

February 10th, 2010

Mr. Farooq Qureshy,  
Manager – Central & East, Transmission Plans  
Hydro One Networks Inc.  
483 Bay Street, 15<sup>th</sup> Floor North Tower  
Toronto, Ontario  
M5G 2P5

Dear Mr. Qureshy:

*Hydro One Networks Inc. – Hawthorne TS Capacitor Switching Scheme  
Notification of Approval of Connection Proposal  
CAA ID Number: 2010-EX470*

Thank you for the information that you submitted regarding the modifications to the Hawthorne TS Capacitor Switching Scheme.

We have concluded that the proposed changes to the Hawthorne TS Capacitor Switching Scheme will not result in a material adverse impact on the reliability of the integrated power system.

The IESO is therefore pleased to grant **conditional approval** for the modification detailed in the attached assessment report. Any material changes to your proposal may require re-assessment by the IESO in accordance with Market Manual 2.10, and may nullify your conditional approval.

**Final approval** to connect the facility to the IESO-controlled grid will be granted upon successful completion of the IESO Market Entry process including, without limitation, satisfactory completion of the requirements set out in the addendum to the SIA report. During this process you will be expected to demonstrate that you have fulfilled the requirements and that the facility you have installed is materially unchanged from the proposal assessed by the IESO. Please refer to the 'External Guidelines for Connection to the IESO' attachment in your approval email for key steps in the Market Entry process. In order to initiate this process, please contact Market Entry at [market.entry@ieso.ca](mailto:market.entry@ieso.ca).

For further information, please contact the undersigned.

Yours truly,

Barbara Constantinescu  
Manager – Market Facilitation Department  
Telephone: (:905) 855-6405  
Fax: (905) 855-6372  
E-mail: [barbara.constantinescu@ieso.ca](mailto:barbara.constantinescu@ieso.ca)  
cc: IESO Records

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All information submitted in this process will be used by the IESO solely in support of its obligations under the *Electricity Act, 1998*, the *Ontario Energy Board Act, 1998*, the *Market Rules* and associated policies, standards and procedures and in accordance with its license. All information submitted will be assigned the appropriate confidentiality level upon receipt.

## HYDRO ONE NETWORKS INC. – HAWTHORNE TS CAPACITOR SWITCHING SCHEME IESO EXPEDITED SYSTEM IMPACT ASSESSMENT – 2010-EX470

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### 1. PROJECT DESCRIPTION

The Capacitor Switching Scheme at Hawthorne TS has been developed based on over-voltages that may occur at Hawthorne TS 230-kV buses (D & K buses) and HQ tie lines (A41T&A42T). The existing control logic of the Scheme, as shown in Fig. 1, has a deficiency that resulted in simultaneous tripping of the two 200-MVAr capacitor banks SC22 and SC23 at Hawthorne TS. The applicant is proposing the modifications to the Scheme to prevent simultaneous operation of these two capacitor banks. The modified control logic of the Scheme is shown in Fig. 2.

### 2. ASSESSMENTS AND CONCLUSIONS

As compared with the existing control logic, the revised control logic primarily eliminates the inputs of the in-service status of both capacitor banks SC22 and SC23. This is to prevent simultaneous operation of these two capacitor banks. The modification results in the following changes to the control performance of the Scheme:

- (1) If the capacitor bank that is selected to trip first is out of service before the disturbance, the switching of the other capacitor bank will be subject to 300 ms delay;
- (2) The initiation of the reactors' switching will no longer rely on the in-service status of capacitor banks SC22 and SC23. It will be controlled by a timer set for a 5s delay, hence allows the capacitor banks to be tripped first.

The above changes to the control performance will have no significant impact on the reliability of the IESO-controlled grid; therefore, we have concluded that the proposed modifications will not result in a material adverse impact to the reliability of the IESO-controlled grid.

### 3. NOTIFICATION OF APPROVAL

The IESO is pleased to grant **conditional approval** for the modifications. **Final approval** will be granted upon successful completion of the IESO Market Entry process.

