

Modernizing Ontario's Conservation and Demand Management Framework

Pembina Institute response and comments

Submitted to: Ministry of Energy | September 22, 2023

Regarding: Electricity Energy Efficiency Programming Post 2024 notice (ERO number 019-7401)

Shruti Khanna, Lia Codrington, Grace Brown | Pembina Institute

Recommendation summary

Ontario's current Conservation and Demand Management (CDM) framework established successes by offering rebates for customers adopting energy-saving technologies. Since the inception of the initial framework, customer priorities have shifted, and a new suite of technologies and delivery methods have matured. These changes present opportunities to address today's electricity challenges and modernize the next generation of CDM strategies. With this written submission, we aim to help the Government of Ontario maximize the consumer economic benefits of electricity energy efficiency initiatives with recommendations to:

- Include beneficial electrification as an eligible CDM activity to support customer interest in decarbonization.
- Structure and incentivize CDM as a resource that can be used to respond to changing system, market, and customer needs.
- Explore incentives and regulatory measures that increase utility buy-in to energy efficiency programs.
- Assess how alternative financial incentives could leverage Ontario's smart meter network to accelerate energy efficiency uptake.

Context

The Pembina Institute supports the modernization of Ontario's Conservation and Demand Management programs led by the Ministry of Energy, and we appreciate the opportunity to respond to the questions outlined in the Electricity Energy Efficiency Programming Post 2024 notice (ERO number 019-7401).

Modernizing Ontario's CDM framework

More and more, Ontarians are looking for ways to electrify their energy consumption to reduce their personal carbon footprint.¹ One way to incorporate these new priorities is through the addition of beneficial electrification as an eligible activity in the next CDM framework. Beneficial electrification aims to strategically target the most practical and valuable fuel switching opportunities given current technology, electricity fuel mix, and energy costs. It can help electricity customers save money, increase resilience, and reduce grid emissions. However, these variables are fluid and what is the most “beneficial” to the environment and individuals may change, bringing a greater challenge for the utilities to anticipate these changes and determine the value of electrification over the lifetime of an investment.²

Relying on natural gas generation to meet peak demand may jeopardize Ontario's ability to meet the requirements set in the federal government's forthcoming Clean Electricity Regulations (CER). Additionally, expanding unabated gas assets now runs a risk of stranded assets later. When coupled with renewable generation, demand-side management and energy storage can cost-effectively provide similar services as gas plants.³ Other alternatives, including renewable energy, storage, demand-side management, and energy efficiency are readily available and can be rapidly deployed. Enacting CDM measures to reduce peak demand would also reduce the use of, and therefore the emissions from, natural gas plants during peak hours, especially during winter. Additionally, CDM would likely offer the benefit of lower system costs due to reduced dependence on expensive fuel sources.⁴ Implementing alternative utility rate structures that promote conservation at peak times and rebates that promote fuel-switching can incentivize beneficial electrification measures that help achieve decarbonization goals.

Incorporating new technologies

Customers have also expressed an interest in new technologies to better manage their energy consumption. Hence, they are requesting support to implement behind-the-meter distributed energy resources (DERs) such as energy efficiency and demand response solutions, solar photovoltaic (PV) systems, and battery storage.⁵ DERs can smooth demand peaks and reduce

¹ IESO, *2021-2024 Conservation and Demand Management Framework Mid-Term Review* (2022), 56.

<https://www.ieso.ca/en/Sector-Participants/Energy-Efficiency/2021-2024-Conservation-and-Demand-Management-Framework>

² Environmental & Energy Study Institute (EESI), <https://www.eesi.org/electrification/be>

³ Jan Gorski and Binu Jeyakumar, *Reliable, Affordable: The Economic Case for Scaling up Clean Energy Portfolios* (Pembina Institute, 2019), 10. <https://www.pembina.org/reports/reliable-affordable.pdf>

⁴ Will Noel and Binu Jeyakumar, *Zeroing In: Pathways to an affordable net-zero grid in Alberta* (Pembina Institute, 2023), 2. <https://www.pembina.org/reports/zeroing-in.pdf>

