

Muskrat Falls Project & Customer Rates

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Roadmap

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- ii. Hydro's Customers
- iii. Cost to Serve and Potential Customer Rate Impacts
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Summary of Muskrat Falls Contracts

Summary of Muskrat Falls Project Contracts

Terms of Payment from Hydro

- Hydro's Island Interconnected System customers are required to pay 100% of the Muskrat Falls Project cost, regardless how much energy they consume.
- This includes capital and operating costs, sustaining capital and a rate of return for the Muskrat Falls Project over a 50-year term.
- Hydro has no ownership of Muskrat Falls Project assets nor any right to the output at conclusion of the 50-year term.

Summary of Muskrat Falls Project Contracts

Hydro receives:

- Energy to replace Holyrood thermal generation and supply load growth into the future (Schedule 2 to Muskrat Falls Purchase Power Agreement).
- Capacity to replace Holyrood Thermal Generating Station (490 MW) and some additional available capacity to serve peak load.
- As a result of the Labrador Island Link and the Maritime Link , Hydro also receives access to additional supply that may be available in Labrador or imported from external markets.

Summary of Muskrat Falls Project Contracts

Other Contract Terms:

- If Hydro requires less energy than specified in Schedule 2, Hydro's customers receive the proceeds from exports of the unused Schedule 2 energy allotment.
- Available energy in excess of Schedule 2 energy allotment is not owned by Hydro.
 - The export value of this energy is owned by Nalcor.
 - Additional energy in excess of Schedule 2 required for Island load growth is provided at no additional cost.
- If Hydro requires energy in excess of Schedule 2 for reasons other than load growth on the Island (e.g., hydro plant outage), Hydro must purchase the additional energy based on market value.

