



Making a Difference

Energy Efficiency in Ontario Conservation and Demand Management (CDM) Results

Updated as of October 2023



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Glossary

Actual Savings – energy or peak demand savings accounted for once energy efficiency projects are completed, and then reported to and approved by the IESO.

Committed Savings – energy or peak demand savings accounted for once energy efficiency projects have been pre-approved for implementation. Once projects are completed, and then reported to and approved by the IESO, committed savings become actual savings.

Levelized Unit Energy Cost (LUEC) – a metric which normalizes the costs incurred to design and deliver programs per unit energy saved over the lifetime of the project.

Net Verified Energy and Peak Demand Savings – the energy or peak demand savings which result following evaluation of CDM programs. During the evaluation process, reported savings have an adjustment factor applied which determines the percentage of reported savings that are attributable to CDM programs.

Program Administrator Cost Test (PAC) – A CDM cost-effectiveness screening test which compares the costs incurred to design and deliver programs by the program administrator with avoided electricity supply-side resource costs (e.g., generation, transmission, natural gas, etc.)

Savings Persistence – a measure of the length of time (measured in years) over which energy and/or peak demand savings will remain in effect, and therefore continue to provide benefit to the electricity system.

Total Resource Cost Test (TRC) – A CDM cost-effectiveness screening test which compares the costs incurred to design and deliver programs and customers' costs with avoided electricity and other supply-side resource costs (e.g., generation, transmission, natural gas, etc.)

CDM Framework Plan – [the 2021-2024 CDM Framework Program Plan updated on December 15, 2022.](#)

1. Executive Summary

Today, Ontario is one of the cleanest electricity jurisdictions in the world. This is, in large part, because Ontario has been leading a transition over the past two decades that has been characterized by the opening of competitive electricity markets, phasing out of coal, managing nuclear refurbishments, incorporating renewable supply and decentralizing the grid. Energy efficiency as a resource has played a major role in contributing to this clean electricity supply.

The Independent Electricity System Operator (IESO) must be ready for an unprecedented increase in demand and economic growth as heavy industries and other sectors commit to electrification, which includes industrial sector development in mining, steel, electric vehicle battery and hydrogen production; agricultural sector greenhouse construction; and the transportation sector. As the grid operator and planner, it is critical that the IESO support economic growth and prosperity emerging from this transformation by ensuring adequate supply where and when it is needed most.

CDM activities will continue to support this demand and economic growth, with many CDM programs already geared towards many of the sectors described above. Energy efficiency helps ensure the reliability of the electricity system in Ontario and is one of the most cost-effective resources, at three cents per kilowatt-hour (kWh). Other benefits include helping individuals and business reduce their electricity costs and achieve their decarbonization goals.

1.1 Energy Efficiency in Ontario

For more than 14 years, the Ontario Power Authority and, beginning in 2015, the IESO, have delivered and supported energy-efficiency programs and services that have been instrumental in reducing energy costs for customers and providing a cost-effective way to offset electricity demand.

2006 - 2010	2011-2014 Framework	2015-2019 Framework	Interim Framework	2021-2024 CDM Framework
<ul style="list-style-type: none"> • 1-3 year funding commitments • Every Kilowatt Counts brand • Hybrid delivery by OPA and local distribution companies (LDCs) • “Culture of Conservation” 	<ul style="list-style-type: none"> • Peak demand and energy targets, set by government • Centralized program design (OPA) • One key delivery channel (LDCs) • Established Save on Energy brand to ensure customers receive consistent message 	<ul style="list-style-type: none"> • Energy targets only, set by government • Decentralized LDC-led program delivery and joint LDC-IESO program design • Regional collaboration and electricity-gas integration, where appropriate • Introduction of risk-based financing • Greater transparency in reporting and costs 	<ul style="list-style-type: none"> • Energy and peak demand targets, forecasted by the IESO • Competitive mechanisms and procurements • IESO program design and delivery • Dedicated LDC Fund • Driving cost-efficiencies 	<ul style="list-style-type: none"> • Energy and peak demand targets, forecasted by the IESO • IESO program design and delivery • Driving cost-efficiencies • Focused on customers and areas with greatest needs • Local Initiatives Program

Energy efficiency delivered through CDM programs is a key resource for maintaining a reliable, affordable and sustainable electricity system in Ontario. As electricity demand is forecasted to grow rapidly across the province and existing resources retire or enter refurbishment, the value of CDM to

the system increases as a low-cost, non-emitting resource that can respond to changing system needs and support broader economic development and decarbonization objectives.

