October 30, 2015

BY EMAIL and COURIER

Ontario Energy Board
P.O. Box 2319,
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms. Walli,

Re: Annual Report Regional Planning Report East Lake Superior Region (EB-2011-0043)

The Transmission System Code requires an annual regional planning report from each transmitter as per section 3C.3.3 of the Code:

“3C.3.3 A transmitter shall submit an annual report to the Board, on November 1st of each year, that identifies the status of regional planning for all regions, and shall post the report on its website. The report shall include the status of investments in conservation and demand management, generation or both for each region for which an Integrated Regional Resource Plan has been completed, provided that this information has been provided to the transmitter by the OPA no later than October 1st of the year.”

In this regard, GLPT hereby files with the Board the following:

(i) Annual GLPT Regional Planning Report dated October 29, 2015

The annual report will be posted on GLPT’s web site (glp.ca) with the existing needs assessment report.
Great Lakes Power Transmission LP

Should you have any questions or concerns please contact the undersigned.

Yours truly,

Jim Tait
Director of Operations
Great Lakes Power Transmission LP
Phone: (705) 941-5652
Email: JTait@glp.ca

Att:
ANNUAL GREAT LAKES POWER TRANSMISSION LP (GLPT) REGIONAL PLANNING REPORT

Revision: FINAL R0
Date: October 30, 2015

Prepared for:

Jim Tait
Director of Operations
Great Lakes Power Transmission LP
ANNUAL GLPT REGIONAL PANNING REPORT

Background:

This report has been prepared to meet the Transmission System Code requirement for an annual regional planning report from each transmitter as per section 3C.3.3 of the Code:

“3C.3.3 A transmitter shall submit an annual report to the Board, on November 1st of each year, that identifies the status of regional planning for all regions, and shall post the report on its website. The report shall include the status of investments in conservation and demand management, generation or both for each region for which an Integrated Regional Resource Plan has been completed, provided that this information has been provided to the transmitter by the OPA no later than October 1st of the year.”

The GLPT transmission System is completely within one region, the East Lake Superior Region (ELSR).

Status of the ELSR Regional Planning:

The Needs Screening Report for ELSR was undertaken in 2014 and was completed when the report was issued December 12, 2014 and posted on the GLPT web-site (glp.ca).

This needs screening report recommended that the three issues identified do not require further regional planning; therefore, no Integrated Regional Resource Plan was pursued by the IESO (formerly the OPA). Because there is no IRRP being undertaken there is nothing to report associated with status of investments in conservation and demand management, generation or both for this region.

GLPT continues to work on the three issues which require “localized” wire only solutions with joint planning between GLPT and the impacted customer or distributor.

1) For the Anjigami TS/Hollingsworth TS 44 kV system, GLPT has applied to the IESO for an System Impact Assessment associated with a new transmission station connected near Hollingsworth TS to supply the new customer load. GLPT is working with the Distributor and IESO to study the impact of the connection of this new transmission station.

2) For the Algoma lines and Sault Ste. Marie system the existing customer has applied to the IESO for a System Impact Assessment associated with a new customer transformer to be connected to the existing GLPT Steelton TS. GLPT is working with the customer and IESO to study the impact of the connection of this new transformer.
3) GLPT is working with the customer to review and finalize its restoration of load strategy after a single supply transformer failure which would interrupt customer load.

Posting of Annual GLPT Planning Report

This annual report will be posted on GLPT’s web site (glp.ca) with the GLPT Needs Assessment Report dated December 12, 2014.
NEEDS ASSESSMENT REPORT

East Lake Superior Region

Revision: FINAL R0
Date: December 12, 2014

Prepared by: East Lake Superior Region Study Team
DISCLAIMER

This Needs Assessment Report was prepared for the purpose of identifying potential needs in the East Lake Superior Region and to assess whether those needs require further coordinated regional planning. The potential needs that have been identified through this Needs Assessment Report may be studied further through subsequent regional planning processes and may be re-evaluated based on the findings of further analysis. The load forecast and results reported in this Needs Assessment Report are based on the information and assumptions provided by study team participants.

