

1 Q. **Reference: Supply Cost Deferrals 2015, 2016 and 2017 Application Evidence, Page**
2 **2, Footnote 3.**

3

4 *Aligned with best practice reliability standards, Hydro operates its generation fleet*
5 *(including thermal generation, emergency and standby generation) to position the*
6 *power system to withstand the single worst contingency event.*

7

8 Please provide copies of all reliability standards to which this passage refers, and
9 explain in detail how Hydro's operation of its generation fleet is aligned with such
10 standards, with specific reference to the use of gas turbines and other forms of
11 emergency and standby generation in providing online and synchronized spinning
12 reserve.

13

14

15 A. As outlined in Hydro's Application, in its final report regarding the outages of March
16 4, 2015, Liberty Consulting (Liberty) stated:

17

18 *Hydro has continued to plan for and react to contingencies less*
19 *aggressively than do many other utilities* *(emphasis added)*. Liberty
20 *observed such an approach in our work associated with the January*
21 *2014 outages. Hydro's operating culture continues to comprise a*
22 *matter of concern. With the operating culture issue identified in the*
23 *aftermath of the January 2014 incidents, it nevertheless appears*
24 *that Hydro has not accepted changing that culture as a priority.*
25 *Liberty found that Hydro's reliability culture contributed to the*
26 *causation and to the management of the March 4 event.*

27

1 In its review Liberty also indicated that Hydro has a “non-standard industry thinking
2 associated with reliability”. Hydro has accepted the commentary and opinion and
3 has adjusted how it operates with a demonstrated shift toward an improved
4 reliability focused operating culture which Hydro feels is now in-line with industry
5 thinking. One area of improvement is in the rigorous approach developed to
6 identify and quantify the impacts of contingency events (generation or
7 transmission) and to position the power system appropriately. Hydro operates the
8 system to withstand (1) any single transmission contingency without violating any
9 operating limit and impacting customer service¹ and (2) the loss of the largest
10 generating unit contingency without violating the reserve criterion. At times this
11 requires that standby generation be placed online when sources of conventional
12 (primary) generation and/or reactive resources have been exhausted.

13
14 Hydro reviewed NERC standards² in the development of its reliability criteria and
15 operating procedures. Operating as an electrically islanded system has presented
16 specific and somewhat unique challenges³ as there is no interconnection to
17 neighbouring utilities which offers the benefits of reserve sharing agreements and
18 emergency and energy sharing provisions. These arrangements, when integrated
19 into reserves and contingency planning, can provide for lower cost operation than
20 the operation of gas turbines to provide for the same reliability benefits.⁴

¹ Not applicable for radially supplied systems.

² The most applicable are the BAL and TOP standards. Refer to NERC’s website at www.nerc.com.

³ Hydro is reviewing its reserve criteria as an interconnected system with the recent and planned HVdc additions of the Maritime Link and Labrador Island Link, respectively.

⁴ In recent months, Hydro has used and continues to assess imports over the Maritime Link to reduce Holyrood production and defer gas turbine operation.