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

Regarding Tables 6, 8 and 10 of the Application, please clarify the extent to which "support of spinning reserve" might overlap with other functions. Specifically, if the requirement for spinning reserves to cover the loss of the largest unit had not been implemented during 2015-17, how would Tables 6, 8 and 10 be modified?

A. The format of Tables 6, 8, and 10 of the Application was first introduced in the RFI response NP-NLH-001 of Hydro's August, 2016 Supplemental Capital Application - *Combustor Inspection and Overhaul of the Holyrood CT* (Attached as PUB-NLH-174, Attachment 1). For consistency, Hydro has used similar tables in subsequent applications relating to standby fuel cost recovery. Hydro has noted that the areas of operation in these tables are not necessarily exclusive. The area of "spinning" reserve also includes online reserve requirements to support the Avalon. Further, a standby unit could be online and providing for more than one function. For example, operation of an Avalon standby unit during a period when a Holyrood unit is out of service or significantly derated could be in support of Avalon and/or Island spinning reserve requirements. In the end, all standby use (with the exception of that for testing) was required to position the system to withstand: (1) any single transmission contingency without violating any operating limit and impacting customer service, and (2) the loss of largest generating unit contingency without violating the reserve criterion.

In retrospect, if the requirement for spinning reserves to solely cover the loss of the largest unit (i.e., Island spinning reserves) had not been implemented during 2015-2017, Tables 6, 8, and 10 could potentially have been modified to show less operation of standby units in the table areas:

- Support of spinning reserve;
- Backup due to the loss of a major generating unit; and
- Planned generation outages.

There has been standby operation incurred solely for Island spinning reserve requirements, most notably during the extended outages to the Bay d'Espoir units and the period following the installation the 230 kV transmission line, TL 267, from the Bay d'Espoir to Western Avalon Terminal Stations. However, following the March 4, 2015 Avalon voltage collapse event and Hydro's review of its transmission reliability criteria and prior to the installation of TL 267, the most significant driver for standby operation was in support of Avalon reserves. Avalon load growth, the extended outages and deratings to the Holyrood units, and Holyrood total plant outage requirements have all resulted in significant standby operation to maintain the Avalon system within system operating limits, pre- and post-contingency. While an Avalon standby unit is online it also supports Island spinning reserves and in the absence of the Avalon constraint, may have been required in any event, but Hydro has not tracked standby operation to this level of detail.

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Q. **Reference:** ***Combustor Inspection Major and Overhaul, Holyrood Combustion Turbine*** **report, August 29, 2016, page 2**

"The Holyrood CT provides several critical functions in reliably supplying customer demand requirements. It is operated to support spinning reserves on the Island Interconnected System and provides a critical backup in the event of a contingency, such as the loss of a major generating unit or the loss of a major transmission line. The Holyrood CT, due to its strategic location, also provides power to the Avalon Peninsula which is heavily reliant on the transfer of power over transmission lines from outside of the Avalon Peninsula and the production of power from the Holyrood Thermal Generating Station (HTGS). In addition, it is used to facilitate planned generation and Avalon Peninsula transmission outages."

Please provide a table detailing the actual number of starts, equivalent starts and equivalent base hours of operation over the in-service period from March 2015 to present for each of the critical functions referenced above. For the purpose of the table, the critical functions are to include (i) support of spinning reserve, (ii) backup due to the loss of a major generating unit, (iii) backup due to the loss of a major transmission line, (iv) planned generation outages and (v) planned Avalon Peninsula transmission outages.

A. Please see below for the requested table. It is important to note that the areas of operation are not necessarily mutually exclusive. For example, the operation of the Holyrood CT as a backup during the loss of a Holyrood unit will also provide for spinning and Avalon reserves support. Note that Hydro has also included Testing so that these hours and starts could be reflected.

Operation of the Holyrood CT for critical functions (March 2015 to present)

Critical Function	Actual Starts	Equivalent Starts	Equivalent Base Hours	Notes
Spinning Reserve	63	105.3	577.2	1
Loss of Major Generating Unit	23	39	1880.6	2
Loss of Major Transmission Line	-	-	-	3
Planned Generation Outages	22	46.8	235.6	4
Planned Avalon Transmission Outages	13	24.7	317.4	5
Testing	18	63.7	62.6	6
Totals	139	279.5	3073.4	

Notes:

1. Operation in this area includes for Spinning and Avalon Reserves which are generally load driven and / or due to deratings to generating equipment.
2. The primary drivers of operation in this area were (1) shorter duration outages to the Holyrood Thermal Generating Station (HTGS) units in 2015 and requirements to support Island and Avalon reserves, and (2) extended outages to HTGS Units 1 and 2 in January and February 2016 and requirements to support Island and Avalon reserves as well as for reservoir support.
3. For the period March 2015 to present, there was no reported operation of the Holyrood CT due to the unplanned loss of a major transmission line.
4. The primary driver of operation in this area was the planned Holyrood total plant outage in August 2015 and operation for Avalon transmission support.
5. The primary driver of operation in this area was the outage to transmission line TL201 in November 2015.
6. Testing of the Holyrood CT primarily occurred in the months immediately following the commissioning and in-service date of the unit.