

1 Q. Further to the response to PUB-NLH-264, state whether load shedding will occur at
2 a frequency higher than 58 Hz in the case of events on the Labrador Island Link or
3 loss of generation on the Island Interconnected System or ac system faults.

4

5

6 A. Under frequency load shedding (UFLS) is required on the existing Island
7 Interconnected System to avoid system collapse following loss of a large generator
8 on the system. The UFLS scheme is activated as the frequency falls following the
9 loss of a generator. The intent of the scheme is to rebalance the load with the
10 remaining generation to arrest the frequency decay and return the system
11 frequency to normal in order to avoid equipment damage and overall system
12 collapse.

13

14 The existing UFLS scheme has dedicated blocks of load scheduled to trip
15 instantaneously at specific frequency points including 58.8 Hz, 58.6 Hz, 58.4 Hz,
16 58.2 Hz 58.1 Hz and 58.0 Hz.

17

18 Page 3 of Attachment 1 to Hydro's response to PUB-NLH-264 indicates that the
19 "Hydro Operating Instruction T-068 -Guideline for Unit Maximum Loading",
20 stipulates that the loss of supply should not result in the loss of load set to trip at
21 58.0 Hz. The existing UFLS scheme is designed with a relatively large block of load
22 in the 58.0 Hz block. The purpose of this large block is to shed significant load at
23 the 58.0 Hz level in an attempt to restore system frequency to normal. It is
24 intended to be the "safety net" for frequency response in the event of the
25 simultaneous loss of more than one large generator. The T-068 operating
26 instruction is set so that the maximum unit loading is set according to available load
27 in the UFLS scheme. Loss of the unit with the maximum load results in under

1 frequency load shedding down to loads in the 58.1 Hz loads as necessary, but leaves
2 the 58.0 Hz block for severe, multiple generator contingencies.

3

4 With the LIL in normal operation in bipolar mode, the addition of high inertia
5 synchronous condensers at Soldiers Pond and sufficient spinning reserves¹ result in
6 no loss of load for loss of generation on the Island. In addition, ac faults that result
7 in LIL commutation failure (temporary bipole outage) will result in a minimum
8 system frequency of not less than 59 Hz to ensure no under frequency load
9 shedding and successful restart of LIL. Finally, with the LIL in bipole mode there will
10 be no loss of load on the Island Interconnected System for a pole outage given the
11 200% overload capability of the healthy pole and the curtailment of ML exports.

¹ Studies to date have indicated that carrying spinning reserves on the LIL provide for acceptable frequency response and no under frequency load shed for loss of generation on the Island.