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August 30, 2011

BY COURIER, EMAIL AND RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
27th Floor, Box 2329
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: Haldimand County Hydro Inc. ("HCHI")
Evidence for New Transformer Station
Board File No.: EB-2011-0063

Please find enclosed two (2) hard copies of HCHI's evidence referenced in the August 18, 2011 letter to the Board.

We confirm that an electronic copy of the above has been submitted through the Board's Regulatory Electronic Submission System ("RESS"). A copy of the RESS submission confirmation sheet is enclosed.

Yours truly,

AIRD & BERLIS LLP

Scott A. Stoll

SAS/hm
Encl.

cc: EB-2011-0063, All participants

10837806.1

Introduction

This purpose of this evidence is to support the need, in a general form, for additional Transformer Station ("**TS**") capacity in Haldimand County and demonstrate that a new TS is the appropriate solution to provide the additional transformer capacity for the Dunnville area. The new TS could be owned either by Haldimand County Hydro Inc. ("**HCHI**") or Hydro One Networks Inc. ("**HONI**").

Background Information

a) Distribution Service Area

HCHI is distributes electricity pursuant to electricity distribution licence (ED-2002-0539). Its Distribution Service Area is specified as "*The Corporation of Haldimand County as defined in the Town of Haldimand Act, 1999, excluding the consumer located at 2330 Regional Road 3*". Appendix A contains a map of Haldimand County and accordingly depicts the service territory of HCHI. Haldimand County is located on the north shore of Lake Erie, situated between Norfolk County, Mississaugas of the New Credit First Nation Territory, Six Nations of the Grand River Territory, County of Brant, City of Hamilton, and Niagara Region.

HCHI's service area size, at 1252 square km, is the third largest of the LDCs[1] in Ontario with very long feeders and limited capacity to transfer load between transformer stations. The HCHI service territory includes a rural area of 1216 km^2 and six communities totalling 36 km^2- Caledonia, Cayuga, Dunnville, Hagersville, Jarvis, and Townsend. The population of Haldimand County is 45,212 with a density of 36.1 persons per square km according to the 2006 census.

b) Distribution System

HCHI owns and operates the electricity distribution system in its licensed service area; serving approximately 21,065 Residential, General Service, Street Lighting, Sentinel Light and Unmetered Scattered Load customers and one Embedded Distributor.

HCHI is supplied through the HONI transmission system from 3 transformer stations (Caledonia, Jarvis and Dunnville) at a primary voltage of 27.6 kV. Electricity is distributed through HCHI's service area over 89 road km of underground cable and 1,634 road km of overhead primary circuits. HONI also owns 87 road km of distribution line in Haldimand County that serves HCHI's customers. Primary voltage is stepped down from 27.6 kV to 8.32 kV or 4.16 kV through 5 HCHI-owned distribution stations and about 100 overhead step-down transformers (commonly called rabbits), as well as 2 HONI-owned distribution stations to service General Service and Residential customers. Voltage is stepped down

[1] Hydro One Networks Inc. and Algoma Power are larger according to the OEB Yearbook for 2009.

from the 27.6 kV, 8.32 kV, and 4.16 kV primary feeders through approximately 7,127 LDC-owned distribution transformers. HCHI has a long term plan to convert all of its primary lines to 27.6/16 kV.

c) Existing Transformers Stations

There are 3 HONI owned Transformer Stations (TSs) currently serving HCHI customers as follows:

- Caledonia TS: 50/67/83 MVA
- Jarvis TS: 50/67/83 MVA
- Dunnville TS: 18.7 MVA, 10 day Limited Time Rating (LTR) 23.3 MVA.

Each of the three TS also serve HONI customers outside Haldimand County and two of the three, Caledonia and Jarvis TS, supply HONI customers inside Haldimand County. The map in Appendix A shows the approximate geographical area currently supplied by each transformer station. Appendix A also shows the approximate geographical area which could normally be supplied from a new TS.

Need for additional Transformer Station Capacity

The need for additional transformer station capacity is evident from the existing loading on the Dunnville TS and the potential for distributed generation. The need for a solution to the Dunnville TS capacity constraints has been recognized by HONI and the IESO.