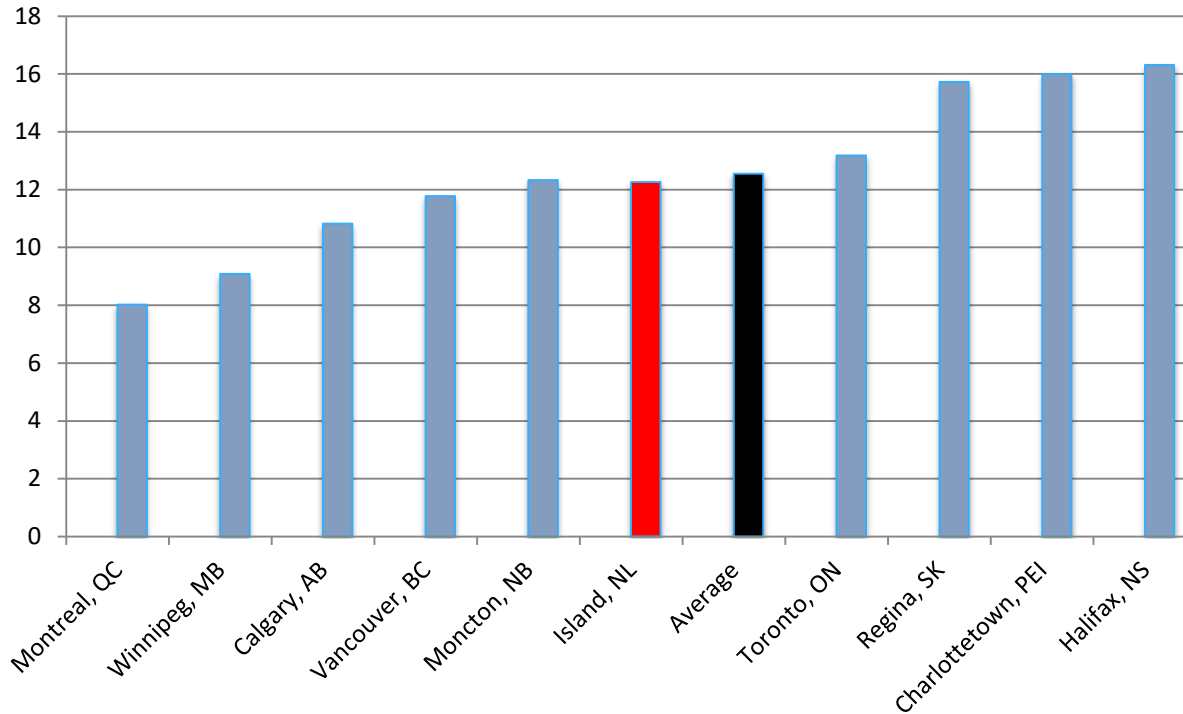


Hydro's Customers

Customers – Newfoundland Power

- Hydro's largest customer is Newfoundland Power.
- The cost of purchases from Hydro represents approximately two-thirds of Newfoundland Power's cost to serve its customers.
 - The Newfoundland Power cost to serve its customers excluding their cost of purchases from Hydro is approximately 4.4 cents per kWh.
- Newfoundland Power currently pays Hydro approximately 7.9 cents per kWh; Forecast to increase to an average of 8.8 cents per kWh in October 2019. This rate includes approximately 1 cent per kWh to meet the legislative requirement to subsidize Hydro's Rural customers.
- Current average residential rate including Newfoundland Power costs is 12.3 cents per kWh; forecast to increase to 13.2 cents per kWh in October 2019.

