Q. Consumer Question: See MHI P206, HVdc System Losses, MHI states,"Nalcor assumed HVdc systems losses at 5% however there is reason to believe they could be higher than 10% is Nalcor's worst case". Can Nalcor provide an analysis of the impact if the TL loss is 10%?

(a) on the CPW

(b) Can Nalcor provide comment on the impact on the PPA analysis in Nalcor exhibit #36?

(c) What will the increase in cents per kwh on the PPA price to Hydro?

(d) In reply to PUB-Nalcor 46, Nalcor states that in year 1 on a cost of service basis (COS) MF power cost would be $214/MW. What is COS power cost in Year 1 in MWH if the TL losses are 10%?

(e) See p1 01 MHI p 101 "The MF Generating Station is rated @ 824 MW (515MW continuous rating and produces an average of approximately 4.91 TWH annually". If the TL losses are 10%, does that mean 4.91 TWH(less 10% TL losses .49twh) = 4.43 TWH is effectively the amount of energy that can be delivered to Soldiers Pond?

A. Please note Nalcor expects the average losses on the Labrador Island Transmission Link to be 5%. While peak losses when the system is operating at rated capacity are expected to be no greater than 10%, average losses are expected to be in the order of 5% because the system is not expected to operate at rated capacity at all times.

(a) Within the DG2 framework, there will be little, if any, impact on the Cumulative Present Worth (CPW) analysis. The amount of energy required by the Island will be higher at the Muskrat Falls generating station. Given the same capital costs ($2.9 billion) and the same internal rate of return (8.4%), the higher energy

requirement will reduce the $2010 DG2 supply price, leaving the annual payments to Muskrat Falls the same as they were with 5% line losses.

However, with a higher Island energy requirement at Muskrat Falls, the maximum annual energy production from Muskrat Falls will be reached in 2052, five years earlier than the DG2 base analysis, causing an increase in other power purchase costs to meet the increased Island load. Assuming a full average annual increase to 10% losses, and using the cost of Muskrat Falls power as a proxy for market cost, there would be a $15 million increase in CPW for the Interconnected Island option.

(b) See (a) above.

(c) As noted above, the cost of energy from Muskrat Falls under the PPA will decrease. With a full average annual increase to 10% losses, the 2010 escalating supply price at Muskrat Falls would decrease from $76/MWh to $72/MWh.

(d) From a COS perspective, the concept is the same as explained above for the Muskrat Falls PPA price. The costs in 2017 will remain unchanged. The energy requirement at the Muskrat Falls generating facility will be increased, lowering the 2017 cost rate from $214/MWh to $203/MWh.

(e) Yes, if the transmission losses over the Labrador Island Transmission Link were 10% across all periods of the year, the amount of energy delivered to Soldiers Pond would be 4.42 TWh. As indicated above, however, this is not expected to be the case.