

## Chapter 6

# Electricity Conservation Programs

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## Abstract

2015 was the first year of the 2015-2020 Conservation First Framework (CFF), which mandates that each Local Distribution Company (LDC) reduce electricity consumption by offering conservation programs to its individual customer segments “as far as is appropriate and reasonable”. This was expected to give LDCs more flexibility to align their programs with local needs. In 2015, the province’s LDCs achieved 1,117 gigawatt-hours of net energy savings, which represents 16% of their 6-year target. As such, LDCs collectively are on pace to meet their 2020 target. LDCs now only have a target for reducing overall electricity savings, as reducing peak demand is now solely the responsibility of the Independent Electricity System Operator (IESO).

2015 was a transition year between the last and the current conservation frameworks. There was a 5% increase in reported first year incremental energy savings from 2014, which indicates that the transition between frameworks went smoothly. LDCs only spent 1.2% of their \$1.8 billion CFF budget, as the rest of the \$432 million spent on LDC conservation programs in 2015 came from the remaining funds of the 2011-14 Conservation and Demand Management (CDM) Framework.

Conservation still remains the cheapest form of energy compared to all other forms of electricity supply. The cost of conservation comes in at 3.5 cents/kWh compared to renewable generation (hydro, wind and bio energy) at 6.5-26 ¢/kWh, hydro generation at 12-24 ¢/kWh, nuclear generation at 12-29 ¢/kWh, and 8-31 ¢/kWh for gas generation. Conservation was about 2% of the total electricity system cost in 2015. Conservation will become even more valuable to the electricity system as nuclear refurbishments and (eventually) the Pickering shutdown get underway.

The IESO’s Achievable Potential Study concluded that the current funding and programs are sufficient for LDCs to meet (and even surpass) the province’s electricity conservation target of 7 terawatt-hours of electricity savings in 2020. The results of this study will feed into the IESO’s Mid-Term Review of the CFF, which is required to be completed by June 1, 2018.

## 6.1 Introduction

2015 was the first year of electricity conservation programs under the 2015-2020 Conservation First Framework (CFF). The CFF requires the Independent Electricity System Operator (IESO) to,

*...coordinate, support and fund the delivery of CDM {conservation and demand management} programs through the Distributors to achieve a total of 7 TWh reductions in electricity consumption between January 1 2015 and December 31 2020...<sup>1</sup>*

The new framework mandates each local distribution company (LDC) to offer conservation programs that reduce electricity consumption to its individual customer segments “as far as is appropriate and reasonable”.

While conservation may also reduce peak electricity demand, there is no longer a peak demand reduction target for LDCs. Reducing peak demand through targeted demand response initiatives is now solely the IESO’s responsibility, and demand response (DR) initiatives have been moving to an auction system for authorized participants starting in late 2015. As the ECO has stated in its 2016 *Conservation: Let’s Get Serious* Report, peak demand savings are more important than total energy savings in terms of power reliability and affordability.<sup>2</sup> This separation of target responsibility creates a troublesome gap for the province as LDCs will have little incentive in the CFF to focus their energy savings during the peak hours of the day when conservation would displace gas-fired generation or reduce the need for new generation.<sup>3</sup>

The Direction also established that energy savings would be counted on the basis of persistence to the end of the framework (i.e., only conservation measures still delivering savings at the end of 2020 will count towards targets). This is a change from the 2011-2014 framework. The new framework therefore places more importance on conservation programs which have a longer life and result in deeper savings for the province. This makes sense as reducing energy use is less critical in the next few years, given the province’s strong short-term supply position. Longer-lasting conservation projects put in place today have more value, as they will help avoid new generation in future years. Because LDCs are now only responsible for overall electricity savings and not specifically peak demand savings (see Table 6.1 for more details), it is generally understood that the 2015-2020 Conservation First Framework electricity savings targets are more aggressive.

In order to support the CFF, the Ontario Energy Board (OEB) amended LDC licenses to add a condition that Conservation and Demand Management (CDM) programs be made available according to local customer characteristics.<sup>4</sup> This was expected to give LDCs more flexibility to align their program offerings to local needs and provide more customer choice while remaining cost-effective in the delivery of their CDM programs.

2015 was also considered as a transition year for the 2011-2014 CDM Framework to allow for CDM programs that were funded but not completed during the four-year framework to be completed in 2015 and be counted towards the results of the new framework.

**While conservation may also reduce peak electricity demand, there is no longer a peak demand reduction target for LDCs.**

In 2015, the province's LDCs achieved 1,117 GWh of net energy savings, which represents 16% of the six-year CFF target.<sup>5</sup> In other words, LDCs collectively are on track to meet their 2020 target. As shown later, almost 95% of those results can be attributed to CDM programs from the 2011-2014 CDM framework that were completed in 2015. The IESO indicated that the first year results have set a strong foundation for LDCs to achieve the target of 7 TWh of electricity conservation by 2020.<sup>6</sup> The source of the 2015 LDC conservation spending reflects the fact that a significant portion of the 2015 savings came from the previous framework, as analyzed in Section 6.6 of the report.

**LDCs collectively are on track to meet their 2020 target.**

### 6.1.1 The Value of Conservation

The province is currently almost halfway through its second full multi-year electricity conservation framework, and conservation still remains the cheapest form of energy. Ontario ratepayers pay more for any form of generation than conservation. The cost of conservation comes in at 3.5 cents/ kWh compared to renewable generation (hydro, wind and bio energy) at 6.5-26 ¢/kWh, hydro generation at 12-24 ¢/kWh, nuclear generation at 12-29 ¢/kWh, and 8-31 ¢/kWh for gas generation. In 2015, a total of \$429 million was recovered from Ontario's ratepayers through the Global Adjustment Mechanism (GAM) on electricity bills to fund conservation programs. This represents about 4.3% of the total GAM charged on electricity bills in 2015 and about 2% of the total electricity cost for the province. These percentages are in line with previous years as conservation remains a small fraction of the electricity bill for Ontario's ratepayers. Conservation will only increase in value as the province's nuclear refurbishments and Pickering shutdown get underway.

## 6.2 Comparing the Frameworks

As mentioned earlier, one of the major differences between the 2011-2014 CDM Framework and the 2015-2020 Conservation First Framework is that the current framework requires LDCs to achieve energy savings only, while the previous one included both energy savings and peak demand targets. Some of the major differences between the two frameworks are highlighted in Table 6.1.

**Table 6.1. Comparing the 2011-2014 CDM Framework and the 2015-2020 Conservation First Framework**

| Key framework elements     | 2011-2014 CDM Framework   | 2015-2020 CFF  |
|----------------------------|---|--|
| Duration                   | 4 years plus 1 transition year (2015) to next framework   | 6 years (2015 is a transition year between the two frameworks)   |
| Oversight                  | OPA and OEB   | IESO   |
| Energy Savings Target      | 6000 GWh of cumulative energy savings   | 7000 GWh (7 TWh) of persistent savings in 2020   |
| Peak Demand Target         | 1330 MW reduction in 2014   | Not an LDC target anymore  |
| Energy savings calculation | <b>Cumulative Savings:</b> * sum of savings delivered in each year (2011-2014), from measures installed between 2011-2014 (rewards conservation activity in early years, which will deliver more years of savings that count towards target)  | <b>Persistent Savings:</b> savings occurring in 2020, from measures installed at any time between 2015 and 2020.   |
| Budget                     | \$1.4 billion for LDCs + \$0.2 billion for OPA central services <sup>8</sup>  | \$1.8 billion for LDCs + \$0.4 billion for IESO central services <sup>9</sup>  |
| Funding to LDCs            | LDCs provided with separate Program Administration Budget and Participant Incentive funding. Participant Incentives were paid after LDC had paid the customer and invoiced the OPA <sup>10</sup>  | LDCs have one budget for six years and can allocate funding between program portfolios as needed as long as LDCs remain cost-effective <sup>11</sup>   |
| CDM License Requirement    | Performance Requirement:<br>LDCs are required to “achieve reductions in electricity consumption and reductions in peak provincial demand through the delivery of CDM Programs...” <sup>12</sup>   | Activity Requirement:<br>The LDC shall “make CDM programs available to customers in its licensed service area and shall, as far as is appropriate and reasonable having regard to the composition of the Distributor’s customer base, do so in relation to each customer segment in its service area” <sup>13</sup>                    |
| Target Allocation          | LDC targets based on division of provincial target, according to LDC’s portion of provincial energy consumption and peak demand   | Energy target based on achievable potential for each region and LDC territory <sup>14</sup>  |
| Program Composition        | LDCs required to deliver Save On Energy province-wide programs. While there were opportunities to get a local program approved by the OEB, the regulator’s “duplication test” and approvals process proved to be too onerous for any successful applications except one local program | LDCs can offer a mix of provincial, regional and local programs, including joint programs with gas companies. Programs are approved by the IESO and the “duplication test” rules have been amended to encourage collaboration and local/regional program applications  |
| LDC Incentives             | Eligible for a performance incentive at 80% or over of each target. Also eligible for a cost-effectiveness incentive if LDC does not use full administration budget   | LDCs are eligible for a Mid-Term Incentive (MTI), an Achieving Target Incentive (ATI) and an Exceeding Target Incentive (ETI), all of which increase if the LDC is part of a joint plan with other LDCs. Also eligible for a Cost-Efficiency Incentive. Alternatively, LDC can also opt for a pay-for-performance model. <sup>15</sup> |
| LDC Underperformance       | LDCs that did not meet 80% of their energy savings targets were at risk of “disciplinary action”, although no formal action was taken against LDCs who underperformed <sup>16</sup>   | IESO will track performance annually and take remedial steps of various degrees to help improve the LDC’s situation. If performance and cost-effectiveness falls below a certain threshold, the LDC will face financial remedies <sup>17</sup>   |
| Mid-Term Review            | None  | IESO has to complete a Mid-Term Review by June 1, 2018   |

\*Note: The definition of “cumulative savings” used for electricity conservation is different than that used for natural gas conservation in Chapter 6. For more information on how “cumulative savings” are defined in gas conservation, see Section 5.1.3.

Source: 2011-2014 OPA-LDC CDM Master Agreement; 2015-2020 IESO-LDC Energy Conservation Agreement (2014), various Directives and Directions from the Ontario Minister of Energy to the IESO, OPA and OEB between 2010 and 2016.



## 6.3 2015 Program Results

### 6.3.1 Understanding the Numbers: Legacy Programs vs. Conservation First Programs

2015 was a unique year for the province's LDCs in terms of delivering CDM programs and achieving results. Given that there were CDM projects from the 2011-2014 CDM framework that were in the project pipeline but would not be completed by December 31, 2014, the Minister of Energy issued a Direction to the IESO in 2012 to extend the 2011-2014 framework for one year to December 31, 2015 and to provide the necessary funding for those projects to be completed. This allowed LDCs to engage customers for more long-term CDM projects as it assured customers of the continuity of programs and corresponding incentives past the original framework completion date of December 31, 2014.

Under the new 2015-2020 Conservation First Framework, LDCs had until May 1 of 2015 to file their CDM plans, which details the programs the LDCs will be delivering to their customers to achieve their individual targets, to the IESO for review and approval. The framework also gave LDCs the option to launch the CFF framework on any date on or prior to January 1, 2016. From a customer point of view, the IESO indicated that participants hardly saw any differences in program availability or how the programs were delivered. Some programs such as the Fridge & Freezer Pickup Program were discontinued on January 1, 2016, but that news had already been communicated to the market, independent of the CFF. Given the strong results of 2015 (see Section 6.3.2 below), it can be deduced that customers did not experience any issues with different LDCs working on different timelines to transition to the new framework.

