

# REFORMING CONSERVATION

## BUILDING A NEW FRAMEWORK

DECEMBER 3, 2018

To shape our energy future for a stronger Ontario.



Ontario Energy Association

# ABOUT

The Ontario Energy Association (OEA) is the credible and trusted voice of the energy sector. We earn our reputation by being an integral and influential part of energy policy development and decision making in Ontario. We represent Ontario's energy leaders that span the full diversity of the energy industry.

OEA takes a grassroots approach to policy development by combining thorough evidence based research with executive interviews and member polling. This unique approach ensures our policies are not only grounded in rigorous research, but represent the views of the majority of our members. This sound policy foundation allows us to advocate directly with government decision makers to tackle issues of strategic importance to our members.

Together, we are working to build a stronger energy future for Ontario.

The recommendations contained in OEA papers represent the advice of the OEA as an organization to the provincial government. They are not meant to represent the positions or opinions of individual OEA members, OEA Board members, or their organizations. The OEA has a broad range of members, and there may not always be a 100 percent consensus on all positions and recommendations. Accordingly, the positions and opinions of members and their organizations may not be reflected in this report.

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## EXECUTIVE SUMMARY

Energy Conservation and Demand Management (CDM, or conservation) is Ontario's lowest cost electricity resource. Even so, the OEA believes that CDM policies and programs in Ontario need to be reformed to align their objectives with Ontario's changing system needs and government priorities. For example, Ontario's recent history of having excess capacity is now changing: the IESO currently projects that the province will have a capacity shortfall of 1,400 MW by 2023 and 3,700 MW by 2025. We need to plan now for this new need. The OEA believes CDM can continue to deliver the lowest cost solution for Ontario families and businesses compared to the alternatives in meeting these future capacity needs.

This submission begins with a review of the recent history of CDM programming in Ontario. The following are key takeaways from this review:

- CDM has been the lowest cost resource in Ontario's electricity system
- Ontario's CDM programs are low cost compared to other jurisdictions
- Consumer energy savings from CDM have been greater than the cost of the programs
- Many businesses depend on conservation programs to remain competitive
- CDM contributes \$1.8 billion in GDP and created about 16,000 high-quality, skilled and stable jobs in Ontario
- CDM has delivered significant GHG emissions reductions

However, the needs of Ontario's electricity system are changing and CDM programs need to adapt to these changing needs. Based on Ontario's evolving needs, the OEA makes the following recommendations for the future of CDM:

**1) Continue the current CDM framework to the end of 2020:** CDM programs cannot be turned on and off on short notice, and involve long-term commitments to Ontario businesses. Ontario has built up a large conservation infrastructure, and with it, a culture of conservation in the province. As Ontario transitions from a position of excess capacity to potential capacity shortfalls with the closing of Pickering generating station and ongoing nuclear refurbishments, conservation can play a critical role in avoiding higher cost solutions. The province should continue with CDM programs under the current framework to

maintain delivery capacity and meet customer expectations. This framework's tremendous track record of success in delivering low cost solutions to customers should not be taken lightly.

**2) Reduce CDM costs in the short term:** In the short term, the OEA believes that there are many things the province can do to reduce program costs. OEA members have identified opportunities to provide savings by streamlining program delivery and elimination of programs with a lack of control over uptake and/or budget, are cost ineffective, and/or have low uptake. These opportunities have the potential to provide savings of approximately \$127M/year. The OEA believes, however, that given the value of conservation to so many customers, especially low-income, First Nations, industrial and commercial consumers, reducing CDM costs in the short-term should be approached in a cautious manner.

**3) Begin developing a new conservation framework:** While continuing with the current proven framework, the province should begin formal consultations now on the development of a new CDM framework to begin ideally in January 2021, to provide for continuity of program offerings, as applicable. These consultations should explore an integrated energy strategy and framework that is customer-centric, drives economic growth, reduces system demand and system costs, includes competition and meets climate change objectives. Given the value of conservation to so many customers, developing a new framework should not be rushed.