Energy efficiency remains one of the most cost-effective resources to help to meet Ontario's energy demands. Every dollar of energy-efficiency incentives offered by the IESO leverages two dollars of private sector investment.

Save on Energy is Ontario's recognized and trusted source for energy-efficiency opportunities and knowledge in the province. Through the Save on Energy brand, the IESO offers programs, incentives and educational content to help every customer segment use energy more wisely.

Changes to building codes and product standards also help contribute to the province's conservation savings. These savings are covered in the IESO's [Annual Planning Outlook](#) (APO).

By achieving greater energy efficiency, individuals and businesses can realize significant cost savings. This also helps reduce the amount of energy the provincial electricity system needs to produce and deliver, which can defer or avoid the need for investments in new electricity supply or transmission line infrastructure. Investments in energy efficiency also make businesses more competitive and homes more comfortable to live in. It can also help reduce greenhouse gas emissions and drive economic prosperity by enabling jobs and purchases of new equipment.

Save on Energy marked its 10th anniversary in 2021. Since the brand was first introduced in 2011, Save on Energy programs have provided energy-efficiency opportunities and resources to more than 250,000 residential and business customers across Ontario to help them better manage their electricity use, saving nearly 16 TWh of electricity. This is equivalent to powering 1.7 million homes for one year or a city the size of Ottawa for more than two years.

Through the implementation of programs and pilots to help meet province-wide and local community needs, Ontarians have had the chance to participate in a wide range of programs that deliver real savings. These savings are robust and transparent, thanks to the IESO's industry-leading evaluation, measurement and verification (EM&V) processes, through which the IESO is able to continually learn and enhance the quality of programs.

These 250,000 customers completed more than 80 million energy-efficiency actions over those first 10 years, which ranged from changing a light bulb to completing complex building retrofits.



2. 2021 CDM Results

2.1 Overview

In 2021, the IESO was managing energy-efficiency programs under three distinct CDM frameworks, primarily because many projects from previous frameworks were delayed as a result of the impacts from the COVID-19 pandemic. Projects were winding down under the Conservation First Framework (CFF), which ran from January 2015 to March 2019, and under the Interim Framework (IF), which ran from April 2019 to December 2020. In addition, the IESO launched a new framework in January 2021, the 2021-2024 CDM Framework.

In the first year of the 2021-2024 CDM Framework, modest progress was made to the new set of provincial targets. Participation in Save on Energy programs is expected to increase throughout the remaining years of the framework and the IESO expects to achieve the framework targets. Overall, 451 gigawatt-hours (GWh) of energy savings (83 percent of the annual target) was achieved by the end of 2021, as well as 76 megawatts (MW) of peak demand savings (86 percent of the annual target). This involved 19,116 energy-efficiency projects across the suite of Save on Energy programs.

Under the IF, despite continuing COVID-19 delays, the IESO continued to work with participants in 2021 to bring projects into service and realize the energy savings. By the end of 2021, the IF achieved 720 GWh of energy savings (51 percent of the IF target) and 121 MW of peak demand savings (64 percent of the IF target). A significant amount of savings and budget remains committed at the end of 2021; these represent projects that were expected to be in service in 2022.

Under the CFF, despite project completion dates being extended beyond the end of 2020, many projects were not yet in service by the end of 2021 because of the continuing impacts of pandemic delays. A total of 8.1 terawatt-hours (TWh) were achieved by the end of 2021, which represents 109 percent of the energy-savings target. In addition, 1,094 MW of peak demand reductions were also achieved (CFF did not have a peak demand savings target). Similar to the IF, there were outstanding CFF projects at the end of 2021, with these additional results expected to be realized in 2022.

2.2 2021-2024 CDM Framework

In 2021, the IESO introduced a new framework for CDM programs. On [September 30, 2020](#), the Minister of Energy, Northern Development and Mines directed the IESO to establish a 2021-2024 CDM Framework aimed at offering a suite of centrally delivered programs to help consumers manage their electricity use while meeting electricity system needs. This framework focuses on cost-effectively achieving provincial peak demand reductions, as well as targeted approaches to address regional and/or local electricity system needs.