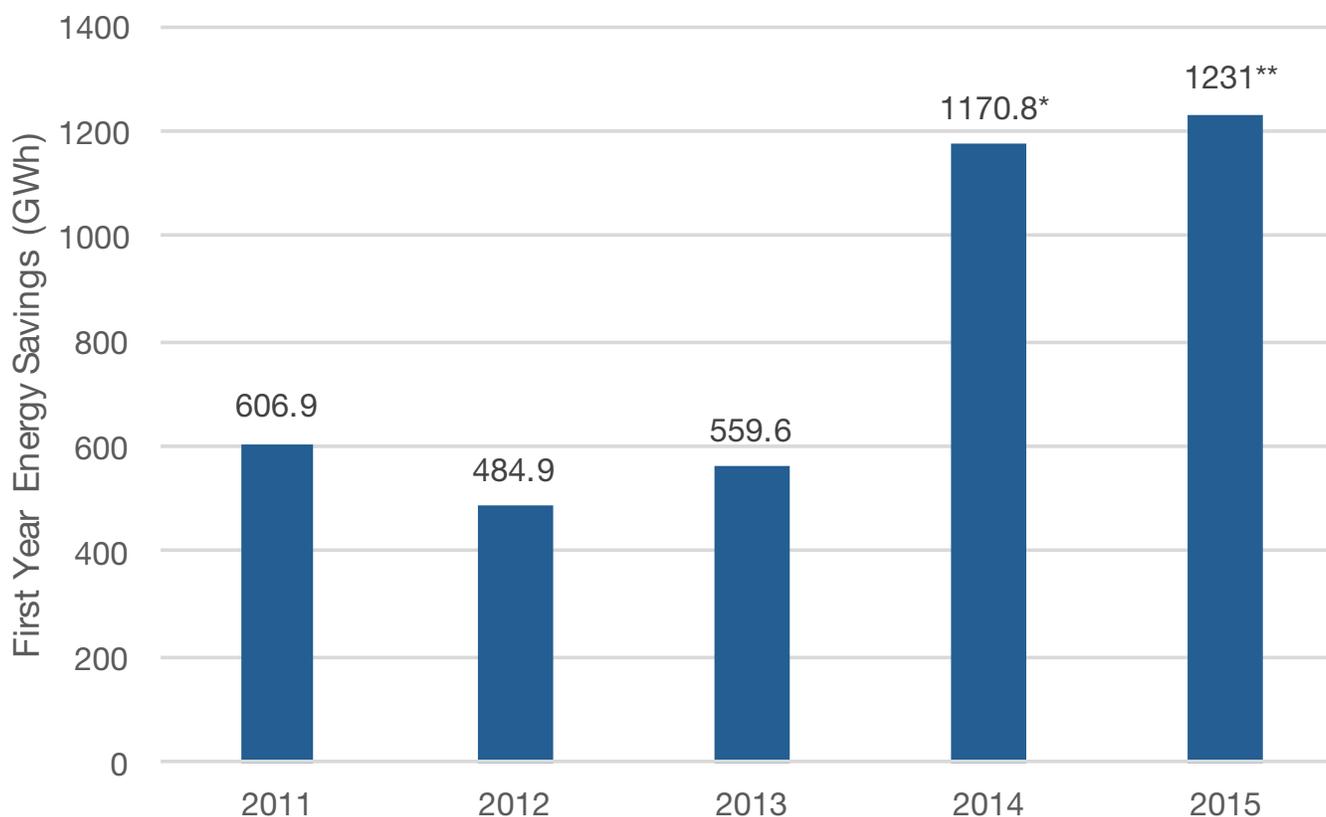
As a result of this “bridge” between frameworks, 2015 turned out to be a transition year for the province in terms of conservation frameworks as the 2011-2014 CDM Framework wrapped up, with two-thirds of LDCs deciding to launch the Conservation First Framework on January 1, 2016 and therefore delivering only legacy programs from the 2011-2014

framework throughout 2015.<sup>19</sup> The budget for the 2015 legacy programs came from the 2011-2014 CDM framework's funds.<sup>20</sup> The 2015 energy savings from the legacy programs, however, were attributed to the 2015-2020 Conservation First Framework targets which undoubtedly will help LDCs with their target achievement by the end of the framework.

The results from 2015 are the strongest for the province to date.

### 6.3.2 First Year of Conservation First Framework: How Did the Province Do?

Net verified energy savings persisting to 2020 from 2015 program activity was 1,117 GWh, which represents 16% of the 7 TWh target under the Conservation First Framework. The results from 2015 are the strongest for the province to date, as can be seen from Figure 6.1. Incremental first year results were 5% higher than in 2014 (the last year of the 2011-2014 results), which indicates that the transition between frameworks went smoothly and the province's progress in conservation remains positive. Another reason for the strong performance was that projects that were started in 2014 under the 2011-2014 framework but were completed in 2015 were counted towards the LDC's 2015-2020 CFF target, which undoubtedly bolstered the savings numbers. It will be important to track how LDCs perform in the next years of the framework when there are no carry-over projects from a previous framework to add to the savings numbers.



**Figure 6.1. First year energy savings from new conservation program activity for distribution-connected customers**

\*Note: the 2014 incremental first year savings numbers have been updated from the ECO's 2015 *Conservation: Let's Get Serious* report based on IESO true-ups.

\*\*Note: For an equivalent comparison with other years, the 2015 results are the incremental first year energy savings. Of the 1231 GWh saved in 2015, only 1117 GWh will persist into 2020 and therefore will be counted towards the final 7 TWh target.

Source: ECO, *Conservation: Let's Get Serious, 2015 Annual Conservation Progress Report* at 176 (2016); IESO, *2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report* (2016) at 11.

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Almost 94% of the results (1,048 out of 1,117 GWh) were attributable to the 2011-2014 legacy programs as a majority of LDCs chose to start the new framework on January 1, 2016.<sup>21</sup> For LDCs that did transition to the CFF framework in 2015, the savings came from those initiatives that had been successful in terms of participation and savings in the last framework, such

as the Coupon Program and the Retrofit Program. A more detailed breakdown of how the different suites of programs and individual programs performed is in Section 6.4 of the report.

### 6.3.3 2016 Electricity Conservation Results

The final verified 2016 results were released by the IESO on June 30, 2017. The ECO has not had the opportunity to analyze the assumptions behind this report and plans to do so in its next conservation report. The IESO reported that in 2016, LDCs achieved 1,033 GWh of incremental energy savings that will persist to 2020. The 2015 results have also been updated from 1,117 GWh to 1,480 GWh of persistent savings to 2020. This increase in savings numbers can be attributed to true-ups completed to account for savings that were reported late by the LDCs during the 2015 reporting period. Table 6.4 of this chapter also lists several Behind-the-Meter Generation (BMG) projects that were not counted in the 2015 report and therefore would have been included in this true up. Therefore, the IESO has adjusted its 2015 results accordingly.

When combined with the verified 2015 results and verified 2015 adjustments, the LDCs have achieved 2.5 TWh in the first two years of the 2015-2020 CFF, or approximately 36% of the province's 7 TWh target.<sup>22</sup> The IESO has indicated that the LDCs continue to show progress towards achieving the CFF target by the end of the framework. Total CDM expenditure in 2016 was \$206 million. Together with the spending of 2015, LDCs have collectively spent \$231 million or 13% of their \$1.8 billion budget.<sup>23</sup>

### 6.3.4 Defining the Different Types of Electricity Conservation Programs in Ontario

**Province-wide CFF programs:** CDM programs that have been developed by the IESO and the LDCs and available across the province currently under the Conservation First Framework (CFF).

**Legacy programs:** Province-wide programs that were part of the 2011-2014 CDM Framework and the 2015 extension and were delivered or completed in 2015 as LDCs transitioned between the two frameworks.

**IESO-only CDM programs:** CDM programs administered directly by the IESO for large transmission-connected customers, and demand response programs for distribution- and transmission-connected customers that are designed to deliver peak demand reduction, not energy savings. Results from IESO-only programs do not contribute to LDC targets.

**Regional/local CDM programs:** CDM programs developed by one LDC (local) or a group of LDCs in one region (regional) that are approved by the IESO and delivered by those LDC(s) alongside the province-wide programs.

**LDC Innovation Fund Pilots:** Small-scale launch of a local/regional CDM program by an LDC to test the delivery mechanisms and savings realizations of an innovative initiative. These programs, approved by the IESO, are funded outside the CDM Plan funding through a dedicated LDC Innovation Fund to minimize budgetary risks for the LDC.

**Conservation Fund Pilots:** Innovative conservation technologies that have the potential to deliver significant energy savings have been funded by the IESO's Conservation Fund since 2005. Recipients of the Conservation Fund can be LDCs, technology companies, consultations, educational institutions etc. Unlike LDC Innovation Fund Pilots, the goal of a Conservation Fund project is not always to test an initiative with the intent of transitioning it to a full-scale LDC program.

## 6.4 Individual Program Results by Sector

The 2015 results by initiative and individual program contributions to the total energy savings achieved are presented in Table 6.2, along with the number of measures/projects completed for each initiative.<sup>24</sup> For

comparison purposes, the savings from the initiatives are divided between the 2011-2014 legacy programs delivered in 2015 and programs that are from the 2015-2020 Conservation First Framework. The table also presents the net energy savings from 2014, the last year of the CDM Framework, to track how programs have transitioned between frameworks.

**Table 6.2. 2015 Conservation Results by Program for Distribution Connected Customers**

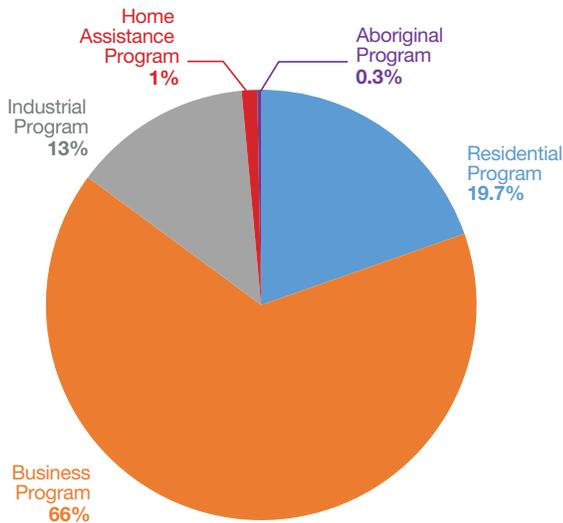
| Initiatives   | Incremental Energy Savings (Net) (GWh) |                                 |                   | **Incremental Demand Reduction (MW)** |                                 |                   | Participation      |                                 |                    |
|---|--|---------------------------------|-------------------|---------------------------------------|---------------------------------|-------------------|--------------------|---------------------------------|--------------------|
|   | 2014                                   | 2015                            |                   | 2014                                  | 2015                            |                   | 2014               | 2015                            |                    |
|   |  | From 2011-2014 Legacy Programs* | From CFF programs |                                       | From 2011-2014 Legacy Programs* | From CFF programs |                    | From 2011-2014 Legacy Programs* | From CFF programs  |
| <b>Residential</b>                                  |  |                                 |                   |                                       |                                 |                   |                    |                                 |                    |
| Appliance Retirement                                | 9.5                                    | 0                               | 0                 | 1.61                                  | 1.03                            |                   | 22,563 appliances  | 14,733 appliances               | 0                  |
| Appliance Exchange                                  | 2.1                                    | -                               | -                 | -                                     | -                               | -                 | 5,685 appliances   | -                               | -                  |
| Bi-Annual Retailer Event                            | 122.9                                  | 73.0                            | 0                 |                                       | 5                               |                   | 48,24751 measures  | 31,78024 measures               | 0                  |
| Coupon Program (Save On Energy)                     | 32.8                                   | 49.8                            | 31                | 2.4                                   | 3.3                             | 2.02              | 1,208,108 measures | 2,075,200 measures              | 1,207,533 measures |
| HVAC Incentives (Save on Energy)                    | 42.9                                   | 45.97                           | 10                | 23.1                                  | 24                              | 5.3               | 113,002 equipment  | 102,154 equipment               | 20,235 equipment   |
| Residential New Construction                        | 2.3                                    | 6.3                             |                   | 0.37                                  | 1.1                             |                   | 2,367 homes        | 4,012 homes                     | 0                  |
| <b>All Residential Initiatives</b>                  | <b>210.4</b>                           | <b>175.1</b>                    | <b>41</b>         | <b>27.48</b>                          | <b>34.5</b>                     |                   |                    |                                 |                    |
| <b>Business</b>                                     |  |                                 |                   |                                       |                                 |                   |                    |                                 |                    |
| Energy Audit (Save On Energy Audit Funding Program) | 30.9                                   | -                               | -                 | 6.3                                   | 5.6                             | 0                 | 473 audits         | 356 audits                      | 2 audits           |
| Efficiency: ERII (Save on Energy Retrofit Program)  | 462.9                                  | 648.3                           | 19                | 70.7                                  | 94                              | 2.8               | 10,925 projects    | 12,547 projects                 | 811 projects       |
| Direct Install Lighting                             | 84.5                                   | 32.3                            |                   | 23.4                                  | 11.9                            |                   | 23,784 projects    | 18,643 projects                 | 0                  |
| New Construction                                    | 20.4                                   | 21.8                            |                   | 6.4                                   | 5.2                             |                   | 226 buildings      | 168 buildings                   | 0                  |
| Existing Building Commissioning                     | 1.5                                    | -                               |                   | 0.99                                  | 0.4                             |                   | 5 buildings        | 11 buildings                    | 0                  |
| <b>All Business Initiatives</b>                     | <b>600.2</b>                           | <b>702</b>                      | <b>19</b>         | <b>107.79</b>                         | <b>117.1</b>                    |                   |                    |                                 |                    |