## BACKGROUND

Ontario's CDM Framework enables the energy efficiency and utility demand response programs that serve the province's electricity users. Guided by policy direction from the Ministry of Energy, Northern Development and Mines (MENDM), the Independent Electricity System Operator (IESO) leads the development and administration of these programs. The programs are then delivered by the province's 60+ Local Distribution Companies (LDCs) as well as the IESO.

Ontario's current CDM Framework has a proven track record of:

- Lowering costs for consumers
- Improving business competitiveness
- Relieving capacity constraints and deferring higher-cost capital solutions
- Improving and maintaining system reliability

Conservation programs are strongly supported and popular with residential and business customers. Hundreds of thousands of Ontario electricity customers participate in conservation programs. Thousands of Ontario businesses have created or maintained jobs through lowering their electricity bills thereby keeping their businesses competitive; for example, from 2015-2017 Q1 there were more than 26,000 participants in LDC-delivered business retrofit programs.<sup>1</sup>

Conservation created an estimated \$1.8 billion/year in GDP and about 16,000 jobs annually during the 2011-2017 period.<sup>2</sup> Delivering conservation programs is a labour intensive occupation and much of that labour is in the form of jobs in and around the programs served. Not all of these jobs are directly involved in utility energy efficiency programs but many of them typically represent contractors and suppliers who provide materials and services to the utility programs. These workers and equipment suppliers are predominately local or relatively local within the region or province.

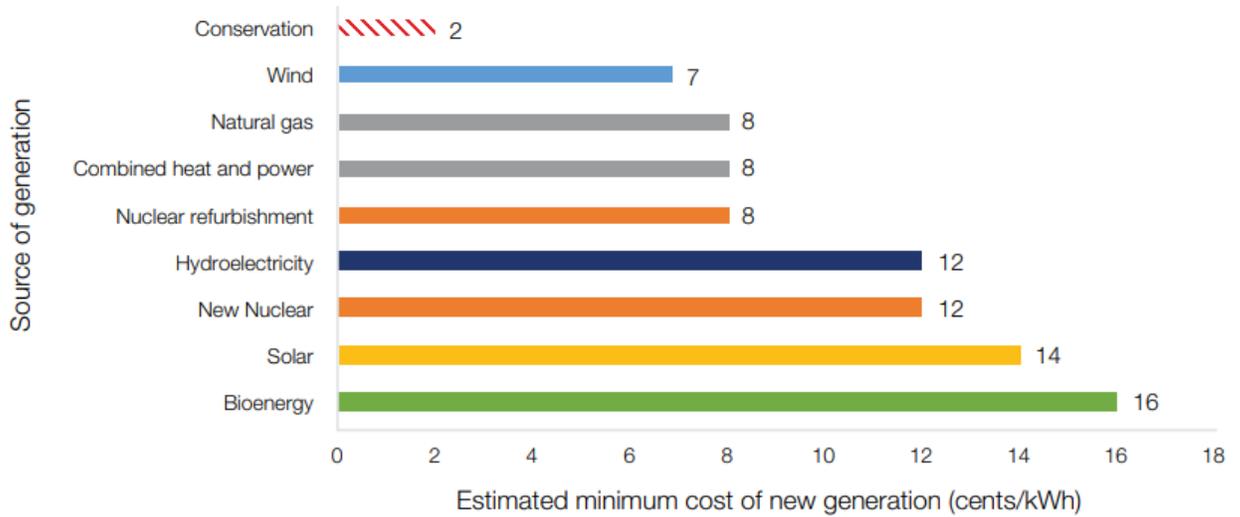
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<sup>1</sup> <http://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Quarterly/q1-2017-conservation-progress-report.pdf>