Study team participants, their respective affiliated organizations, and Great Lakes Power Transmission LP (collectively, “the Authors”) make no representations or warranties (express, implied, statutory or otherwise) as to the Needs Assessment Report or its contents, including, without limitation, the accuracy or completeness of the information therein and shall not, under any circumstances whatsoever, be liable to each other, or to any third party for whom the Needs Assessment Report was prepared (“the Intended Third Parties”), or to any other third party reading or receiving the Needs Assessment Report (“the Other Third Parties”), for any direct, indirect or consequential loss or damages or for any punitive, incidental or special damages or any loss of profit, loss of contract, loss of opportunity or loss of goodwill resulting from or in any way related to the reliance on, acceptance or use of the Needs Assessment Report or its contents by any person or entity, including, but not limited to, the aforementioned persons and entities.
NEEDS ASSESSMENT SUMMARY REPORT

1. INTRODUCTION

The purpose of this Needs Assessment report is to undertake an assessment of the East Lake Superior Region (ELS-Region), determine if there are regional needs that would lead to coordinated regional planning. Where regional coordination is not required and a “wires” only solution is necessary such needs will be addressed among the relevant Local Distribution Companies (LDCs), GLPT and other parties as required.

For needs that require further regional planning and coordination, the Ontario Power Authority (OPA) will initiate the Scoping process to determine whether an OPA-led Integrated Regional Resource Planning (IRRP) process or the transmitter-led Regional Infrastructure Plan (RIP) process (wires solution) is required, or whether both are required.

2. REGIONAL ISSUES/TRIGGER

The Needs Assessment for the East Lake Superior Region was triggered in response to the Ontario Energy Board’s (OEB) new Regional Planning process approved in August 2013. To prioritize and manage the regional planning process, Ontario’s 21 regions were assigned to one of three groups, where Group 2 Regions are to be reviewed in 2014. East Lake Superior Region belongs to Group 2 and the Needs Assessment for this Region was triggered on October 12, 2014 and was completed on December 12, 2014.

3. SCOPE OF NEEDS ASSESSMENT

The scope of this Needs Assessment was limited to the next 10 years because relevant data and information was collected up to the year 2023. Needs emerging over the near-term (0-5 years) and mid-term (6-10 years) should be further assessed as part of the OPA-led Scoping Assessment and/or IRRP, or in the next planning cycle to develop a 20-year plan and strategic direction for the Region.

The assessment included a review of transmission system connection facilities capacity which covers station loading, thermal and voltage analysis, system reliability, operational issues such as load restoration and asset sustainment plans.
4. INPUTS/DATA (INFORMATION REQUIRED TO COMPLETE ASSESSMENT)

Study team participants, including representatives from Local Distribution Companies (LDC), the Ontario Power Authority (OPA), the Independent Electricity System Operator (IESO) and Hydro One Networks Inc. (Hydro One) provided information and input to GLPT for the East Lake Superior Region. The information provided includes the following:

- Actual 2013 regional coincident peak load, station non-coincident peak load and historical load provided by IESO;
- Historical net load and gross load forecast (which is the forecasted load from the historical net load) provided by LDCs and other Transmission connected customers;
- Conservation and Demand Management (CDM) and Distributed Generation (DG) data provided by OPA;
- Any known reliability and/or operating issues conditions identified by LDCs or the IESO;
- Planned transmission and distribution investments provided by the transmitter and LDCs, etc.

5. ASSESSMENT

The assessment’s primary objective over the study period (2014 to 2023) is to identify the electrical infrastructure needs in the region. The study reviewed available information, load forecast and conducted single contingency analysis to confirm need, if and when required. See Section 5 for further details.

6. RESULTS

A. 230kV Connection Facilities

- Based on the demand forecast, there is sufficient capacity at the one 230kV connected load station throughout the study period. No action is required at this time and the capacity needs will be reviewed in the next planning cycle.

- Based on the demand forecast over the study period, no overload or capacity need was identified for the loss of a single 230kV circuit in the region.

- East-West Tie lines are to be upgraded within the time period of this Needs Assessment. Hydro One’s Customer Impact Assessment (CIA) entitled “New East-West Tie Project” dated October 29, 2014 concludes there are no significant impact to customer in the area.