| Initiatives   | Incremental Energy Savings (Net) (GWh) |                                 |                   | **Incremental Demand Reduction (MW) |                                 |                   | Participation  |                                 |                   |
|---|--|---------------------------------|-------------------|-------------------------------------|---------------------------------|-------------------|----------------|---------------------------------|-------------------|
|   | 2014                                   | 2015                            |                   | 2014                                | 2015                            |                   | 2014           | 2015                            |                   |
|   |  | From 2011-2014 Legacy Programs* | From CFF programs |                                     | From 2011-2014 Legacy Programs* | From CFF programs |                | From 2011-2014 Legacy Programs* | From CFF programs |
| <b>Industrial</b>   |  |                                 |                   |                                     |                                 |                   |                |                                 |                   |
| PSU- Project Incentive Initiative                           | 72.1                                   | 122.7                           |                   | 9.7                                 | 13.6                            |                   | 10 projects    | 12 projects                     |                   |
| PSU- Energy Manager   | 40.4                                   | 25.18                           |                   | 5.2                                 | 7.6                             |                   | 379 projects   | 424 projects                    |                   |
| PSU- Monitoring and Targeting                               | 0.5                                    | -                               |                   | 0.1                                 | -                               |                   | 5 projects     | 2 audits                        |                   |
| <b>All Industrial Initiatives</b>                           | <b>113</b>                             | <b>148</b>                      |                   | <b>15</b>                           | <b>21</b>                       |                   |                |                                 |                   |
| <b>Other</b>  |  |                                 |                   |                                     |                                 |                   |                |                                 |                   |
| Low Income Program (Save on Energy Home Assistance Program) | 19.58                                  | 11.75                           | 0.975             | 2.5                                 | 2.2                             | 0.21              | 25,424 homes   | 15,494 homes                    | 1032 homes        |
| Aboriginal Programs   | 3.1                                    | 3.24                            |                   | 0.8                                 | 0.6                             |                   | 1,125 homes    | 1,586 homes                     |                   |
| Program Enabled Savings                                     |  | 7.27                            |                   |                                     | 1.1                             |                   |                | 14 projects                     |                   |
| Adjustments to previous years' results                      | 195.2                                  | -                               | -                 | -                                   |                                 |                   |                |                                 |                   |
| Other Programs Total (TOU savings+LDC pilots)               | 24.1                                   |                                 |                   | 1.2                                 |                                 |                   | 1,217 projects |                                 |                   |
| Pre-2011 Programs Total                                     | 3.2                                    | -                               | -                 | 49.4                                | -                               | -                 | 8 projects     |                                 |                   |
| <b>Sub-total for 2015 by Framework</b>                      |  | <b>1,047.67</b>                 | <b>61.51</b>      |                                     | <b>176.6</b>                    | <b>10.4</b>       |                |                                 |                   |
| <b>Total</b>  | <b>1170.8</b>                          | <b>1,117.5</b>                  |                   | <b>176.63</b>                       | <b>187</b>                      |                   |                |                                 |                   |

\*Note: 2011-2014 CDM framework programs that were delivered in 2015 and counted towards 2015 results)

\*\*Note: Even though demand reduction is not an LDC target anymore in the CFF, incremental demand reduction, which calculates new demand reductions from new measures installed, is presented here to compare with the 2014 results.

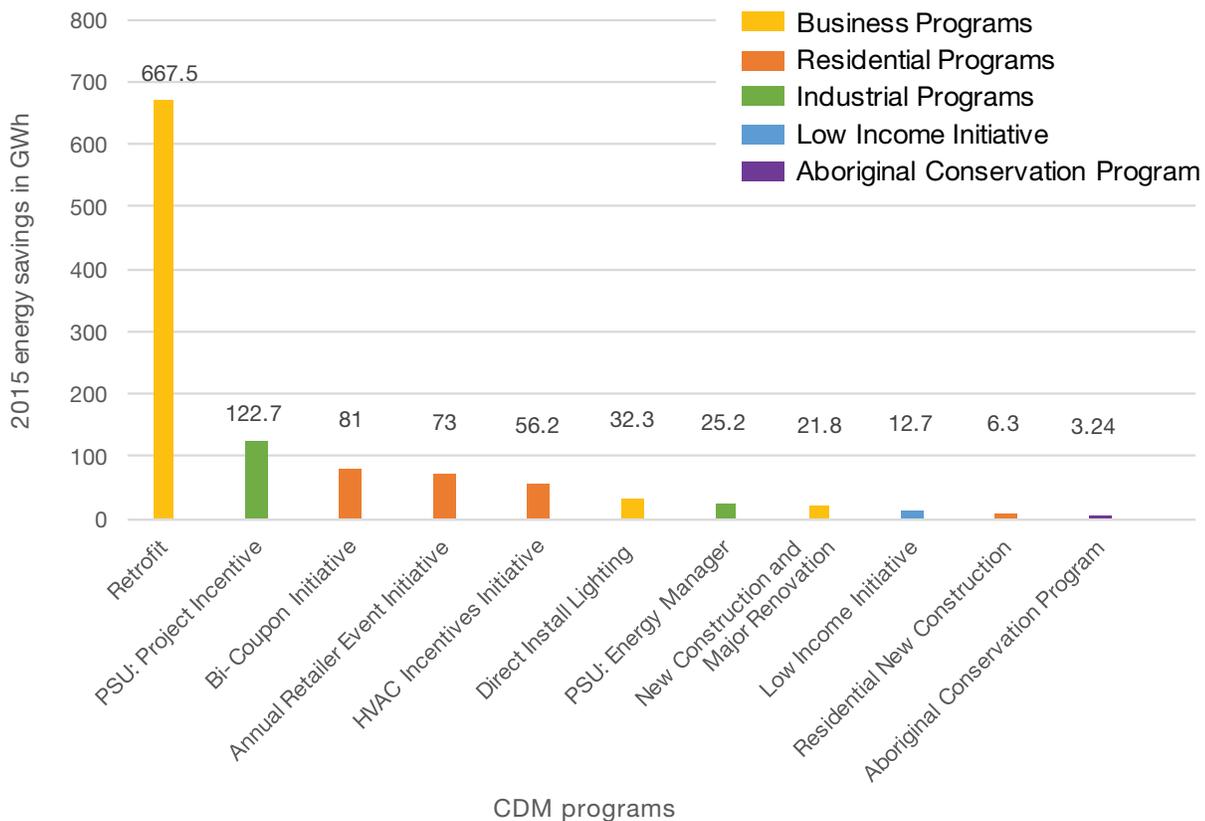
Source: IESO, 2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report (2016) at 9-11.



**Figure 6.2. Percentage contributions of programs to 2015 energy savings**

Source: IESO, 2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report (2016) at 17.

Figure 6.2 also illustrates the percentage contribution of each program portfolio to the energy savings achieved in 2015.



**Figure 6.3 Persistent Energy Savings from leading conservation initiatives under the 2015-2020 Conservation Framework**

Source: IESO, 2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report (2016) at 13; IESO information provided to the ECO in response to ECO inquiry (21 March 2017).

### 6.4.1 Residential Programs

The Residential Programs saw a strong year of program delivery in 2015, with the legacy programs delivering 80% of the Residential Program savings. The Coupon Program resulted in the largest amount of savings (154 GWh) in the residential portfolio and was mainly due to the widespread redemption of LED coupons.<sup>25</sup> The HVAC Program also saw a 10% increase in participation from 2014. Figure 6.3 indicates that the Coupon Initiative and the Retailer Event Initiative were the highest performers in the residential sector in 2015. Building on the success of the Coupon Program, the CDM Residential Working Group and the IESO have made several changes to the program, including offering higher incentives on certain lighting coupons and on clotheslines as well.<sup>26</sup> As of Fall 2017, the Coupon Program will be transformed into the Instant Discount Program and offered biannually.<sup>27</sup>

It is important to point out that 2015 was the last year for any new peaksaver PLUS installations since peak demand reductions are no longer the responsibility of the LDCs under the 2015-2020 CFF. The ECO had noted in our 2016 *Conservation: Let's Get Serious* report (which reviewed the 2014 results) that the peaksaver PLUS program had seen strong growth with over 300,000 installations across the province by the end of 2011-2014 framework.<sup>28</sup> The IESO has received Ministerial Direction to transition these devices, which are used to temporarily curtail air-conditioning fan cycles and pool pumps to reduce electricity use during high peak hours in the summer, to its capacity based demand response programs.<sup>29</sup> A detailed update on the peaksaver PLUS program is available in Text Box 6.8.3.

### 6.4.2 Business Programs

The Save On Energy Business Programs remained the strongest performer of all the portfolios in terms of energy savings, as it has in previous years. It contributed close to 65% of the energy savings persisting to 2020 achieved in 2015. The Retrofit Program led the way in terms of energy savings, contributing close to 90% of the savings for the Business Programs and also increasing by 41% from 2014. Net energy savings for individual projects ranged from 2 kWh to over 6.2 GWh.<sup>30</sup> The IESO attributes the increase in energy savings to a higher number of projects (from 10,925 projects in 2014 to 13,358 projects in 2015) and to an increase in average project savings, which went up by 26% from

**2015 was the last year for any new peaksaver PLUS installations since peak demand reductions are no longer the responsibility of the LDCs under the 2015-2020 CFF.**

2014.<sup>31</sup> Figure 6.3 shows the savings contribution of the individual business programs, with the Retrofit Program leading the way. To further the continued success of the Retrofit Program, the Business Working Group and the IESO worked together to make several changes to the program in 2016. The changes include a streamlined approvals process for projects under a certain incentive level; clarifying the eligibility for a custom track application; creation of a multi-site application model; and introducing more prescriptive measures to meet customer demand.<sup>32</sup>

On the other hand, the Small Business Lighting Program saw a 22% drop in the number of projects and a 40% drop in energy savings in 2015.<sup>33</sup> The IESO attributes this decrease to the program reaching a saturation point in the small business sector with LEDs becoming standard installations, a concern that has been expressed by LDCs in the past years and recognized by the ECO's previous reports.<sup>34</sup> The average savings per project also decreased because only 60% of the energy savings will persist to 2020 due to baseline shifts.<sup>35</sup> The change in baseline is due to the upcoming changes in Canada's energy regulations and Canada's lighting market which will mean that a number of measures in the lighting initiative would have occurred anyway within the measure's expected useful life, even without the influence of the program. Therefore, the program does not receive full credit for the energy and demand savings achieved over the measure's lifetime.<sup>36</sup>

The Small Business Lighting Program was completely redesigned by the IESO and the Business Working Group in 2015 and launched in early 2016 and amended to encourage more participation for the rest of the framework. Those changes include focusing on LED measure incentives, expanding the facility eligibility size from 50 kW to 100 kW of average demand and the maximum incentive that a customer can receive has also increased from \$1,500 to \$2,000.<sup>37</sup>

### 6.4.3 Industrial Programs

The Industrial Programs also performed better in 2015 than in 2014, with both the Project Incentive Initiative and the Energy Manager Initiative under Process and Systems Upgrade (PSU) experiencing an increase in savings from 2014, as shown in Table 6.2. However, these initiatives are multi-year initiatives and the increase in numbers could be attributed to

the completion of projects that started earlier in the framework and not because of new customers signing up to participate in the initiatives. Of the 12 Project Incentive Initiatives completed in 2015, four of them were Behind-The-Meter Generation (BMG) projects that accounted for 73% of the program's savings. Table 6.3 lists the BMG projects completed in 2015.