<sup>2</sup> Calculated using data from Dunskey (2018): [http://cleanenergycanada.org/wp-content/uploads/2018/04/TechnicalReport\\_EnergyEfficiency\\_20180403\\_FINAL.pdf](http://cleanenergycanada.org/wp-content/uploads/2018/04/TechnicalReport_EnergyEfficiency_20180403_FINAL.pdf)

Importantly, conservation is the lowest cost resource in Ontario’s system. Electricity conservation programs are less expensive than any form of new generation (see Figure 1). The IESO calculated conservation programs to be at an average cost to ratepayers of 2.1 cents/kWh in 2016.<sup>3</sup>

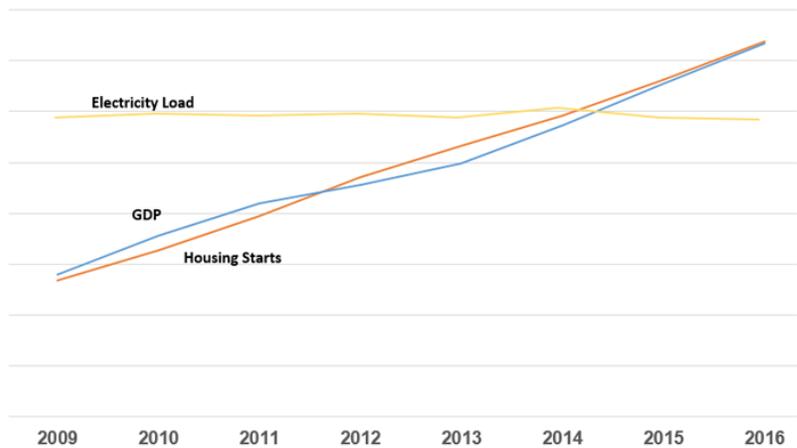
Figure 1



Source: ECO, 2018 Energy Conservation Progress Report, Volume One, p. 310

For example, the IESO estimated that 2011-2014 utility conservation programs saved approximately \$400 million, including avoided energy costs and deferring generation, transmission and distribution capacity costs.<sup>4</sup> Further, the IESO reported that LDC-delivered conservation programs

Figure 2



Source: CHMC, OEB Yearbook, Statistics Canada.

