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LOCAL PLANNING REPORT

ERINDALE TS T1/T2 DESN

CAPACITY RELIEF

GTA WEST – SOUTHERN SUBREGION

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Disclaimer

This Local Planning Report was prepared for the purpose of developing wires-only options and recommending preferred solution(s) to address local needs identified in the Needs Assessment and Scoping Assessment Reports for GTA West – Southern Subregion that do not require further coordinated regional planning. The preferred solution(s) that have been identified through this Local Planning Report may be reevaluated based on the findings of further analysis. The load forecast and results reported in this Local Planning Report are based on the information and assumptions provided by study team participants.

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LOCAL PLANNING EXECUTIVE SUMMARY

REGION	GTA West Southern Subregion
LEAD	Hydro One Networks Inc. (HONI)
1. INTRODUCTION	
<p>The purpose of this Local Planning (LP) report is to develop wires-only solutions to address local needs identified in GTA West Southern Subregion. The development of the LP report is in accordance with the regional planning process as set out in the Planning Process Working Group (PPWG) Report to the Ontario Energy Board's (OEB) and mandated in the Transmission System Code (TSC) and Distribution System Code (DSC).</p> <p>The Needs Assessment process for GTA West Southern Subregion, completed in May 2014, identified potential needs in the subregion over the next ten years (2014 to 2023). One of these needs is a need for additional station capacity at Erindale TS T1/T2 DESN. The peak load at Erindale TS T1/T2 DESN has reached the DESN's capacity, and is expected to exceed it by up to 40 MW by 2023.</p> <p>The Scoping Assessment process, completed in September 2014, concluded that the Erindale TS T1/T2 DESN station capacity need can be addressed by a Local Planning process between HONI and the affected LDCs, in this case Enersource Hydro Mississauga Inc.</p>	
2. LOCAL NEEDS ADDRESSED IN THIS REPORT	
<p>This report addresses the local need for additional transformation capacity at Erindale TS T1/T2 DESN.</p>	
3. OPTIONS CONSIDERED	
<p>(1) New DESN – Transfer some existing 27.6 kV load from Erindale TS to a new DESN (2) Load transfer – Transfer some existing 27.6 kV load from Erindale TS to Trafalgar TS or Cooksville TS (3) New Distribution Station (DS) – Build a new 44/27.6kV DS. This DS will be supplied from a 44kV feeder out of one of the neighbouring DESNs in the area, like Erindale TS T3/T4 DESN, Churchill Meadows TS, or Tomken TS.</p>	
4. PREFERRED SOLUTION	
<p>Option (1) and (2) are not practical, due to relatively high project costs associated with (1) and the operational challenges of transferring the load in (2). Option (3) is the most feasible option and is currently being reviewed by Enersource. Under this option, Enersource will build a new 44/27.6kV DS.</p>	
5. NEXT STEPS	
<p>Enersource will assess and develop an implementation plan to build a new DS by the end of Q3 2015.</p>	

TABLE OF CONTENTS

Local Planning Executive Summary..... iii
Table of Contents..... iv
List of Figures and Tables..... iv
1 Introduction 1
2 Options Considered 2
3 Preferred Solution..... 3
4 Next Steps..... 4
5 References 5
6 Acronyms..... 6

LIST OF FIGURES AND TABLES

Figure 1. GTA West Southern Subregion Single Line Diagram 2
Table 1. Solutions and Timeframe..... 4

1 INTRODUCTION

The Needs Assessment process for GTA West Southern Subregion, completed in May 2014, identified potential needs in the subregion over the next ten years (2014 to 2023). One of these needs is a need for additional station capacity at Erindale TS T1/T2 DESN. The peak load at Erindale TS T1/T2 DESN has reached the DESN's capacity, and is expected to exceed it by up to 40 MW by 2023.

The Scoping Assessment process, completed in September 2014, concluded that the Erindale TS T1/T2 DESN station capacity need can be addressed by a Local Planning process between HONI and the affected LDCs (i.e., Enersource).

This Local Planning report was jointly prepared by HONI and Enersource to assess a number of alternative solutions and provide a recommendation to meet this station capacity need.

Erindale TS Local Area

Erindale TS consists of 3 DESN's, namely:

- T1/T2 DESN, with 27.6 kV distribution voltage level, supplied by R14T and R17T
- T3/T4 DESN, with 44 kV distribution voltage level, supplied by R14T and R17T
- T5/T6 DESN with 44 kV distribution voltage level, supplied by R19TH and R21TH

R14T and R17T are 230 kV double-circuit lines connecting Trafalgar TS and Richview TS. R19TH and R21TH are 230 kV double-circuit lines connecting Trafalgar TS, Richview TS, and Hurontario SS. Single line diagram of the GTA West Southern Subregion is shown in Figure 1 below.

