

Nova Scotia Energy Board
Clerk of the Board
P.O. Box 1692, Unit "M"
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Re: An application by EfficiencyOne for approval of a New Benefit-Cost Analysis Test for Evaluating Demand Side Management (DSM) Plan (M12282)

August 22, 2025

Efficiency Canada is a national energy efficiency policy research and advocacy organization based at Carleton University. We are submitting comments on the above matter to the Nova Scotia Energy Board to provide a perspective on the application as national policy analysts.

Efficiency Canada tracks cost-effectiveness testing rules in Canada and publishes them in a provincial policy database.¹ We are currently conducting an updated and more in-depth review of these policies across Canada, and will provide some preliminary findings and insights from this work.

The authors of this submission are Brendan Haley, Carol Maas, and Katharine Turner. Brendan Haley is the Senior Director of Policy Strategy and Adjunct Research Professor at Carleton University's School of Public Policy and Administration. He was the Energy Coordinator for the Ecology Action Centre between 2005 and 2008, where he played a leadership role in the creation of Nova Scotia's energy efficiency policy framework. He sat on the Board of Directors of Efficiency Nova Scotia/EfficiencyOne (E1) between 2012 and 2018. Carol Maas is Efficiency Canada's Policy Research Associate, currently leading research on Canadian energy efficiency program screening and evaluation policies. Katharine Turner is Efficiency Canada's Research Associate on energy poverty and a resident of Nova Scotia. She was previously a representative for

¹ <https://database.energycanada.org/>.

the Ecology Action Centre and the Affordable Energy Coalition on E1’s DSM Advisory Group.

Comparing Canadian cost-effectiveness screening practices

Across Canada, we have seen a move away from a narrowly defined Total Resource Cost test as the primary screening test. The implementation of this test is often unbalanced because it counts customer costs without considering customer and societal benefits.

The table below shows that several Canadian jurisdictions have moved to provide a more balanced accounting of costs and benefits by either using the program administrator cost test or accounting for non-energy benefits within the Total Resource Cost test.

Utility/program administrator	Primary cost-effectiveness test	Benefit adders and/or consideration of non-energy benefits
BC Hydro	PAC	Pre-2023 policy included a 15% benefit adder to the TRC
FortisBC Energy (natural gas)		
FortisBC Inc. (electricity)		
Efficiency Manitoba	PAC ²	
New Brunswick Power	PAC and PCT	12.5% adders to TRC used for information purposes
Newfoundland Power and Newfoundland and Labrador Hydro	TRC	

² Based on use of PAC in extensions to Efficiency Manitoba’s 2020-2023 plan.

Ontario Independent Electricity System Operator	PAC	Previously reported TRC for info purposes with non-energy benefits based on a 2021 study, which replaced a 15% adder.
Enbridge Gas	TRC-Plus	15% adder to account for non-energy benefits
efficiencyPEI	PAC	
Énergir (gas)	TRC with NEBs	2023 regulator decision to include TRC with NEBs as the primary test and to report TRC without NEBs. The regulator asked Énergir to consider a societal cost test in the future.
Hydro-Québec	PAC, TRC, PCT	Negative results for low-income and pilot projects were accepted due to the recognition of larger socio-economic benefits.
SaskEnergy	TRC and SCT	
SaskPower	PAC and TRC	

PAC: Program Administrator Cost test, also called the utility cost test

TRC: Total Resource Cost test

PCT: Participant Cost Test

SCT: Societal Cost Test

NEB: Non-Energy Benefits

No jurisdiction in Canada has yet to adopt a jurisdiction-specific test modelled on the National Standard Practice Manual for Distributed Energy Resources. Being the first to adopt such a test would align with Nova Scotia's pioneering role in energy efficiency policy in Canada. Nova Scotia created the country's first energy efficiency utility, and its electricity DSM programs have consistently achieved high rates of savings compared to other Canadian DSM programs,

documented in Efficiency Canada’s annual and semi-annual provincial policy scorecards.³

The multiple benefits of energy efficiency

The International Energy Agency has highlighted that energy efficiency improvements produce multiple benefits for customers, society, and the environment.⁴ It does not make sense to have a cost-effectiveness screening practice that includes customer costs without considering the multifaceted benefits. For customers, the most important benefits are often non-financial. For instance, customers experiencing energy poverty can be most impacted by issues such as poor health, uncertainty, lack of basic services like air conditioning, and lack of energy reliability.⁵ Businesses often focus on strategic considerations, such as the ability for a project to reduce risks and improve the reliability of production and product quality.⁶ If Nova Scotia’s test is going to count host customer costs, it must also consider the multifaceted benefits associated with energy efficiency projects.

A strength of E1’s suggested framework is that it focuses on specific benefits rather than providing generic adders. This allows the jurisdiction to align benefits with policy goals and to better quantify benefits in the future.

The proposed approach will also allow for cost-effectiveness testing methodology to change alongside the evolution of energy efficiency technologies and program strategies. What might be considered immaterial or less relevant today can change tomorrow. For instance, the Energy Future

³ <https://scorecard.efficiencycanada.org>.

⁴ <https://www.iea.org/reports/multiple-benefits-of-energy-efficiency>.

⁵ Energy poverty can be understood as a situation where a household is unable to access adequate energy to maintain wellbeing at home, typically the result of a combination of energy unaffordability and poor housing conditions. For more, see Kantamneni, A. and Haley, B. 2024. Archetypes of Experiences with Energy Poverty in Canada. Efficiency Canada, Carleton University, Ottawa, ON.

⁶ Cooremans, C. Make it strategic! Financial investment logic is not enough. *Energy Efficiency* 4, 473–492 (2011). <https://doi-org.proxy.library.carleton.ca/10.1007/s12053-011-9125-7>.