The 2021-2024 CDM Framework leverages competitive procurements and calls for proposals to increase competition, improve cost-effectiveness and solicit consumer-based solutions. Programs continue to be targeted to those who need them the most, including industrial, commercial, institutional and on-reserve First Nations consumers, as well as income-eligible consumers. Recognizing limited forecasted needs in the CDM Framework's first two years, programs were designed to maintain program delivery capacity in the province and meet consumer needs, while enabling a ramp-up of program offerings in 2023.

The IESO developed a [CDM Program Plan](#)¹ to implement the September 30, 2020, directive. The Plan detailed the programs to be delivered under the framework over the course of the four years, including their forecasted energy savings, demand savings and cost. Systems needs were taken into account in determining the original targets for the framework. The directive and Plan established a target of 440 MW of peak demand savings and 2.7 TWh of energy savings, with an associated cost of \$692 million, for the four-year term of the framework. As requested by the government in the September 30, 2020, directive, the IESO completed a [CDM Framework Mid-Term Review \(MTR\) in 2022](#). Subsequently, electricity system needs have been reassessed and changes have been considered to the programs, targets and budgets of the CDM Framework.

Overview of CDM Programs

CDM programs for industrial, commercial and institutional consumers continue to support business competitiveness and the province's economic recovery from the COVID-19 pandemic, helping businesses improve their productivity and manage costs.

Programming was renewed for income-eligible consumers and on-reserve First Nations across Ontario. For income-eligible consumers, access to energy-saving measures has been simplified as a single program to deliver the benefits of two previously existing programs, the Affordability Fund Program and the Home Assistance Program, in an effort to reduce confusion and enhance customer experience.

For on-reserve First Nations, communities were engaged on programs design improvements before relaunching offerings that were suspended under the previous IF due to the outbreak of COVID-19.

¹ The CDM Program Plan has been updated to reflect the enhanced budget and targets from the [September 29, 2022, ministerial directive](#).

Residential and other consumers are supported with tools and guidance to help improve energy efficiency. These include tips and other educational resources to help better manage energy costs in homes and make smart buying decisions of energy-efficiency appliances and equipment.

Programs offered include those that provide incentives to help Ontario businesses of all sizes implement retrofits and other energy-efficiency projects to manage their energy costs, with the following included in 2021:

- **Retrofit Program** – the framework’s flagship program, participants can receive incentives for a variety of energy-efficient measures including lighting, HVAC and manufacturing. In 2021, the program was streamlined to an expanded list of prescriptive measures with faster application review processes.
- **Small Business Lighting** – specifically for businesses with 50 or fewer employees, this program offered incentives of up to \$2,000 for the direct installation of eligible lighting equipment.²
- **Energy Performance Program** – this program rewards business customers who are able to achieve continuous whole-building energy improvements under a pay-for-performance model.
- **Energy Manager Program** – this program funded organizations that embedded Energy Managers into their organizations and provided support as they implemented strategic energy management best practices.³
- **Training courses** – incentives of up to 50 percent are available to cover the cost of training programs that can build energy management expertise.

Programs that offered incentives for income-eligible electricity consumers and Indigenous communities in 2021 included:

- **Energy Affordability Program** – available to income-eligible residents, energy-savings upgrades are tailored to the specific needs of participants’ homes, at no cost. Two types of support are available: comprehensive support that includes a home assessment and the direct installation of energy-saving measures, and energy saving kits that includes measures to be installed by residents.
- **Remote First Nations Energy-Efficiency Program** – this program provides funding support to remote First Nations to implement energy-efficiency projects that helps manage energy use more effectively to save on energy costs and increase the comfort of homes and businesses.

² The Small Business Lighting program has evolved and was re-launched in March 2022 as the Small Business Program, which now offers direct-install incentives on an expanded range of equipment – both lighting and non-lighting.

³ The Energy Manager program wound down at the end of 2022 and has been replaced by a new program called the Strategic Energy Management program, which is designed to help organizations improve their energy performance by implementing an integrated system of organizational practices, policies and processes to achieve persistent energy savings.