B. 230/115kV Autotransformers

- No overload or capacity issues were identified for the loss of any single 230kV/115kV autotransformer except the overload of No.3 Sault for loss of MacKay TS T2 which is mitigated by arming the MacKay TS Generation Rejection Scheme.
C. 115kV Connection Facilities

- Based on the demand forecast, there is sufficient capacity at all 115kV load stations throughout the study period except Hollingsworth (T2) /Angijami (T1) TS’s. The 44 kV system supplied by Hollingsworth TS T2 and Anjigami TS T1 will become overloaded due to a new large customer connecting to the 44 kV system late 2017.

- Loading on all 115 kV circuits is within assessment criteria limits throughout the study period except for the No.1, No.2 and No.3 Algoma lines that need to be studied further due to the increased demand forecast from one large industrial customer in Sault Ste. Marie projecting an increase in peak. This could be compounded in Sault Ste. Marie with the closure of Lake Superior Power Inc.’s LSP GS in 2014.

D. System Reliability, Operation and Restoration Review

- Generally speaking, there are no significant system reliability and operating issues identified for one element out of service in this region where there are two or more parallel elements.

- There is a concern about transformer failure in the region where there are some load stations with just one transformer supplying customer load. The Ontario Resource and Transmission Assessment Criteria (ORTAC) restoration criteria of 8 hours (plus travel time) cannot always be met for single transformer stations for a transformer failure. This is being studied at this time; however, it needs to be studied further.

E. Sustainment Replacement Plans

Significant sustainment activities are scheduled within the study period at the stations listed. The new equipment ratings at these stations were considered in this need assessment. Plans to replace major equipment do not affect the needs identified based on the demand forecast.

GLPT Stations
- Anjigami TS (equipment & relaying)
- Batchawana TS (equipment)
- Clergue TS (equipment)
- D.A. Watson TS (equipment)
- Goulais Bay TS (equipment)
- Hollingsworth TS (relaying)
- HWY 101 TS (relaying)
- Magpie TS (equipment)
- Steelton TS (equipment)

PUC Stations
- St. Mary’s TS (equipment & relaying)
7. RECOMMENDATION

The Team Recommends:

The potential need identified for the Anjigami TS/ Hollingsworth TS does not require further regional coordination. The study team recommends that “localized” wire only solution continue to be developed in the near-term to adequately and efficiently address the above need through planning between GLPT and the impacted distributor.

The potential needs identified regarding the capacity of the Algoma lines and the Sault Ste. Marie possible issues with the shutdown of LSP GS do not require further regional coordination. The study team recommends that a “localized wire only solution be developed in the near-term to address the above need through planning between GLPT and the impacted customer.

The potential need identified for the restoration of load (ORTAC 8 hours violated) after a single supply transformer failure does not require further regional coordination. The study team recommends that a “localized” wire only solution be developed by GLPT and the impacted distributor.

PREPARED BY: East Lake Superior Region Study Team

PARTICIPANTS: LISTED BELOW

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>NAME</th>
</tr>
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<tbody>
<tr>
<td>Great Lakes Power Transmission LP (Lead)</td>
<td>Jim Tait</td>
</tr>
<tr>
<td>Ontario Power Authority</td>
<td>Bob Chow</td>
</tr>
<tr>
<td>Independent Electricity System Operator</td>
<td>Phillip Woo</td>
</tr>
<tr>
<td>Hydro One Networks Inc. (Transmitter)</td>
<td>Ajay Garg</td>
</tr>
<tr>
<td>PUC Distribution Inc.</td>
<td>Rob Harten</td>
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<tr>
<td>Algoma Power Inc.</td>
<td>Greg Beharriell</td>
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<tr>
<td>Chapleau Public Utility Corporation</td>
<td>Alan Morin</td>
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</tbody>
</table>
TABLE OF CONTENTS

