Q. Are there any load/generation patterns on the Island where the system survives a 3 phase fault at Bay d'Espoir, and will implementing the system reinforcements listed in DC 1220, section 2.4.3 change this result?

A. DC 1210 section 2.4.3 provides the system reinforcements for the Island system specific to an interconnected Island scenario including an HVdc transmission line between Labrador and the Island portion of the province as discussed in MHI-Nalcor-83. There are two loading scenarios where the isolated Island system maintains angular stability today for a 230 kV three phase fault at Bay d'Espoir with subsequent tripping of a 230 kV transmission line between Bay d'Espoir and Sunnyside. These loading scenarios are:

- Intermediate system load levels where in service Holyrood generators are operating at 80 MW or less; and
- Summer loading conditions where there are no units in service at Holyrood.

Simulations of the isolated Island system with the proposed 230 kV transmission line addition between Bay d'Espoir and Western Avalon reveal that angular stability is maintained for a 230 kV three phase fault at Bay d'Espoir with subsequent tripping of a 230 kV transmission line between Bay d'Espoir and Sunnyside.

For the continued isolated Island system, the most severe ac system fault is a 230 kV three phase fault at Holyrood. A 230 kV three phase fault at Holyrood will result in severe voltage dips to plant auxiliaries resulting in tripping of all on line generators and subsequent loss of angular stability. The system reinforcements

proposed under DC 1210 – “HVdc Sensitivity Studies” will not improve the angular stability of the isolated system for a 230 kV three phase fault at Holyrood.