

1 Q. Reference: Energy Supply Risk Assessment Update, November 30, 2016, page 29,
 2 line 1. The discussion of transmission losses implies that full capacity from Holyrood
 3 is on line and assumed in the estimation of losses. What is the impact on
 4 transmission losses of one or two Holyrood units off at peak demand?

5
 6
 7 A. Load flow analyses were performed to determine transmission system losses in
 8 Hydro’s P90 peak demand forecast and to assess transmission system capacity in
 9 contingency scenarios involving the loss of Holyrood units. Transmission losses for
 10 all scenarios are summarized in Table 1.

11
 12 **Table 1 – Transmission Losses**

	Transmission Losses (MW)			
	2016/17	2017/18	2018/19	2019/20
P90 Peak Load Case	64	50	50	50
Loss of one HRD unit	72	52	52	52
Loss of two HRD units	70	53	53	53

13
 14 A marginal increase in transmission losses is noted in the cases that involve the loss
 15 of a single unit at Holyrood. The increased losses are due to the requirement to
 16 deliver additional power to the Avalon Peninsula in the event of a unit outage.
 17 However, the increases are moderated by a number of factors that include:

- 18 • the curtailment of load in accordance with capacity assistance programs
- 19 • the dispatch of generation on the Avalon Peninsula
- 20 • the reduction in system impedance once TL267 is in service (where
 21 applicable).

1 During load flow analyses it was assumed that load would be curtailed in accordance
2 with capacity assistance programs to maximize reserves following the loss of a
3 Holyrood unit. Curtailed load included 9.9 MW from Newfoundland Power and 80 MW
4 from Corner Brook Pulp and Paper, as per Section 3.1 of the report. This reduction in
5 system load serves to limit increases in transmission losses.

6
7 The assumed dispatch in all peak load flow cases is in accordance with Hydro's
8 operating practice of maintaining generating reserve on the Avalon Peninsula. In the
9 event of a contingency involving the loss of a single unit at Holyrood, capacity is
10 available on all other thermal units on the Avalon Peninsula to compensate. This
11 available capacity helps to limit to additional power that must be delivered to the
12 Avalon Peninsula and therefore limits increases in transmission losses.

13 Increases in transmission losses are less severe after TL267 is placed in-service. This is
14 due to the reduction in system impedance that occurs once this line is in service.

15 For scenarios involving the loss of multiple Holyrood units, reduced generation on the
16 Avalon Peninsula once again results in increased transmission losses. These increases
17 are also moderated by the factors described above.

18
19 Hydro also considers the fact that system capacity may be limited in the event of the
20 loss of multiple units at Holyrood. As described in Section 7.2.3.1 of the report, there
21 may be insufficient capacity to meet peak demand when multiple Holyrood units are
22 out of service. Customer loads may therefore be reduced and increases in transmission
23 losses would be limited as a result.

24
25 The impact of TL267 is also noteworthy in these cases. In the winter of 2016/17, TL267
26 is not available and system capacity is more severely limited when multiple Holyrood
27 units are out of service. Conversely, more customer load can be supplied when multiple

- 1 Holyrood units are out of service once TL267 is available. Transmission losses are
- 2 therefore higher in these cases, despite the reduction in system impedance provided by
- 3 TL267.