

1 Q. Re: RRAS, 2019 Update, Vol. I, page (pdf)

2 Citation :

3 In the Newfoundland and Labrador Interconnected System, Hydro considers the first
4 contingency loss to be the loss of a generating unit at MFGS and the second contingency loss to
5 be the loss of a second unit at MFGS. As such, Hydro will plan for the availability of the following
6 operational reserves for the Newfoundland and Labrador Interconnected System to align with
7 this criteria.

8 •**Ten-Minute Reserves:** Hydro shall have 10-minute reserve available to it at least equal to
9 197.5 MW to cover its first contingency loss, where the first contingency loss is the loss of a
10 unit at the MFGS at winter firm plant output of 790 MW.

11 •**Thirty-Minute Reserves:** Hydro shall have 30-minute reserve available to it at least equal
12 to 99 MW to cover one-half the magnitude of its second contingency loss (0.5×197.5 MW),
13 where the second contingency loss is the loss of a unit at the MFGS at winter firm plant
14 output of 790 MW.

15 a) What does Hydro consider to be the first contingency loss in the LIS? In Labrador East? In
16 Labrador West?

17 b) Please identify the first and second contingency losses in a situation where, during a peak
18 hour, a significant portion of the Island load is met not with power produced at Muskrat
19 Falls, but with power transferred from Churchill Falls over the Labrador Transmission Assets
20 under the Water Management Agreement.

21 c) Is there a possible circumstance under which the first and second contingency losses based
22 on a power transfer over the LTA would be greater than the loss of a generating unit at
23 MFGS? Please explain your response.

1 A. a) Newfoundland and Labrador Hydro (“Hydro”) has proposed that operating reserves be
2 established for the Newfoundland and Labrador Interconnected System such that Hydro
3 shall have ten-minute reserve available to it at least equal to 197.5 MW to cover its first
4 contingency loss, where the first contingency loss is the loss of a unit at the Muskrat Falls
5 Generating Station (“MFGS”) at winter firm plant output of 790 MW and that Hydro shall
6 have 30-minute reserve available to it at least equal to 99 MW to cover its second
7 contingency loss, where the second contingency loss is the loss of a unit at the MFGS at
8 winter firm plant output of 790 MW. The dispatch of resources to supply operating reserves
9 will be determined on an economic basis, respecting system operating limits and operating
10 procedures established by the Newfoundland and Labrador System Operator.

11 b) Energy and capacity supplied by Muskrat Falls to Hydro under the Power Purchase
12 Agreement is contingent on the availability of the Muskrat Falls units to deliver the power. If
13 any units are not available, then Hydro cannot schedule the capacity to be delivered
14 associated with units that are unavailable. Energy supplied under the Water Management
15 Agreement from Churchill Falls over the Labrador Transmission Assets is also contingent on
16 the units at Muskrat Falls being available to cover the capacity associated with such energy.
17 This is necessary so that if there was an event at Churchill Falls which causes the energy
18 from Churchill Falls to be not available, then the Muskrat Falls units will respond and deliver
19 that energy within reserve response time requirements.

20 A first contingency loss for Water Management purposes would be the interruption in
21 supply from Churchill Falls equal to the rate that energy is being transferred from Churchill
22 Falls. The rate of energy transfer will be established in accordance with the Churchill River
23 Independent Coordinator’s production schedule. The rate of energy transfer under the
24 Water Management Agreement from Churchill Falls is limited to the amount of ten-minute
25 reserve capacity available at the Muskrat Falls Plant exclusive of the ten-minute reserve at
26 the Muskrat Falls Plant for meeting ten-minute reserves for the Newfoundland and Labrador
27 Interconnected System. The amount of such reserve capacity will be established by the
28 minimum unit dispatch requirements to support power transfers on the Labrador-Island
29 Link (“LIL”). The greater the power transfer on the LIL, the greater the number of units
30 required to be online at Muskrat Falls. The Muskrat Falls units have a minimum output of

1 approximately 100 MW each. A minimum of three units have to be online for high LIL power
2 transfers. Assuming there is no ten-minute reserve for the NL Interconnected System
3 required at Muskrat Falls, with three units at minimum load, the maximum energy transfer
4 rate from Churchill Falls would be approximately 292.5 MW (3 x 197.5 MW less 300 MW
5 minimum output). If there are ten-minute reserve amounts at the Muskrat Falls Plant for
6 the Newfoundland and Labrador Interconnected System then the transfer rate from
7 Churchill Falls would be reduced by the amount of such ten-minute reserves. If four units
8 were operating at minimum output with no reserve for the Newfoundland and Labrador
9 Interconnected System the maximum transfer rate from Churchill Falls would be
10 approximately 390 MW (790 MW less 400 MW minimum output). There is no second
11 contingency loss under this scenario as the full transfer can be impacted by one
12 contingency.

13 c) As noted, it is possible for the Independent Coordinator to schedule power deliveries from
14 Churchill Falls over the Labrador Transmission Assets to as high as approximately 390 MW
15 Under those circumstances the Muskrat Falls Plant would be required to have 10-minute
16 reserve capacity equal to 390 MW. Under the first contingency loss, in the worst case, the
17 Independent Coordinator's guidelines could require the Muskrat Falls plant to have its
18 output increased by up to 390 MW within ten minutes.