

1 Q. With respect to CA/KPL-Nalcor-7, please provide:

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- 3 • A measure of the increased reliability provided by a single transmission line
- 4 between Muskrat Falls and Churchill Falls
- 5 • A measure of the increased reliability provided by the twin transmission lines
- 6 between Muskrat Falls and Churchill Falls
- 7 • The expected and FIRM Muskrat Falls generation in the absence of an
- 8 agreement with Churchill Falls.
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11 A. As discussed in the response to CA/KPL-Nalcor-7, an interconnection between

12 Muskrat Falls and Churchill Falls is required to ensure effective water management

13 on the Churchill River. In addition, the link also ensures the reliable operation of the

14 power system.

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16 As part of the planning necessary to determine the preferred transmission voltage

17 between Muskrat Falls and Churchill Falls, stability analyses were undertaken to

18 assess system performance.

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20 The use of a single transmission line between Muskrat Falls and Churchill Falls is

21 precluded for the following reasons:

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- 23 • the system demonstrates angular instability with 4 units in service at
- 24 Muskrat and the HVdc link out of service, a scenario that could be expected
- 25 to occur during periods of high flows at Muskrat Falls and low demand on
- 26 the Island early each summer.

- a three phase 315 kV fault results in HVdc commutation failure, followed by a complete load rejection at Muskrat Falls, and a permanent block on the HVdc system. This would result in the loss of all supply from Labrador to the Island. This same sequence of events would also be triggered by temporary bipole fault on the HVdc system.

Both of these issues are resolved with two transmission lines between Muskrat Falls and Churchill Falls.

Based on these analyses, two transmission lines are required between Muskrat Falls and Churchill Falls.

The expected and firm generation at Muskrat Falls in the absence of an agreement with Churchill Falls does not assist consideration of the Reference Question, as discussed in Nalcor's response to CA/KPL-Nalcor-78.