1. Loading on Dunnville TS has been consistently above LTR since 1998 according to information provided by Hydro One up to 2005 as follows:

1998	1999	2000	2001	2002	2003	2004	2005
22.0	26.9	23.9	25.8	27.1	25.5	25.6	28.4I

2. With its large rural service area HCHI has experienced significant interest from distributed generators during the Renewable Energy Standard Offer Program (RESOP) and the microFIT and FIT Programs. A summary is provided below:

   - Connected or allocated capacity: 38.6 MW
   - Rejected projects[2]: 87.7 MW
   - Additional Potential Projects: 203.4 MW

3. HONI has proposed to expand the Dunnville TS. A report entitled *"The Ontario Reliability Outlook"* issued by the IESO in December, 2009 included the following on pages 20 & 21:

[2] The applications for connection were rejected due to transformer station or transmission constraints.

TABLE 2: REGIONAL REQUIREMENTS – PROJECTS CURRENTLY UNDER STUDY OR PROPOSED

This table lists the projects that Hydro One is actively pursuing. Some of these projects have already been committed and are planned to be in service within the next two to three years. Others are in the design phase and are expected to be placed in service in the following decade.

AREA	RELIABILITY NEEDS IN THE AREA	EXPECTED/ REQUIRED BY	PROJECT(S) PROPOSED TO MEET THE REQUIREMENT
		Fall-2013	Dunnville TS: Replace two 18.7MVA transformers with 41MVA units

Benefits of a New TS

The proposed construction of the 230kV transmission line in the geographic centre of Haldimand County provides a number of potential benefits as it would permit a fourth TS. The benefits include:

1. The fourth TS would be located approximately equidistant from the Caledonia, Jarvis and Dunnville TS (see Appendix A).

2. A new TS would shorten the 27.6kV feeder lines out of the Caledonia, Jarvis and Dunnville TS. This would improve reliability and voltage stability and would permit the removal of the 15 MVA Decewsville Regulating Station.

3. A new TS supplied from the 230 kV system would allow for parallel connecting of 27.6 kV feeder lines between TSs which is not possible between a 230 kV supplied TS and a 115 kV supplied TS.

4. Dunnville TS is supplied by a very long radial 115 kV transmission line from Allanburg to Saint Anns Junction to Dunnville as depicted in Appendix B. HCHI is not aware of the exact route or distance but it is likely in the order of 50 km. This length means it is subject to significant outage hazards.

5. The 115 kV line supplying Dunnville TS is old and nearing its end of life. HCHI cannot confirm its precise age but a dating imprint on one pole states 1963 so it is likely in the order of 48 years old.

6. The intended, but not yet fully completed, supply configuration to Dunnville TS is likely unique in Ontario. In 2004 Hydro One undertook its *"Niagara Area Reinforcement Project"* which was to construct a double circuit 230 kV line from Beck and Allanburg TSs to Middleport Switching Station. The following is extracted from a Hydro One document dated October 26, 2004 (copy attached in Appendix C):

"Background

Dunnville TS is normally supplied from 115 kV circuit Q2AH. When Q2AH circuit is not available due to sustained outages (planned and forced), Dunnville TS is annually transferred to 115 kV alternate supply circuit A11. With the proposed Niagara Area Reinforcement there would be a change in the alternate supply configuration. The section of A11 circuit that provides alternate supply to Dunnville TS will be removed and rebuilt with a new 230 kV double circuit line. Appropriate switching arrangements will be put in place so that Dunnville TS could be transferred to one of the new 230 kV circuits when the main supply (Q2AH) is not available due to sustained outages."

Even when the double circuit 230 kV line is completed, the contingency backup plan, as outlined in this document, is to de-energize one of the 230 kV circuits and re-energize part of it at 115 kV to supply Dunnville TS. While this may have been an acceptable compromise at that time, its practicality is questionable and certainly assumes the 230 kV line will be interruptible to accommodate the temporary contingency needs of Dunnville TS at any specific indeterminate time of need.

While a new station does not change the backup situation for Dunnville TS it seems appropriate to limit this situation to the current size of Dunnville TS. Rebuilding the 20 km or so 115 kV line between St Ann's Junction and Dunnville TS to 230 kV is an alternative quality solution but, to our knowledge, this has not been considered by HONI as a possible solution.