DISCLAIMER ................................................................................................................. 2
NEEDS ASSESSMENT SUMMARY REPORT .................................................................. 3
TABLE OF CONTENTS .................................................................................................... 7
LIST OF FIGURES AND TABLES .................................................................................... 8
1. INTRODUCTION ........................................................................................................... 9
2. REGIONAL ISSUE / TRIGGER .................................................................................. 10
3. SCOPE OF NEEDS ASSESSMENT ............................................................................. 11
3.1. EAST LAKE SUPERIOR REGION DESCRIPTION AND CONNECTION CONFIGURATION .......................................................... 11
4. INPUTS AND DATA ...................................................................................................... 12
4.1. LOAD FORECAST ..................................................................................................... 12
5. ASSESSMENT METHODOLOGY .................................................................................. 13
6. RESULTS ...................................................................................................................... 15
6.1. Transmission Capacity Needs .................................................................................. 15
6.1.1. 230kV Connection Facilities .............................................................................. 15
6.1.2. 230/115kV Autotransformers ............................................................................ 15
6.1.3. 115kV Connection Facilities .............................................................................. 15
6.2. System Reliability, Operation and Restoration Review ............................................. 15
6.3. Sustainment Replacement Plans .............................................................................. 16
6.4. Other Considerations .............................................................................................. 16
7. RECOMMENDATIONS ............................................................................................... 16
8. NEXT STEPS ............................................................................................................... 17
9. REFERENCES ............................................................................................................... 17
10. KEY TERMS AND DEFINITIONS ............................................................................. 17
11. ACRONYMS ................................................................................................................. 18
LIST OF FIGURES AND TABLES

Figure 1: East Lake Superior Region 11
Figure 2a – Wawa TS/Anjigami TS Northern Area 12
Figure 2b – MacKay TS South Central Area 12
Figure 2c – Sault Ste. Marie Southern Area 12
Figure 2d – GLPT and Hydro One 230 kV Eastern Area 12

Table 1: Study Team Participants for ELS-Region 10
Table 2: Annual Load Growth for ELS-Region 13
1. **INTRODUCTION**

This Needs Assessment report identifies needs in the East Lake Superior Region ("ELS-Region"). For needs that require coordinated regional planning, the OPA will initiate the Scoping process to determine the appropriate regional planning approach. The approach can either be the OPA-led Integrated Regional Resource Planning (IRRP) process or the transmitter-led Regional Infrastructure Plan (RIP), which focuses on the development of “wires” solutions. It may also be determined that the needs can be addressed more directly through localized planning between the transmitter and the specific distributor(s) or transmission connected customer(s). The development of the Needs Assessment report is in accordance with the regional planning process as set out in the Ontario Energy Board’s (OEB) Transmission System Code (TSC) and Distribution System Code (DSC) requirements.

This report was prepared by the ELS-Region Needs Assessment study team (Table 1) and led by the transmitter, Great Lakes Power Transmission LP (GLPT). The report captures the results of the assessment based on information provided by the Local Distribution Companies (LDCs), Ontario Power Authority (OPA), Hydro One Network Inc. and the Independent Electricity System Operator (IESO) to determine possible needs in the ELS-Region.

**Table 1: Study Team Participants for ELS-Region**

<table>
<thead>
<tr>
<th>Company</th>
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<tbody>
<tr>
<td>Great Lakes Power Transmission LP (GLPT) (Lead Transmitter)</td>
</tr>
<tr>
<td>Ontario Power Authority (OPA)</td>
</tr>
<tr>
<td>Independent Electricity System Operator (IESO)</td>
</tr>
<tr>
<td>Hydro One Networks Inc. (Hydro One) (Transmitter)</td>
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<td>PUC Distribution Inc. (PUC)</td>
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<tr>
<td>Algoma Power Inc. (API)</td>
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<tr>
<td>Chapleau Public Utility Corporation (CPUC)</td>
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</tbody>
</table>
2. **REGIONAL ISSUE / TRIGGER**

The Needs Assessment for the ELS-Region was triggered in response to the Ontario Energy Board’s (OEB) new Regional Infrastructure Planning process approved in August 2013. To
prioritize and manage the regional planning process, Ontario’s 21 regions were assigned to one of three groups, where Group 2 Regions are to be reviewed in 2014. The ELS-Region belongs to Group 2. The Needs Assessment for this ELS-Region was triggered on October 12, 2014 and was completed on December 12, 2014.

Additional information about Regional Planning can be found on the GLPT website: http://www.glp.ca/content/regional_planning_new/history-40236.html

3. SCOPE OF NEEDS ASSESSMENT

This Needs Assessment covers the ELS-Region over an assessment period of 2014 to 2023. The scope of the Needs Assessment includes a review of system capability which covers transformer station loading and transmission thermal and voltage analysis based on recent detailed studies. Asset sustainment issues and other considerations were taken into account as deemed necessary.