Fig.1 Existing Hawthorne TS Capacitor Switching Scheme

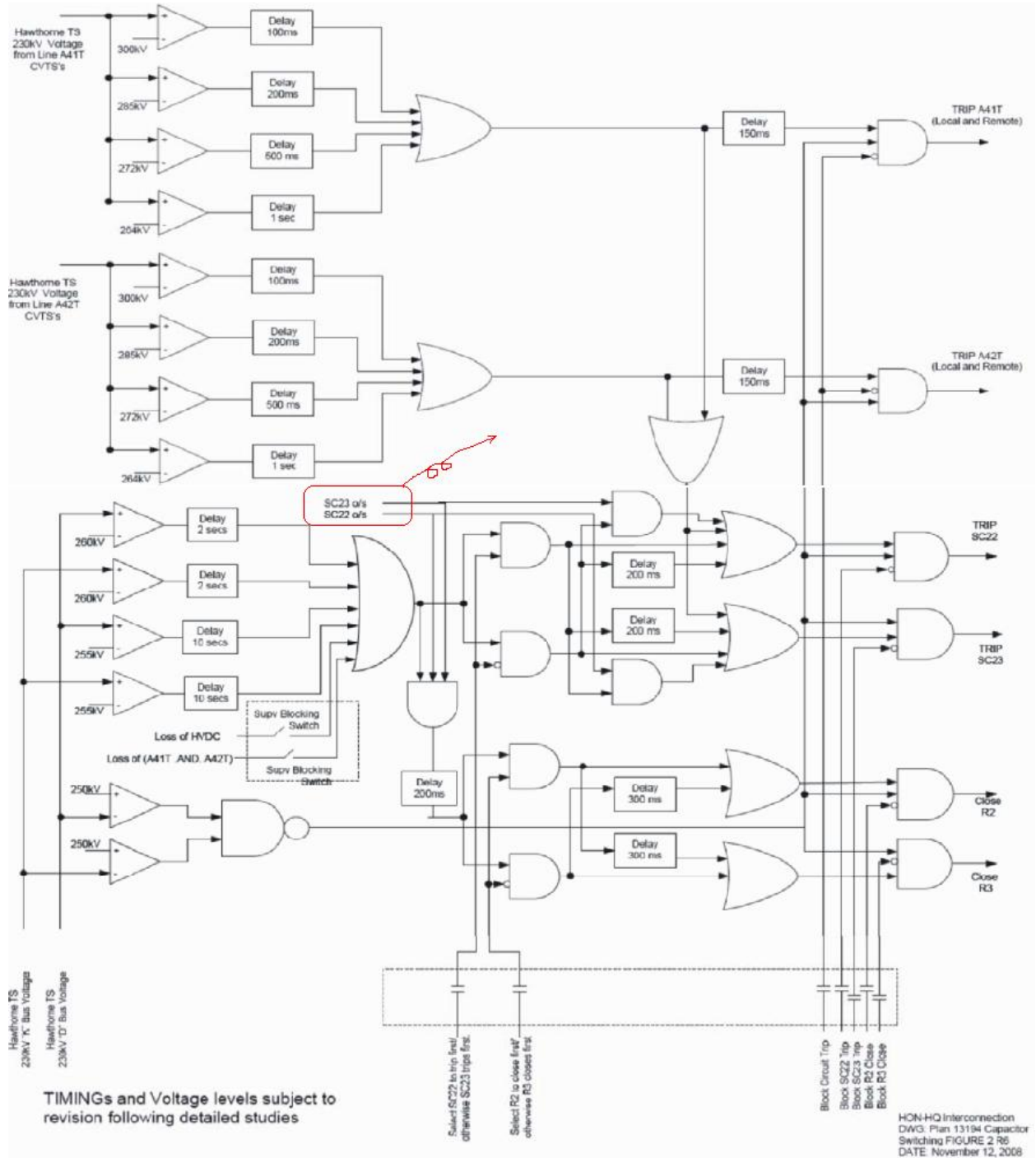
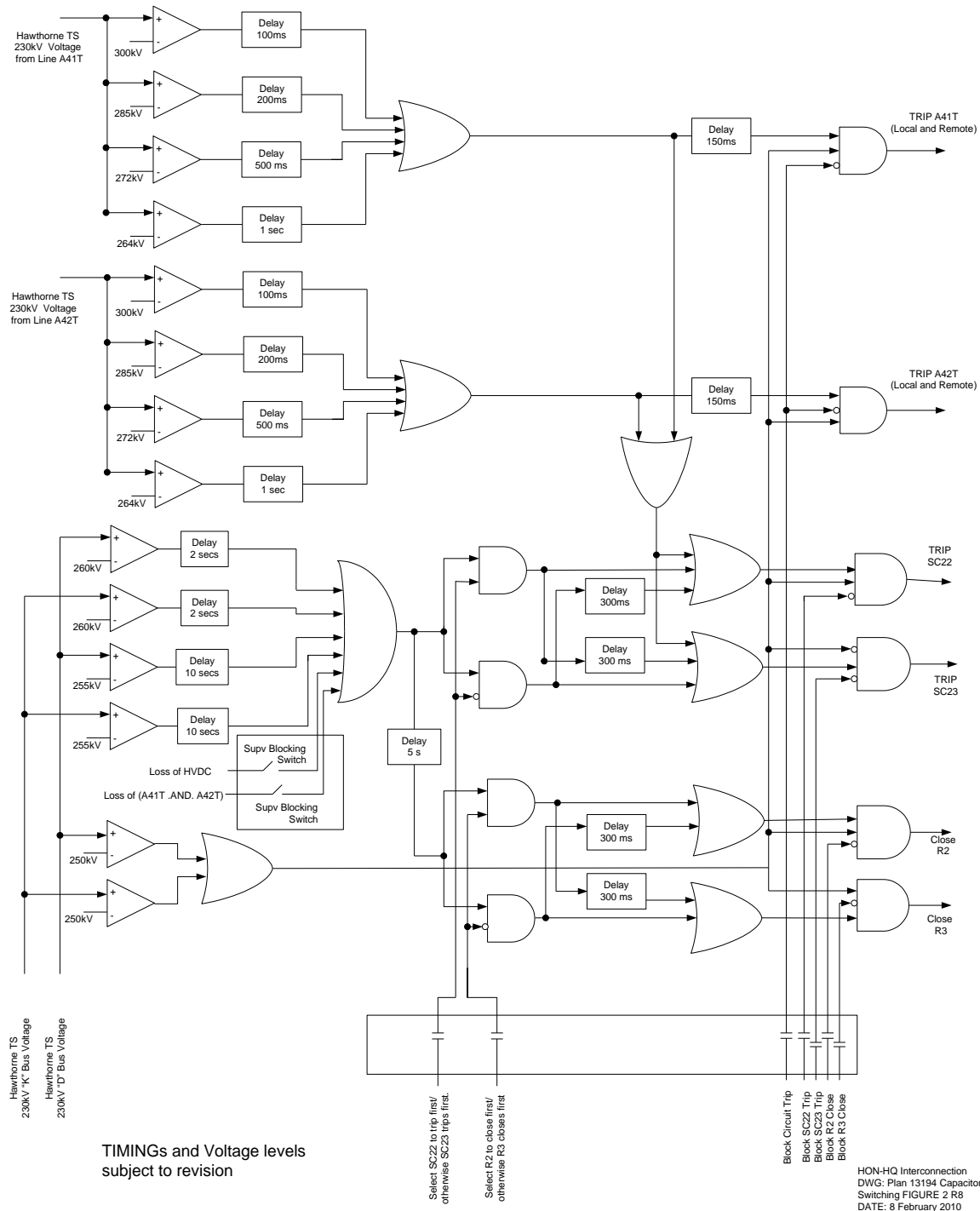


Fig. 2 Hawthorne TS – Capacitor Switching Scheme  
Proposed Modifications 8 February 2010



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