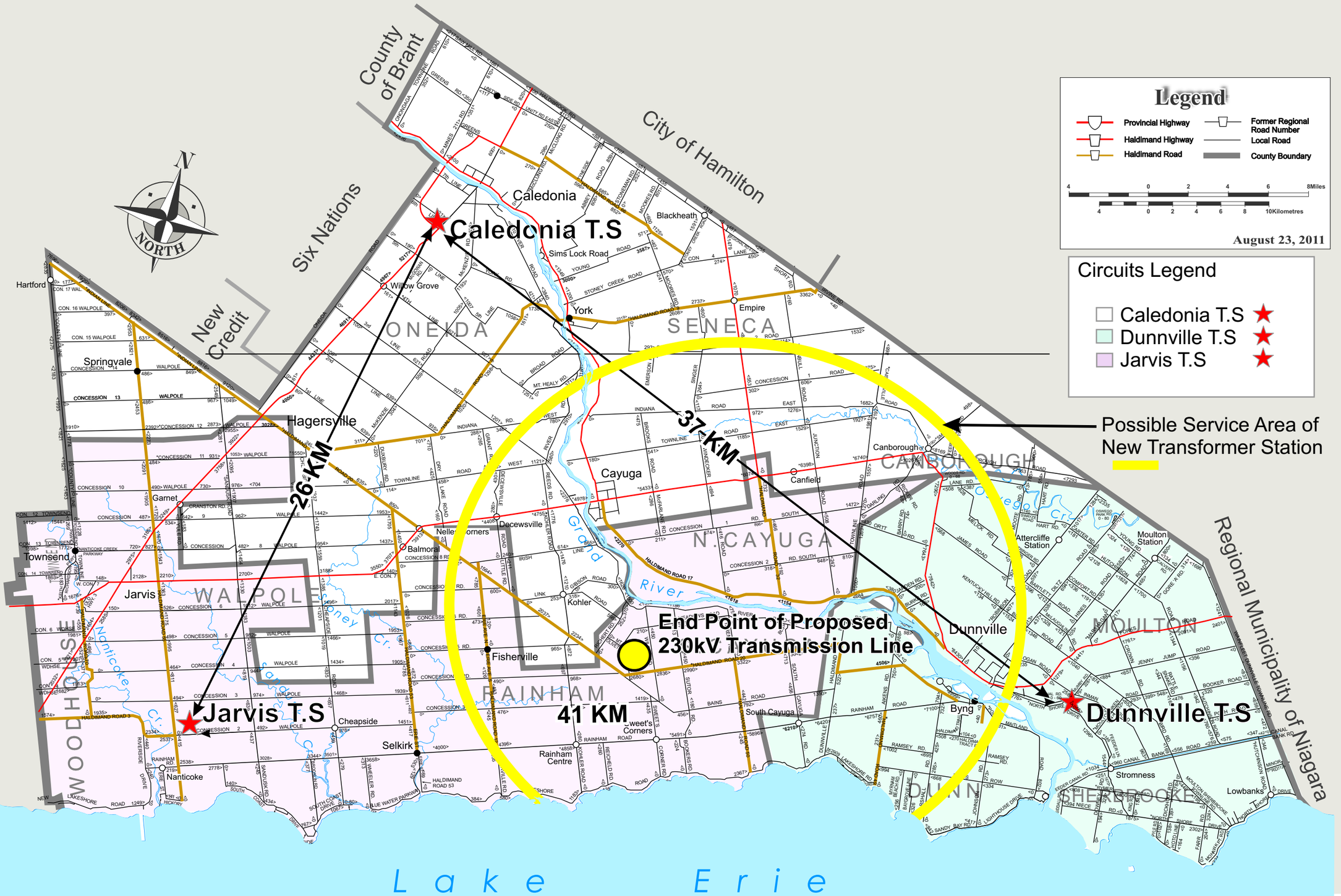
7. The ability to connect distributed generation is constrained by the Dunnville TS and by upstream transmission constraints. The following extract is taken from the HONI published "Hydro One List of Station Capacity" dated July 29, 2011 as posted on the HONI website:

Station Name	Bus Name	Feeder Name	Voltage (kV)	Minimum Load (MW)	Short Circuit Capacity (MVA)	Thermal Capacity (MW)
CALEDONIA TS	BY	M3, M4, M5, M6	27.6	15.1	0.0	55.1
DUNNVILLE TS	BY	M1, M2	27.6	3.4	TC*	12.4
JARVIS TS	BY	M1, M2, M3, M4, M5, M6, M7	27.6	27.6	40.0	67.6

* "TC" means "Transmission Constraints"

8. A new 230 kV TS with capability to parallel feeders from other 230 kV TSs will provide capability necessary for Smart Grid types of improvements.

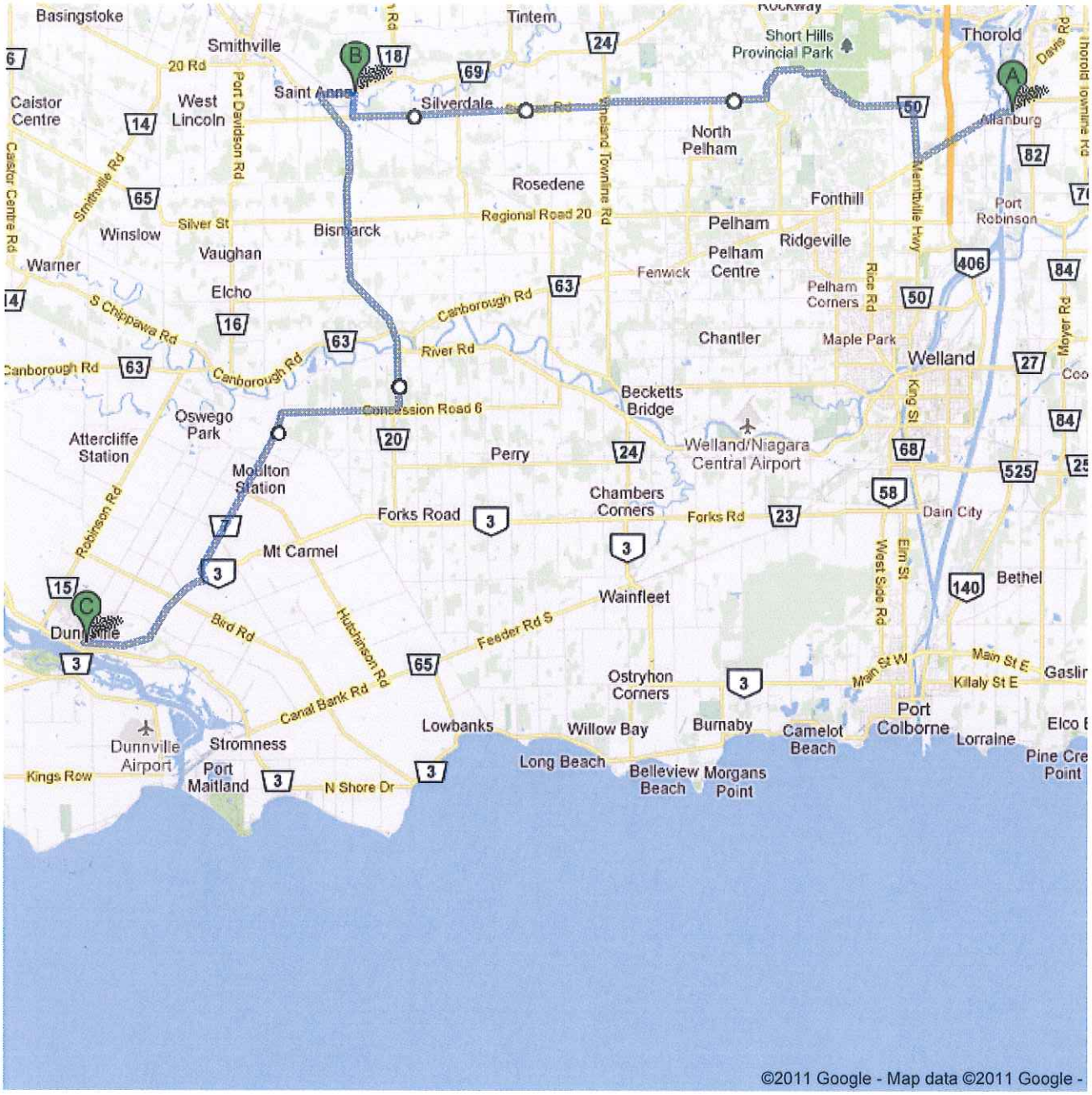
Plan Depicting Area Served by Feeders/Substations off Each of the 3 Transformer Stations in Haldimand County