Residential Rates in Canada

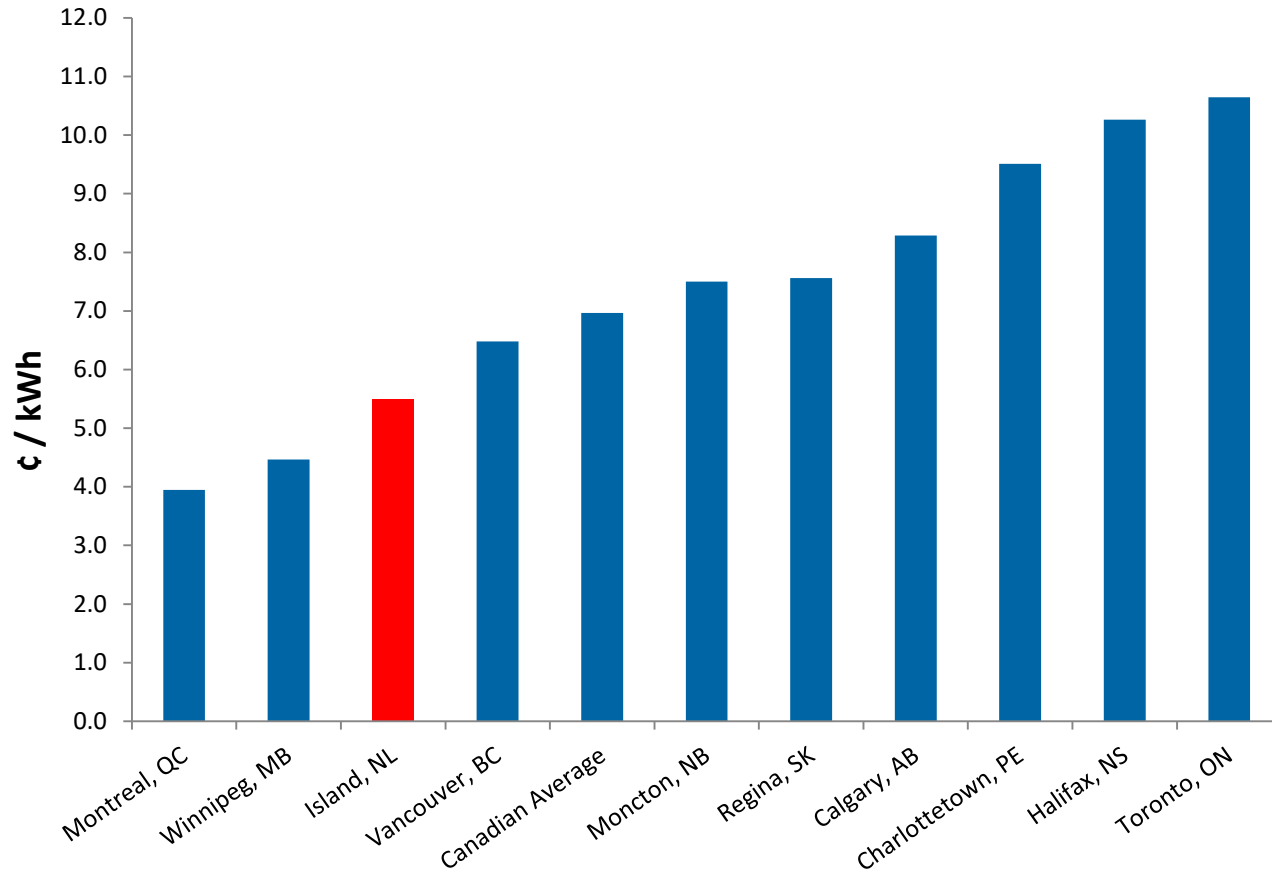


Based on a survey conducted by Hydro in February, 2019.

Customers – Industrial

- Hydro provides service to 5 Island Industrial customers:
 - NARL Refining Limited Partnership
 - Vale Inc.
 - Praxair
 - Corner Brook Pulp & Paper
 - Teck Resources
- Existing Island Industrial rate is approximately 5.5 cents per kWh
 - This is forecast to increase to 6.2 cents per kWh in October 2019
- Hydro serves 2 Labrador Industrial Customers – IOC and Tacora mines. Rates for these customers are non-regulated and updated annually reflecting the Labrador Industrial Rates Policy established by the Provincial Government.

Industrial Rates in Canada



Based on a Hydro-Quebec survey prepared in 2018

Customers – Hydro Rural



- 38,600 direct rural customers in more than 240 communities.
- Customers on Island Interconnected System and L'Anse au Loup system pay the same rates as the customers of Newfoundland Power.
- When rates to Newfoundland Power's customers change, rates to isolated diesel system customers change by the same percent.
- Rates to customers on the Labrador Interconnected System are not linked to Island rates.



Cost to Serve and Potential Customer Rate Increases

Cost to Serve if Muskrat Falls Project on Budget

Particulars	2019 Island Costs (\$M)	2021 with Muskrat Falls (\$M)	Difference (\$M)	Increase (%)
Original Projection (DG3)	\$829	\$995	\$166	20%

The impact of including the cost of the Muskrat Falls Project in customer rates had it remained on budget at \$6.2 billion would result in an approximate 20% cost increase compared to the current 2019 costs.

The costs above include total Island Interconnected System costs including Newfoundland Power's cost to serve and the allocated rural deficit.

Cost to Serve Customers with Updated Costs

Particulars	2019 Island Costs (\$M)	2021 with Muskrat Falls (\$M)	Difference (\$M)	Increase (%)
Current Projection	\$829	\$1,306	\$477	58%

With the updated Muskrat Falls Project costs, the cost to serve customers is now projected to increase approximately 58% relative to the current 2019 costs.

Government Direction on Rates

- Government direction (OC2013-343) requires that any expenditures, payments or compensation paid directly or indirectly by Hydro under an agreement or arrangement to which the Muskrat Falls Exemption Order applies, shall be included as costs in Hydro's cost of service, without disallowance.
- OC2013-343 also requires that the cost of the Muskrat Falls Project be recovered in full through Island Interconnected rates and exempts customers on the Labrador Interconnected System from paying costs related to the Muskrat Falls Project.

Projected Customer Rates (No Mitigation) (¢ per kWh)

Customer Class	2019 Costs (¢ per kWh)	2021 Forecast with MF (¢ per kWh)	Increase (¢ per kWh)	Increase (%)
Newfoundland Power's Customers	13.2	20.6 – 20.9	7.4 – 7.7	56% - 58%
Island Industrial Customers	6.2	9.9 – 12.5	3.7 – 6.3	60% - 102%

The relative sharing of Muskrat Falls Project costs between Newfoundland Power and Island Industrial Customer is currently under review by the Board of Commissioners of Public Utilities in its Cost of Service Methodology proceeding. The table above presents the range of allocated costs on a cent per kWh basis.