⁵ *2021-2024 Conservation and Demand Management Framework Mid-Term Review*, 56.

the need to invest in transmission infrastructure upgrades when placed strategically, fulfilling CDM objectives to reduce demand spikes and meet system needs in a cost-effective manner.⁶ However, as CDM and DERs were not thoroughly modelled in the Independent Electricity System Operator (IESO)'s Pathways to Decarbonization report, the potential benefits have not been quantified. We recommend that the Ontario Ministry of Energy and IESO conduct grid decarbonization studies in the future and consider a scenario that includes CDM and DER potential in detail.⁷

Beyond the modelling stage, implementing CDM and DERs into the electricity system is not a straightforward process. One challenge of particular importance is determining where DERs should be placed. DERs provide the most value in areas where load growth is pushing the local utility to invest in additional capacity to meet peak demand, but the total electricity sales in the region cannot cover the outlay of capital to do so. Identifying these areas of high need is an urgent priority as it takes years to evaluate DER alternatives and ensure they result in decreased local peak loads.⁸ Initiatives like the Framework for Energy Innovation, DER Roadmap, and Joint Study on DER Incentives currently underway at the Ontario Energy Board (OEB) and the IESO are identifying and addressing DER integration and procurement challenges.⁹

The need for long-term planning extends beyond DERs. For example, because customers currently opt into demand response programs for a period of one year, utilities cannot rely on demand response forecasts when planning long term. The IESO has requested that the next CDM framework adopt a longer-term approach that better leverages CDM opportunities rather than continue with time-bound frameworks like the 2021-2024 edition.¹⁰ This change in approach requires a fundamental shift in how CDM is perceived: not as a rebate program, but as a resource that can be used to respond to changing system, market, and customer needs.^{11,12}

⁶ Jason Wang and Binu Jeyakumar, *Exploring Ontario's Pathways to Net-Zero Electricity: Pembina Institute response to the IESO Pathways to Decarbonization report* (Pembina Institute, 2023), 11.

<https://www.pembina.org/reports/exploring-ontarios-pathways-to-net-zero-electricity-2023-05.pdf>

⁷ *Exploring Ontario's Pathways to Net-Zero Electricity*, 16.

⁸ Natalie Mims Frick, Snuller Price, Lisa Schwartz, Nichole Hanus, and Ben Shapiro, *Locational Value of Distributed Energy Resources* (Lawrence Berkeley National Laboratory, 2021), x, xi. https://eta-publications.lbl.gov/sites/default/files/lbnl_locational_value_der_2021_02_08.pdf

⁹ OEB and IESO, "OEB/IESO Joint Engagement on DER Integration," webinar, May 26, 2023, 5. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/derr/derr-20230526-oeb-joint-engagement-der-integration.ashx>

¹⁰ *2021-2024 Conservation and Demand Management Framework Mid-Term Review*, 2.

¹¹ *2021-2024 Conservation and Demand Management Framework Mid-Term Review*, 2.

¹² Jeff St. John, "California Sees Success Tying Energy Efficiency Rebates to Real Results," *Canary Media*, August 1, 2023. <https://www.canarymedia.com/articles/energy-efficiency/california-sees-success-tying-energy-efficiency-rebates-to-real-results>

One way to support DER integration is by connecting developers and clean electricity buyers through power purchase agreements (PPAs). PPAs may help address electricity supply concerns in a timelier manner, as multiple corporate buyers can act in parallel. PPAs help DER projects to secure better financing and lower net costs.¹³ PPAs have already enabled the massive deployment of renewables throughout the U.S. and Alberta, and have been shown to work in integrated electricity markets.¹⁴ The ability for corporations to secure their own electricity supply could be an important tool for the province to attract and anchor investment in Ontario – bringing economic development and job growth.¹⁵