3.1. EAST LAKE SUPERIOR REGION DESCRIPTION AND CONNECTION CONFIGURATION

Figure 2a – Wawa TS/Anjigami TS Northern Area – Hydro One 230/115 kV autotransformers at Wawa TS, Hydro One 115 kV circuit supplying CPUC load and GLPT 115 kV lines and stations connected via Anjigami TS.

Figure 2b – MacKay TS South Central Area – GLPT 230/115 kV autotransformer at MacKay TS and 115 kV lines/stations connected via MacKay TS and two transformer stations connected to No. 3 Sault.
4. INPUTS AND DATA

In order to conduct this Needs Assessment, study team participants provided the following information and data to GLPT:

- Actual 2013 regional coincident peak load, station non-coincident peak load and historical load provided by IESO;
- Historical net load and gross load forecast (which is the forecasted load from the historical net load) provided by LDCs and other Transmission connected customers;
- Conservation and Demand Management (CDM) and Distributed Generation (DG) data provided by OPA;
- GLPT provided transformer, station and line ratings
- Hydro One provided Wawa TS autotransformer ratings
- Any known reliability and/or operating issues conditions identified by LDCs or the IESO;
- Planned transmission and distribution investments provided by the transmitter and LDCs, etc.

4.1. LOAD FORECAST

As per the data provided by the LDCs, the load in the ELS-Region is expected to grow at a rate varying from -0.1% to 2.5% plus some larger customer load increases.
Table 2: Annual Load Growth for ELS-Region

<table>
<thead>
<tr>
<th>LDC</th>
<th>Approximate % Growth Rate 2013 to 2018</th>
<th>Approximate % Growth Rate 2019 to 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUC</td>
<td>Slightly Negative</td>
<td>Slightly Negative</td>
</tr>
<tr>
<td>API</td>
<td>0.0 to 2.5%</td>
<td>0.0 to 2.5%</td>
</tr>
<tr>
<td>CPUC</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Large Industrial Customer Load Increases</th>
<th>Approximate MW Increase 2013 to 2018</th>
<th>Approximate MW Increase 2019 to 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sault Ste. Marie Southern Area</td>
<td>19.4</td>
<td>3.2</td>
</tr>
<tr>
<td>Wawa TS/Anjigami TS Northern Area</td>
<td>20.85</td>
<td>0</td>
</tr>
</tbody>
</table>

The Needs Assessment considered gross loads at individual stations based on the 2013 summer or winter peak non-coincident load and the peak summer or winter load forecast for stations within the Region. The station load forecast was developed by using data provided by the LDC’s load forecasts and other customer load forecasts.

5. ASSESSMENT METHODOLOGY

The following methodology and assumptions were made in this Needs Assessment:

1. The Region is winter peaking, but this assessment includes both summer and winter peak loads where one is more critical than the other due to equipment ratings.

2. Forecast loads are provided by the LDCs and other customers.

3. Stations having negative load growth over the study period are assumed to have steady load.

4. In developing a worst-case scenario, DG and CDM contributions were not considered.

5. Review and assess impact of any on-going or planned development project in the ELS-Region during the study period.

6. Review and assess impact of any critical/major elements planned/identified to be replaced at the end of their useful life such as autotransformers, cables and stations.
7. Station capacity adequacy is assessed assuming a 90% lagging power factor on the HV and non-coincident station loads.

8. Transmission line adequacy to be assessed using non-coincident peak station loads in the region.

9. The needs were first identified by looking at the total normal supply capacity (TNSC) of the elements that supply a specific LDC or other customer compared to the three month average peak over the last 5 years and the peak load over the last five years. This was used to identify any planning issues based on the existing peak loads. The 2023 peak load was then compared to the TNSC and if peak loads were greater than 75% of the TNSC for specific station/line(s), these station/line(s) were identified for further study. The TNSC takes into consideration one element out of service where load is not supplied via a single line/station.

10. Transmission adequacy assessment is primarily based on:

   - With all elements in service, the system is to be capable of supplying forecast demand with equipment loading within continuous ratings and voltages within normal range.
   - With one element out of service, the system is to be capable of supplying forecast demand with circuit loading within their continuous ratings and transformers within their summer 10-Day limited time ratings (LTR) if there are two transformers and 10 day LTR’s exist.
   - All voltages and voltage declines must be within pre- and post-contingency ranges as per ORTAC criteria.