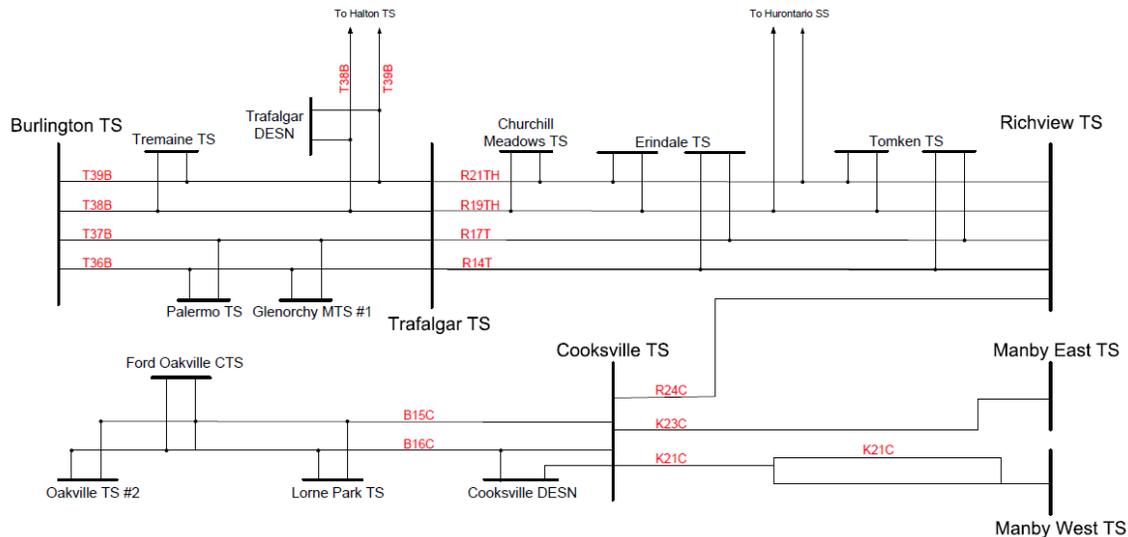


Figure 1. GTA West Southern Subregion Single Line Diagram

2 OPTIONS CONSIDERED

A number of options for providing the required relief, shown below, are being investigated. Any necessary infrastructure investment will be planned directly between Enersource and HONI.

Transmission Option:

- (1) **New DESN** – Transfer some existing 27.6 kV load from Erindale TS to a new DESN
 - Since the load is expected to be constant (no load growth) over the next 10 years, this option will be expensive and not economically viable.

Distribution Options:

- (2) **Load transfer** – Transfer some existing 27.6 kV load from Erindale TS to Trafalgar TS or Cooksville TS
 - Cooksville TS and Trafalgar TS are separated from Erindale T1/T2 by 44 kV service area. It would be operationally challenging and expensive to run a new 27.6 kV through 44 kV service territories.
- (3) **New Distribution Station (DS)** – Build a new DS to utilize extra 44 kV station capacity at Erindale TS T3/T4 DESN, Churchill Meadows TS, or Tomken TS to offload Erindale TS T1/T2 DESN
 - There is extra capacity available in the area 44 kV system that can be utilized by building a step down (44/27.6 kV) Distribution Station. This new DS will be supplied from a 44kV feeder. This is the most viable option that Enersource is currently

reviewing. Under this option, Enersource will build the new DS, own it, and recoup the costs through the distribution rates.

3 PREFERRED SOLUTION

This is primarily a distribution planning issue that will involve planning and building a new DS by the LDC to utilize the extra 44 kV station capacity available at the neighbouring stations, such as Erindale TS (T3/T4) DESN, Churchill Meadows TS, or Tomken TS. Enersource Hydro Mississauga will assess and develop an implementation plan to build a new DS by the end of Q3 2015.

4 NEXT STEPS

A summary of the next steps, actions/solutions and timelines required to address the local needs are as follows:

Table 1. Solutions and Timeframe

Item #	Need	Action / Recommended Solution	Lead Responsibility	Timeframe
1	Erindale TS T1/T2 DESN capacity	<ul style="list-style-type: none">Assess and develop an implementation plan to build a new DS	Enersource	End of Q3, 2015

5 REFERENCES

- i) GTA West Southern Subregion Need Assessment Report. Available online at:
<http://www.hydroone.com/RegionalPlanning/GTAWest/Documents/Needs%20Assessment%20Report%20-%20GTA%20West%20-%20Southern%20Subregion.pdf>
- ii) GTA West Southern Subregion Scoping Assessment Report. Available online at:
http://www.ieso.ca/Documents/Regional-Planning/GTA_West/Scoping-Assessment-Outcome-Report-September-2014.pdf

6 ACRONYMS

BES	Bulk Electric System
BPS	Bulk Power System
CDM	Conservation and Demand Management
CIA	Customer Impact Assessment
CGS	Customer Generating Station
CTS	Customer Transformer Station
DESN	Dual Element Spot Network
DG	Distributed Generation
DSC	Distribution System Code
GS	Generating Station
GTA	Greater Toronto Area
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Planning
kV	Kilovolt
LDC	Local Distribution Company
LTE	Long Term Emergency
LTR	Limited Time Rating
LV	Low-voltage
MW	Megawatt
MVA	Mega Volt-Ampere
NA	Needs Assessment
NERC	North American Electric Reliability Corporation
NGS	Nuclear Generating Station
NPCC	Northeast Power Coordinating Council Inc.
OEB	Ontario Energy Board
OPA	Ontario Power Authority
ORTAC	Ontario Resource and Transmission Assessment Criteria
PF	Power Factor
PPWG	Planning Process Working Group
RIP	Regional Infrastructure Planning
SIA	System Impact Assessment
SS	Switching Station
TS	Transformer Station
TSC	Transmission System Code
ULTC	Under Load Tap Changer