional Planning process endorsed by the OEB in May 2013, the draft Scoping Assessment report is to be made available for public review with an opportunity for comments. Comments received are to be considered by the study team prior to a final decision on the Scoping Assessment outcome.

Comments

On August 25, 2014, the Draft Scoping Assessment Outcome report was posted to the OPA website for a 2 week public comment period. A notifying email was sent out to all parties who had signed up to receive updates for the Burlington to Nanticoke Region. No comments were received for the Scoping Assessment Outcome Report. There was one comment received in regard to the draft Terms of Reference for the Bronte area.

Response

Comments were not received for the draft Burlington to Nanticoke Scoping Assessment Outcome report. As a result, the draft document will be marked as final without material updates to the content or conclusions. The final Scoping Assessment will be posted to the OPA website by September 25, 2014. The Scoping Assessment concluded that an IRRP be undertaken to further assess the needs in the Bronte study area. The comments on the draft Terms of Reference will be considered by the study team within the IRRP process.