**Table 6.3. Behind-the-Meter Generation Projects Completed in 2015**

| LDC                                      | Participant              | Fuel Source* | Contracted Savings MWh/Yr | EM&V Results MWh/Yr |
|--|--------------------------|--------------|---------------------------|---------------------|
| Entegrus Powerlines (Chatham-Kent Hydro) | GreenField Ethanol Inc.  | Natural Gas  | 25,630                    | 28,291              |
| Guelph Hydro Electric System Inc.        | Magna                    | Natural Gas  | 50,760                    | 42,148              |
| Hydro One Networks Inc.                  | Erie Meats               | Natural Gas  | 8,410                     | 0                   |
| Hydro One Networks Inc.                  | Terra International Inc. | Natural Gas  | 22,355                    | 16,649              |
| <b>Total</b>                             |                          |              | <b>107,155</b>            | <b>87,088</b>       |

\*Note: Behind-the-Meter Generation projects usually involve facilities using natural gas to generate electricity for their own use. More information is available in Text Box 6.4.4.

Source: IESO information provided to the ECO (21 March 2017).

There were also several BMG projects that were completed in 2015 but did not get included in the 2015 results because of delays in measurement and

reporting. Table 6.4 lists those BMG projects, the results of which will be counted in the 2016 Evaluation, Measurement & Verification (EM&V) process.

**Table 6.4. Behind-the-Meter Projects Completed in 2015 but Not Included in 2015 Savings Results**

| LDC                                     | Participant                             | Fuel Source | Contracted Savings MWh/Yr |
|---|---|-------------|---------------------------|
| Oshawa PUC Networks Inc.                | Lakeridge Health                        | Natural Gas | 12,880                    |
| Cambridge and North Dumfries Hydro Inc. | Toyota Motors Manufacturing Canada Inc. | Natural Gas | 72,510                    |
| North Bay Hydro Distribution Limited    | North Bay RHC                           | Natural Gas | 12,900                    |
| Toronto Hydro                           | Campbells                               | Natural Gas | 25,730                    |
| Hydro One Networks Inc.                 | Invista                                 | Natural Gas | 35,760                    |
| Thunder Bay Hydro                       | TBRHSC                                  | Natural Gas | 16,191                    |
| Hydro One Networks Inc.                 | 3M Canada                               | Natural Gas | 13,840                    |
| <b>Total</b>                            |   |             | <b>189,811</b>            |

Source: IESO information provided to the ECO (21 March 2017).

#### 6.4.4 Is Combined Heat and Power a Form of Conservation?

Combined heat and power (CHP) or cogeneration refers to the concurrent production of electricity or mechanical power and useful thermal energy from a single source. In CHP, the heat that would normally be wasted in generating thermal electricity<sup>39</sup> is recovered to provide useful heat or cooling, usually as hot water or steam. Since the water will cool down as it travels from the generation plant, CHP often works best if the thermal energy can be used on site, or close by.

Because the same unit of fuel (usually natural gas) is used to produce both heat and electricity at the same time, CHP is almost always more efficient than burning gas separately to generate electricity and to provide heat. From the electricity grid operator's point of view, on-site power generation behaves similarly to conservation, as the facility the CHP unit is part of generates and consumes its own electricity, reducing load on the grid.

There are other benefits to facilities and communities that install CHP units. CHP plants increase power reliability and can provide backup power during power failures. Several communities are now considering CHP as part of their community energy hubs.<sup>40</sup> At least one CHP project under development in northern Ontario is part of an energy hub, integrated with renewable generation such as solar panels and battery storage.

For these reasons, in the Conservation First Framework and the Industrial Accelerator Program (IAP), CHP behind-the-meter generation (BMG) projects (under 10 MW) are considered as CDM activities.<sup>41</sup> BMG CHPs are currently eligible to receive funding and incentives under the Process and Systems Upgrade Program as part of the Industrial Programs under CFF and the IAP. BMG CHP projects are integral to LDCs' CDM plans and their ability to meet their electricity conservation targets (73% of electricity savings of the industrial

programs in 2015 came from BMG CHP projects, see Section 6.4.3 for more details). CHP projects are a significant portion of many LDCs' six year targets, e.g., one medium-sized LDC has already achieved close to 70% of their overall target in 2015 because a CHP project from the previous framework came into service in 2015.

The Climate Change Action Plan has raised uncertainty about the future treatment of CHP, given that CHP projects are fossil-fuel based. CHP does not receive any special recognition or encouragement under the Action Plan, despite some of the benefits mentioned earlier. LDCs have advised that many large customers are hesitant to consider installing BMG CHP in their facility as it is not clear whether CHP projects will still be eligible to receive a CDM incentive from utility conservation programs upon project completion. Given the length of time, the upfront cost of the study and the manpower required to undertake the engineering study before moving forward with the CHP installation, customers remain reluctant to invest in such a project. In the same example mentioned earlier in this section, uncertainty around funding and the complicated engineering study took up almost all of the duration of the 2011-2014 CDM Framework before the CHP came into service in 2015. The Ministry of Energy and the IESO's lack of direction in this matter has left customers and LDCs in limbo.

The actual impact of CHP on Ontario greenhouse gas emissions is variable. In jurisdictions where most electricity is generated by burning fossil fuels, CHP always displaces fossil-fuelled generation and therefore reduces GHG emissions. In Ontario, CHP would currently be displacing low-emission generation (nuclear or renewables) much of the time. This could change during the upcoming nuclear refurbishments, or if growing demand is met by more gas-fired electricity generation. More work is needed by the Ministry of Energy and the IESO to assess the impact of CHP on the province's overall emissions, in light of Ontario's existing electricity supply and its projected supply mix in the future.

### 6.4.5 Home Assistance Program and Aboriginal Program

The Save On Energy Home Assistance Program (the province's low income CDM program) saw a 35% drop in participation. This may be attributed to the amendment in the CDM requirement in LDC licenses between the 2011-2014 framework and the 2015-2020 Conservation First Framework. As mentioned earlier, the new CDM requirement mandates LDCs to deliver conservation programs in its territory "in relation to each customer segment in its service area", as well as within each LDC's budget constraints. This may mean that some LDCs did not include the Home Assistance Program in their CDM plans as one of the programs that they intended to deliver given the customer segmentation in its jurisdiction. However, results for the Home Assistance Program are expected to change in the coming years given the Minister's December 2016 Direction, which is discussed in Section 6.11.1 of this report.

The Aboriginal Program that was delivered by the IESO ended on December 31, 2015, but Hydro One is currently offering a First Nations Conservation Program that has already had over 3,400 eligible homes participate in the program.<sup>42</sup> Savings results from that program will be analyzed by the ECO in its next annual energy conservation report when it reviews the 2016 results.

6  
Some LDCs did not include the Home Assistance Program in their CDM plans.

## 6.5 Individual LDC Performance

Table 6.5 outlines the performance of LDCs in the first year of the 2015-2020 CFF. As with the aggregate provincial results, savings from both legacy program activity and new CFF programs are included. In terms of their progress towards meeting their individual 2020 energy savings targets, the LDCs as a whole achieved 16% of their 7 TWh 2020 target. One medium-sized LDC has managed to achieve close to 70% of its 2020 target in the first year of the framework, and several others are close to the halfway mark of their targets. Several medium and small LDCs have only managed single digit progress on their targets.

According to the IESO, the LDCs that performed exceptionally well experienced far greater savings than they had projected due to a ramp up of activity prior to the end of the 2011-2014 framework. Other factors that contributed to higher than expected savings were

- strong uptake of the Coupon Program;
- large BMG CHP projects being completed in 2015 (see Section 6.4.3 on program results); and,<sup>43</sup>
- Some LDCs decided not to update their CDM plans after the original submission on May 1, 2015, meaning that their planned CDM forecasts were not an accurate reflection of expected program activity.<sup>44</sup>

For LDCs that did not fare well in 2015, the IESO will continue to monitor LDC performance on a monthly basis and has several remedial tools available in the Energy Conservation Agreement to help the LDC improve its performance.

**Table 6.5. Individual LDC Performance in 2015 under the 2015-2020 Conservation First Framework**

| #  | LDC  | Net Verified 2020 Annual Energy Savings (kWh) | Allocated 2015- 2020 CFF LDC GDM Plan Target (kWh) | Progress Towards Allocated 2015- 2020 CFF LDC GDM Plan Target (%) (17% = on pace to meet target) |
|----|--|---|--|--|
| 1  | Algoma Power Inc.                                | 1,031,011                                     | 7,510,000  | 14   |
| 2  | Atikokan Hydro Inc.                              | 109,769                                       | 1,140,000  | 10   |
| 3  | Attawapiskat Power Corporation                   | 35,822  | 510,000  | 7  |
| 4  | Bluewater Power Distribution Corporation         | 7,755,327                                     | 62,370,000   | 12   |
| 5  | Brant County Power Inc.                          | 1,810,109                                     | 15,950,000   | 11   |
| 6  | Brantford Power Inc.                             | 7,457,011                                     | 54,320,000   | 14   |
| 7  | Burlington Hydro Inc.                            | 12,632,309                                    | 99,040,000   | 13   |
| 8  | Cambridge and North Dumfries Hydro Inc.          | 15,435,132                                    | 85,000,000   | 18   |
| 9  | Canadian Niagara Power Inc.                      | 3,502,396                                     | 28,480,000   | 12   |
| 10 | Centre Wellington Hydro Ltd.                     | 1,581,029                                     | 8,730,000  | 18   |
| 11 | Chapleau Public Utilities Corporation            | 275,333                                       | 1,050,000  | 26   |
| 12 | COLLUS PowerStream Corp.                         | 1,637,947                                     | 16,860,000   | 10   |
| 13 | Cooperative Hydro Embrun Inc.                    | 120,443                                       | 1,790,000  | 7  |
| 14 | E.L.K. Energy Inc.                               | 1,662,553                                     | 16,200,000   | 10   |
| 15 | Enersource Hydro Mississauga Inc.                | 59,582,917                                    | 483,270,000  | 12   |
| 16 | Entegrus Powerlines Inc.                         | 38,558,192                                    | 56,830,000   | 68   |
| 17 | EnWin Utilities Ltd.                             | 14,809,440                                    | 151,300,000  | 10   |
| 18 | Erie Thames Powerlines Corporation               | 5,180,177                                     | 27,630,000   | 19   |
| 19 | Espanola Regional Hydro Distribution Corporation | 502,006                                       | 2,410,000  | 21   |
| 20 | Essex Powerlines Corporation                     | 3,819,710                                     | 31,430,000   | 12   |
| 21 | Festival Hydro Inc.                              | 4,822,853                                     | 34,650,000   | 14   |
| 22 | Fort Albany Power Corporation                    | 29,906  | 340,000  | 9  |
| 23 | Fort Frances Power Corporation                   | 254,688                                       | 4,000,000  | 6  |
| 24 | Greater Sudbury Hydro Inc.                       | 6,959,582                                     | 34,740,000   | 20   |
| 25 | Grimsby Power Incorporated                       | 2,804,724                                     | 10,850,000   | 26   |
| 26 | Guelph Hydro Electric Systems Inc.               | 58,594,547                                    | 99,040,000   | 59   |
| 27 | Haldimand County Hydro Inc.                      | 8,342,090                                     | 19,850,000   | 42   |
| 28 | Halton Hills Hydro Inc.                          | 5,500,566                                     | 30,940,000   | 18   |
| 29 | Hearst Power Distribution Company Limited        | 1,510,384                                     | 3,180,000  | 47   |
| 30 | Horizon Utilities Corporation                    | 70,835,688                                    | 330,680,000  | 21   |
| 31 | Hydro 2000 Inc.                                  | 80,683  | 1,360,000  | 6  |
| 32 | Hydro Hawkesbury Inc.                            | 1,162,440                                     | 7,920,000  | 15   |
| 33 | Hydro One Brampton Networks Inc.                 | 29,578,103                                    | 255,160,000  | 12   |
| 34 | Hydro One Networks Inc.                          | 200,176,997                                   | 1,159,020,000                                      | 17   |
| 35 | Hydro Ottawa Limited                             | 57,247,836                                    | 394,540,000  | 15   |
| 36 | InnPower Corporation                             | 1,850,172                                     | 13,010,000   | 14   |
| 37 | Kashechewan Power Corporation                    | 40,200  | 520,000  | 8  |
| 38 | Kenora Hydro Electric Corporation Ltd.           | 1,606,080                                     | 5,270,000  | 30   |
| 39 | Kingston Hydro Corporation                       | 4,445,966                                     | 34,500,000   | 13   |