Additional Save on Energy programs were launched after 2021, including:

- The **Industrial Energy Efficiency Program**, which replaced the Process and System Upgrades Program, to support industrial customers in improving their industrial processes and implementing system optimization projects.
- **Local initiative programs**, to facilitate implementing CDM solutions to address regional and local electricity planning needs.
- Evolutions of the **Small Business Lighting** (to the Small Business Program) and the **Energy Manager program** (to the Strategic Energy Management program).
- **Strategic Energy Management Program**, an evolution of the Energy Manager Program, to help organizations improve their energy performance by implementing an integrated system of organizational practices, policies and processes to achieve persistent energy saving

More programs are planned to be launched in 2023, including:

- **Existing Building Commissioning Program**, to help owners, operators and managers of commercial and institutional buildings improve their energy management by implementing building management best practices
- **Commercial Midstream Lighting Program**, where incentives would be directed to the lighting distributors to increase sales of energy-efficient lighting through point of sale discounts, improved product stocking, marketing, and distributor training
- A new **residential demand response program** for homes with existing central air conditioning and smart thermostats to help lower energy use at peak times.
- **Targeted support for greenhouse growers** in Southwestern Ontario, including incentives to install LED lighting, advanced controls or behind-the-meter distributed energy resources (DER), such as combined solar generation and battery storage.
- Enhancements to the **Save on Energy Business Retrofit Program** for businesses, institutional and industrial customers to include custom energy-efficiency projects.
- Enhancements to the **Save on Energy Local Initiatives Program** to reduce barriers to participation and to add flexibility for incentives for DER solutions.

2.3 COVID-19

The COVID-19 pandemic and related measures had a material impact on the IESO's ability to deliver its planned programming and on customers' receptiveness to implementation in 2021. The IESO identified the following impacts on CDM program offerings as a result of the pandemic:

- Provincial lockdowns and supplemental safety protocols disrupted program delivery.

- Launch dates for some programs were delayed, while others were paused. For some programs, administrative costs still accrued despite not delivering savings due to requirements to maintain call centre and other capabilities.
- Participants managing uncertainty and shifting budget priorities reduced the number and timing of energy-efficiency projects. Industries also experienced challenges related to staffing and site access.
- Supply chain issues and inflation affected energy-efficiency projects, along with related increased time, costs and complexity for implementation.
- Changes to energy-use patterns introduced challenges to project measurement and verification for participants and program administrators. This led to increased program administrative costs along with decreased savings certainty.

As a result of these challenges, participants in some programs in the 2015-2019 CFF and the 2019-2020 IF were granted extensions to complete their projects.

In response to COVID-19, in-person interactions between Save on Energy representatives and customers were temporarily suspended in 2020 and then again in 2021, including visits to home and businesses. New programs under the 2021-2024 CDM Framework have remained flexible to ensure safe delivery and have continued to provide opportunities to help those who need them most, as well as contribute to reduced energy costs as businesses and residents recover from the impacts of COVID-19.

2.4 Winding Down Legacy CDM Frameworks

2.4.1 2019-2020 IF

The Save on Energy programs under the 2019-2020 IF were focused on ensuring value for customers and the electricity system as a whole. The overall costs to deliver energy-efficiency programs in Ontario were reduced, compared to the investment under the previous CFF, by streamlining the delivery of the programs and centralizing delivery with the IESO and focusing the designs of the programs to achieve the most impact.

The IF programs focused on consumers most in need, including businesses, Indigenous communities and income-eligible residents. Opportunities were also available for local distribution companies (LDCs) to pilot programs tailored to meet local energy and demand needs.

As of 2021, the IF was on course to achieve the CDM Plan energy savings target of 1,429 GWh and the peak demand savings target of 190 MW, when accounting for committed projects that were expected to complete in 2022.

2.4.2 2015-2019 CFF

The 2015-2019 CFF established a partnership between the IESO and Ontario's LDCs to design and deliver electricity conservation programs to LDC customers. The aim was to achieve a total of 7 TWh

of reductions in electricity consumption between January 1, 2015, and December 31, 2020. In March 2019, the Ontario government directed the IESO to discontinue the CFF and replace it with a 2019-2020 IF that streamlined and centralized program delivery under the IESO.

In 2021, the IESO continued to work with LDCs as well as program participants to wind-down remaining project commitments. To date, CFF investments have totalled nearly \$1.7 billion and have resulted in 8.1 TWh of annual energy savings and over 1,000 MW of peak demand reductions. In light of the ongoing impacts of COVID-19, extensions have been issued to allow for project completions to take place into 2022; therefore, CFF commitments will continue to deliver results beyond 2021.