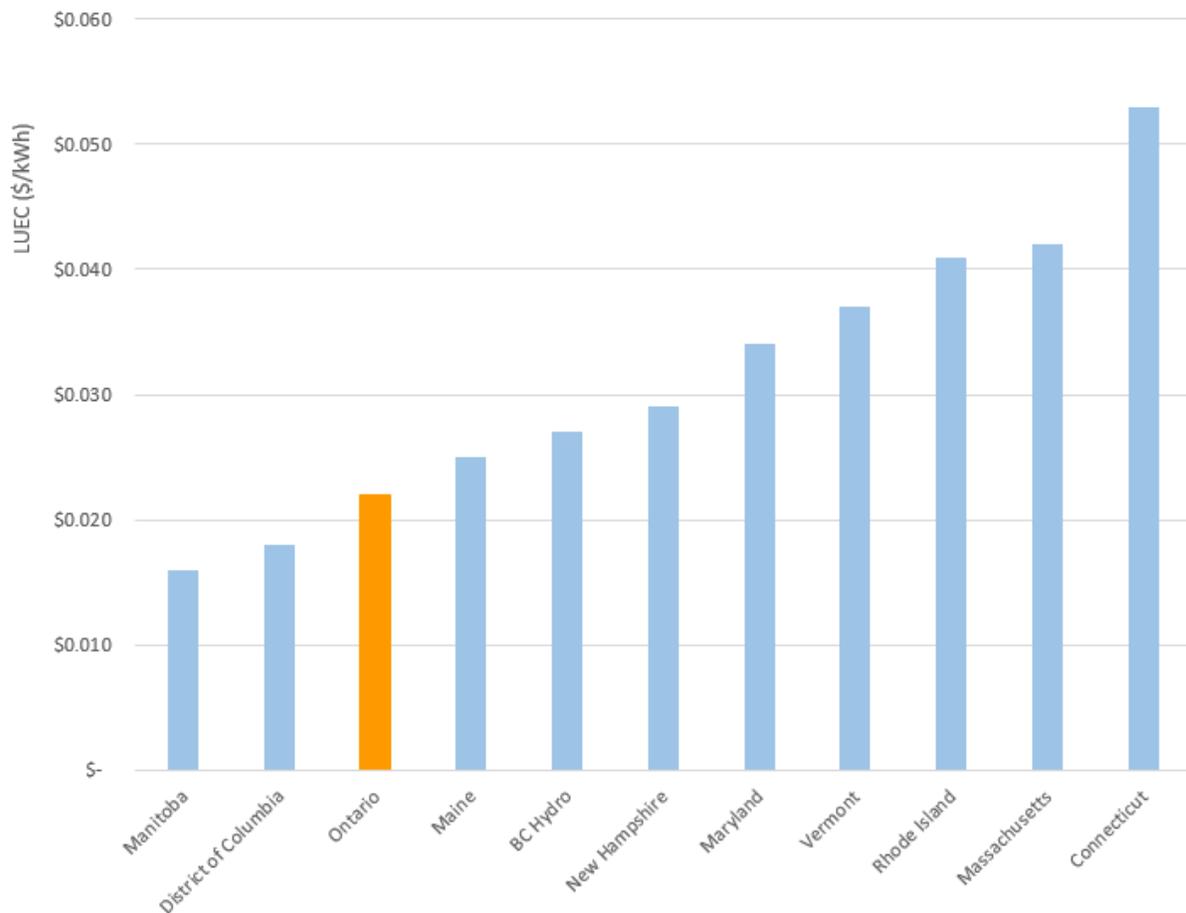
<sup>3</sup> <http://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Annual/conservation-results-report-2016.pdf?la=en>

<sup>4</sup> [www.ieso.ca/-/media/files/ieso/document-library/conservation-reports/annual/conservation-results-report-2011-2014.pdf](http://www.ieso.ca/-/media/files/ieso/document-library/conservation-reports/annual/conservation-results-report-2011-2014.pdf)

achieved 2,565 GWh of energy savings and 357 MW in peak demand reductions from 2015-2017 Q1.<sup>5</sup> The contribution by conservation is readily observable: from 2009-2016, Ontario's electricity load growth was flat, and in spite of household and GDP growth. (See Figure 2)

Lastly, Ontario's conservation programs are very cost effective when compared to other jurisdictions. (See Figure 3)

Figure 3



Source: IESO

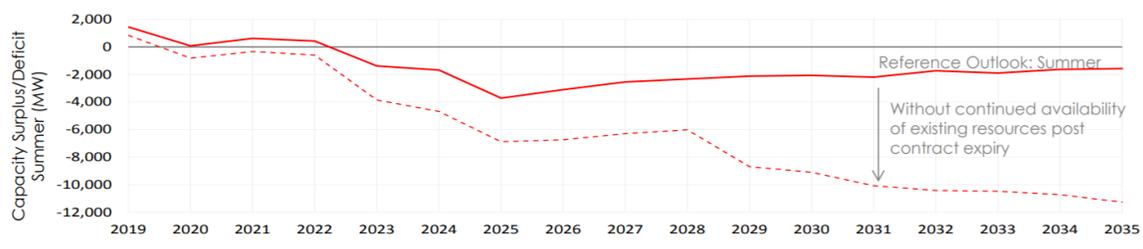
<sup>5</sup> <http://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Quarterly/q1-2017-conservation-progress-report.pdf>

## TOWARDS A NEW FRAMEWORK: THE NEED FOR CHANGE

In Ontario, electricity costs have risen significantly over the years; however, CDM programs have helped mitigate this rise – playing a critical role in both minimizing overall system costs for all electricity rate payers and helping program participants reduce their individual bills.<sup>6</sup>