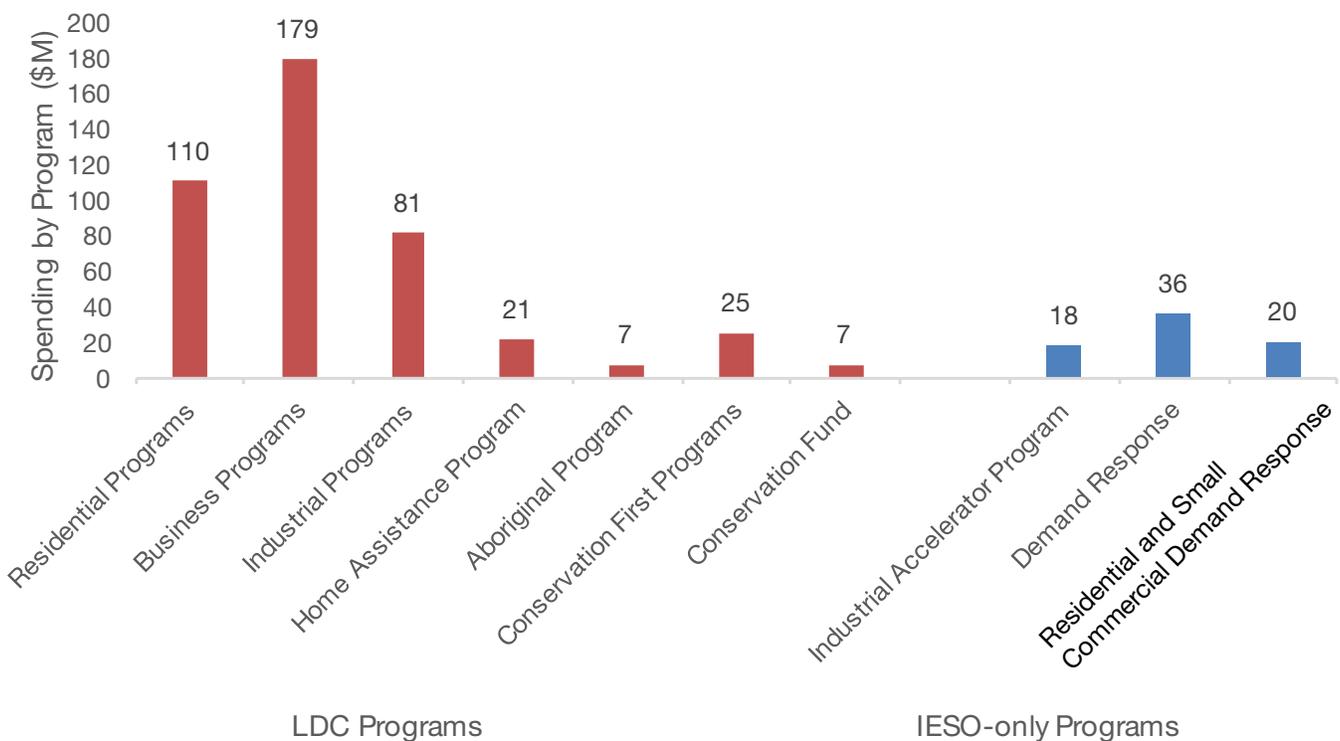
|              |   |                      |                      |           |
|--------------|---|----------------------|----------------------|-----------|
| 40           | Kitchener-Wilmot Hydro Inc.                     | 21,865,242           | 105,710,000          | 21        |
| 41           | Lakefront Utilities Inc.                        | 2,239,136            | 12,170,000           | 18        |
| 42           | Lakeland Power Distribution Ltd.                | 4,432,710            | 15,770,000           | 28        |
| 43           | London Hydro Inc.                               | 28,534,591           | 196,660,000          | 15        |
| 44           | Midland Power Utility Corporation               | 2,860,953            | 10,830,000           | 26        |
| 45           | Milton Hydro Distribution Inc.                  | 9,889,501            | 45,360,000           | 22        |
| 46           | Newmarket-Tay Power Distribution Ltd.           | 8,218,024            | 36,240,000           | 23        |
| 47           | Niagara Peninsula Energy Inc.                   | 12,742,252           | 74,440,000           | 17        |
| 48           | Niagara-on-the-Lake Hydro Inc.                  | 2,598,018            | 11,680,000           | 22        |
| 49           | Norfolk Power Distribution Inc.                 | 7,655,950            | 18,850,000           | 41        |
| 50           | North Bay Hydro Distribution Limited            | 4,245,690            | 20,260,000           | 21        |
| 51           | Northern Ontario Wires Inc.                     | 509,731              | 4,310,000            | 12        |
| 52           | Oakville Hydro Electricity Distribution Inc.    | 21,252,248           | 92,390,000           | 23        |
| 53           | Orangeville Hydro Limited                       | 3,398,117            | 14,150,000           | 24        |
| 54           | Orillia Power Distribution Corporation          | 1,662,040            | 16,580,000           | 10        |
| 55           | Oshawa PUC Networks Inc.                        | 5,046,074            | 73,010,000           | 7         |
| 56           | Ottawa River Power Corporation                  | 2,779,858            | 8,720,000            | 32        |
| 57           | Peterborough Distribution Incorporated          | 4,979,980            | 37,880,000           | 13        |
| 58           | PowerStream Inc.                                | 76,511,169           | 535,440,000          | 14        |
| 59           | PUC Distribution Inc.                           | 4,538,096            | 26,410,000           | 17        |
| 60           | Renfrew Hydro Inc.                              | 351,383              | 4,170,000            | 8         |
| 61           | Rideau St. Lawrence Distribution Inc.           | 1,353,836            | 5,020,000            | 27        |
| 62           | Sioux Lookout Hydro Inc.                        | 537,110              | 3,700,000            | 15        |
| 63           | St. Thomas Energy Inc.                          | 2,146,544            | 17,510,000           | 12        |
| 64           | Thunder Bay Hydro Electricity Distribution Inc. | 5,286,985            | 48,420,000           | 11        |
| 65           | Tillsonburg Hydro Inc.                          | 1,886,420            | 11,310,000           | 17        |
| 66           | Toronto Hydro-Electric System Limited           | 197,146,346          | 1,576,050,000        | 13        |
| 67           | Veridian Connections Inc.                       | 16,332,332           | 152,970,000          | 11        |
| 68           | Wasaga Distribution Inc.                        | 2,385,191            | 6,320,000            | 38        |
| 69           | Waterloo North Hydro Inc.                       | 12,799,897           | 82,380,000           | 16        |
| 70           | Welland Hydro-Electric System Corp.             | 1,729,306            | 25,500,000           | 7         |
| 71           | Wellington North Power Inc.                     | 709,927              | 5,890,000            | 12        |
| 72           | West Coast Huron Energy Inc.                    | 438,855              | 8,080,000            | 5         |
| 73           | Westario Power Inc.                             | 4,282,957            | 23,010,000           | 19        |
| 74           | Whitby Hydro Electric Corporation               | 6,210,809            | 58,440,000           | 11        |
| 75           | Woodstock Hydro Services Inc.                   | 4,312,063            | 22,970,000           | 19        |
| <b>Total</b> |   | <b>1,117,489,826</b> | <b>7,000,000,000</b> | <b>16</b> |

Source: IESO, 2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report (2016) at 18

## 6.6 Electricity Conservation Spending in 2015

Given that most of the energy savings for 2015 came from the 2011-2014 legacy programs that were delivered or completed in 2015, it is not surprising that the majority of the year's spending also came from the 2011-2014 budget. In total, the province spent \$432 million in the delivery of LDC CDM programs, of which only \$25.5 million was from the CFF (\$22.5 million from the LDC CDM plan budgets and about \$3 million from the IESO's Central Services Budget). The rest of the spending for 2015 came from the 2011-2014 CDM framework budget and spending on the Conservation Fund. An additional \$74 million was spent on IESO-only programs, for a total of \$506 million on conservation programs.

Of the \$1.8 billion budgeted under the CFF CDM Plans over the 2015-2020 period for LDCs, only 1.2% of that funding was used in 2015. The OEB notes that this has put the province's LDCs in an advantageous position of having a larger than anticipated budget available over the remainder of the term to use towards achieving their conservation targets.<sup>45</sup> The bulk of the spending in 2015 from the legacy program budget went to the Business and Residential Programs, which is broken down in Figure 6.4.



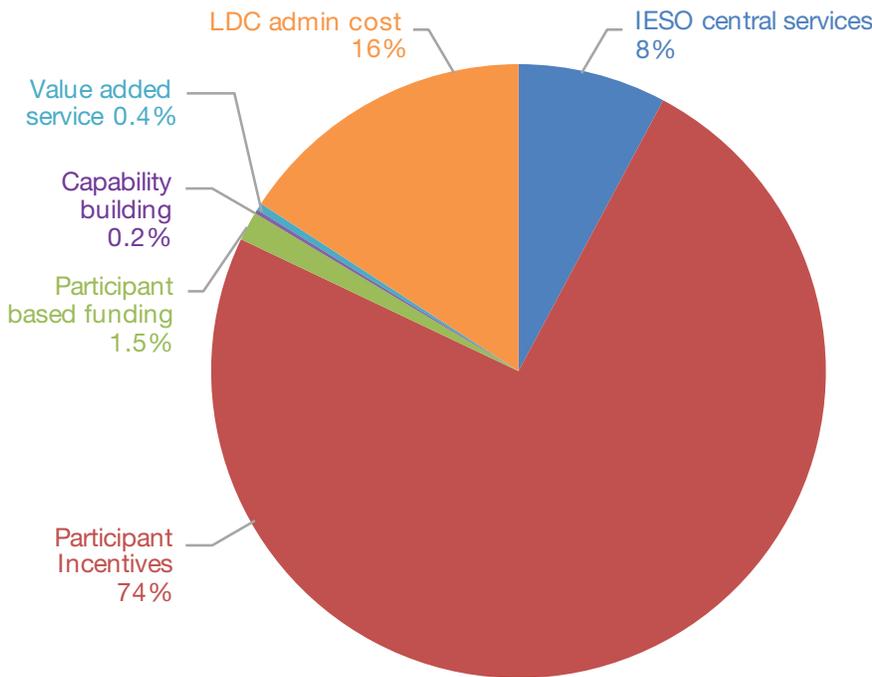
**Figure 6.4. 2015 Ontario electricity conservation spending by program portfolio.**

Note: Since Conservation First Framework expenditure only represented 5% of the total spending in 2015, spending from the framework's budget is shown as a program category in the chart (based on the information received from the IESO). The ECO will be providing more in-depth analysis of CFF spending in subsequent years.