11. The ELS-Region has a considerable amount of hydro generation connected to the 115 kV system and wind generation connected to the 230 kV system. Two new wind farms are in the process of connecting to the Gartshore 115 kV lines (58.3 MW) and K24G 230 kV lines (25.3 MW). Both have had recent detailed IESO System Impact Assessments (SIA) and GLPT Customer Impact Assessments (CIA) completed which did not identify concern in the area regarding overload of facilities. Generation in the area is generally more critical to line overload than LDC and other customer load. These studies were reviewed as part of this Needs Assessment process.

12. For the Sault Ste. Marie Southern section of the ELS-Region, the 98% dependability of generation from Clergue GS was used in this assessment. Clergue GS dependable generation was assumed to be 10 MW. This is based on an IESO Feasibility Study (Confidential) undertaken to assess the Algoma lines for adequate capacity.

This Needs Assessment was conducted to identify emerging needs and determine whether or not further coordinated regional planning should be undertaken for the Region or electrical areas. It is expected that further studies in the subsequent regional planning process will undertake detailed analysis and also assess ORTAC performance requirements.
6. RESULTS

6.1. Transmission Capacity Needs

6.1.1. 230kV Connection Facilities
Based on the demand forecast, there is sufficient capacity throughout the study period at Echo River TS which is a 230kV connected load station. No action is required at this time and the capacity needs will be reviewed in the next planning cycle.

Based on the demand forecast over the study period, no overload or capacity need was identified for the loss of a single 230kV circuit in the region.

East-West Tie lines are to be upgraded in 2019. Hydro One’s CIA entitled “New East-West Tie Project’ dated October 29, 2014 concludes there are no significant impact to customers in the area. The Hydro One CIA assessed the Short-Circuit Impact, Voltage Impact and Supply Reliability Impact.

6.1.2. 230/115kV Autotransformers
No overload or capacity issues were identified for the loss of any single 230kV/115kV autotransformer except the overload of No.3 Sault for loss of MacKay TS T2 which is mitigated by arming the MacKay TS Generation Rejection Scheme.

6.1.3. 115kV Connection Facilities
Based on the demand forecast, there is sufficient capacity at all 115kV load stations throughout the study period except Hollingsworth (T2) /Angijami (T1) TS’s. The 44 kV system supplied by Hollingsworth TS T2 and Anjigami TS T1 will become overloaded due to a new large customer connecting to the 44 kV system late 2017.

Loading on all 115 kV circuits is within assessment criteria limits throughout the study period except for the No.1, No.2 and No.3 Algoma lines that need to be studied further due to the demand forecast from one of the other customer in Sault Ste. Marie projecting an increase in peak load. This could be compounded in Sault Ste. Marie with the closure of Lake Superior Power Inc.’s LSP GS in 2014.

6.2. System Reliability, Operation and Restoration Review
Generally speaking, there are no significant system reliability and operating issues identified for one element out of service in this region where there are two or more parallel elements.

There is a concern about transformer failure in the region where there are many load stations with just one transformer supplying customer load. The ORTAC restoration criteria of 8 hours (plus travel time) cannot always be met for single transformer stations for a transformer failure. This is being studied at this time; however, it needs to be studied further.
6.3. Sustainment Replacement Plans

Significant sustainment activities are scheduled within the study period at the stations listed. The new equipment ratings at these stations were considered in this need assessment. Plans to replace major equipment do not affect the needs identified based on the demand forecast.

GLPT Stations
- Anjigami TS (equipment & relaying)
- Batchawana TS (equipment)
- Clergue TS (equipment)
- D.A. Watson TS (equipment)
- Goulais Bay TS (equipment)
- Hollingsworth TS (relaying)
- HWY 101 TS (relaying)
- Magpie TS (equipment)
- Steelton TS (equipment)

PUC Stations
- St. Mary’s TS (equipment & relaying)
- Tarentorus TS (equipment & relaying)

6.4. Other Considerations

Restoration of most of the GLPT transmission system can be accomplished from a black start procedure which energizes the Sault Ste. Marie Southern Area load/generation and eventually up to MacKay TS South Central Area to load/generation and run as an island. It is expected that for the loss of Wawa TS T1 and T2 transformers and by configuration the Wawa TS/Anjigami TS Northern Area, the delay in restoration of GLPT connected load/generation can be greater than the ORTAC standard of 8 hours. There is a need to study if this area could be operated as an island until the supply from Hydro One Wawa TS can be restored.

