

1 **Q. Please provide the system-wide reliability policy and standards for the Island**
2 **Interconnected System for the following:**

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4 **a. Generation; i.e., loss of load expectation;**
5 **b. Transmission; i.e., n-1 criteria;**
6 **c. Distribution.**
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8 A. a. Newfoundland and Labrador Hydro (“Hydro”) is responsible for generation
9 planning for the Island Interconnected System. Attachment A provides Hydro’s
10 Island Interconnected System generation planning criteria, which includes a loss
11 of load expectation criterion for capacity planning.
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- 13 b. Hydro is responsible for bulk transmission planning for the Island Interconnected
14 System. Attachment B provides Hydro’s Bulk Transmission Planning Criteria.
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16 Principally, Newfoundland Power’s transmission system connects the Company’s
17 distribution substations to Hydro delivery points. From a system perspective,
18 Newfoundland Power’s transmissions lines are considered to be subtransmission
19 lines; they are not subject to Hydro’s bulk transmission criteria.
20

21 Newfoundland Power does not have a system-wide reliability policy for its
22 transmission system similar to Hydro’s generation or bulk transmission criteria.
23

24 Newfoundland Power’s system reliability practices focus on maintaining a
25 reasonable balance between cost of supply and reliable service. This is a matter
26 of engineering judgement, which results in levels of redundancy which are
27 different for different transmission lines. Where limited redundancy exists, the
28 Company has fixed generation, mobile generation and mobile substation
29 equipment available to provide support during extended transmission outages and
30 major transmission rebuilds and upgrades.
31

- 32 c. Similar to its transmission system, Newfoundland Power’s distribution system
33 reliability practices focus on maintaining a reasonable balance between cost of
34 supply and reliability. Newfoundland Power does not have a system-wide
35 reliability policy for its distribution system similar to Hydro’s generation and bulk
36 transmission criteria.
37

38 As with its transmission system, different levels of redundancy exist within the
39 distribution system. In urban areas, adjacent distribution feeders provide
40 flexibility to transfer customers from one distribution line to another for
41 contingency purposes. In many rural areas, this option is often not available. In
42 rural areas, the cost of redundancy is a factor that must be considered in the
43 balance between reliability and cost. The Company’s portable generation is
44 available to provide emergency supply during extended outages and major
45 rebuilds and upgrades.

1 Newfoundland Power's service reliability practices focus on providing safe and
2 reliable electrical service at least cost. Annual reliability targets are established
3 and performance is tracked to ensure that a reasonable level of reliability is
4 maintained.

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6 For additional information on Newfoundland Power's system reliability targets
7 and service reliability performance, please see the response to Request for
8 Information CA-NP-130.

**Newfoundland and Labrador Hydro
Island Interconnected System
Generation Planning Criteria**

Island Interconnected Generation Planning Criteria

Hydro has established criteria related to the reliability of the total Island Interconnected System and the timing of generation additions. These criteria set the minimum level of reserve capacity and energy installed in the system.

Energy

The Island Interconnected System should have sufficient generating capability to supply all of its firm load requirements with firm system capability.

Capacity

The Island Interconnected System should have sufficient generating capacity to satisfy a Loss of Load Hours (LOLH) target of not more than 2.8 hours per year.

**Newfoundland and Labrador Hydro
Bulk Transmission Planning Criteria**

Bulk Transmission Planning Criteria

- Hydro's bulk transmission is planned to be capable of sustaining the single contingency loss of any transmission element without loss of system stability.
- In the event a transmission element is out of service, power flow in all other elements of the power system should be at or below normal rating.
- The Hydro system is planned to be able to sustain a successful single pole reclose for a line to ground fault based on the premise that all system generation is available.

Transformer Capacity

- Transformer additions at all major terminal stations (i.e. two or more transformers per voltage class) are planned on the basis of being able to withstand the loss of the largest unit.
- For single transformer stations there is a back-up plan in place which utilizes Hydro's and/or Newfoundland Power's mobile equipment to restore service.

Operating Voltages

- For normal operations, the system is planned on the basis that all voltages be maintained between 95% and 105%.
- For contingency or emergency situations 90% to 110% is considered acceptable.