2.5 2021-2024 CDM Framework Performance

In 2021, the first year of the 2021-2024 CDM Framework, Save on Energy programs made modest progress to the new set of provincial targets in light of the continuing impacts of the COVID-19 pandemic. A total of 82.3 GWh of net verified energy savings (3 percent of the total framework target) and 15.7 MW of net verified peak demand savings (3.5 percent of the total framework target) were reported and evaluated in 2021. Based on these results, the business programs demonstrated cost-effectiveness at a PAC ratio of 1.68, a TRC ratio of 1.38, and a LUEC at 3 cents/kWh. Support programs are not screened for cost-effectiveness, because maintaining the cost-effectiveness thresholds of traditional CDM programs would impact the ability of the programs to support the most vulnerable.

In addition to the challenges presented by the COVID-19 pandemic, savings achieved in the first year of the framework were also limited by the number of projects completed within the same year of application. More projects needed more time to be completed than in previous years. Therefore, when taking into account the volume of projects also committed in 2021 – with completion dates anticipated in 2022 and later – 2021 program activity improves:

Program	Energy Savings (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Retrofit Program	416.5	70.2	\$62.6
Small Business Lighting	11.6	3.3	\$4.2
Energy Manager Program	0.8	0.1	\$0.4
Energy Performance Program	12.6	1.8	\$2.3
Energy Affordability Program	8.8	0.8	\$11.0
First Nations Programs	0.8	0.1	\$0.0
Total	451	76	\$80.4
2021 CDM Program Plan Targets	543	89	\$136
Progress to Annual Program Targets	83%	86%	59%

As the province continues to recover from COVID-19, the IESO expects to see continued increases in participation in Save on Energy programs and to achieve the framework targets.

Final verified results are provided annually each fall as part of the EM&V. The EM&V process assesses the resource savings, cost-effectiveness and market impacts of each program, and reports are available on the [IESO website](#).

2.6 2019-2020 IF Performance

In recognition that COVID-19 began to cause disruptions in supply chains and labour shortages in March 2020, which resulted in delays to the anticipated completion dates of many energy-efficiency projects, project completion dates for certain energy-efficiency programs were extended beyond 2020. Therefore, the IESO continued to administer the IF in 2021 and worked with participants to realize incremental in-service project savings. The data below represents customer participation and net-verified actual costs and in-service project savings at the end of 2021.

Cumulative (2019-2021)			
Programs	Energy Savings¹ (GWh)	Peak Demand Savings¹ (MW)	Budget (\$M)
Retrofit Program	585	93	93
Small Business Lighting Program	45	11	15
Energy Manager Program	45	13	7.7
Process & Systems Upgrade Program	18	1.5	6.5
Energy Performance Program	0.6	0.1	0.4
Home Assistance Program	25	2.5	34
Indigenous Programs	0.6	0.1	5.7
LDC Local Programs	14	2.4	11
Total	733	124	172
IF CDM Plan Program Targets	1429	190	325
Progress to Targets	51%	65%	53%

¹100% of savings persist in 2021.

In 2021, the IF remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
Total Resource Cost (TRC)	1.0
Program Administrator Cost (PAC)	2.38
Levelized Unit Energy Cost (LUEC)	\$0.02/kWh

For additional detail regarding IF results, the 2021 EM&V report is available on the [IESO website](#).

2.7 2015-2019 CFF Update

COVID-19 similarly caused supply chains disruptions and labour shortages to CFF projects that were expected to complete by the end of 2020. As a result, project completion dates for certain CFF energy-efficiency programs were also extended beyond 2020. By the end of 2021, progress under the CFF yielded the following results:

2015-2021 CFF Performance	Net Energy Savings¹ (TWh)	Net Peak Demand Savings¹ (MW)	Budget (\$M)
Framework Progress	8.1	1,094	1,674
Framework CDM Plan Performance Against Plan³	7.4	N/A²	2,455
	109%	N/A²	68%

¹CFF savings are evaluated as persisting through 2020. Additional savings achieved in 2021 are not evaluated for persistence but would persist through 2021 at minimum.

²CFF did not include a peak demand reduction target.

³CFF savings above do not include committed projects. As of the end of 2021, a portion of projects approved under the CFF remain incomplete. The IESO will continue to report on additional progress annually.

In 2021, the CFF also remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
TRC	1.5
PAC	3.3
LUEC	\$0.02/kWh

For additional detail regarding CFF results, the 2021 EM&V report is available on the [IESO website](#).

