



CONNECTION ASSESSMENT & APPROVAL PROCESS ASSESSMENT SUMMARY

Applicant: Hydro One Networks Inc.

**Project: R.H. Martindale TS – Replacement of 230kV
Oil Circuit Breaker L24L26**

CAA ID: 2002-EX053

Long Term Forecasts & Assessments Department

Date: August 15, 2002

Assessment Summary

Hydro One Networks Inc.

R.H. Martindale TS – Replacement of 230kV Oil Circuit Breaker L24L26

1.0 Description of Proposal

Hydro One Networks Inc. continuously assesses its current transmission and distribution assets to ensure that its transmission and distribution systems are performing at an acceptable level, are in compliance with any regulatory standards, and are capable of meeting its customers current and future needs. Hydro One Networks Inc. has identified and included in its '2002 Stations and Lines Sustainment Program' facilities that have to be refurbished or replaced.

One of the projects included in the 2002 sustainment program is the replacement of the existing 230kV 2000 amp oil circuit breaker L24L26 with a new SF₆ breaker. The location of the breaker that is to be replaced is identified in Diagram 1. There will not be any modification to other facilities or the protection system at the station.

The replacement SF₆ breaker is rated as follows:

Rated maximum voltage: 250kV
Rated current carrying capacity: 3000 amp continuous
Rated interrupting capability: 50kA symmetrical
Breaker interrupting time: 3 cycles

2.0 Assessment

There are a total of nine breakers at R.H. Martindale TS. Breaker L23T22 was replaced in 1992 and breakers PL24 and KT22 will be replaced later this year (approved by CAA ID 2002-EX025) by SF₆ breakers with the same ratings as the one that will replace L24L26. The remaining six breakers, including breaker L24L26, are oil 4-cycle circuit breaker with a 2000 amp continuous rating and an interrupting capability of 40kA symmetrical.

The new SF₆ breaker has higher ratings and represents about 25% improvement in interrupting capability over the existing breaker. Following the replacement of breaker L24L26, the fault clearing time for 230kV transmission circuit H24S and the 230-115kV transformer T23 will realize a very small improvement. But the overall station short circuit capability will remain at 40kA.

This project is essentially a like-for-like replacement of existing facilities and will have no adverse impact on the IMO controlled grid. However, it should be noted that while the 50kA interrupting capability of the replacement breaker would be adequate for possible future development in the area, it does not comply with the Transmission System Code requirement of having maximum fault interrupting capability of 63kA for new 230kV breakers. Should a third party initiate a development that increases the fault level at Martindale TS beyond 50kA, then Hydro One Networks Inc. would be expected to bear the cost of having to replace breaker L24L26 again.

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 applicant.