Further, despite the low GHG intensity of Ontario’s electricity generation mix (0.04 tCO<sub>2</sub>e/MWh), CDM programs have achieved significant GHG emission reductions when natural gas generation is offset by demand-reducing CDM. Natural gas has been on margin in Ontario over the past decade, and this trend is forecast to continue as nuclear units retire and are refurbished through 2030. Despite being long on forecast annual electrical energy out to 2035, the IESO projects a capacity shortfall of 1,400 MW by 2023 and 3,700 MW by 2025. As can be seen in the recent IESO planning outlook in Figure 4, this shortfall would be even larger unless existing gas generators’ contract lifetimes can be extended.

Figure 4



Forecast Shortfalls in Ontario Capacity from IESO Planning Outlook

With an appreciation of the electricity system supply/demand dynamic comes the conclusion that CDM must transition from a resource focused primarily on energy savings today to one focused on peak (or capacity) reductions (while not losing sight of the benefits that effective energy savings programs deliver).

When coupled with other distributed energy resources (DERs)<sup>7</sup>, conservation programs can be designed and deployed to ensure that capacity shortfalls

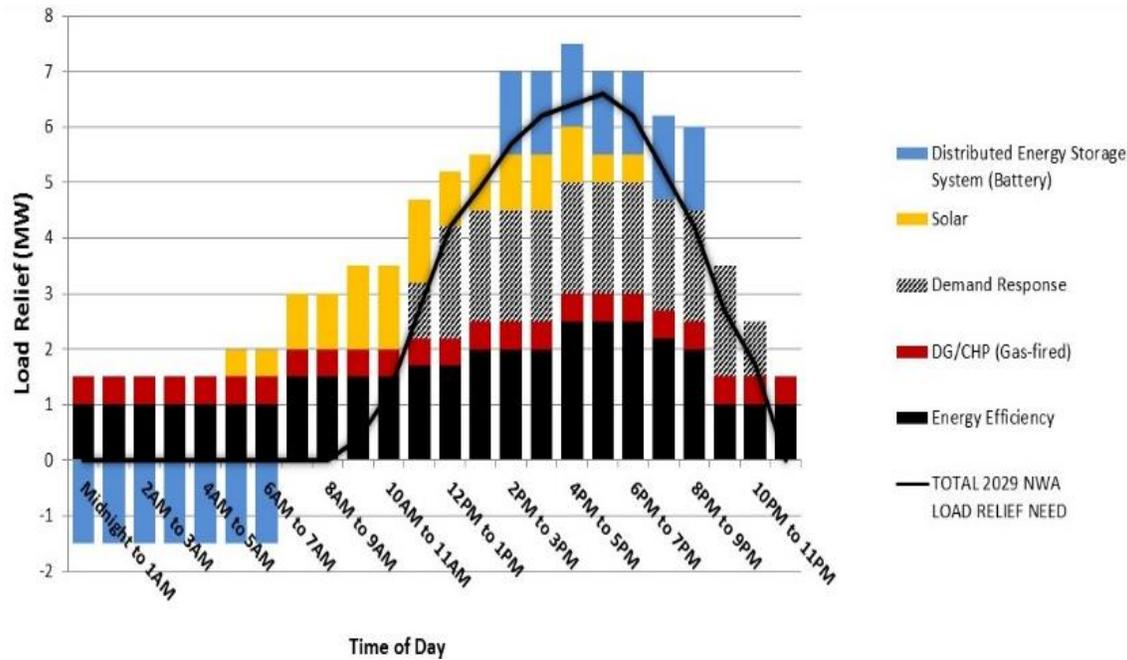
<sup>6</sup> This section is largely based, including more detail on the role of CDM in reducing GHG emissions, on the OEA’s Continuing Achievements: Climate Strategy Submission: <https://energyontario.ca/wp-content/uploads/2018/11/OEA-Climate-Strategy-Submission.pdf>