On December 9, 2021, the IESO received a Ministerial directive that enabled the IESO and LDCs to further extend timelines for the completion of certain projects under the CFF to August 31, 2022. The directive also provided for a further four-month extension to December 31, 2022, if certain conditions were met as defined in the directive. The additional extensions provided for in this directive are intended to offset the delays caused by COVID-19 disruptions. As such, the IESO continues to work with LDCs to wind-down the CFF, including the payment of participant incentives for completed projects and the completion of program administration activities.

3. 2022 CDM Results

3.1 Overview

In 2022, the 2021-2024 CDM Framework delivered 285 GWh of incremental net verified energy savings and 33 MW of incremental net verified peak demand savings. When combined with the 2021 performance outlined in [Section 2](#), and including new projects committed in 2022, the first two years of the framework have achieved 1,124 GWh of actual and committed net energy savings, and 173 MW of actual and committed net peak demand savings. The actual and committed savings totals represent 108 percent of the 2021-2022 energy savings target and 110 percent of the 2021-2022 peak demand savings target. These achievements are a result of 41,825 energy-efficiency projects initiated across the suite of Save on Energy programs. They also represent a total of 7,410 tonnes of annually avoided GHG emissions⁴, the equivalent of removing 1,610⁵ cars from the roads in Ontario.

Under the IF, despite continuing COVID-19 delays, the IESO continued to work with participants in 2022 to bring projects into service and realize their savings. By the end of 2022, 1,001 GWh of actual energy savings (70 percent of the IF target) and 151 MW of actual peak demand savings (80 percent of the IF target) were achieved. IF savings and budget remain committed at the end of 2022; these represent projects that are expected to be in service in 2023.

Under the CFF, a total of 9.6 terawatt-hours (TWh) of actual energy savings were achieved by the end of 2022 (130 percent of the CFF target), as well as 1,217 MW of actual peak demand reductions (CFF did not have a peak demand savings target). The final extension of the Framework required projects to be completed by end of 2022, with measurement and verification activities continuing into 2023. Therefore, incremental savings will continue to be reported in 2023.

⁴26 grams of GHG reduction = 1 kWh

⁵ A typical passenger vehicle emits about 4.6 metric tonnes of CO₂ per year

3.2 2021-2024 CDM Framework

In 2022, the IESO continued to focus on delivering programs and building momentum toward the achievement of the 2021-2024 CDM Framework targets, as outlined in [Section 3.4](#). In addition, there were two key activities which took place that will enhance portfolio outcomes in the second half of the framework and beyond:

- The September 30, 2020 CDM directive required the IESO to undertake a MTR in 2022, to reassess forecasted electricity system needs and inform potential changes to programs, targets, and budgets for the second half of the current framework.
- On April 4, 2022, the Minister provided a letter to the IESO in response to the 2022 Annual Acquisition Report (AAR). Complementary to the September 30, 2020 directive to undertake the MTR, this letter requested the IESO to develop expedited options for new and expanded CDM programming to help address the system needs identified in the 2021 APO and further discussed in the 2022 AAR.

3.2.1 The MTR

The September 30, 2020, CDM directive required the IESO to undertake a MTR in 2022 which examined:

- Alignment of the demand reduction target, electricity target and framework budget with provincial, regional and/or local electricity system needs, as identified by the IESO;
- Alignment of CDM program offerings with consumer needs in Ontario and a comparison against programs from other jurisdictions;
- Lessons learned and recommendations from competitive mechanisms for procuring energy-efficiency resources, including results to date of the Energy Efficiency Auction Pilot (EEAP);
- The progress and impact of CDM programs, including for income-eligible and on-reserve First Nations consumers; and
- Recommendations on the remainder of the CDM Framework.

The September 30, 2020, directive was subsequently amended to include an additional requirement for the review:

- An exploration of opportunities for LDCs to build on IESO CDM programs where they can add value to the distribution system.

