Q. Further to the response to PUB-NLH-264, what would be the cost of restricting the operation of the Maritime Link so that the fault conditions studied in the report in Attachment 1 would not require curtailment of the Maritime Link?

A. As noted in Hydro's response to PUB-NLH-476, curtailment of the Maritime Link (ML) for issues associated with the Labrador - Island HVdc Link (LIL) is acceptable. As a result, curtailment of the ML is a primary component in maintaining Island Interconnected System stability for temporary and permanent pole and bipole faults on the LIL. Consequently, the curtailment of the ML as noted in Hydro's response to PUB-NLH-264 for these events is acceptable and no additional cost is warranted to avoid ML curtailment.

With respect to the 230 kV ac transmission system three-phase faults in western Newfoundland, the preliminary analysis included in Hydro's response to PUB-NLH-264 indicates that there is insufficient reactive power to maintain a ML export of 500 MW for the 230 kV faults if there is only 125 MVAR of reactive power capability per pole at the Bottom Brook converter. The analysis does demonstrate that for ML exports up to 250 MW there is sufficient reactive power capability at Bottom Brook such that curtailment of the ML is not required to maintain Island Interconnected System stability for 230 kV faults in western Newfoundland. It should be noted that the ML and its integration into the Island Interconnected System is based upon a firm ML export capability of 250 MW[1]. Exports above 250 MW are deemed to be non-firm, and as such, interruption or curtailment of these exports for single

[1] The ML firm export capability of 250 MW was agreed to as between Nalcor and Emera as per the Maritime Link Transmission Services Agreements. This amount has been confirmed through transmission planning studies. "Firm" from the transmission planning perspective requires the ability to transmit the 250 MW with any one single transmission element (line, converter pole, etc.) out of service.

contingency events is accepted. Consequently, no additional cost is warranted to eliminate ML curtailment for these fault events.

With respect to the curtailment of ML exports for loss of generation on the island, the analysis indicates that loss of on-island generation in base cases with the LIL at maximum delivery to Soldiers Pond will require curtailment of ML if under frequency load shedding on the island is to be avoided. These results are consistent with earlier studies. The mitigation for this contingency is to carry reserves on the LIL such that under frequency load shedding and curtailment of the ML are avoided for loss of on-island generation. This concept is discussed further in Hydro's response to PUB-NLH-486. There are no costs attributed to this operating mode.

Finally, with respect to curtailment of the ML for loss of a synchronous condenser at Soldiers Pond, the issue of system instability was only observed in the case where both the LIL and ML are operating at maximum rating and the on-island generation is reduced to the 370 MW level. This is an extreme operating condition to test the limitations of the system. The preliminary analysis demonstrates that curtailment of the ML is required to maintain island system stability for the event. Given the firm export requirement of a nominal 250 MW on the ML (not 500 MW firm), a more realistic mitigation technique is to develop an operating instruction to ensure island system stability during low on-island generation dispatch as proposed in the preliminary analysis. This subject will be addressed during the detailed operational studies to be completed in the 2015/2016 timeframe. At this point, incremental cost additions are not envisioned for this scenario.