<sup>7</sup> For example, distributed generation, demand response, and energy storage.

forecast for the mid-2020s are minimized cost effectively. Taking into consideration the system benefits at the provincial generation- and transmission-level, as well as the locational benefits at the distribution level, conservation and demand management, and other DERs, such as demand response and behind-the-meter storage, can be valued as a resource. They should compete as a resource against traditional infrastructure options with the goal of system optimization considering affordability, reliability, and sustainability. This transition is not new or only relevant in Ontario. The consideration of DERs as cost effective Non-Wires Alternatives (NWA) is gaining precedent in many jurisdictions.

When peak demand is driving system shortfalls and infrastructure spending, NWAs seek to identify the lowest cost option to meet the required load relief. NWAs are targeted efforts aimed at deploying a mix of DERs that has been customized to avoid a specific system shortfall. This can achieve savings for ratepayers by pursuing NWAs only in areas where the infrastructure spending can be avoided, and only NWAs that are lower cost and risk than the infrastructure option. Figure 5 demonstrates this concept: if a shortfall in capacity (black line) is anticipated, it may be possible to stack a portfolio of different resources to meet that demand at a lower cost than building new infrastructure.

Figure 5



Example of Distributed Energy Resources Used to Avoid a Forecast Shortfall in Electricity Supply

To ensure full consideration of DERs/NWAs, distribution system constraints and costs must be evaluated. This speaks to the role of the LDCs in providing critical insight into their service territories to the IESO and other stakeholders. These insights will be critical to take full advantage of the value of a more targeted conservation framework and DERs more broadly, ensuring that the greatest value for the distribution system and the wholesale system are maximized.

It should be noted that savings claimed under CDM programs are net of free riders (the portion of participants that evaluation reports determine would implement a measure in a business as usual scenario) and represent only the level of improvement above what is required by codes and standards. Conservation savings are therefore representative of incremental performance that would not have been achieved without program support.

Finally, it is important to understand that this transition to a new form of conservation and demand management at the utility level, and DER integration with system options will not take place instantaneously. As efforts are transitioned to a capacity focused framework, continuity is critical to leveraging the value that targeted CDM and, DERs/NWAs can bring to the province over the next 15 years.

## RECOMMENDATIONS

### CONTINUE THE CURRENT CDM FRAMEWORK TO THE END OF 2020

CDM programs cannot be turned on and off on short notice as they involve long-term commitments to Ontario businesses that are counting on the funding to remain competitive. Ontario has built up a large conservation infrastructure, and with it, a culture of conservation in the province. As Ontario transitions from a position of excess capacity to potential capacity shortfalls with the closing of the Pickering generating station and ongoing nuclear refurbishments, conservation can play a critical role in avoiding higher cost solutions.

In addition, there is a comprehensive and complex regulatory framework that governs the current CDM framework. This framework involves Ministerial Directives, OEB license conditions, OEB Guidelines and Codes, IESO Program Rules as well as Energy Conservation Agreements (ECAs) between the IESO and electric utilities.

Electric utilities have also entered into agreements with third-party vendors to support LDC conservation programs. More importantly, LDCs have millions of dollars of committed incentives that are supporting thousands of customers, who have already made a commitment to complete energy efficiency projects within the current framework.

Continuing with the current framework to its scheduled conclusion at the end of 2020, will also provide high-quality, stable jobs (as noted in the Background) and prevent the loss of trained, experienced, knowledgeable workers and staff. It can be difficult to recover this loss of expertise if programs are abruptly ended and then restarted at a later time.

It will, however take time to move to a new framework that aligns with the government's new policy priorities for energy and the environment. Therefore, the OEA recommends that the province continue with CDM programs under the current framework to maintain delivery capacity and meet customer expectations and commitments (under contract with program participants). As noted earlier, this framework has a tremendous track record of success in delivering low cost solutions to customers (especially low-income, First Nations, industrial and commercial consumers), and creating well-paying jobs.