While the total conservation costs reported by the IESO was \$506 million, a total of \$429 million was recovered from Ontario's ratepayers through the Global Adjustment Mechanism (GAM). The reason for the variance was because of budget reconciliations from the 2011-2014 CDM framework, changes in reporting methodology between frameworks, pre-funding provided to LDCs under the CFF and differences in reporting timelines.<sup>46</sup> The \$429 million represents about 4.3% of the total GAM charged on electricity bills in 2015 and about 2% of the total electricity cost for the province.<sup>47</sup> These percentages are in line with previous years. Conservation still amounts to a very small part of the electricity bill for Ontario's ratepayers.

Spending by type of expense for LDC CDM programs is shown in Figure 6.5. As has been the trend in previous

years, close to three-quarters of the expenses went towards customer incentives. The rest of the expenses went towards the IESO and the LDCs' respective administrative expenses. Under the CFF, the IESO remains responsible for Central Services such as program evaluation, tracking of results, province-wide marketing, technical review of programs, market research, etc. Value-Added Services, which are centralized program delivery services towards specific initiatives, such as the administration of the Coupon Program, are charged against LDCs' CDM Plan Budgets on a participation basis. Either the IESO or the LDCs may be responsible for technical assistance, customer support, and other program delivery functions (this varies depending on the specific conservation program), and both groups have a role in program design.



**Figure 6.5. 2015 Ontario electricity conservation spending by type of expense.**

Source: IESO information provided to the ECO.

There were no local or regional LDC CDM programs in market in 2015 and therefore the results and spending numbers above do not include energy savings or spending on those programs.<sup>48</sup> The IESO approved five local programs in 2015 but those were launched in

2016, so their spending and results can be expected from the IESO's 2016 results report later this year. More information on local programs and pilots under the CFF is in Section 6.9 of this report.

## 6.7 Cost-Effectiveness in 2015

The cost-effectiveness of programs in 2015 is shown in Table 6.6. The cost-effectiveness of CDM programs for 2011-2014 framework has also been presented for comparison purposes. As has been done in previous years, two cost-effectiveness tests are used which compare lifetime costs and benefits, but from different perspectives. The Program Administrator Cost (PAC) reviews the costs and benefits from the view point of the program administrator while the Total Resource Cost (TRC) looks at the costs and benefits that accrue society, including additional costs paid by customers, and non-energy benefits.

A ratio of greater than 1 for both those tests generally indicates that the benefits outweigh the costs and

therefore the conservation program has been beneficial for the province. In the CFF, the LDC's whole portfolio of programs in each year of its CDM plan had to be greater than 1 for the IESO to approve the plan, with the caveat that if the proposed plan had a ratio of less than 1.3 then it would be subject to further review before approval.<sup>49</sup> Another change from the last framework is that the TRC now includes a 15% adder for non-energy benefits of conservation (including greenhouse gas emissions reductions) which will improve the benefit to cost ratios.<sup>50</sup> The modified test is known as the "TRC-plus" test and 2015 is the first year in which the adder is being used in cost-effectiveness reporting. The same adder is being used in the cost-effectiveness calculation for gas conservation programs (see Section 5.1.6).

**Table 6.6. Cost Effectiveness: 2015 Program Activity vs. 2011-2014 Program Activity**

| Program  | Total Resource Cost Test<br>(Benefit: Cost Ratio) |            | Program Administrator<br>Cost Test (Benefit: Cost<br>Ratio) |            | Levelized Cost of Delivery<br>(c/kWh) |            |
|--|---|------------|---|------------|---------------------------------------|------------|
|  | 2015  | 2011-14    | 2015  | 2011-14    | 2015                                  | 2011-14    |
| Consumer   | 3.59  | 1.3        | 2.2   | 1.6        | 3.63                                  | 4.8        |
| Business   | 1.05  | 1.3        | 2.28  | 2.8        | 2.9                                   | 3.1        |
| Industrial   | 0.82  | 0.9        | 1.23  | 1.3        | 5.2                                   | 4          |
| Home Assistance  | 1.01  | 0.6        | 0.88  | 0.6        | 8.9                                   | 11.4       |
| Aboriginal   | 0.86  | 1.1        | 0.75  | 1.1        | 10.5                                  | 7.7        |
| <b>TOTAL (Distribution-Connected<br/>Programs)</b>                   | <b>1.29</b>                                       | <b>1.2</b> | <b>1.99</b>   | <b>2.2</b> | <b>3.5</b>                            | <b>3.6</b> |
| IESO only Demand Response  |   | 1.6        |   | 1.1        | Not applicable                        |            |
| IESO only Industrial Accelerator                                     | 0.8   | 0.6        | 1.26  | 0.5        | 4.7                                   | 11.2       |
| <b>TOTAL (Distribution- and<br/>Transmission-Connected Programs)</b> | <b>1.27</b>                                       | <b>1.2</b> | <b>1.96</b>   | <b>2.1</b> | <b>3.54</b>                           | <b>3.7</b> |

Source: IESO information provided to the ECO.

## The cost-effectiveness numbers for the first year of the Conservation First Framework were positive.

The cost-effectiveness numbers for the first year of the Conservation First Framework were positive for both the TRC and the PAC. When the cost-effectiveness of programs in 2015 (which are a mix of legacy and CFF programs) is compared against the average cost-effectiveness of programs during 2011-2014, it is noticed that the TRC number has improved slightly in 2015 (1.27 in 2015 vs. 1.2 in 2011-2014), while the PAC number has seen a slight drop (1.9 in 2015 and 2.2 for the 2011-2014 average). The TRC number has improved slightly given the Ministerial Direction in December 2014 to add a 15% adder to the TRC calculation to account for non-energy environmental benefits, as mentioned earlier. While the overall numbers have very small changes between the average of the last framework and the first year of the new one, different program portfolios saw significant shifts.

The residential programs, for example, went from a TRC and PAC of 1.3 and 1.6 to 3.59 and 2.2 respectively and the Coupon Program actually saw TRC numbers in the double digits at 11.21. The IESO indicated that the reason for such a high TRC is the fact that LED light bulbs, which contribute to a majority of the savings in the Coupon Program, have a much longer effective useful life than CFLs. The useful life of an LED is equal to that of 3-4 CFLs and therefore creates significant operational and maintenance savings along with sustained energy savings. The combination of a long useful life with declining equipment costs results in a high TRC.

Several Business Programs such as Small Business Lighting and the Building Commissioning also scored low on both ratios but the overall program numbers were improved by the TRC and PAC numbers from the Retrofit and High Performance New Construction

Programs. The IESO reported that the business programs saw lower cost-effectiveness numbers because of new avoided cost figures as well changes to the lighting measure baselines. Higher measure baselines have led to lower lifetime savings between the “base case” lighting measure and the “energy efficient” one. Given that incentive levels haven’t changed in 2015, the combination of lower lifetime savings and static incentives meant lower cost-effectiveness numbers for the Business Programs.<sup>51</sup> The Industrial Programs portfolio was not cost-effective on the TRC but scored above 1 on the PAC. The numbers were similar to 2014. As the CFF programs ramp up, the TRC and PAC ratios can be expected to improve in the Industrial Programs if participation increases.

The other measurement that is used to understand the positive impact of conservation on the province is the levelized unit energy cost of delivering conservation. This compares the cost of delivering conservation to save a unit of power with the cost of generating the same unit of power. The levelized unit energy cost of conservation for 2015 is 3.5¢/kWh, which is slightly lower (less expensive per unit of energy saved) than the 2011-2014 figure of 3.7¢/kWh, and far more cost-effective than any other form of generation. As highlighted in Text Box 6.1.1, the cost of conservation is still less than conventional and renewable generation and therefore continues to be of good value to the province.

## 6.8 Results of IESO-Only Programs

In addition to the 2015-2020 Conservation First Framework, the IESO also delivers the Industrial Accelerator Program directly to the province’s large transmission-connected customers, and also has responsibility for demand response programs. Since those programs are delivered directly to transmission-connected customers or will not have energy savings persisting to 2020, they naturally don’t get counted towards LDC targets. These programs include the Industrial Accelerator Program (IAP) and the Capacity Based Demand Response Program. Table 6.7 details the performance of each of those IESO-only CDM programs in 2015.

**Table 6.7. IESO-only CDM Program Performance in 2015**

| Program   | Participation                | Net 2020 Annual Energy Savings (MWh) | Net incremental Peak Demand Savings (MW) |
|---|------------------------------|--------------------------------------|--|
| Industrial Accelerator Program 1.0 and 2.0        | 16 projects                  | 47,630                               | 5.72                                     |
| Capacity Based Demand Response                    | 3 Aggregators                | 0                                    | 513                                      |
| Residential and Small Commercial Demand Response* | 290,053 Load Control Devices | 0                                    | 172                                      |

\*Note: The current status on this program's future is detailed in text box 6.8.3.

Source: IESO information provided to the ECO (21 March 2017).

### 6.8.1 Industrial Accelerator Program

The Industrial Accelerator Program (IAP) provides financial incentives to large transmission-connected customers to invest in energy saving innovative processes and retrofits that will allow the facilities to save electricity and/or switch consumption from peak hours. The IAP now includes four different initiatives that companies can participate in, all of which are similar to initiatives delivered by LDCs to distribution-connected customers:

- Retrofit
- Process and Systems
- High Performance New Construction
- Energy Managers (recently introduced)

The IAP doubled the number of projects in 2015 to 16 projects compared to the 2014 participation.<sup>52</sup> The increase in the number of projects also led to an increase in first year energy savings to 49 GWh and first year peak demand savings of 5.7 MW in 2015. These savings are a start to the June 2015 to December 2020 IAP 2.0 target of 1.7 TWh. However, that number remains dismally short of that target (only 3%).

By the end of 2015, the Industrial Accelerator Program had provided incentives to 36 energy efficiency projects resulting in total savings of 158 GWh. While program savings specific to 2015 were lower than forecasted the IESO has been making changes to increase participation through to 2020. Results could grow if IAP projects in the pipeline, particularly BMG projects, proceed to completion. The IESO's initial forecast is that

BMG projects under the IAP will lead to energy savings of 0.66 TWh, which includes 0.29 TWh of natural gas combined heat and power projects and 0.37 TWh from waste-energy recovery projects.<sup>53</sup>

Since 2014, two major announcements have been made in an effort to increase participation in the IAP. Through a July 25, 2014 Ministerial Direction, the program, initially set to run until June 2015, has now been extended to December 31, 2020 to give customers the continued opportunity to participate in longer-term projects, matching the CFF timeframe. This IAP 2.0 framework has a new incremental energy savings target of 1.7 TWh in 2020 energy savings.<sup>54</sup>

Also, on December 16, 2016, the Minister of Energy issued a Direction that allowed transmission-connected customers with LDC-connected sites to participate in the IAP through the IESO. Any electricity savings accrued at the LDC level will be counted towards the LDC's CFF targets. The IESO will also undertake a pay-for-performance pilot for customers who are eligible for the IAP similar to the centrally-delivered multi-distributor CDM program, discussed in Text Box 6.11.2.<sup>55</sup>

### 6.8.2 Capacity Based Demand Response

As mentioned earlier, the IESO is now responsible for demand response (DR) targets in the province and has already transitioned the Demand Response 2 and Demand Response 3 programs to the Capacity Based Demand Response (CBDR) Program in March 2015. As contracted MWs in this program expire they are included in the annual DR auction and opened up to competition from existing and new providers. The

## The 2016 auction saw the clearing price drop to 24% less than historical prices.

peaksaver PLUS program is also in the process of transitioning into an IESO administered market based structure, once funding stops at the end of 2017. More information on the peaksaver PLUS program is provided in Text Box 6.8.3.

