

Newfoundland and Labrador
Board of Commissioners of Public Utilities
Public Utilities Board Rate Mitigation Review
P.O. Box 21040
St. John's, NL A1A 5B2
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October 25, 2019

Re: Rate mitigation options and impacts relating to the Muskrat Falls project costs

Dear Commissioners,

Efficiency Canada is the national voice for an energy efficient economy. We are a research and advocacy organization housed at Carleton University's Sustainable Energy Research Centre. Our mission is to create a sustainable environment and better life for all Canadians by making our country a global leader in energy efficiency policy, technology, and jobs. We conduct rigorous policy analysis; communicate compelling narratives; and convene and mobilize Canada's dynamic energy efficiency sector.

As Policy Director, I am writing to you to share some advanced results of Canada's first *Provincial Energy Efficiency Policy Scorecard* and companion policy database which we plan to release in November.¹ This research benchmarks provincial energy efficiency performance and policies in efficiency programs, enabling policies, buildings, transportation, and industry. I am providing this information before our report release so our research can inform your deliberations. I also wish to highlight the role that energy efficiency can play in Newfoundland and Labrador's energy future. This submission will discuss:

1. Energy efficiency as a resource option that avoids the risk of future cost overruns, as experienced with the Muskrat Falls hydroelectric project.
2. The benefits of focusing on minimizing bills, for all fuel sources, and targeting bill relief to the most vulnerable populations.
3. The opportunities to leverage federal government policy through strategic electrification and energy efficiency

¹ To receive the scorecard report, upon its release, visit <https://www.scorecard.efficiencycanada.org/>

Energy Efficiency as the first – and lowest risk – resource

Energy efficiency is a cost-effective and abundant resource, that prevents ratepayers bearing unnecessary costs for energy infrastructure. Energy efficiency is not only often the lowest cost option, it is also the lowest risk,² because it can be ramped up in a modular fashion and avoids infrastructure lock-in. It avoids risks associated with new regulations, fuel costs, water availability, while also increasing the resilience of homes and energy systems in the face of increasingly violent weather.

Given Newfoundland and Labrador's experience with cost overruns related to the Muskrat Falls Project,³ it is incumbent upon the Commissioners to consider how similar experiences can be avoided in the future.

This is why we recommend endorsing a principle of maximizing all cost-effective energy efficiency options before any supply side alternatives are considered. States such as California, Connecticut, Maine, Massachusetts, and Rhode Island require utilities to acquire all cost-effective energy efficiency.⁴ The British Columbia *Utilities Commission Act*, Sect. 44.1(2)(f) requires utilities proposing new capital projects to explain why demand cannot be met through increased demand side management.

Rate Impact Measure is inappropriate for considering customer impacts

One aspect of considering efficiency as an alternative to supply includes using cost-effectiveness testing methods that consider all cost and benefits and place efficiency on even footing with supply.

We are currently producing a Canadian efficiency policy database, which tracks the principle cost-effectiveness tests used in each province. We have not found any province that uses the “Rate Impact Measure” (RIM) as a primary decision-making tool, as discussed by the Island Industrial Consumers Group in their submission to process. The RIM test considers the impact of energy efficiency on those that do not participate in programs. The RIM test provides a very incomplete picture because efficiency strategies can increase participation and the test does not consider that non-participants benefit from avoiding energy system risks (including future cost overruns), and societal

² Binz, R., Sedano, R., Furey, D., Mullen, D., 2014. Practicing risk-aware electricity regulation. CERES & Regulatory Assistance Project. <https://www.ceres.org/resources/reports/practicing-risk-aware-electricity-regulation-2014-update?report=view>

³ For an international review of cost overruns of large hydroelectric projects, see Ansar, A., Flyvbjerg, B., Budzier, A., Lunn, D., 2014. Should we build more large dams? The actual costs of hydropower megaproject development. *Energy Policy* 69, 43–56. <https://doi.org/10.1016/j.enpol.2013.10.069>

⁴ See American Council for an Energy Efficient Economy (ACEEE) 2019 State Energy Efficiency Scorecard, available at <https://aceee.org/research-report/u1908>

benefits of energy efficiency such as lower pollution, and lower bills leading to re-spending in the local economy.

Focusing on energy bills

No one pays an electricity *rate*. Rather customers pay electricity *bills*, which can be reduced by using less. Furthermore, consumer pocketbooks are not only affected by electricity costs. Consumers must consider their entire energy costs, across all fuels, and they must also consider how much these energy costs burden them in comparison to their income.

We are encouraged by the analysis conducted by *Synapse Energy Economics* for the Commission, demonstrating that energy efficiency and electrification leads to the lowest energy bills.⁵

Below we present some comparative information from our soon-to-be-released scorecard report, demonstrating that Newfoundland and Labrador has significant room to follow the trends we see in other Canadian jurisdictions by increasing electrification, and efficiency programs — particularly for those most in need of energy cost relief.

