Q. **Reference: Volume I, Section 6.7.1**

Hydro proposes to reduce the demand charge from $10.73 to $5.50 per kW per month - equal to the Newfoundland Power charge and approximately 31% of the $17.54 embedded demand cost - with the remainder recovered through the First Block Energy rate.

a) Provide the rationale for setting the Industrial demand charge equal to the Newfoundland Power charge rather than by reference to marginal capacity cost or embedded demand cost, and state Hydro’s current estimate of marginal capacity cost on the Island Interconnected System.

b) Quantify the effective combined price signal on an incremental kilowatt of peak demand under the proposal - the $5.50 demand charge plus the shift of 300 kWh from Block 2 to Block 1 pricing - by season, and compare that combined signal to marginal capacity cost.

c) Provide the intra-class bill impact, by customer, of shifting demand-cost recovery from the demand charge into the First Block Energy rate, distinguishing high and low load factor customers.

d) Discuss whether the reduced demand charge weakens or strengthens the incentive to manage peak demand relative to the existing design, with supporting quantification.

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

a) The Hours of Use design produces a customer-specific lump sum for revenue recovery, consisting of the demand charge and the block 1 energy charge. From the perspective of revenue recovery, the share collected by each component does not matter much. This is reflected in rate designers being willing to price demand as low as zero (i.e., having no demand charge). From the perspective of marginal cost pricing of demand, the customer perceives the cost of increasing peak demand as the combined effect of the changes in these two charges. Newfoundland and Labrador Hydro’s (“Hydro”) marginal capacity costs are seasonal. Winter 2027 all-hours marginal capacity cost is $121.07/MWh. The comparable Summer value is $3.03/MWh.[1]

b) The value of the combined price signal depends upon the customer's pattern of load change. Consider an extreme case, in which a customer of 1 MW peak demand and a 70% load factor increases peak demand by 100 kW in a single hour of the year and effectively does not change their total consumption. The customer's billed demand rises in every month of the year, adding $550 to each of the 12 bills. As noted in PUB-NLH-054, the customer's block 1 usage in each month shifts up by 30 MWh and their block 2 usage declines by the same amount. At proposed prices of $0.0669 per kWh for block 1, $0.0899 for Winter block 2, and $0.0328 for non-Winter block 2, a Winter bill declines by about $658 (because the block 1 price is slightly less than the Winter block 2 price) and a non-Winter bill increases by about $1,023, for net increase of $5,548 or $55,480 per MWh (using the 100 kW increase in one hour as the benchmark for usage change). On the other extreme, a customer who increases their peak demand and maintains their load factor (by increasing load commensurately in every other hour of the month and year experiences just the $550 increase noted above. The breadth of these differences highlights the impracticality of benchmarking the combined price of demand and block 1 energy to marginal capacity cost.

c) Please see the table below, which presents intra-class bill impact on a percentage basis. The customers appear in the same order as in the report. The relationship between load factor and bill impact is non-linear, reflecting differences in load profile across customers. The customer with the highest load factor (number 6) experiences almost no differences in bill impacts across demand price scenarios. The lowest load factor customer (number 3) experiences the lowest bill impact, a reduction, with the two lowest demand prices and the highest bill impact with the highest demand price. Other customers have relatively smaller variations.

[1] 2024 Seasonal Marginal Cost Projection for 2025–2045 provided by Hydro.

	1	**2**	**3**	**4**	**5**	**6**
Load Factor	84.8%	77.5%	36.1%	75.9%	69.5%	100.0%
Bill Impact ($0.00 Demand)	0.96%	0.42%	-7.96%	0.65%	-3.35%	1.92%
Bill Impact ($5.50 Demand)	0.87%	0.32%	-4.19%	0.72%	-3.46%	1.84%
Bill Impact ($12.00 Demand)	0.76%	0.20%	0.27%	0.81%	-3.59%	1.74%
Bill Impact ($17.54 Demand)	0.67%	0.10%	4.08%	0.88%	-3.69%	1.66%

d) Alternative levels of demand price (and block 1 energy price) alter to some degree the incentive to manage peak demand, but the impact depends upon the customer's overall load decision and is quite variable. However, between the extremes identified above, it is clear that unless the customer successfully preserves load factor the effective price of increasing peak demand will exceed $5.50 per kW.