

1 **Q: Reference: *Review of Newfoundland and Labrador Hydro Power Supply***
2 ***Adequacy and Reliability Prior to and Post Muskrat Falls Final Report, Page 29.***

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4 ***"This deferral is possible because the loading on the LIL is not currently planned***
5 ***to be high in the early years of operation."***

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7 **Please provide the forecast loading on the Labrador Island Link that supports**
8 **this statement. In the response, please also indicate if the forecast includes the**
9 **impact of potential sales other than the firm energy sales agreement with Nova**
10 **Scotia Power Inc.**

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13 **A.** Liberty does not have detailed information about how Hydro intends to load the LIL
14 in the early years of operation.

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16 The statement referred to in the question was made in the context of the number of
17 synchronous condensers required.

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19 The need for additional synchronous condenser can be identified, as follows:

- 20 1. The contractor's dynamic stability studies, which are expected to be
21 completed by the end of 2016, will give a more reliable indication of the
22 adequacy of the planned inertia, since it uses a more complete model of the
23 LIL and re-strikes of HVdc OHL faults will be included in the studies. If
24 necessary, it might be possible to order and install additional synchronous
25 condensers, before the LIL has to be operated at high loads.
- 26 2. It is currently expected that the LIL may be commissioned well before
27 generation from the Muskrat Falls generation is available. When the LIL has
28 been commissioned, up to 110MW of recall power will be available via the ac
29 interconnection. When brief or prolonged power interruptions on the LIL
30 occur, as will happen naturally (e.g. due to lightning strikes on the HVDC
31 OHL or due to equipment faults) the IIS frequency will change. An indication
32 of the adequacy of the inertia can be obtained by analysis and studies of this
33 change, as suggested in Recommendation III-2, page 109.
- 34 3. When the LIL commences operation at higher loads, i.e. when the Muskrat
35 Falls generation comes on-line, the monitoring of the performance of the IIS
36 and of the LIL, as mentioned in the bullet above, should continue.

37 If studies or operating experience shows that the inertia is insufficient when
38 operating at high loads, the IIS loads carried on the LIL, which is the important
39 aspect in terms of inertia, can be reduced by utilizing more generation in the IIS,
40 until additional synchronous condensers have been installed. To reduce the LIL
41 import for IIS use will require that generation plant within the IIS provides additional
42 power equal to the reduction.

1 PUB-NLH-217, shows that the total generating capability in the IIS will be:

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- 3 • 1013 to 1043 MW of island hydro generation (variation due to reservoir
- 4 levels)
- 5 • 276MW of island thermal generation
- 6 • 60MW of interruptible loads

7 Table 2 of PUB-NLH-542 and 543 includes the most recent forecast from Hydro of
8 IIS peak load showing a modest growth from 1736MW in year 2020 to 1793MW in
9 2025. The RFI also shows that the Holyrood generation plant will be operational
10 until 2021, with Stephenville and Hardwoods being removed from service in 2025
11 and 2028 respectively.

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13 Slide 26 of a “Ready for Integration Overview” presentation made to Liberty on
14 April 19, 2016 showed that Liberty is intending to operate LIL with a spinning
15 reserve of 120MW on a peak day. Operating with this reserve, and delivering 157
16 MW to Nova Scotia via the Maritime Link leaves 573 MW for IIS. Adding the island
17 generation results in a total power delivery to the IIS of 1862 MW to 1902 MW. This
18 is sufficient to allow the LIL to be operated with at least 120 MW reserve for use on
19 the IIS.

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21 Operating with 120MW reserve on the LIL will extend the time by approximately
22 20%, before any event associated with the LIL or in the IIS would result in Under
23 Frequency Load Shedding.

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25 It would be possible to reduce the loading on LIL further by taking into account the
26 load growth and the interruptible loads (which can also be considered to be spinning
27 reserve).