7. RECOMMENDATIONS

The study Team Recommends:

7.1. The potential need identified for the Anjigami TS/ Hollingsworth TS does not require further regional coordination. The study team recommends that “localized” wire only solution be developed in the near-term to adequately and efficiently address the above need through planning between GLPT and the impacted distributor.

7.2. The potential needs identified for the Algoma lines and the Sault Ste. Marie possible issues with the shutdown of LSP GS does not require further regional coordination. The
The study team recommends that a “localized” wire only solution be developed by GLPT and the impacted customer.

7.3. The potential need identified for the restoration of load after a single supply transformer failure which could violate the ORTAC criteria of restoring load within 8 hours does not require further regional coordination. The study team recommends that GLPT and the impacted distributor continue to work on this need.

8. **NEXT STEPS**

Following the Needs Assessment process, the next regional planning step, based on the results of this report, are:

8.1. GLPT and the relevant LDC’s are to further assess and/or develop local wires solution as identified in the needs outlined in Section 7.1 and 7.3.

8.2. GLPT and the relevant customers will further assess and/or develop local wires solution as identified in the needs outlined in Section 7.2.

9. **REFERENCES**

Planning Process Working Group (PPWG) Report to the Board

IESO Ontario Resource and Transmission Assessment Criteria (ORTAC)

IESO Feasibility Study (Confidential) for Algoma Lines Redevelopment

IESO System Impact Assessment (SIA) Report and Addendum Report for Bow Lake Wind Farm (CAA ID#: 2010-392)

IESO System Impact Assessment Report and Addendum Report for Goulais Wind Farm (CAA ID#: 2010-397)

GLPT Customer Impact Assessment (CIA) Report for RTK Canada, ULC (Rentech) increased 44 kV load dated April 23, 2014.


10. **KEY TERMS AND DEFINITIONS**

Key terms and definitions associated with this Needs Assessment are cited here.
Normal Supply Capacity (NSC): The maximum loading that electrical equipment may be subjected to continuously under nominal ambient conditions such that no accelerated loss of equipment life would be expected.

Coincident Peak Load: The electricity demand at individual facilities at the same specific point in time when the total demand of the region or system is at its maximum.

Contingency: The prevalence of abnormal conditions such that elements of the power system are not available.

Conservation and Demand Management (CDM): Programs aimed at using more of one type of energy efficiently to replace an inefficient use of another to reduce overall energy use, and influencing the amount or timing of customers’ use of electricity.

Distributed Generation (DG): Electric power generation equipment that supplies energy to nearby customers with generation capacity typically ranging from a few kW to 25 MW.

Gross Load: Amount of electricity that must be generated to meet all customers’ needs as well as delivery losses, not considering any generation initiatives such as CDM and DG. It is usually expressed in MW or MVA.

Limited Time Rating (LTR): A higher than nameplate rating that a transformer can tolerate for a short period of time.

Load Forecast: Prediction of the load or demand customers will make on the electricity system.

Net Load: Net of generation (e.g. CDM and DG) deducted from the Gross load.

Non-Coincident Peak Load: The maximum electricity demand at an individual facility. Unlike the coincident peak, non-coincident peaks may occur at different times for different facilities.

Peak Load: The maximum load consumed or produced by a unit or group of units in a stated period of time. It may be the maximum instantaneous load or the maximum average load over a designated interval of time.

Total Normal Supply Capacity (TNSC): The maximum loading that electrical equipment may be subjected to post contingency (n-1) under nominal ambient conditions such that an acceptable accelerated loss of equipment life would be expected. For a single element supply system the TNSC equals the NSC.

11. ACRONYMS

CDM Conservation and Demand Management
CIA Customer Impact Assessment
DG Distributed Generation
DSC Distribution System Code
IESO Independent Electricity System Operator
IRRP Integrated Regional Resource Planning
kV Kilovolt
LDC Local Distribution Company
LTR Limited Time Rating
LV Low-voltage
MVA Mega Volt-Ampere
MW Megawatt
NA Needs Assessment
NSC Normal Supply Capacity
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
TNSC Total Normal Supply Capacity
TS Transformer Station
TSC Transmission System Code