Based on reviews of customer needs, system needs, programs, and competitive mechanisms, and informed by consultations with LDCs, customer associations, municipalities, CDM service delivery partners and other stakeholders, the IESO submitted to the government in December 2022 a series of recommendations and next steps as part of the MTR:

- Continue to implement the enhanced 2021-2024 CDM Framework Program Plan, including programming for income-eligible and on-reserve First Nations communities, according to budgets, targets and schedules, while fulfilling program-enhancement opportunities.
- Collaborate with other entities, including Enbridge and Natural Resources Canada, to help program participants achieve deeper savings and reduce IESO administrative costs.
- Engage with LDCs on opportunities to build on CDM programs to provide local system benefits, leveraging the Ontario Energy Board's CDM Guidelines for Electricity Distributors.
- Adopt an enduring approach for post-2024 that better leverages CDM as a resource to respond to evolving system and customer needs while continuing to provide appropriate reporting and government oversight.
- Establish post-2024 CDM targets and budgets that reflect forecasted system needs; achievable potential; and equity, diversity and inclusion so no one is left behind.
- Reallocate a portion of the current framework's budget for research and development activities for post-2024 programs, including single- and multi-family residential programs, and efficient electrification programs.

3.2.2 AAR Report Back Programs

The 2021 APO highlighted an emerging capacity need in 2025 that grows through the decade, as well as emerging energy needs by 2028; the report also identified key locations where capacity needs are required from existing or new facilities. In response, the 2022 AAR put forward additional actions: a combination of new resource procurements, as well as the opportunity to expand the 2021-2024 CDM Framework, in advance of its MTR, to meet system needs. While the 2021-2024 CDM Framework planned savings were built into the IESO's forecast, the 2019 CDM Achievable Potential Study (APS) identified further cost-effective CDM options that could help meet emerging system needs. As system needs evolve (a result of forecasted demand growth and retiring generation assets), the IESO considers that it is imperative to continue to pursue cost-effective and sustainable solutions, and ensure that these solutions are ready and available to respond when needed.

On April 4, 2022, the Minister provided a letter to the IESO in response to the 2022 AAR. Complementary to the September 30, 2020 directive to undertake the MTR, this letter requested the IESO to develop expedited options for new and expanded CDM programming to help address the system needs identified in the 2021 APO and further discussed in the 2022 AAR. The IESO submitted its report back to the Minister on July 15, 2022, and received a directive to proceed with the IESO's proposal of four new or expanded programs (referred to in this report as the AAR Report Back programs). These new and expanded offerings result in revised total framework targets of 725 MW of peak demand savings and about 4 TWh of energy savings, and a total budget of over \$1 billion. The four new programs built on the early findings from the MTR and will help address the 2025-2026 system needs identified in the 2022 AAR as well as the interest in CDM programs from the growing agricultural greenhouse sector in Southwestern Ontario. More detail relating to the AAR programs is provided below.

Overview of CDM Programs

Programs launched in 2021 are outlined in [Section 2](#). In 2022, new programs launched as part of the original CDM Plan:

- **Industrial Energy Efficiency Program**, to support industrial customers in improving their industrial processes and implementing system optimization projects.
- **Local Initiative Program**, to facilitate implementing CDM solutions to address regional and local electricity planning needs.
- **Small Business Program**, to offer small business direct-install incentives on an expanded range of equipment – both lighting and the addition of non-lighting.
- **First Nations Community Building Retrofit Program**, an initiative that aims to improve energy efficiency in band-owned commercial and institutional facilities located in On-reserve First Nations communities in Ontario.

Additionally, programs are planned to be launched in 2023 as per the CDM Plan, including:

- **Strategic Energy Management Program**, an evolution of the Energy Manager Program, to help organizations improve their energy performance by implementing an integrated system of organizational practices, policies and processes to achieve persistent energy saving.
- **Existing Building Commissioning Program**, to help owners, operators and managers of commercial and institutional buildings improve their energy management by implementing building management best practices.
- **Commercial Midstream Lighting Program**, where incentives would be directed to the lighting distributors to increase sales of energy-efficient lighting through point of sale discounts, improved product stocking, marketing, and distributor training.

Finally, the AAR Report Back programs to be launched in 2023, include the following:

- **Residential Demand Response Program**, a new program for homes with existing central air conditioning and smart thermostats to help lower energy use at peak times.
- **Targeted Support for Greenhouse Growers Program**, a program in Southwestern Ontario, including incentives to install LED lighting, advanced controls or behind-the-meter DER, such as combined solar generation and battery storage.
- Enhancements to the **Save on Energy Business Retrofit Program**, for businesses, institutional and industrial customers to include custom energy-efficiency projects.
- Enhancements to the **Save on Energy Local Initiatives Program**, to reduce barriers to participation and to add flexibility for incentives for DER solutions.

