Q. **Holyrood fuel efficiency and station service**

With the reference to Volume I, page 3.24 Table 3-15 please explain year-to-year changes in Holyrood efficiency.

A. The changes in the Holyrood conversion rate as shown in Volume I, page 3.24, Table 3-15 are primarily explained by changes in Holyrood operations. The 2015 Board Approved Conversion Factor was 618 kWh/bbl[1].

In 2015, the actual conversion rate was 16 kWh/bbl lower than the approved conversion factor. A driver of the lower conversion rate was a lower average unit loading of 88.9 MW from the forecast of 109.6 MW. This was, in part, due to operation of a Holyrood unit at low loads during summer months to support reliability requirements.[2] Also contributing to the decline in conversion rate was a lower actual fuel heating content.

In 2016, the actual conversion rate improved by 6 kWh/bbl to 608 kWh/bbl but remained lower than the approved conversion factor. Similar to 2015, a driver of the lower conversion factor was a lower average unit loading of 90.8 MW from the forecast of 109.6 MW. A Holyrood unit operated through the entire summer of 2016 for Avalon reliability considerations. The station service factor did improve in 2016 over 2015 (from 5.5% to 5.1%). There was also an improvement in fuel heating content.

[1] Hydro had proposed a fuel conversion rate of 607 kWh/bbl. The primary consideration in setting the rate higher was an anticipated decrease in station service consumption at the plant. Using Hydro's regression model, at the forecast unit average loading and fuel heat content proposed in Hydro's 2013 Amended GRA, a station service factor of 5% would have to be realized to improve the fuel conversion rate to 618 kWh/bbl.

[2] A Holyrood unit was operated throughout the summer of 2015 with the exception of the period of the total plant outage (TPO) during which time the Holyrood GT was operated for Avalon reserve support.

For the 2017 forecast, the conversion rate is 603 kWh/bbl. This is 5 kWh/bbl lower than the 2016 actual conversion rate and 15 kWh/bbl lower than the approved conversion factor. The primary driver for the lower forecast conversion factor is Holyrood operation in the summer months at low loads resulting in an anticipated average unit loading of 100.9 MW. Also contributing to the decreased conversion rate is the forecast station service factor of 6.2%. Please refer to Hydro's response to PUB-NLH-042 for details on how this station service factor was determined.

For the 2018 and 2019 Test Years, the conversion rate is anticipated to increase by 13 BTU/bbl to 616 BTU/bbl. This increase in conversion rate is largely due to more efficient forecast production at Holyrood through winter months and decreased summer operation at low loads, resulting primarily from the in service of TL267. This has resulted in an increased average unit loading over previous years.