

1 Q. **Deferral of 2015, 2016 and 2017 Supply Costs Application**

2 Please provide any internal documentation, including formal management
3 approval, of the decision to employ N-1 and added spinning reserve.

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6 A. Following the March 4, 2015 voltage collapse event, Hydro reviewed its
7 transmission reliability criteria. As a result, Hydro developed an Avalon operating
8 instruction (T-096, dated June 26, 2015) which provided for the method of
9 assessment, stakeholder notification criteria, and operator dispatch guidelines
10 related to Avalon capability and reserves. While there is no written document
11 communicating proceeding with this new instruction, Hydro management were
12 informed. PUB-NLH-173, Attachment 1 provides an overview that was prepared in
13 early 2016 to communicate, more broadly, the operating instruction that had been
14 in place for several months.

15

16 The Island Interconnected reserve criterion, including the existing Generation
17 Reserves operating instruction, was also reviewed and spinning reserve targets
18 were established to cover the loss of the single largest operating unit. Both reviews
19 and the resulting changes in operations (e.g. placing standby units online in advance
20 of contingencies) were consistent with good utility practice in positioning the
21 system to withstand: (1) any single transmission contingency without violating any
22 operating limit and impacting customer service, and (2) the loss of largest
23 generating unit contingency without violating the reserve criterion.

Avalon Reliability

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Boundless Energy



Operating the Avalon Reliably

- The Avalon System and its assets are operated to withstand the single worst contingency event to minimize impact to customers.
- Standby generation sources are placed in service in advance of contingency events according to Avalon System loadings.
- Standby generation sources are normally placed in service when the Avalon load exceeds 730 MW (120 hours thus far in January 2016)
- When one unit is unavailable at Holyrood TGS, then the Holyrood combustion turbine is placed in service as its replacement (450 hours thus far in January 2016)

Reliability Standard

For events on the power system¹ resulting in the loss of a single element (generator, transmission line or transformer) the power system shall remain stable, and both thermal and voltage limits shall be within applicable ratings², with no loss³ or curtailment of customer load.

¹ Applies to the bulk power system and does not apply to radial systems.

² Applicable ratings may include emergency ratings applicable for short durations as required to permit operating steps necessary to maintain power system reliability and control.

³ Does not include load loss for under-frequency load shedding events.

Positioning the Avalon

to cover single worst contingency

Standby generation is placed in service and other actions are taken according to the table below to comply with the Reliability Standard:

Resource / Action	Avalon Load (MW) All Equipment Available	Avalon Load (MW) Generation Derated ¹	Avalon Load (MW) Holyrood Unit Unavail.
Hardwoods	790	740	735
Holyrood Diesels	825	770	775
Holyrood CT	835	780	In Operation ²
NP Standby	930	875	785
Vale	940	885	795
Voltage Reduction & NP curtailable	950	895	805
Contingency Capacity	965	910	820

¹ Holyrood and Hardwoods derated by 10% and 20% respectively, accordingly to Planning Outage Rate criteria

² If a Holyrood unit becomes unavailable, the Holyrood CT is placed in operation as its replacement.

**Values in the table
assume NP Hydro at
38 MW and no wind.**