Q. The report Appendix C10, SNC Lavalin Stability Studies dated March 2012 filed by Hydro with the Application for Approval of the Upgrade of the Transmission Line Corridor included transient stability studies that showed load shedding taking place for faults other than bipole trips. Please explain why this happened and what will be done to prevent load shedding for those conditions.

A. The under frequency load shedding scheme model used in the SNC Lavalin Stability Studies was the current scheme. The under frequency load shedding scheme is being reviewed and will be modified to prevent load shedding for the conditions referenced.

The present under frequency load shedding scheme includes three rate of change of frequency (df/dt) blocks set to trip at 59.5 Hz when the df/dt equals 0.5 Hz/s, 0.6 Hz/s and 0.7 Hz/s respectively. The total peak load in the df/dt blocks equals 60 MW. A review of the SNC Lavalin study indicates that the df/dt relays did pick up and trip for certain faults where the change in frequency exceeded the relay set point. To prevent this load shedding once the Labrador-Island HVdc Link comes into service, the df/dt relays could be disabled and only the instantaneous under frequency load shedding relays utilized. A review of the transient stability study results indicate that the Island Interconnected System frequency did not fall below 58.8 Hz in any of the contingencies considered. The 58.8 Hz level is the frequency level at which the first stage of the existing instantaneous under frequency load shedding occurs on the Island Interconnected System. Given that the system frequency did not exceed the threshold for under frequency load shedding during the simulation, Hydro has concluded that load shedding can be avoided with proper setting of the under frequency load shedding relays with the Labrador-Island HVdc

Link in service. The simulations included as part of the Application for Approval of the Upgrade Transmission Line Corridor – Bay d'Espoir to Western Avalon demonstrated that with two 175 MVAR high inertia synchronous condensers in service at Soldiers Pond, for base cases in which the Labrador-Island HVdc Link was loaded such that it carried the required spinning reserve for loss of generation on the Island, under frequency load shedding was avoided for all contingencies studied other than the permanent bipole fault.