Group report on the Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia listed credit and collection utility benefits as a non-material impact for demand response programs (Appendix B, pg. 14 of 68). This may not be the case if future programs are designed to use a wider diversity of demand-responsive technologies and if the benefits of demand response payments are targeted to customers with high energy burdens. By considering particular benefits in its cost-effectiveness test, Nova Scotia has a framework to adjust which benefits are material and relevant or should be prioritized for quantification.

We recommend that the quantification of specific benefits occur alongside research on program design. Given the likelihood of increased extreme weather events due to climate change and the potential for new customer-sited energy storage technologies, high-priority areas are likely to include resilience and reliability.

Energy efficiency benefits are significant for low-income customers. In Nova Scotia, 27% of households spent 6% or more of their income on energy bills – this is the second highest percentage in the country.⁷ Increasing proxy adders for income-qualified customers is particularly relevant in Nova Scotia. We further suggest prioritizing the quantification of low-income-related benefits in the future.

Discount rate

Using the weighted average cost of capital (WACC) as a discount rate on the cost-effectiveness test appears particularly ill-suited to Nova Scotia. The WACC represents a discount rate associated with the goal of maximizing utility investor returns. Nova Scotia opted to create an independent utility to deliver

⁷ Calculations based on 2021 Census data available at <https://www.energycanada.org/energy-poverty-in-canada/>.

Utility-informed data and energy poverty estimates, such as those provided by EfficiencyOne, may offer more up-to-date, localized data that should be considered and prioritised where appropriate.

energy efficiency in the interests of servicing customers and the provincial interest over utility investor interest.

The Energy Reform Acts directive that the Energy Board must consider sustainable development is also relevant. Sustainable development is “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” This calls for a discount rate that reflects a time preference that considers intergenerational equity.

For these reasons, using a social discount rate in the Nova Scotia Test is most appropriate.

Avoided costs

Utility system avoided costs will remain one of the most material benefits of energy efficiency programs. Across jurisdictions, these avoided costs are often not transparent and misaligned with forward-looking utility system risks and challenges. For instance, avoided costs can fail to consider time and location-specific avoided costs, reserve margins, and forward-looking estimates of transmission and distribution costs.

Calculation of avoided costs by the new Independent Electricity System Operator has the potential to ensure the most relevant and accurate costs are considered. A best practice is to have these avoided costs reviewed by a technical review committee, with transparency and/or accountability for stakeholders.⁸

⁸ See York et al 2020. National Survey of State Policies and Practices for Energy Efficiency Program Evaluation. American Council for an Energy Efficient Economy.

Strategic or unstrategic electrification?

A renewed cost-effectiveness test is particularly important for Nova Scotia to make sound decisions about managing electrification. The proposed test enables the inclusion of other fuel impacts alongside electricity system costs and benefits.

Efficiency Canada's *Breaking Fuel Silos* report discussed the importance of incorporating these multi-fuel impacts into cost-effectiveness testing.⁹ This allows an energy efficiency program to consider if electrification is strategic and beneficial, while also enabling the DSM program administrator to develop a portfolio that can offset potential electricity system costs. For example, water heating and vehicle electrification can be coupled with demand response programs to prevent system peaks, and heat pumps can be coupled with building envelope improvements to reduce electricity demand.

Jurisdictions that fail to consider the costs and benefits of electrification will end up with unstrategic rather than strategic electrification. Efficiency Nova Scotia is uniquely placed to balance customer, utility, and societal interests as the province increases electric end-uses. The ability to manage across fuel sources was one rationale for creating an independent administrator.¹⁰ The Nova Scotia Test will enable electrification to be strategic and let Efficiency Nova Scotia play its role as a multi-fuel program administrator, while mitigating costs on the electricity system.

⁹ Haley, B., Gaede, J., Nippard, A. 2024. *Breaking Fuel Silos in Demand Side Management: Policy options to align energy efficiency with net-zero emissions across all fuels*. Efficiency Canada, Carleton University, Ottawa, ON.

¹⁰ Wheeler, D., 2008. Stakeholder Consultation Process for an Administrative Model for DSM Delivery in Nova Scotia - Final Report. Haley, B., 2018. Case Study: Nova Scotia, in: Love, P. (Ed.), *Fundamentals of Energy Efficiency: Policy, Programs and Best Practices*. pp. 157–186.

Learning from the past by accounting for the future

Re-balancing Nova Scotia's cost-effectiveness test has a particular salience for one of our co-authors (Brendan Haley). Acting as an intervener for the Ecology Action Centre during the 2007 Integrated Resource Plan process, Mr. Haley highlights the unbalanced nature of a TRC test that counted customers' costs and not benefits. The EAC's stakeholder comments on the draft Integrated Resource Plan report on July 11, 2007, written by Mr. Haley, state:

"The EAC would like to reiterate its concern with the costing methodology utilized for DSM. In the technical conference on the IRP assumptions, the EAC expressed concern that the Total Resource Cost (TRC) test being utilized to cost DSM expenditures included only customer costs, and not total resource benefits to customers. This concern was acknowledged, and there was agreement to run the utility cost test as a proxy for a TRC test that incorporated full customer benefits."

The 2007 IRP did not include a utility cost test run. DSM was shown to be robustly cost-effective, and at the time, it seemed *immaterial* to see if it was even more cost-effective. However, Nova Scotia Power's initial and arbitrary decision locked Nova Scotia into an unbalanced cost-effectiveness testing methodology.

What seems immaterial today might not be in the future. We thus reiterate the strength of the Nova Scotia Test framework that enables ongoing consideration of the relevance and materiality of the multiple costs and benefits of energy efficiency, which will change as DSM strategies change and evolve.

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