

1 Q. **Reference: Chapter 5, Section 5.7; Chapter 6, Sections 6.7 and 6.10.2**

- 2 a) Identify the principal billing determinants and assumptions that create revenue risk
3 under the proposed Island Industrial rate design.
- 4 b) Provide sensitivity analyses showing the effect on Island Industrial class revenues of: i) a
5 5% and 10% reduction in annual energy consumption; ii) a 5% and 10% reduction in
6 billing demand; iii) a 5% and 10% reduction in load factor; iv) a shift of consumption
7 between Winter and Non-Winter months; and v) a lower-than-forecast Second Block
8 consumption.
- 9 c) Explain how any deficiency or surplus arising from actual Island Industrial billing
10 determinants that differ from forecast will be recorded and ultimately assigned.
- 11 d) Confirm whether any portion of an Island Industrial revenue deficiency could be
12 recovered from Newfoundland Power or its customers. If so, explain the circumstances
13 and provide the applicable allocation and recovery methodology.
- 14 e) Confirm whether all Island Industrial amounts recorded in the Supply Cost Variance
15 Deferral Account or any other variance account will remain assigned to the Island
16 Industrial customer class. If not, explain how the amounts will be allocated among
17 customer classes.

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20 *Part b) of this response was provided by Christensen Associates Energy Consulting.*

- 21 A. a) Please refer to part c) of Newfoundland and Labrador Hydro's response to PUB-NLH-061 of
22 this proceeding.
- 23 b) Table 1 presents the results of the requested sensitivity analysis. It presents bills for the
24 class base case revenue requirement under the current rate, proposed revenue
25 requirements, and the proposed hours of use ("HOU") design targeting the same
26 requirements. The two columns immediately to the right of the base case present the two

1 load reduction scenarios: i) 5%, and ii) 10%. The next two columns present the billed
2 demand reduction scenarios: iii) 5% and iv) 10%. The rightmost two columns present the
3 load-shifting scenarios, with shifts of load out of each Winter month (1.0% and 2.0%) and
4 into each Non-Winter (“summer”) month (0.5% and 1%), with a net change in load of
5 approximately zero.¹

Table 1: Sensitivity Analysis

	Base	Load Reduction: 5%	Load Reduction: 10%	Billed Demand Reduction: 5%	Billed Demand Reduction: 10%	Load Shifting Winter (-1%) to Non- Winter	Load Shifting Winter (-2%) to Non- Winter
Current Rate	\$42,813,971	\$41,351,303	\$39,888,634	\$42,156,611	\$41,499,251	\$42,813,971	\$42,813,971
HOU Rate	\$42,813,971	\$41,223,796	\$39,631,357	\$42,282,794	\$41,751,538	\$42,704,099	\$42,594,217
Bill Difference (HOU vs. Current)	\$0	(\$127,507)	(\$257,278)	\$126,183	\$252,287	(\$109,872)	(\$219,754)
Bill Impact (HOU Adj - HOU base)	N/A	(\$1,590,175)	(\$3,182,614)	(\$531,177)	(\$1,062,433)	(\$109,872)	(\$219,754)
Bill Diff. Pct. (HOU vs. Current)	0.0%	-0.3%	-0.6%	0.3%	0.6%	-0.3%	-0.5%
Bill Impact Pct (HOU Adj - base) / base	N/A	-3.7%	-7.4%	-1.2%	-2.5%	-0.3%	-0.5%
Mos. w/ zero Block 2 Usage	8	9	10	6	6	7	7

- 6 *i.* A 5% reduction in energy consumption mostly reduces revenues and costs
7 identically, since almost all reduced consumption comes from block 2. A 10%
8 reduction reduces revenues, eventually at a rate differing from marginal cost. In
9 Winter, the Block 1 rate is similar to the Block 2 rate, resulting in a revenue
10 reduction close to marginal cost. In Non-Winter months, the revenue reduction
11 exceeds the cost reduction, since the Block 1 price exceeds marginal cost and some
12 customers experience reductions in Block 1 consumption, Block 2 consumption
13 having been eliminated. This reduction impinges upon fixed cost recovery.
- 14 *ii.* A reduction in billing demand of 5% or 10% would be the result of reductions in
15 Power on Order, known in advance. If consumption is not reduced, customer load
16 factors would increase, shifting load share from Block 1 to Block 2, reflecting a
17 reduction in cost to serve. If revenue requirement were computed on the adjusted
18 Power on Order, fixed costs would be shared over lowered billed demand and
19 Block 1 usage, with resulting increases in prices at the next rate application.

¹ The analysis does not include possible future deferral account activity.

1 iii. A simple version of the decrease in load factor is found in scenario i), in which
2 consumption decreases. In this case, similar results occur. An alternative version is
3 one in which demand increases, the opposite of scenario ii). Cost to serve rises, with
4 Block 1 share increasing relative to Block 2.

5 iv. This scenario (a shift of consumption) is represented by a 1% and 2% shift of load for
6 each customer out of each Winter month and a shift of the reduced load amount
7 into the Non-Winter months (with shares based on each month's share of Non-
8 Winter usage), resulting in no change in annual consumption. Note that the current
9 bill does not change due to the shift, while the HOU bill declines. Customer load in
10 Winter months falls, but there are few cases in which Block 2 consumption is
11 eliminated. In Non-Winter months, consumption increases, with some creation of
12 Block 2 load where none was present before. Total months with no Block 2 usage
13 decline slightly relative to the base case.

14 v. Reductions in Block 2 consumption reduce costs at the same rate as revenues until
15 the customer's Block 2 consumption is eliminated. Revenue recovery is not affected.
16 (There are no table columns to depict this change.)

17 c) Variances in load for Newfoundland Power Inc. and Island Industrial customers are valued at
18 the Block 2 energy rate. These variances are proposed (as per Section 5.7.5 Load Variation)
19 to be allocated between demand and energy using system load factor. The demand and
20 energy components are then proposed to be allocated among all customers on the Island
21 Interconnected System in accordance with the Long-Term Supply Cost Variance Deferral
22 Account Definition (Section B filed as Exhibit 10). The sharing of load variations among all
23 customers is consistent with past practice.

24 d) The Island Industrial Customer revenue deficiency, resulting from delayed rate
25 implementation, is recovered from Island Industrial customers only.

26 e) Please refer to part c) of this response.