Reducing bills for those with the highest energy burdens

The concept of “energy poverty” considers a situation where high energy bills lead to inadequate energy services and social exclusion, preventing some households from gaining access to other necessities of life.⁶ The level of energy poverty can be assessed by defining an acceptable or sustainable “energy burden” as a percentage of income spent on energy costs. In Canada, energy poverty researcher Dr. Maryam Rezaei suggests a 6% threshold, roughly twice the national median energy burden.⁷

The Canadian Urban Sustainability Practitioners network has recently published a custom Census tabulation of the number of households in energy poverty per province. As seen below, Newfoundland and Labrador has the second highest rate of households who spend more than 6% of their after-tax income on home energy costs (including heat and electricity and excluding transportation).

⁵ *Synapse Energy Economics, 2019. Phase 2 Report on Muskrat Falls Project Rate Mitigation. Prepared for Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.*

⁶ B. Boardman, *Fuel Poverty: From Cold Homes to Affordable Warmth* (London: Bellhaven Press, 1991), <https://www.energypoverty.eu/publication/fuel-poverty-cold-homes-affordable-warmth>.

⁷ Maryam Rezaei, “Power to the People: Thinking (and Rethinking) Energy Poverty in British Columbia, Canada” (University of British Columbia, 2017), <https://doi.org/10.14288/1.0351974>.

Households, by province, spending more than 6% of after-tax income on home energy costs*

Province	% of all households	Number of households
Prince Edward Island	41%	23,640
Newfoundland and Labrador	38%	83,245
Nova Scotia	37%	147,085
New Brunswick	37%	114,790
Ontario	22%	1,138,065
Saskatchewan	21%	81,390
Canada	20%	2,810,905
Québec	18%	630,185
Manitoba	16%	74,435
Alberta	16%	237,425
British Columbia	15%	272,200

* 2016 Census, custom tabulation from Statistics Canada for Canadian Urban Sustainability Practitioners (CUSP) network, available at <http://energypoverty.ca/backgrounder.pdf>

Newfoundland and Labrador spent \$2 million on low-income energy efficiency in 2018/19 through the Home Energy Savings Program. As seen in the table below, this level of spending equal \$24 per household in energy poverty, compared to \$117 in PEI and \$85 in Nova Scotia.

Low-Income Program Spending Per Household in Energy Poverty

Province	Spending Per Household in Energy Poverty	Spending on Low-Income Programs (\$M) (2018) ⁸
Prince Edward Island	\$116.90	\$2.8
Manitoba	\$87.96	\$6.5
Nova Scotia	\$85.73	\$12.6
Ontario ⁹	\$25.42	\$28.9
British Columbia	\$24.85	\$6.8
Newfoundland and Labrador	\$24.03	\$2.0
Alberta	\$23.60	\$5.6
New Brunswick	\$17.42	\$2.0
Québec	\$8.82	\$5.6
Saskatchewan	\$1.35	\$0.1

These figures demonstrate that Newfoundland and Labrador could increase its efforts to target energy savings to those households most in need. As the province considers the impact of Muskrat Falls, it should recognize that energy efficiency programs can target bill reductions to those populations with the highest energy burdens.

Furthermore, higher electricity costs will likely increase utility costs associated with non-payment and credits and collections. One benefit of targeting energy efficiency to those with the highest burdens includes reduced utility credit and collection costs.

Opportunities to expand electric vehicle charging

The analysis by *Synapse Energy Economics* highlighted the advantages of transportation electrification. One way to benchmark provinces on support for vehicle electrification is to compare public charging infrastructure per road kilometer. Provinces with more charging stations will combat “range anxiety” barriers to the use of electric vehicles.

⁸ Spending is from the 2018 calendar year or 2018/19 fiscal year. Where data from these years was not available, we used the most recent year’s information. This includes information from 2017/18 fiscal year from BC Hydro and Manitoba Hydro, and 2016 information from the Enbridge and Union natural gas utilities in Ontario.

⁹ Spending figures for the Affordability Fund or other government operated energy efficiency programs (e.g. the Green Ontario Fund) were not available. These figures include spending by electricity and natural gas utilities. Note that Ontario received points for the Affordability Fund in scoring on supportive policy frameworks.

As seen in the table below, Newfoundland and Labrador has a relatively low number of stations per road kilometer compared to other hydro-rich provinces such as Quebec and British Columbia.

This comparative analysis suggests that Newfoundland and Labrador has significant potential to promote vehicle electrification above current levels. This will lower provincial spending on petroleum products, reduce greenhouse gas emissions, and create new electricity revenues to pay the fixed costs associated with Muskrat Falls.