Encouraging utility participation in energy efficiency programs

New technologies and innovative planning approaches necessitate funding for successful implementation. The cost-of-service model currently used in Ontario does not allow for remuneration to the utility outside of the kilowatt-hours of power they sell and the capital expenditures they incur to generate that power. Performance incentive mechanisms (PIMs) can provide an alternative means of valuing the services utilities provide, and when combined with revenue decoupling, can support energy efficiency programs.¹⁶ Direct incentive PIMs are particularly applicable in this case because they reward utilities that meet performance targets, such as an increase in customer energy efficiency, without impacting ratepayers' bills or their motivation to reduce consumption.¹⁷ PIMs should have a net positive impact on utility finances; however, subsidy support may be needed to ensure that extra costs are not passed on to consumers.¹⁸ Case studies are needed to understand any unexpected consequences of implementing a PIM system in Ontario.

In previous reports, the Pembina Institute has recommended the Ontario government implement Energy Efficiency Resource Standards (EERS) to set minimum efficiency targets for utilities.¹⁹ More than 25 states in the U.S. have active EERS policies, with the most stringent

¹³ *Exploring Ontario's Pathways to Net-Zero Electricity*, 11.

¹⁴ Business Renewables Centre Canada, *Designing programs for corporate renewables procurement* (2023), 1. <https://businessrenewables.ca/sites/default/files/2023-08/FactSheet%20-%20DesigningPrograms.pdf>

¹⁵ Michael Killeavy, “May 2022 Ontario Electricity Market Update: Corporate Power Purchase Agreements Can Close Ontario's Supply Gap”, Power Advisory, June 6, 2022. <https://www.poweradvisoryllc.com/reports/may-2022-ontario-electricity-market-update-corporate-power-purchase-agreements-can-close-ontarios-supply-gap>

¹⁶ Emily He, Grace Brown, Dave Lovekin, *Transforming the Utility Business Model: Options to improve services and opportunities for clean energy in remote communities* (Pembina Institute, 2022), 57. <https://www.pembina.org/pub/transforming-utility-business-model>

¹⁷ *Transforming the Utility Business Model*, 51, 78.

¹⁸ *Transforming the Utility Business Model*, 78.

¹⁹ *Transforming the Utility Business Model*, 92.

requirements in Massachusetts and Rhode Island.²⁰ Most EERS programs set targets for annual incremental energy savings for natural gas, electricity, or both, and Colorado and Maine have also set peak demand reduction targets.²¹ Implementing EERS targets could achieve CDM goals while still allowing utilities to make a reasonable profit. EERS programs, especially if funded through customer-facing means such as rate increases, should be designed to provide an overall benefit for all customers.

Exploring alternative funding methods

Because utilities currently do not profit from non-distribution activities, funding for innovative initiatives must come from other avenues.

California is exploring a different approach to incentivizing energy efficiency called a pay-for-performance model. The initiative, which pays contractors for the energy savings their projects realize instead of for each piece of energy efficiency technology they install, encourages contractors to identify customers with the greatest potential to reduce their electricity consumption during peak hours. For example, contractors installed electric heat pumps in California's central valley, which has low heating loads during the winter and high cooling loads during the summer. The heat pumps, which replaced natural gas furnaces and electric air conditioning units, increased electricity consumption during the winter due to the electrification of heating but reduced peak loads during the summer cooling season when the grid is at capacity. Through projects like this, the pay-for-performance model has created US\$44.7 million in total system benefit over two years.²² Applying a pay-for-performance model, which requires tracking of consumption data to determine appropriate financial rewards, would leverage Ontario's existing smart meter technology to achieve electricity energy efficiency goals.

Conclusion

Thank you for the opportunity to provide feedback on the next generation of Ontario's Conservation and Demand Management framework. We look forward to participating in continued engagement on this initiative in the future.

²⁰ ACEEE, "Energy Efficiency Resource Standards (EERS)." <https://www.aceee.org/topic/eers>

²¹ National Conference of State Legislatures, "Energy Efficiency Resource Standards," 2021. <https://www.ncsl.org/energy/energy-efficiency-resource-standards-eers>

²² "California Sees Success Tying Energy Efficiency Rebates to Real Results."