Rate Mitigation

Rate Mitigation

- Government has indicated rate mitigation will be provided to reduce the customer rate impact of the Muskrat Falls Project

Rate Mitigation Requirements Post Muskrat			
Customer Class	Cost to Serve (\$M)	Average Cost (¢/kWh)	Mitigation Cost (\$M per 1¢ reduction)
Newfoundland Power and Hydro Rural	\$1,223	20.7	\$59
Island Industrial Customers	\$83	11.2	\$7.5

For Newfoundland Power, the cost to serve reflects both Hydro's costs and Newfoundland Power's costs.

Rate Mitigation

- The table below provides an estimate of the rate mitigation funds required annually, beginning in 2021, to support a range of average residential prices for the Island Interconnected System.

Illustrative Residential Rate (¢/kWh)	2021 Rate Mitigation Required (\$M)
13.5	\$425
14.5	\$366
15.5	\$307
16.5	\$248
17.5	\$189
18.5	\$130

Rate Mitigation

- The table below provides an estimate of the rate mitigation funds required annually, beginning in 2021, to meet a range of Island Industrial prices.

Target Industrial Rate (¢/kWh)	2021 Rate Mitigation Required (\$M)
6.5	\$35
7.0	\$32
7.5	\$28
8.0	\$24
8.5	\$20
9.0	\$17

Rate Mitigation

- The cost to serve is projected to continue to increase beyond 2021. This reflects Hydro's continued investment in the electrical system and the continued escalation of the Muskrat Falls Project costs. Therefore, rate mitigation must be a long-term commitment.

Year	Estimated Residential cost to serve (¢/kWh)
2024	21.9
2027	22.9
2031	25.0
2035	26.7
2039	29.7

Rate Mitigation – Load requirements

- Customer rate increases can contribute to reduced customer usage. The degree of impact depends on:
 - Health of the provincial economy (income levels);
 - The electricity price competitiveness with alternative sources.
- For example, a 5% reduction in customer usage will reduce revenues to Hydro but will not reduce the required Hydro payments under the Muskrat Falls Project agreements.
- Reduced revenues from sales reductions would be partially offset by increased export revenues. Hydro estimates that 4% increase in rates would be required to offset a 5% reduction in customer energy use.

Rate Mitigation – Load requirements

- Without adequate rate mitigation, electric heat may no longer be an affordable heating source for many customers.
- Uncertainty concerning future electricity rates may already be influencing customer behavior.
- Minimal increases in sales in recent years despite rates remaining competitive.

Rate Mitigation – Pricing Considerations

- Currently increased customer energy requirements are supplied by Holyrood at a high marginal cost (No. 6 fuel).
 - 18 cents per kWh for 2019.
- Once the Muskrat Falls Project is in service, increased customer energy requirements reduce the energy available for export.
 - In this case, the marginal cost is the value of exports and is in the range of 2 to 4 cents per kWh.
- There is limited capacity available to serve peak load growth. As a result, demand management initiatives will target limiting growth in peak demand to avoid additional resource investments.
 - High marginal capacity costs during winter months.
- Once the Muskrat Falls Project is in service, Hydro projects a low marginal cost of energy and a high marginal cost of capacity.

Rate Mitigation – Pricing Considerations

- The change in the marginal cost attributes for the Island Interconnected system require a review of the rate designs on the Island Interconnected system.
 - Hydro has been in discussions on a retail rate review for the Island interconnected System.
- Hydro is currently in the process of reviewing its wholesale rate design of Newfoundland Power and its Island Industrial Customers.
 - Depending on the Government's decision on the amount of rate mitigation available for Industrial Customers, Hydro may need to consider proposing a load retention rate to limit the likelihood of closure of the existing industrial customer facilities.
- Potential Study underway reviewing opportunities for Hydro and Newfoundland Power to incent demand management by customers.

Rate Mitigation – Other Processes

- The Board of Commissioners of Public Utilities has been requested by Government to undertake a review of electricity rate mitigation options and impacts in relation to the Muskrat Falls Project.
- The Board has a separate proceeding reviewing system reliability following the in-service of the Muskrat Falls Project.
 - This proceeding includes determining a reasonable balance between system reliability and customer cost.
- Hydro is currently working with the Government on the development of an electric vehicle charging network.
 - Phase I was included in the recent Provincial budget.

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