The IESO launched its first DR auction in December 2015, where DR was procured for the summer commitment period (May-October 2016) and the winter commitment period (November 2016-April 2017). A subsequent auction was held in December of 2016. The clearing price for the 2015 auction was 11% less than the historical contract cost from the DR 3 program, and the 2016 auction saw the clearing price drop to 24% less than historical prices. Since the auction has been introduced, participation has also increased from 6 to 21 registered auction participants, which is a commendable effort from the IESO in garnering participation. The DR auction market has also allowed the IESO to conduct a pilot for large customers which explores capabilities of varying consumption throughout the day, traditionally offered by generators, to meet changing demand conditions.

The 2016 DR Auction cleared 455.2 MW for the 2017 summer commitment period (May 1 to Oct 31) and 477.5 MW for the 2017-18 winter commitment period (Nov 1, 2017 to April 30, 2018). Another 159 MW of DR capacity remains contracted through the CBDR, both of which can dispatch during times of peak demand.<sup>56</sup> The IESO activated the CBDR once in 2016 which lasted for four hours. The 159 MW is set to expire in two tranches over the course of 2018, at which time the MW will be added to the DR Auction target. As noted, the current CBDR program is considered a transitional program as it moves to incorporate these participants into its existing DR auction to compete against other providers of DR capacity and other types of resources such as generators and importers to meet Ontario's capacity in the future incremental capacity auction.

Ontario is aiming to use DR (including price-based initiatives such as the Industrial Conservation Initiative) to meet 10% of peak demand by 2025, equivalent to approximately 2,400 MW under forecast conditions. Table 6.8 details the peak demand savings from DR activities in 2015. The 711 MW savings in 2015 represents 30% of the 2,400 MW forecasted peak demand savings in 2025 target (pricing policies to reduce peak demand also count towards this target; taking these measures into account, total progress towards the 2,400 MW target was 1,872 MW at the end of 2015, 78% of the target). There were no CBDR activations in 2015 – peak demand savings are based on an evaluation of what level of demand reduction would be provided if called upon.

**Table 6.8. Demand Response Savings in 2015**

| Demand Response Program in 2015  | Net 2015 Annual Peak Demand Savings at the Generator Level (MW) |
|--|---|
| IESO Capacity Based Demand Response Program                            | 526.2   |
| LDC Delivered Residential and Small Commercial Demand Response Program | 180.9   |
| <b>Total</b>   | <b>710.6</b>  |

Source: IESO information provided to the ECO (21 March 2016).

### 6.8.3 peaksaver PLUS: the Latest

In the March 31, 2014 Direction from the Minister of Energy, the IESO was directed to transition all DR activities, including the peaksaver PLUS program, to an IESO-administered DR program. In the 2011-14 CDM Framework, peaksaver PLUS devices were part of the Residential Demand Response Program and allowed the province to curtail energy demand during peak periods on extremely hot summer days, thus reducing the need to rely on more generation.<sup>57</sup> Until the transition was completed, the IESO's mandate

was to continue to make the program available to LDCs and their interested customers.<sup>58</sup> After conducting stakeholder consultations to consider the future role and treatment of the peaksaver PLUS program in January 2016, the IESO confirmed that it would not fund new installations past December 31, 2015.<sup>59</sup> Currently, the IESO is continuing to maintain the program for existing devices and LDCs will continue to receive funding for maintenance of currently enrolled devices.

The peaksaver PLUS program is now set to discontinue by the end of December 2017. The IESO is currently working with the Conservation Residential Working Group to wind down the program. Another IESO working group, the Demand Response Working Group, continues to work with stakeholders to transition peaksaver PLUS to the DR auction market. In 2016, through the Demand Response Working Group, the IESO worked with stakeholders to enable residential DR participation in the IESO-administered market as an hourly DR resource, which became effective in May 2017. In July 2017, the IESO has proposed to stakeholders that the DR Auction target capacity should be increased over a three-year period to facilitate the transition of peaksaver resources to the DR auction market.

The peaksaver PLUS program had seen moderate success throughout the 2011-2014 CDM Framework, with over 300,000 installed devices. With the LDCs no longer responsible for DR targets, the devices are currently sitting idle in customers' homes and turning into stranded assets for the LDCs. The IESO has indicated that transitioning peaksaver to the DR auction will allow new technologies and participants an opportunity to participate and compete on a level-playing field with other types of DR. However, the transition of peaksaver to DR auction will likely not be a 1MW to 1MW transition due to the more demanding requirements from the DR Auction. The ECO will be monitoring the progress of peaksaver PLUS in the DR auction market for future reporting purposes.

## 6.9 Local/Regional Programs under the Conservation First Framework

Under the 2011-2014 CDM Framework, only one LDC, Powerstream (now Alectra) was able to receive approval from the OEB for a single local program. The Business Refrigeration Incentive Program, launched in late 2013, saw over a thousand businesses participate in the program. According to LDCs, this low application and approval rate was due to the difficult OEB approvals process, and an overly stringent interpretation of the requirement that new programs not “duplicate” existing programs. There were two other LDCs who applied for local programs to the OEB.

Both Hydro One and Toronto Hydro had applied separately for a suite of local CDM programs, but due to the requirement of the CDM Directive that Board-approved programs and OPA programs do not duplicate one another, as well as requirements of the Board's CDM Code, Hydro One withdrew its application. Toronto Hydro received approval for some of its programs, but choose not to proceed with them as it viewed the approved rate-payer funding to be insufficient.<sup>61</sup>

**Many more innovative new conservation programs and pilots are moving forward.**

The 2015-2020 Conservation First Framework has shifted the responsibility of approving local and regional programs from the OEB to the IESO. LDCs can now bring forward business cases for local or regional programs as part of their CDM plans or on an on-going basis. The IESO has developed guidelines for avoiding duplication with provincial programs, program innovation guidelines and an established timeline for program approvals.<sup>62</sup> Tables 6.9 and 6.10 list the local/regional programs and pilots that were approved by the IESO in 2015, 2016 and the first part of 2017. Many more innovative new conservation programs and pilots are moving forward under the new Framework.

**Table 6.9. LDC Local and Regional Programs under the Conservation First Framework**

| <b>Program Name</b>                               | <b>LDC(s)</b>  |
|---|--|
| Adaptive Thermostat                               | Toronto Hydro-Electric System Limited;<br>Enbridge Gas Distribution;   |
| Business Refrigeration Incentives                 | Alectra Utilities Corporation*;<br>COLLUS PowerStream Corp.;<br>Toronto Hydro-Electric System Limited;   |
| Conservation on the Coast Low Income              | Attawapiskat Power Corporation;<br>Fort Albany Power Corporation;<br>Kashechewan Power Corporation;  |
| Conservation on the Coast Small Business Lighting | Attawapiskat Power Corporation;<br>Fort Albany Power Corporation;<br>Kashechewan Power Corporation;  |
| First Nations Conservation                        | Hydro One Networks Inc.;   |
| High Efficiency Agricultural Pumping              | Hydro One Networks Inc.;<br>Niagara Peninsula Energy Inc.;   |
| Instant Savings                                   | Algoma Power Inc.;<br>Bluewater Power Distribution Corporation;<br>Canadian Niagara Power Inc.;<br>Entegrus Powerlines Inc.;<br>Essex Powerlines Corporation;<br>Westario Power Inc.;                                      |
| OPsaver   | Oakville Hydro Electricity Distribution Inc.;<br>Toronto Hydro-Electric System Limited;  |
| PUMPsaver   | Oakville Hydro Electricity Distribution Inc.;<br>Toronto Hydro-Electric System Limited;  |
| Smart RT for Small and Mid-Size Business          | Toronto Hydro-Electric System Limited;   |
| Social Benchmarking**                             | Alectra Utilities Corporation;<br>COLLUS PowerStream Corp.;<br>Hydro One Networks Inc.;<br>Hydro Ottawa Limited;<br>Toronto Hydro-Electric System Limited;   |
| Swimming Pool Efficiency                          | Burlington Hydro Inc.; Halton Hills Hydro Inc.;<br>Hydro Ottawa Limited; Milton Hydro Distribution Inc.;<br>Oakville Hydro Electricity Distribution Inc.;<br>Renfrew Hydro Inc.;<br>Toronto Hydro-Electric System Limited; |

\* Alectra Utilities Corporation is formerly: 1) Enersource Hydro Mississauga Inc.; 2) Horizon Utilities Corporation; 3) Hydro One Brampton Networks Inc.; & 4) PowerStream Inc;

\*\* Social Benchmarking is also known as: 1) Home Energy Report; 2) Social Benchmarking and Utility E-Commerce; 3) Behavioural Savings; 4) Residential Engagement Platform; or 5) Home Energy Savings

Source: IESO

**Table 6.10. LDC Innovation Fund Pilots under the Conservation First Framework**

| Pilot Name   | LDC(s)  |
|--|---|
| Residential Direct Mail Pilot Program  | Canadian Niagara Power Inc., Algoma Power Inc.  |
| Home Energy Assessment & Retrofit Pilot Program  | Customer First  |
| Small & Medium Business Energy Management System Innovation Pilot                      | Kitchener-Wilmot Hydro Inc.; Energy+ Inc.   |
| Truckload Events   | Enersource Hydro Mississauga Inc.   |
| Intelligent Air Technology   | EnWin Utilities Ltd.  |
| Residential Ductless Heat Pump/Financing   | EnWin Utilities Ltd.  |
| ECM Furnace Fan Residential Upstream Pilot   | Horizon Utilities Corporation, Toronto Hydro-Electric System Limited, Kitchener-Wilmot Hydro Inc. |
| Solar Powered Attic Ventilation Research Oriented Pilot                                | Hydro One Brampton  |
| Integration of Smart Thermostat with Dynamic Electricity Pricing and Customer Feedback | Hydro One Networks Inc.   |
| Air Source Heat Pump – For Residential Water Heating                                   | Hydro One Networks Inc.   |
| Air Source Heat Pump – For Residential Space Heating                                   | Hydro One Networks Inc.   |
| Low-Income Air Source Heat Pump Pilot  | Hydro One Networks Inc.   |
| Hotel/Motel in-suite A/C upgrades  | Niagara Peninsula Energy Inc.   |
| Advanced Roof Top Unit (RTU) Control Pilot   | Toronto Hydro-Electric System Limited   |
| Toronto Hydro – Enbridge Joint Low-Income Program Pilot                                | Toronto Hydro-Electric System Limited, Enbridge Gas Distribution                                  |
| Electronics Take Back Pilot  | Toronto Hydro-Electric System Limited   |
| Data centre pilot  | Toronto Hydro-Electric System Limited   |
| P4P for Class B Office (Op saver)  | Toronto Hydro-Electric System Limited   |
| Hydronic Balancing (Pumpsaver)   | Toronto Hydro-Electric System Limited   |
| Residential Direct Install   | Westario Power Inc.   |

Source: IESO

## 6.10 IESO Conservation Fund Programs

The IESO's Conservation Fund has an annual budget of \$9.5 million. Since 2005, this fund has supported over 200 innovative energy projects across Ontario. Funding is available for a three-year period proportional to the total investment needs of the project and is offered to LDCs, technology companies, consulting firms, universities and colleges, and the public sector.