APPENDIX B

Google maps Canada

Directions to Dunnville, ON
58.5 km – about **1 hour 23 mins**



APPENDIX C

October 26, 2004

Supply Configuration to Dunnville TS

Background

Dunnville TS is normally supplied from 115 kV circuit Q2AH. When Q2AH circuit is not available due to sustained outages (planned and forced), Dunnville TS is manually transferred to 115 kV alternate supply circuit A11. With the proposed Niagara Area Reinforcement there would be a change in the alternate supply configuration. The section of A11 circuit that provides alternate supply to Dunnville TS will be removed and rebuilt with a new 230 kV double circuit line. Appropriate switching arrangements will be put in place so that Dunnville TS could be transferred to one of the new 230 kV circuits when the main supply (Q2AH) is not available due to sustained outages.

A) Existing supply configuration:

1. Dunnville TS is normally supplied from circuit Q2AH. When Q2AH circuit is not available due to prolonged sustained outages (planned and forced), Dunnville TS is manually transferred to A11 circuit.
2. Supply transfer to A11 is implemented by a travelling line crew by first opening normally closed disconnect switch 91Q2AH and then by closing the normally open 91Q2A-A11 disconnect switch located near the St. Ann's Jct.
3. Supply transfer to A11 circuit is implemented only when Q2AH sustained outages are expected to be longer than 6 hours.
4. One line crew is needed to manually transfer Dunnville TS supply from Q2AH to A11 circuit.

B) New Supply Configuration due Niagara Area Reinforcement

Dunnville TS will continue to be normally supplied from circuit Q2AH as in the existing configuration. In the new configuration with Niagara Area Reinforcement, when normal supply to Dunnville TS is not available due to prolonged sustained outages (forced or planned), an isolated section of the Q32AM circuit connected to 115 kV circuit available at Caledonia TS will supply Dunnville TS. Key components of this alternate supply configuration are:

1. As part of the Niagara Area Reinforcement, build a new 230 kV Q32AM circuit between Allanburg TS and Caledonia TS on the same right-of-way where the existing A11 circuit is presently located.
2. Install a motorized 230 kV disconnect switch at Allanburg West JCT.
3. Replace the existing 115 kV manually operated 91Q2A-A11 disconnect switch (normally open) located near the St. Ann's Jct. (normally open) with a 230 kV manually operated switch (normally open).
5. When Q2AH circuit is not available due to sustained outages (planned and forced), Dunnville TS is manually transferred to Q32AM circuit:
   - Isolate Q32AM circuit from Middleport TS
   - Isolate Q32AM circuit from Allanburg West Jct.
   - Open manually 91Q2AH disconnect switch.
   - Close manually 230 kV disconnect switch (replacing 115 kV 91 Q2A-A11 switch) at St. Ann's Jct.
   - Close a remote control motorized 230 kV disconnect switch (normally open) at Caledonia TS to establish 115 kV supply from Caledonia TS.
     This disconnect switch to be installed on one of the 115 kV supplies, C9 or C12, at Caledonia TS. Note that charging current considerations may require switching / energization via the 115 kV breaker at Caledonia TS.

6. With above proposal only one crew would be required, as at present, for switching Dunnville TS from Q2AH circuit to Q32AM circuit when Q2AH is not available due to prolonged sustained outages under the new configuration.
7. Supply transfer time from Q2AH to Q32AM circuit by manual switching is not expected to be different from the one under the existing operating procedure.

Dunnville TS Alternate Supply Via Caledonia TS