

1 Q. Reference: Reliability and Resource Adequacy Study, *Technical Conference #3 Presentation*,
 2 June 2021, slide 95.

LIL Mode of Operation	MW			
	Muskrat Falls	Losses	NS Block	Hydro Delivery
Bipole	900	70	158	672
Monopole with Continuous Overload	675	120	105	450
Monopole Metallic Return	450	65	80	305

3 In the format provided below, and using experience gained during the 2021 winter failures,
 4 please provide: i) the expected steady-state LIL mode of operation for each scenario listed; ii) a
 5 range of duration of all work required for repair (including identification of the issue and access
 6 to the location) from the moment damage occurs; iii) the maximum safe power transfer
 7 allowable while repair activities are ongoing; and iv) the estimated maximum supply deficit
 8 should the scenario occur at the maximum forecasted peak used in the development of Figure 5
 9 in the *Reliability and Resource Adequacy Study – 2019 Update*, November 15, 2019, Volume III:
 10 Long-Term Resource Plan, Section 7.2.6, assuming HTGS, SGT and HGT are decommissioned as
 11 planned. Please also assume that imports on the Maritime Link are unavailable.

Scenario	LIL Mode of Operation (steady state)	Repair duration (range)	LIL Mode of Operation (During repair)	Maximum Supply deficit at peak (MW)
Electrode cross arm failure				
Electrode conductor break				
Pole conductor break				
Double electrode conductor break				
Single pole conductor and single electrode conductor break				
Single tower failure				
Multiple tower failure				
Ice removal activities – helicopter with insulated rod				

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Scenario	LIL Mode of Operation (steady state)	Repair duration (range)	LIL Mode of Operation (During repair)	Maximum Supply deficit at peak (MW)
Electrode cross arm failure	Bipole mode with Single Electrode Cable	Under review. Please see	Bipole mode at full transfer capability (900 MW)	N/A
Electrode conductor break	Bipole mode with Single Electrode Cable	note below.	Monopole Earth Return with Single Electrode Cable; power transfer reduced (446 MW to 674 MW depending on ambient temperatures)	0 - 105 MW
Pole conductor break	Monopole mode with Earth Return		Monopole Earth Return; power transfer reduced (675 MW)	0 MW
Double electrode conductor break	Bipole mode		Bipole Outage; no power transfer until first electrode conductor returned to service	426 MW
Single pole conductor and single electrode conductor break	Monopole mode with Earth Return with Single Electrode Cable		Monopole Earth Return with Single Electrode Cable @ 446 MWs to 674 MWs depending on ambient temperatures	0 - 105 MW
Single tower failure	Not Operating		Bipole Outage; no power transfer	426 MW
Multiple tower failure	Not Operating		Bipole Outage; no power transfer	426 MW
Ice removal activities – helicopter with insulated rod	Bipole mode		Bipole mode at full transfer capability (900 MW)	N/A

2 The identified maximum shortfall above indicates the amount of load that would not be served
3 in the peak hour while maintaining an operating reserve of 70 MW on the Island Interconnected
4 System.

5 Please note that while the electrode conductor break requires operation in monopole mode to
6 undertake the repair, the Labrador-Island Link (“LIL”) remains capable of full power transfer
7 capabilities at 900 MW until the repair work begins. Similarly, while the double electrode

1 conductor repair would require a bipole outage to complete a portion of the required repair
2 work, the LIL can continue to operate in bipole mode with station ground return with full power
3 transfer capability until the repair work begins. The LIL will then remain on a bipole outage until
4 the first electrode conductor is repaired, following which the LIL can then operate in bipole
5 mode with a single electrode and would be capable of full power transfer. Since the LIL remains
6 capable of full power transfer until the repairs begin, Newfoundland and Labrador Hydro would
7 plan to repair the broken electrode cable in full consideration of existing system conditions and
8 based on the associated system risk, plan to undertake the repairs when possible while
9 minimizing the potential impact to customers.

10 Finally, the repair duration remains under review as part of the update of the emergency
11 response plan, expected to be filed in the fourth quarter of 2021. This review will consider the
12 lessons learned from the repairs that occurred this past winter.