The fund considers initiatives that are developing or piloting innovative conservation programs and practices to bring about market transformation on a large-scale basis.<sup>63</sup> Recipients of the Conservation Fund do not have to be LDCs. Table 6.11 lists the Conservation Fund Pilots that were delivered in 2015, listing their performance and funds allocated.

**Table 6.11. Conservation Fund Pilots Delivered in 2015**

| Program                        | Participation        | Funding (\$) | Net 2020 Annual Electricity Savings (MWh) | Peak Demand Savings (MW) | Program Administrator Cost (PAC) | Total Resource Cost (TRC) |
|--------------------------------|----------------------|--------------|---|--------------------------|----------------------------------|---------------------------|
| EnerNOC Pilot                  | 12 Projects          | 214,000      | 0   | 0                        | 0.02                             | 0.02                      |
| Loblaws P4P Pilot              | 18 Projects          | 561,333      | 8,311                                     | 0.73                     | 2.91                             | 1.02                      |
| Strategic Energy Group Pilot   | 10 Projects          | 153,044      | 0   | 1.06                     | 0.66                             | 0.76                      |
| Social Benchmarking Pilot      | 150,258 Participants | 1,007,425    | 0   | 1.65                     | n/a                              | n/a                       |
| Other Conservation Fund Pilots | n/a                  | 4,850,560    | n/a                                       | n/a                      |                                  |                           |

Source: IESO

In terms of cost-effectiveness, the EnerNOC and Strategic Energy Group pilots did not meet the cost-effectiveness threshold of 1. The IESO's evaluator indicated that the main reasons for the low figures are due to the fact that the programs are new, so participation was low and savings achieved were minimal.<sup>64</sup> The Loblaws P4P Pilot, on the other hand, had strong results for both the PAC and the TRC, with the PAC test result surpassing that of the province-wide Retrofit Program.<sup>65</sup> The model that was used for

Loblaws is now being replicated in the IESO's P4P Large Customer Multi-Utility Program, and it will be interesting to see if the success of the pilot can be reproduced on a larger scale.

Table 6.12 lists the initiatives that have been approved by the IESO under the Conservation Fund in 2016.

**Table 6.12. Conservation Fund Pilots under the Conservation First Framework**

| Program   | Proponent Company/ Organization  | Funding Awarded |
|---|----------------------------------|-----------------|
| Enhancement of RETScreen Expert to further meet needs of Ontario Energy professionals | CanmetENERGY                     | \$400,000       |
| Intelligent MURB Energy Management Systems  | SensorSuite                      | \$498,250       |
| Pay-for-Performance Pilot   | Ontario Clean Water Agency       | \$1,000,000     |
| Advantage Power Pricing Evolution   | Powerstream                      | \$999,000       |
| Residential Solar Storage Pilot   | Powerstream                      | \$500,000       |
| Hydraulic Air Compressor Demonstrator Project   | Electrale Innovation Ltd         | \$499,000       |
| Bills that Save   | BEworks Inc                      | \$450,000       |
| Advancing Energy Efficient Water Services in Toronto                                  | Toronto Water                    | \$100,000       |
| Local Achievable Potential Study Allocation   | Multiple LDCs                    | \$1,000,000     |
| High Performance Buildings Program II   | National Research Council Canada | \$2,000,000     |

Retscreen is clean energy management software system for a variety of energy performance analyses. It has been developed by Natural Resources Canada.

Source: IESO information provided to the ECO (21 March 2017)

## 6.11 2016 Policy Developments Affecting Electricity Conservation Programs

### 6.11.1 Minister of Energy's Direction on Province-Wide Program Availability

On December 16, 2016, the Minister of Energy issued a Direction to the IESO that included instructions regarding the availability and delivery of province-wide programs by LDCs to their customers. The Direction required LDCs that were not delivering all province-wide CDM programs to resubmit revised CDM plans by May 1, 2017 outlining how they plan to deliver all approved programs in their service territories. Furthermore, if an LDC decided not to deliver a province-wide program, then the IESO would deliver the program in the LDC's jurisdiction and the associated electricity savings would not be counted towards the LDC's target. This Directive differed from the original direction that established

the Conservation First Framework and gave LDCs the flexibility to deliver province-wide programs in their service areas as they deemed appropriate and reasonable. It suggests that, in the Minister's view, this element of the Framework was unduly limiting customer access to some conservation programs, and required corrective action.

The IESO has informed the ECO that it received 32 revised CDM plans and notification from three others indicating which province-wide programs they plan to deliver. LDCs who provided notifications could not submit revised CDM plans because of technical issues or merger activities. The Minister of Energy also issued a letter on June 23 to extend the deadline to August 1, 2017 for LDCs to submit revised CDM plans.

While most LDCs are planning to deliver all province-wide programs, some LDCs have already revised their CDM plans to drop LDC delivery of some province-wide

programs. The PSU-Monitoring and Targeting Program (Industrial), the Existing Building Commissioning Program (Business) and both the Business and Residential New Construction Programs (Business and Residential) were omitted from several revised CDM plans. The IESO is planning to deliver those programs in those service territories to fill in the program gaps by the end of 2017.

### **6.11.2 Minister's Direction on New Province-Wide Programs**

In June 2016, the Minister directed the IESO to centrally design and deliver, in consultation with distributors, a province-wide pay-for-performance program for large multi-distributor consumers and a province-wide whole home pilot program for residential customers. Any electricity savings from these two programs will be counted towards LDC targets. The IESO, where appropriate, was directed to coordinate program delivery with the gas distributors. The IESO held multiple webinars and received written feedback as it developed the two programs throughout 2016 and into 2017. The two final programs are described below.

#### **The Energy Performance Program for Multi-Distributor Customers**

The program was launched in December 2016 and encourages whole building energy performance improvements for large customers who have several locations in multiple LDC service territories. Customers are paid incentives at four cent per kilowatt-hour (kWh) of savings per year for up to four years. Participants are encouraged to make behavioural and operational changes along with capital investments to achieve and grow their electricity savings over the course of the initiative. Eligible customers must have locations in two or more LDC service territories and have an annual consumption (single or aggregate) of at least 1,500,000 kWh, amongst other eligibility criteria. To date, 1 single customer has enrolled 76 buildings across the province in the program.<sup>66</sup>

The pilot program is expected to integrate electricity efficiency measures into Enbridge and Union Gas' existing home retrofit offerings.

#### **The Whole Home Pilot for Residential Customers**

The Whole Home Pilot program was launched in late May 2017 and is being delivered province-wide by Enbridge Gas Distribution Inc. and Union Gas throughout the province. The pilot program is expected to integrate electricity efficiency measures into Enbridge and Union Gas' existing home retrofit offerings and offers a multi-fuel energy efficiency program. This one-stop multi-fuel whole home approach builds on the \$100 million Ontario Government investment from the Green Investment Fund to make the Enbridge Gas and Union Gas programs province-wide and accessible to homes heated by natural gas, propane, oil and wood (more information regarding this funding is available in Section 5.2.1).

Customers will be offered incentives for retrofits and equipment upgrades through participation in home energy audits.<sup>67</sup> Electricity measures such as more efficient air conditioners and appliances as well as insulation and air sealing in electrically-heated homes, will be funded by the Conservation First Framework. The program is expected to run until the end of 2017 and include approximately 22,000 households.

#### **6.11.3 OEB's RPP Roadmap**

As previously recommended by the ECO, the OEB's plan to review the Regulated Price Plan (RPP), announced in late 2015, includes using time-of-use (TOU) prices to minimize long-term system costs.<sup>68</sup> In July of 2016, the OEB issued its RPP Roadmap: *Guidelines for Pilot Projects on RPP Pricing*, and invited LDCs to apply to the OEB to develop and implement

price and non-price pilots. The pilots are expected to help the OEB assess various RPP options (e.g., alternative electricity rate structures) that may eventually be made available province-wide. To date, the OEB has received five RPP pilot applications (one is from a group of 7 LDCs represented by a consultant), and has approved two.<sup>69</sup>

The IESO has also received direction from the Minister of Energy in December 2016 to fund these RPP pilots through its Conservation Fund and to establish a streamlined approvals process to access funding. Apart from funding, the IESO will have no further role in these RPP pilots.

#### 6.11.4 Mid-Term Review of the Conservation First Framework

As per the Minister's 2014 Direction that established the 2015-2020 Conservation First Framework and the 2015-2020 Energy Conservation Agreement, the IESO is required to complete a Mid-Term Review of the Framework by June 1, 2018. The IESO has established an advisory group of LDCs, vendors and customers to review various critical aspects of the framework including:

- targets and budgets;
- lessons learned on LDC funding models;
- customer needs;
- program effectiveness (including LDC and IESO services);
- conservation integration with regional planning;
- CFF alignment with Climate Change Action Plan (CCAP) initiatives;
- post-2020 approaches to energy efficiency; and,
- the definition of conservation.

The IESO will also undertake a broader stakeholder engagement process which will include LDCs, customer groups and various other interested agencies and associations in late 2017.

#### 6.11.5 The IESO's Achievable Potential Study

One of the key inputs into the Mid-Term Review process is the IESO's *Achievable Potential Study* (APS) that was completed in mid 2016.<sup>70</sup> The purpose of the study is to provide the short-term electricity conservation potential achievable by 2020, which would feed into the Mid-Term Review process; and also to conduct a more long-term conservation analysis over a 20-year horizon (2015-2035). The APS includes an energy efficiency study and a behind-the-meter generation (BMG) study. This APS is different from the last one completed in early 2014 since it incorporated LDC-specific information into its analysis and produced results at both an LDC and province-wide level as well. In other words, the study used a bottom-up approach to assess the short- and long-term conservation potential of the province. The IESO's consultant gathered data from LDCs and reviewed OEB data to develop this study.

With respect to Ontario's short-term conservation goals, the study concluded that the achievable electricity savings (including BMG) under the 2015-2020 CFF is approximately 7.4 TWh based on the existing funding. This means that LDCs can collectively exceed the 7 TWh target that has been set by the province. The long-term APS study estimated that if incentive levels remain similar, the province has the potential to achieve 18 TWh of energy savings by 2035. If spending constraints and incentive caps are removed, that potential could rise to 29 TWh.

Along with influencing the mid-term review results, the APS will have an impact on the LDCs' Mid-Term Incentive threshold calculations to determine LDC performance incentives, as each LDC's MTI threshold is based primarily on the lesser of 50% of their CFF target or 50% of their APS target.<sup>71</sup>

## Endnotes

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2. Environmental Commissioner of Ontario, Conservation: *Let's Get Serious, Annual Energy Conservation Progress Report- 2015/2016*, (Toronto: ECO, May 2016), at 169.
3. *Ibid* at 170.
4. Directive from the Ontario Minister of Energy to the Ontario Energy Board (26 March 2014), online: <[www.ontarioenergyboard.ca/oeb/\\_Documents/Documents/Directive\\_to\\_the\\_OEB\\_20140326\\_CDM.pdf](http://www.ontarioenergyboard.ca/oeb/_Documents/Documents/Directive_to_the_OEB_20140326_CDM.pdf)>.
5. Independent Electricity System Operator, *2015 Annual Verified Local Distribution Company Conservation and Demand Management Program Results Report* (Toronto: IESO, November 2016) at ii.
6. *Ibid*.
7. Independent Electricity System Operator, *Ontario Planning Outlook* (Toronto: IESO, September 2016) at 13.
8. Independent Electricity System Operator, information provided to the ECO in response to ECO inquiry (5 July 2017).
9. Direction from the Ontario Minister of Energy to the Ontario Power Authority, re: 2015-2020 Conservation First Framework (31 March 2014), online: <[www.ieso.ca/-/media/files/ieso/document-library/ministerial-directives/2014/20140331-re-2015-2020-conservation-first-framework.pdf?la=en](http://www.ieso.ca/-/media/files/ieso/document-library/ministerial-directives/2014/20140331-re-2015-2020-conservation-first-framework.pdf?la=en)>.
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