

1 Q. Reference: Hydro’s Recovery of the 2015 and 2016 Balances Application,
2 response to Request for Information NP-NLH-022, page 2 of 4, lines 21–25.

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4 *“The Island Interconnected reserve criterion was also reviewed and spinning reserve*
5 *targets were established to cover **the loss of the single largest operating unit**. This*
6 *is typically in the range of 150-170 MW, depending on the largest unit in operation.*
7 *Maintaining this level of spinning reserve positions the system for an expedient*
8 *restoration of customers in the event of the loss of a major generating unit.”*

9 [emphasis added]

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11 Please explain why spinning reserve targets were established based on the **capacity**
12 of a generating unit rather than the **actual production level** of the generating unit
13 at the time of the contingency.

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16 A. Spinning reserve by definition means unloaded generation which is synchronized
17 and ready to serve additional demand. For individual units the spinning reserve
18 contribution while it is online is **capacity** minus **actual production level**. However,
19 when that unit trips, the contingency impact to spinning reserve is a decrease equal
20 to the total **capacity** of the unit. This is due to two factors. First, the spinning
21 reserve contribution of the affected unit is removed. Second, the **actual production**
22 **level** of that unit, prior to the trip, must shift to other online unit(s), thereby
23 reducing the spinning reserve contribution(s) of these other unit(s). Therefore,
24 spinning reserve targets must consider the **capacity** of the largest unit in order to
25 position the system to avoid a sustained customer interruption in the event of a
26 loss of that unit. See the example below for further context:

Pre-Contingency
(Total Load = 150 MW; Spinning Reserve = 100 MW)

	Capacity (CA)	Actual Production (AP) Level (Customer Load)	Spinning Reserve (CA-AP)
Generator A	100	50	50
Generator B	150	100	50
Totals	250	150	100

Post-Contingency – Generator B Trip
(Total Load = 100 MW [50 MW load loss]; Spinning Reserve = 0 MW)

	Capacity (CA)	Actual Production (AP) Level (Customer Load)	Spinning Reserve (CA-AP)
Generator A	100	100	0
Generator B	0	0	0
Totals	100	100 (50 MW Load Loss)	0

- 1 In this example, if the spinning reserve was equal only to the **actual production**
- 2 **level** of Generator B prior to the contingency (100 MW), there would 50 MW of
- 3 customer load required to be interrupted until another source was placed on-line.