

1 Q. **Tab 21; Volume II: Install Breaker Bypass Switches - Howley**

2 Page 6, Table 3: Please indicate the total number of customers impacted and how
3 the Total Customer Outage Minutes is calculated.

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6 A. The total number of customers impacted is 7931, as listed in Table 1 (See Hydro's
7 2018 Capital Budget Application, Volume II, Tab 21, page 4) for each system. As
8 noted in the Capital Budget Application, Doyles was not included in the total
9 number of customers impacted because of the alternate generation capability in
10 the area negating the requirements for planned customer outages for breaker
11 work.

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13 For each system, the outage minutes from 2012-2016 were calculated, both for
14 outages for all reasons and outages related to breaker work. These outage
15 durations were multiplied by the customers impacted in each system to obtain the
16 Total Customer Outage Minutes per system. Total Customer Outage Minutes from
17 each system are combined to give the Total Customer Outage Minutes for all
18 systems presented in Table 3 (See Hydro's 2018 Capital Budget Application, Volume
19 II, Tab 21, page 6).

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22 Table 1 below shows a further breakdown of all data used to calculate the planned
23 customer outage minutes. Planned outage minutes are presented by each breaker
24 along with the customer outage minutes.

Table 1: Planned Outage Minutes and Customer Minutes (2012-2016)

Circuit Breaker	Planned Outages Related to Circuit Breaker Work (Minutes)	All other Planned Outages (Minutes)	Total Planned Outages (Minutes)	Customers Impacted	Customer Outage Minutes Related to Circuit Breaker Work	Customer Outage Minutes For All Other Outages	Total Customer Outage Minutes
Bottom Waters L60T1	924	2345	3269	2253	2,081,772	5,283,285	7,365,057
Buchans B2T1	390	138	528	665	259,350	91,770	351,120
Howley B1T2	1486	1035	2521	773	1,148,678	800,055	1,948,733
Peters Barren B1L41	2194	7997	10191	1900	4,168,600	15,194,300	19,362,900
South Brook L22T1	42	572	614	2340	98,280	1,338,480	1,436,760
Total					7,756,680	22,707,890	30,464,570