Q. On page 67 of the Upgrade Transmission Line Corridor Report Hydro states that there are no issues of these three circuits sharing a common corridor. Is this consistent with operating experience of the three 230 kV circuits sharing the corridor between Churchill Falls and Montagnais (Hydro Quebec)?

A. On page 67 of the Upgrade Transmission Line Corridor Report, Hydro is discussing the transmission line corridor through the Bay Du Nord Wilderness Reserve (BDNWR) and the prospect of adding a third transmission line to the existing right of way within the reserve. Hydro states:

"From a utility perspective, while route diversity is a positive for weather related outages, this corridor has not been an issue with respect to ice storms or wind damage. It is the preferred course of action as there is no evidence to support a high probability of common mode failures. The cost of avoiding the reserve could exceed $60M."

Hydro's operating experience within the BDNWR has not provided evidence that there will be a high probability of common mode failure in that geographic region. Hydro's operating experience on the Isthmus and on the Avalon Peninsula with respect to weather related events such as ice storms and wind damage have resulted in changes to the meteorological loadings used for transmission line design for lines on the Avalon Peninsula vis-à-vis the Avalon Transmission Line Upgrade Project completed in the late 1990s early 2000s.

While route diversity for transmission lines does provide benefit with respect to reliability of supply, such diversity must also consider the cost and practicality of

such diversity. Routing the transmission line around the BDNWR is estimated to increase capital cost by $60M for this section alone. Further increases in capital cost would be expected as a new, remote right of way would have to be cut to provide the route diversity. From a practical point of view, route diversity to avoid common mode failures due to weather related events for overhead transmission lines across the Isthmus of the Avalon is difficult given the limited width of the Isthmus and potential for local weather to impact the entire Isthmus at once.

Hydro acknowledges that the operating experience of the three 735 kV circuits between Churchill Falls and Hydro-Québec TransÉnergie's Montagnais Substation in a common corridor has demonstrated a number of common mode failures resulting in the loss of all three 735 kV transmission lines with subsequent loss of load in Québec.

With respect to the impact of loss of all transmission lines in a common corridor, NERC transmission planning standard TPL-004-0a entitled "System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)" covers this contingency. Table 1 of the TPL-004-0a standard Category D events are described as "Extreme event resulting in two or more (multiple) elements removed or Cascading out of service". Category D contingency 7 is the loss of all transmission lines on a common right-of-way. Table 1 of the standard indicates that Category D events are evaluated for risks and consequences that may include substantial loss of customer load or generation across widespread areas with portions of the interconnected system not achieving a stable operating point following the event.

Hydro's interpretation of the NERC TPL-004-0a standard is that loss of all (i.e., two or more) transmission lines in a common corridor is an extreme contingency during

which the impact of the event on the transmission system is to be considered but loss of load is acceptable.