3.3 Winding Down Legacy CDM Frameworks

3.3.1 2019-2020 IF

The IESO continued to administer the IF programs in 2022 and worked with participants to realize incremental in-service project savings. However, participants continued to communicate the challenges related to project completions, due to the ongoing impacts of COVID-19. As a result, the IESO issued further extensions to accommodate projects already underway. When accounting for these extended commitments, the IF was on course to achieve 1,429 GWh energy saving target and 190 MW peak demand saving target. The 2022 IF performance is outlined in [Section 3.5](#).

3.3.2 2015-2019 CFF

In 2022, the IESO continued to work with LDCs, as well as program participants to wind-down remaining project commitments. To date, the CFF investments have totalled nearly \$2 billion and have resulted in close to 10 TWh of actual energy savings and over 1,217 MW of peak demand savings. In light of the ongoing impacts of COVID-19, the government granted further extensions to certain projects to the end of 2022. The 2022 CFF performance outlined in [Section 3.6](#).

3.4 2021-2024 CDM Framework Performance

The IESO continued to administer the current framework programs in 2022 and worked with participants to realize incremental in-service project savings.

The data below represents actual net verified and non-verified committed savings and costs at the end of 2022.

Cumulative (2021-2022)			
Program	Energy Savings (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Retrofit Program	1040.8	160.2	\$136.1
Small Business Lighting Program	16.7	4.4	\$6.5
Energy Manager Program	15.7	1.9	\$4.9
Energy Performance Program	32.2	4.6	\$5.8
Energy Affordability Program	18.1	2.1	\$28.5
Industrial Energy Efficiency Program	N/A	N/A	\$0.2
Local Initiatives	N/A	N/A	\$0.2
First Nations Programs	0.9	0.1	\$3.3
Total	1,124	173	\$186
CDM Plan Target (2021-2022)	1,041	157	\$180
Progress to CDM Plan Targets	108%	110%	103%

Final verified results are provided annually each fall as part of the EM&V process. The EM&V process assesses the resource savings, cost-effectiveness and market impacts of each program, and reports are available on the [IESO website](#).

In 2022, the 2021-2024 CDM programs remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
TRC	1.32
PAC	3.01
LUEC (\$/kWh)	\$0.02

3.5 2019-2020 IF Performance

The data below represents customer participation and net-verified actual costs and in-service project savings at the end of 2022.

Cumulative (2019-2022)

Program	Energy Savings ¹ (GWh)	Peak Demand Savings ¹ (MW)	Budget (\$M)
Retrofit Program	826.7	115.7	\$120.3
Small Business Lighting Program	45.2	11.2	\$14.8
Energy Manager Program	61.0	16.5	\$11.2
Process & Systems Upgrade Program	20.8	1.8	\$8.5
Energy Performance Program	0.8	0.2	\$0.7
Home Assistance Program	28.9	2.8	\$34.6
Indigenous Program	0.7	0.1	\$6.3
LDC Local Program	16.5	2.8	\$11.4
Total	1,001	151	\$208
IF Target	1,429	190	\$353
Progress to the IF Targets²	70%	80%	59%

¹100% of Savings Persistence in 2022

²The original IF targets of 1,429 GWh energy savings, and 190 MW of the peak demand savings

In 2022, the IF programs remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
TRC	0.97
PAC	3.09
LUEC (\$/kWh)	\$0.02

For additional detail regarding IF programs results, the 2022 EM&V report is available on the [IESO website](#).

3.6 2015-2021 CFF Update

By the end of 2022, progress under the CFF yielded the following results:

The data below represents customer participation and net-verified actual costs and in-service project savings at the end of 2022.

2015-2022 CFF Performance	Energy Savings¹ (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Total	9,630	1,217	1,751
CFF CDM Plan Target	7,400	N/A²	2,455
Progress to Plan Targets³	130%	N/A²	71%

¹Includes savings that are persistent to 2020 and additional savings incurred in year 2021.

²The CFF did not include a peak demand saving target.

³The CFF did not include committed projects. As of the end of 2022, a portion of projects approved under the CFF remain incomplete. The IESO will continue to report on additional progress annually.

**Independent Electricity
System Operator**

1600-120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900

Toll-free: 1.888.448.7777

E-mail: customer.relations@ieso.ca

ieso.ca



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