

December 16, 2008
Final Draft Report
Expedited System Impact Assessment
Hydro One Networks Inc.

1.0 GENERAL DESCRIPTION

Reactor breakers R2N at Hawthorne TS and R4N and R5N at Longwood TS are being replaced. As shown below in figures 1 and 2, the reactors and breakers are connected to the tertiary winding of the 500/240/28 kV transformers.

R2N is scheduled for an in-service date of December 30, 2008. R4N and R5N are scheduled for an in-service date of June 30, 2009. The existing configurations are shown below in Figures 1 and 2.

2.0 PROPOSED MODIFICATION

2.1 Breaker R2N at Hawthorne TS

A comparison between the technical specifications of the existing and replacement breaker R2N is given below in Table 1.

Breaker Comparison		
Hawthorne TS	Original R2N	Replacement R2N
Configuration	three phase	three phase
Rated Voltage	38 kV	138 kV
Maximum Continuous Voltage	38 kV	145 kV
Interrupting time	3 cycles	3 cycles
Interrupting media	SF6	SF6
Rated continuous current	4,000 A	4,000 A
Rated symmetrical short circuit capability	40 kA	40 kA
Description of Protection	The new breaker R2N must operate as required by Hydro One's Facility Description Document (FDD) #1014-R1 titled "Hawthorne Reactor Switching Scheme"	
Description of automatic switching		

Table 1 – Comparison of Breaker R2N at Hawthorne TS

2.2 Breakers R4N and R5N at Longwood TS

A comparison between the technical specifications of the existing and replacement breakers R4N and R5N is given below in Table 2.

Breaker Comparison		
Longwood TS	Original R4N & R5N	Replacement R4N & R5N
Configuration	three phase	three phase
Rated Voltage	38 kV	138 kV
Maximum Continuous Voltage	38 kV	145 kV
Interrupting time	3 cycles	3 cycles
Interrupting media	SF6	SF6
Rated continuous current	4,000 A	4,000 A
Rated symmetrical short circuit capability	40 kA	40 kA
Description of Protection	The new breakers R4N and R5N must operate as required by Hydro One's Facility Description Document (FDD) #1021-R1 titled "Longwood Reactor Switching Scheme"	
Description of automatic switching		

Table 2 – Comparison of Breakers R4N & R5N at Longwood TS

**Replacement of Hawthorne R2N; Longwood R4N & R5N
CA ID# 2008-EX410**

3.0 ASSESSMENT

The replacement breakers have a higher voltage rating (138 kV vs. 38 kV) than the original breakers.

4.0 CONCLUSIONS

The maximum voltage rating for the replacement breakers is sufficiently high and therefore, it can be concluded that the replacement breakers will have no material adverse effect on the reliability of the IESO-controlled grid.

5.0 REQUIREMENTS

Hydro One Networks Inc. must notify the IESO as soon as it becomes aware of any changes to the assumptions made in the connection assessment. The IESO will determine whether these changes require a re-assessment.

The Market rules (Chapter 4 section 7.4) require that transmitter shall provide the IESO on a continual basis with on-line monitored quantities as specified in Appendix 4.16. For this proposed project, the IESO will continue to require the status of the breaker.

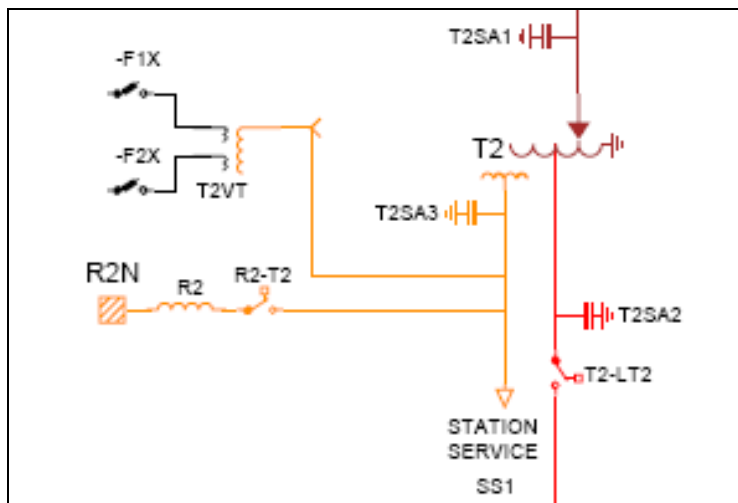


Figure 1 – R2N at Hawthorne TS

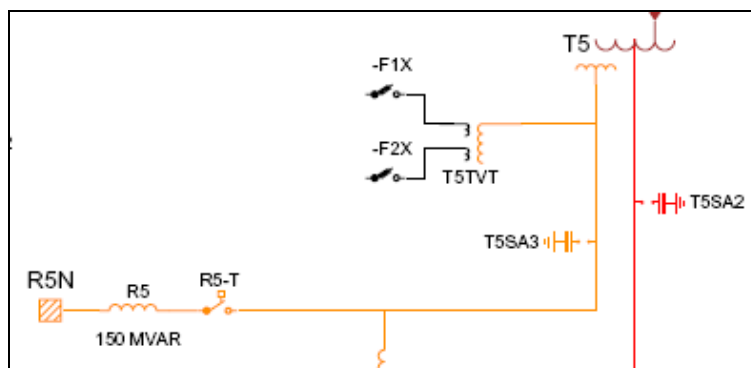


Figure 2 – R5N at Longwood TS