



CONNECTION ASSESSMENT & APPROVAL PROCESS ASSESSMENT SUMMARY

Applicant: Hydro One Networks Inc.

**Project: Toronto Fairchild TS
Replace 34.5kV Oil Bus Tie Breaker BY**

CAA ID: 2002 – EX104

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

Date: February 17, 2003

1.0 Description of Proposal

Hydro One Networks Inc. is proposing to replace the existing 34.5kV 2000A 22kA oil bus tie breaker BY with a new SF₆ unit at Toronto Fairchild TS. Toronto Fairchild TS is connected to the 230kV double circuit Cherrywood TS to Richview TS transmission line C18/20R and is consisted of two Bermondsey type substation as shown in Figure 1. The low voltage bus tie breaker is normally operated open to limit the maximum short circuit level at the low voltage bus within 800MVA.

The proposed work has been included in the proponent's 2003 Breaker Replacement Program and is scheduled for completion in 2003.

The new replacement SF₆ breaker is rated as follows:

Maximum Voltage:	48.3kV
Continuous Current:	3,000A
Interrupting Capability:	31.5kA
Interrupting Time:	3 cycles

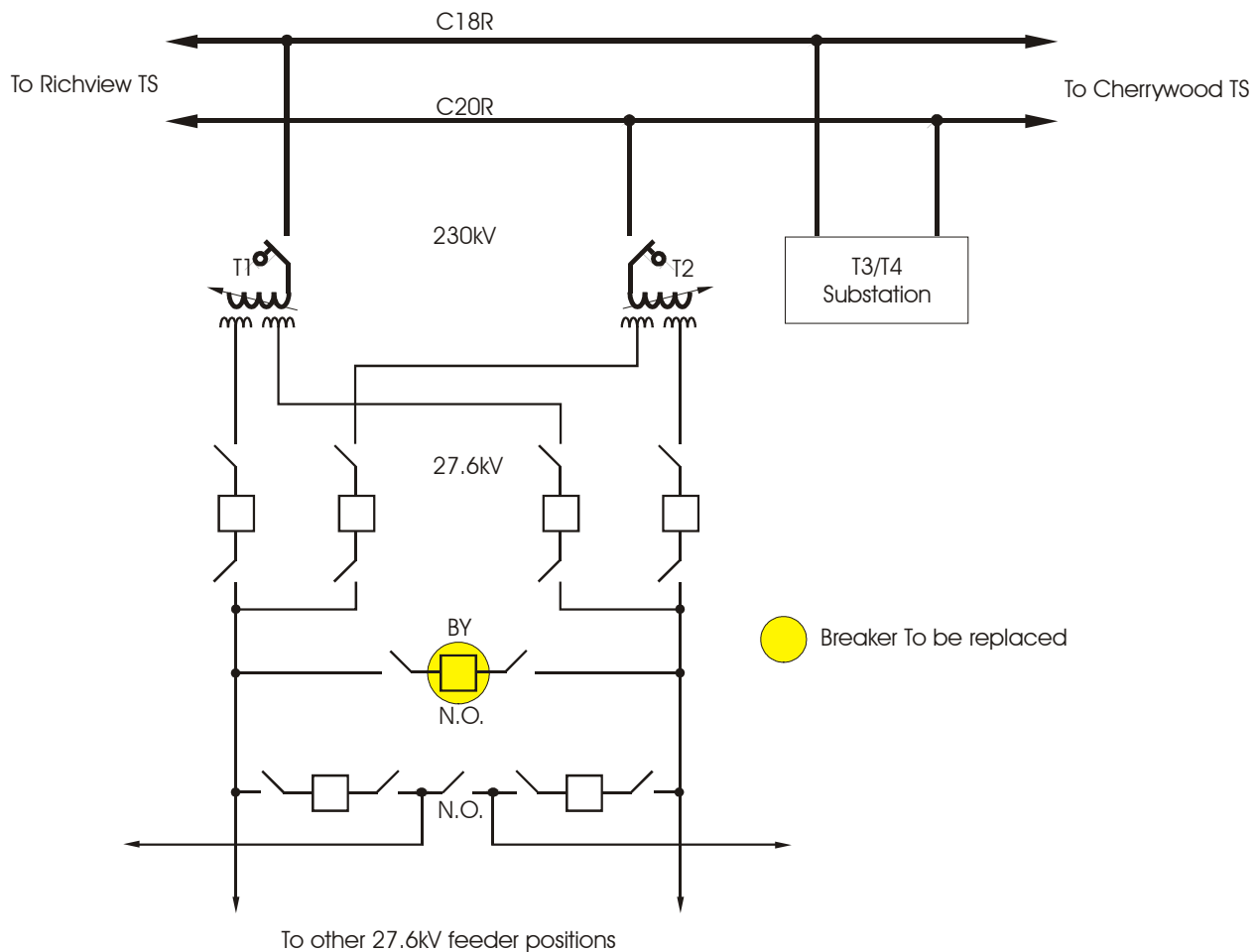


Figure 1: Toronto Fairchild TS

2.0 Assessment

The Toronto Fairchild TS is of ‘Bermondsey’ design, where two step-down transformers with dual secondary windings are connected parallel as shown in Figure 1. The low voltage bus tie breaker at this type of station is normally open to limit the maximum short circuit level at the low voltage bus below 800MVA. However, there are occasions when the bus tie breaker will be closed for a short duration to facilitate load or feeder transfers. During the short instances when the bus tie breaker is closed, the short circuit level at the low voltage bus could, depending on system conditions and configuration, reach 1500MVA or 31.4kA at 27.6kV.

The existing 34.5kV 2000A oil breaker with an interrupting capability of 22kA will be replaced with a new SF₆ unit with an interrupting capability of 31.5kA, which is adequate for the intended duty. The proposal is essentially a like-for-like replacement of existing facility and would have no adverse impact on the IMO-controlled grid.

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.