

1 Q. **Reference: Application, Volume I, Table 6-9 Island Industrial Customer Rate Impacts**

2 Please discuss, with assumptions documented and supporting quantified examples where
3 possible, Hydro's perspectives on the impacts of the proposed rate structure on a customer who
4 chooses to electrify a heating or other process load currently served primarily by fossil fuels, in
5 particular:

- 6 a) In Hydro's view, is the proposed rate structure intended to disincentive such
7 electrification? If not, what rate options or other mitigations might be available to the
8 customer to ensure electrification of such loads is not disincentivized.
- 9 b) Please provide a quantitative analysis assuming a customer with an existing load based
10 on a power on order of 20 MW at 80% load factor then added a load for new
11 electrification of a 5 MW heating load at 50% load factor.
- 12 c) Please describe what mix of options, including adjusting power on order, use of non-
13 firm rate options, potential access to capacity assistance agreements and any other rate
14 options might be available to manage bill impacts or achieve bill reductions.

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17 A. *This response was provided by Christensen Associates Energy Consulting.*

- 18 a) The proposed Hours of Use ("HOU") design is not intended to provide a disincentive to load
19 changes such as electrification. Newfoundland and Labrador Hydro ("Hydro") expects the
20 new design to offer customers choices as to how much to consume both in the short and
21 the long run, as it provides access to rates that are more reflective of marginal costs. As
22 shown in the response to part b) below, customers that undertake electrification may
23 experience lower bill impacts under the proposed rate structure than under the current rate
24 structure. Nonetheless, the magnitude of any customer benefit will depend on the specific
25 characteristics of the customer's load, including demand levels, load factor, and usage
26 profile, and therefore results may vary by customer.

b) The table below presents annual bill amounts under three scenarios: (1) existing rates and prices (row “Cur. Rate, Prices”); (2) the current rate structure with prices updated to reflect the proposed revenue requirement (row “Cur. Rate, New RR”), assuming an updated demand rate of \$12 per kW and energy price of \$0.04769 per kWh; and (3) the proposed rate structure (row “New Rate”). Each column corresponds to one of the scenarios described above, assuming a customer with an existing load based on a power on order of 20 MW at 80% load factor added a load for new electrification of a 5 MW heating load at 50% load factor.

A comparison of the “Cur. Rate, New RR” and “New Rate” scenarios indicates that the customer, before electrification, incurs a slightly higher bill under the proposed HOU design than under the current design. However, such a customer who then electrifies their heating load experiences a smaller bill increase than under the current rate. For this customer, annual billings on the expanded load would be higher under the HOU design than the current design by 0.4%, while before the addition of load, the HOU bills would be higher by 0.8% than under the current rate structure with updated prices.

Comparing a customer’s bill change before and after the addition of electrified load within the same rate structure demonstrates the impact of electrification on annual bills. Under the current rate structure with updated prices, electrification increases the annual bill by \$1,764,471, calculated as the difference between \$11,437,087 and \$9,672,616. Under the proposed rate structure, the annual bill increase is lower, at \$1,735,435, calculated as the difference between \$11,488,040 and \$9,752,605. Therefore, relative to the current rate structure with updated prices, the proposed rate structure reduces the incremental annual bill impact associated with electrification by \$29,036.

	20 MW at 80% LF	20 MW at 80% LF + 5 MW at 50% LF
PO (MW)	20	25
Usage (MWh)	140,160	162,060
Cur. Rate, Prices	\$8,889,485	\$10,503,017
Cur. Rate, New RR	\$9,672,616	\$11,437,087
New Rate	\$9,752,605	\$11,488,040
Impact	\$79,989	\$50,952
Impact Pct.	0.8%	0.4%

1 c) Customers may manage bill impacts by adjusting their load characteristics and power on
2 order. Hydro's response to CA-NLH-186 of this proceeding includes several scenarios that
3 demonstrate these effects. Additionally, a customer who adds load that is non-firm would
4 not have to adjust their power on order, enjoying further bill savings, subject to the ability
5 to reduce loads at short notice for periods of time of variable length, depending upon
6 Hydro's system conditions.