



# **CONNECTION ASSESSMENT & APPROVAL PROCESS ASSESSMENT SUMMARY**

**Applicant: Hydro One Networks Inc.**

**Project: Detweiler TS – Replace 230-115kV  
Autotransformer T3**

**CAA ID: 2003-EX124**

**Long Term Forecasts & Assessments Department  
Consistent Information Set Department**

**Date: April 11, 2003**

## 1.0 Description of Proposal

Detweiler TS presently has three 230-115kV autotransformers supplying the 115kV system in the Waterloo-Kitchener-Guelph area. Autotransformer T3 is a 129/172/215MVA 228.8-116.9-13.3kV 3-phase autotransformer and is the lowest rated one among the three autotransformers at Detweiler TS.

The total demands in the Waterloo-Kitchener-Guelph area have experienced significant growth over the last few years. Over the last two summers, the total summer peak demands supplied from Detweiler TS surpassed the present summer station load meeting capability of about 450MVA. Hydro One Networks Inc., the *Connection Applicant*, is proposing to replace autotransformer T3 at Detweiler TS with a higher rated unit, which will increase the summer station load meeting capability to at least 568MVA. Station facilities, associated with autotransformer T3, will also be upgraded, if necessary, to accommodate the higher thermal capability of the new autotransformer.

The scheduled in-service date of the project is May 2004.

The new autotransformer has the following ratings:

Thermal Rating:	150/200/250MVA
Rated Voltage:	H – 236.8kV; L – 121kV; T – 13.4kV
Configuration:	3-Phase
Temperature Rise:	65°C
Connection:	H – Wye; L – Wye; T - Delta
Positive Sequence Impedance:	10% minimum @ 250 MVA
Off-load Taps:	248.6kV, 242.7kV, 236.8kV, 231.1kV, 225.5kV, and 220.1kV

## 2.0 Assessment

The total demands supplied from Detweiler TS have increased to a level that during summer peak load periods, the loss of autotransformer T4 would result in post-contingency power flow exceeding the 10-day limited time rating of autotransformer T3. The proposal will alleviate the autotransformer overload problem.

However, a transmission assessment study by the *Connection Applicant* and local distribution companies in the Kitchener, Waterloo, Cambridge, Guelph, and surrounding areas has identified that in addition to the autotransformer overloading problem, overloading of 115kV transmission circuits and unacceptable 115kV voltage at certain supply points would also occur in the very near future.

Although this proposal will solve the immediate overloading problem of autotransformer T3, unless other remedial actions to alleviate the voltage and transmission circuit overloading problems are implemented, the reliability of supply to the Kitchener-Waterloo-Cambridge-Guelph area will continue to deteriorate.

The *Connection Applicant* should therefore proceed with the other remedial actions identified in the joint transmission assessment study quickly.

## 3.0 Notification of Approval

Based on the above assessment, it is recommended that a Notification of Approval for this proposal be issued to the *Connection Applicant*.