

1 Q. **Newfoundland and Labrador Hydro – Near-Term Reliability Report, May 15, 2020**

2 **Other Near-Term Issues**

3 With respect to the sea electrodes and the electrode lines, please:

4 a. Confirm that they have not yet been tested with significant power. If they have been fully
5 tested, please describe the test and provide the results.

6 b. If they have not been tested, describe how these two components will be
7 tested/commissioned.

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10 A. a. As the Labrador-Island Link (“LIL”) has not transmitted any power in bipole mode to date
11 and the electrodes were not in service while LIL was operating in monopole mode, the
12 electrode lines have not been tested with any power at all. They have however been tested
13 at operating voltage through open line testing.

14 b. The electrode conductors and stations were first energized earlier this summer. In
15 preparation for bipole power flow an open line test was performed on each pole with
16 Soldiers Pond as the voltage source in one series of tests. Then the tests were repeated with
17 Muskrat Falls as the voltage source. In these configurations, the HVdc overhead conductors
18 were individually energized at 350 kV with the respective electrode as the grounded neutral
19 point. The open circuit test has no power flow; therefore the current into the electrode at
20 the time would be zero. As a result no step and touch potential measurements were
21 performed at that time.

22 During the latter part of summer 2020, testing will be conducted for pole and bipole power
23 flow in one configuration; 45 MW will be transferred from Muskrat Falls to Soldiers Pond
24 with electrode return. At 350 kVdc, 45 MW is approximately 129 amps. Step and touch
25 potential measurements will be performed at both electrode sites at that time. As bipole

1 power flow testing progresses, an electrode return current of 400 amps (140 MW) will be
2 introduced. At this level of current, a series of tests will be conducted at each site including:

- 3 • Measurement of current distribution;
- 4 • Step Voltage measurement on land;
- 5 • Touch Voltage measurement on land; and
- 6 • Potential Gradient in sea water near the breakwater.

7 The results of these tests will be scaled to the maximum potential electrode current of
8 approximately 2,572 amps (900 MW). The extrapolated results will be checked to confirm
9 the electrodes meet the design requirements.