Electric vehicle charging stations per 1,000 kilometres of public-owned roads			
Province	Charging stations ¹⁰	Road kilometres ¹¹	Stations / 1,000 kilometres
Québec	2071	103,174	20.1
British Columbia	867	65,547	13.2
Ontario	1195	180,958	6.6
New Brunswick	116	27,455	4.2
Prince Edward Island	25	5,575	4.5
Nova Scotia	77	27,112	2.8
Alberta	188	176,342	1.1
Newfoundland and Labrador	23	13,493	1.7
Saskatchewan	34	63,080	0.5
Manitoba	41	81,031	0.5

¹⁰ Natural Resources Canada, "Electric Charging and Alternative Fueling Stations Locator," Government of Canada, 2019, https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-transportation-and-alternative-fuels/electric-charging-alternative-fuelling-stationslocator-map/20487#/analyze?country=CA&fuel=ELEC&ev_levels=1&ev_levels=2&ev_levels=dc_fast&status=E&status=P. Downloaded September 2019. This listing includes both networked charging stations (those part of one of ten different charging networks), data for which is uploaded automatically through an API) and non-networked stations (data for which must be submitted manually to the database). Each station may have one or more Level 1, Level 2, or Fast DC charging ports or combinations thereof. While the database is verified by an independent third party, it may not include all charging stations available in each province. Other charging station database services may have different numbers, though in some instances this may be due to their inclusion of unverified, self-reported, non-networked stations. We are nevertheless confident that the NRCan database provides a fair basis for comparison across the provinces.

¹¹ Data on publicly owned roads includes highways, arterials, collectors and local road infrastructure. See Infrastructure Canada, "Inventory of Publicly Owned Road Assets," Government of Canada, 2019, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410017601>.

More provinces are targeting fuel oil savings

Synapse also highlighted the potential to reduce fuel oil consumption in buildings through the diffusion of heat pumps, in particular. Reducing heating oil consumption through efficiency and electrification has often been neglected, but this is changing. In 2019, Nova Scotia aims to save 0.9% of annual fuel consumption. Quebec and British Columbia are both operating programs that convert oil heating systems to more efficient electric heat pumps.

The federal Minister of Natural Resources and provincial energy ministers (including Newfoundland and Labrador) signed onto a “Market Transformation Roadmap for Energy Efficient Equipment in the Building Sector,”¹² which sets goals for space heating and water heating technologies. This agenda will support research and diffusion of cold climate heat pumps.

Opportunities to leverage federal support

A strategy that grapples with the Muskrat Falls cost overrun challenge using efficiency and strategic electrification has the added benefit of leveraging federal and municipal government support that will be available to reduce greenhouse gas emissions.

Consider:

1. The above-mentioned “Market Transformation Roadmap for Energy Efficient Equipment in the Building Sector” aims to increase the performance and deployment of high-efficiency space and water heating equipment (e.g. heat pumps). Newfoundland and Labrador could demand that it become a high-priority province in support of this agenda.
2. The Federation of Canadian Municipalities Green Municipal Fund received \$1.1 billion in the 2019 Federal Budget to increase the energy efficiency of homes and buildings across Canada.¹³
3. In April 2019, Canada announced a nation-wide Zero Emission Vehicle target of 10% of light-duty vehicles by 2025, 30% by 2030, and 100% by 2040.¹⁴

¹² Energy and Mines Ministers’ Conference, “Paving the Road to 2030 and Beyond: Market Transformation Road Map for Energy Efficient Equipment in the Building Sector” (Iqaluit, Nunavut, August 2018), <https://www.nrcan.gc.ca/energy/regulations/21290>.

¹³ <https://www.canada.ca/en/campaign/energy-future/saving-energy.html>

¹⁴ Transport Canada, “Government of Canada Invests in Zero-Emission Vehicles,” Government of Canada, April 17, 2019, <https://www.canada.ca/en/transport-canada/news/2019/04/government-of-canada-invests-in-zero-emission-vehicles.html>.

4. As of May 1, 2019, the federal government offers purchase incentives of \$5,000 for electric vehicles (EVs) and long-range PHEVs, and \$2,500 for shorter range PHEVs.¹⁵

Conclusion

The Muskrat Falls cost overruns and the existence of a hydro surplus is not a reason to waste energy. This will only lead to higher electricity bills and a missed opportunity to reduce overall energy and environmental costs in the province. We encourage Commissioners to use the Muskrat Falls experience to create a new energy future in the province based on:

1. Ensuring all future energy decisions are least-cost and least-risk by prioritizing energy efficiency as a cost-effective resource;
2. Minimizing overall energy bills, especially for those with the highest energy burdens; and
3. Using hydroelectric resources to lower greenhouse gas emissions through strategic electrification, while leveraging support available through federal/municipal climate change policies

Thank-you for the opportunity to provide these comments.



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¹⁵ Transport Canada, "Zero-Emission Vehicles," Government of Canada, April 11, 2019, <http://www.tc.gc.ca/en/services/road/innovative-technologies/zero-emission-vehicles.html>.