## REDUCE CDM COSTS IN THE SHORT-TERM

In the short term, while the OEA believes the current CDM framework should be continued, there are many things the province can do to reduce program costs within the existing framework.

OEA members have identified opportunities that will provide savings of approximately \$127M/year by streamlining program delivery and eliminating programs with a lack of control over uptake and/or budget, are cost ineffective, and/or have low uptake. These programs can be ramped down relatively quickly. These savings are listed in the Table below.

Program	Approximate Annual Savings (\$millions)
Residential HVAC Program	\$40
LED coupons	\$67
Residential New Construction (RNC)	\$15
Reduced Evaluation, Measurement & Verification frequency for stable programs (about 3%-5% of costs) (e.g. evaluate programs on a rotating schedule, raise threshold of projects requiring M&V)	\$5
<b>Total</b>	<b>\$127</b>

In addition to reducing costs through program rationalization, OEA members believe additional saving can be achieved within the current framework through:

- Less reporting requirements to the OEB and IESO
- Disbursement of conservation budgets as predetermined through milestone/monthly payments instead of reimbursement after settlements process

The OEA believes that given the value of conservation to so many customers, especially industrial and commercial customers, as well as the many businesses that work together to provide conservation services and infrastructure, reducing CDM costs in the short-term with the current framework should be approached in a cautious manner.

## BEGIN DEVELOPING A NEW FRAMEWORK

While the OEA supports continuing with the current proven CDM framework until its scheduled end on December 31, 2020, the province should now begin formal consultations on the development of a new framework to begin ideally in January 2021, to provide continuity of program offerings, as applicable.

These consultations should explore an integrated and coordinated energy strategy and framework that is customer-centric, drives economic growth, reduces system costs, and meets climate change objectives.

This approach should examine the potential gains to be made from facilitating collaboration between natural gas, electric utilities, as well as third party providers to deliver integrated conservation programs. For example, Heating and Cooling Programs, which primarily influence peak demand, are likely to be an effective platform for an integrated energy approach.

In addition, conservation policies for gas and electricity utilities are developed largely in silos under different evaluation criteria and regulatory timelines that are not aligned. Greater harmonization between the two sectors would benefit ratepayers and the government's ability to meet policy goals.

Currently, the OEB is responsible for the guidelines, approval, and evaluation of natural gas conservation programs while the IESO is coordinating, supporting and funding the delivery of conservation programs by electricity distributors, including evaluating and verifying all program results, as well as approving and evaluating program results of any local or regional programs the utility undertakes.

The lack of alignment (e.g., agency responsibility, different EM&V) between natural gas and electricity conservation programs is preventing cost effective collaboration between natural gas and electric utilities, and well as preventing customers from benefiting from integrated programs.

Further, at a broader policy level, energy policies and environmental policies with respect to conservation and emissions reductions are being developed in silos. The OEA believes that much could be gained through greater cooperation

and coordination between Ministries within government, the OEB, and the IESO.

In addition to a more coordinated energy strategy, OEA members have identified additional improvements, and administrative burden and program cost-reduction ideas to be explored in developing a new framework:

- Eliminate the current framework's requirement that LDCs offer conservation programs to all customer types in its service territory. This mandatory province-wide consistency is time and resource intensive.
- Reduce or eliminate unnecessary management, Ministerial directives, OEB license and reporting requirements, and decision making on planning and program design by IESO
- Ensure that any directives/program design elements align with both the province's energy and climate change objectives (e.g., the definition of CDM; ensuring that the evaluation of cost effectiveness properly accounts for policy goals, such as reducing system peak, minimizing system costs, GHG emission reductions, etc.)
- Update the IESO's assumptions for determining the avoided costs of CDM programs, including alignment with government policy goals
- Explore options to allow for tailored regional conservation programs and incentives
- Explore moving fully to a pay-for-performance model<sup>8</sup> to utilities for all conservation programs (i.e., incentives set at a \$/kilowatt-hour (kWh) rate for savings with incentive payments based entirely on performance)
- Explore alternative program cost accounting (e.g., allow utilities to capitalize conservation costs to accurately reflect the persistence of benefits, instead of the current requirement of expensing costs fully in the period they are incurred)
- Explore alternative program funding models (e.g., on-bill financing/repayment)<sup>9</sup>
- Explore alternative procurement models (e.g., Regional competitive RFPs for the delivery of conservation services; the role of conservation

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<sup>8</sup> See: <http://www.ieso.ca/en/sector-participants/conservation-delivery-and-tools/conservation-e-blasts/2018/05/pay-for-performance-rules-and-guidelines>

<sup>9</sup> For example, see: <https://www.energy.gov/eere/slsc/bill-financing-and-repayment-programs>

in the IESO's potential need to acquire capacity for 2023, and the Market Renewal initiative's proposed incremental capacity auction)

Further, a new framework can increase the benefits it provides to all ratepayers and the system by focusing greater attention on reducing system demand, thereby reducing or eliminating future capacity needs through more expensive resources.

For example, in its recent history, CDM programs have been oriented towards reductions in energy consumption with LDCs being given kWh targets. However, these programs have also contributed to reducing peak demand (as noted above).

Currently, the market-based Demand Response Auctions (DRA) held by the IESO have been successful, competitive and cost effective.<sup>10</sup> The most recent auction in 2017 cleared 570 MW for the summer period and 712 MW for the winter period. The average annual clearing price was \$76,047/MW, which was 16.6% lower compared to the first DRA in 2015. Also, 35 organizations participated in the 2017 auction (compared to 17 registered participants in 2015).

Therefore, the OEA believes that there are many opportunities to achieve greater and cost-effective peak demand reductions under a new framework:

- Identify existing cost effective CDM programs (e.g., Heating and Cooling; Business Retrofits) that deliver peak demand reductions and directing greater funding to those programs;
- Explore options for enabling residential demand response in the IESO's Demand Response Auction;
- Maintain the IESO's DRA;
- Transition the IESO's DRA into the IESO Incremental Capacity Auction to ensure capacity resources are competitively procured;
- Assess pilots currently being undertaken through the Smart Grid Fund and RPP Roadmap for potential programs able to reduce peak demand cost effectively;

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<sup>10</sup> <http://www.ieso.ca/en/Corporate-IESO/Media/News-Releases/2017/12/IESO-Announces-Results-of-Demand-Response-Auction>

- Explore and facilitate the role of cost-effective in-front of the meter technologies in reducing capacity needs;<sup>11</sup>
- Explore how to treat and value conservation as a resource on equal footing with traditional transmission and distribution solutions and other NWA's;
- Facilitate and enable non-wires opportunities like Combined Heat & Power (CHP), which have the ability to meet peak electricity demand, avoid other infrastructure costs, and drive down GHG emissions;<sup>12</sup> and,
- Explore opportunities to facilitate behind the meter battery storage and distributed generation.

The OEA believes that given the value of conservation to so many customers and the number of parameters and parties involved, consultations towards developing a new post-2020 framework should begin as soon as possible.

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<sup>11</sup> [https://www.ontarioenergyreport.ca/pdfs/2017-07-18\\_MoE%20IFMC%20FINAL%20Report.pdf](https://www.ontarioenergyreport.ca/pdfs/2017-07-18_MoE%20IFMC%20FINAL%20Report.pdf)

<sup>12</sup> The potential for CHP is discussed in detailed in the OEA's Climate Strategy Submission:  
<https://energyontario.ca/wp-content/uploads/2018/11/OEA-Climate-Strategy-Submission.pdf>

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Ontario Energy Association

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