



Making a Difference

Energy Efficiency in Ontario

2023 Conservation and Demand Management Results

Updated as of October 2024



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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.

Conservation and Demand Management (CDM) Framework Program Plan – The [CDM Framework Program Plan](#) is an overview of the CDM programs to be delivered by the IESO, under the Save on Energy brand, from January 2021 to December 2024. The plan sets out forecast budgets and, where applicable, savings targets and estimated cost-effectiveness for the portfolio of CDM programs.

Conservation First Framework (CFF) – The CFF delivered electricity conservation programs to customers from 2015-2019.

Interim Framework (IF) Program Plan – The [IF Program Plan](#) is an overview of energy-efficiency programs IESO offered in Ontario from April 2019 to December 2020. It sets out forecast budgets and, where applicable, targets and expected cost-effectiveness for Save on Energy programs.

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, 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.



1. Executive Summary

The Independent Electricity System Operator (IESO) is preparing for an unprecedented increase in electricity demand in Ontario. As the province's electricity grid operator and planner, the IESO forecasts that demand will continue to grow two percent a year on average. The increase is driven by economic growth and by increasing electrification of end uses across society, including in the mining, transportation and steel sectors, residential, electric vehicle battery and hydrogen production, agricultural greenhouse construction and data centres. While total demand is forecasted to increase 75 percent over the next 25 years, Ontario's supply mix is also evolving. This will impact how the IESO, continues to maintain an affordable, reliable and sustainable grid for the province.

Conservation and demand management (CDM) activities are a foundational part of how the IESO will address the increased demand and economic growth, with many CDM programs helping to support the electrification across the province. When factoring in the 2021-2022 performance and new projects committed in 2023, the framework achieved 1,698 GWh in energy savings, and 283 MW in peak demand savings. Achieved energy efficiency helps ensure the reliability of Ontario's electricity system and is one of the most cost-effective electricity resources at three cents per kWh.

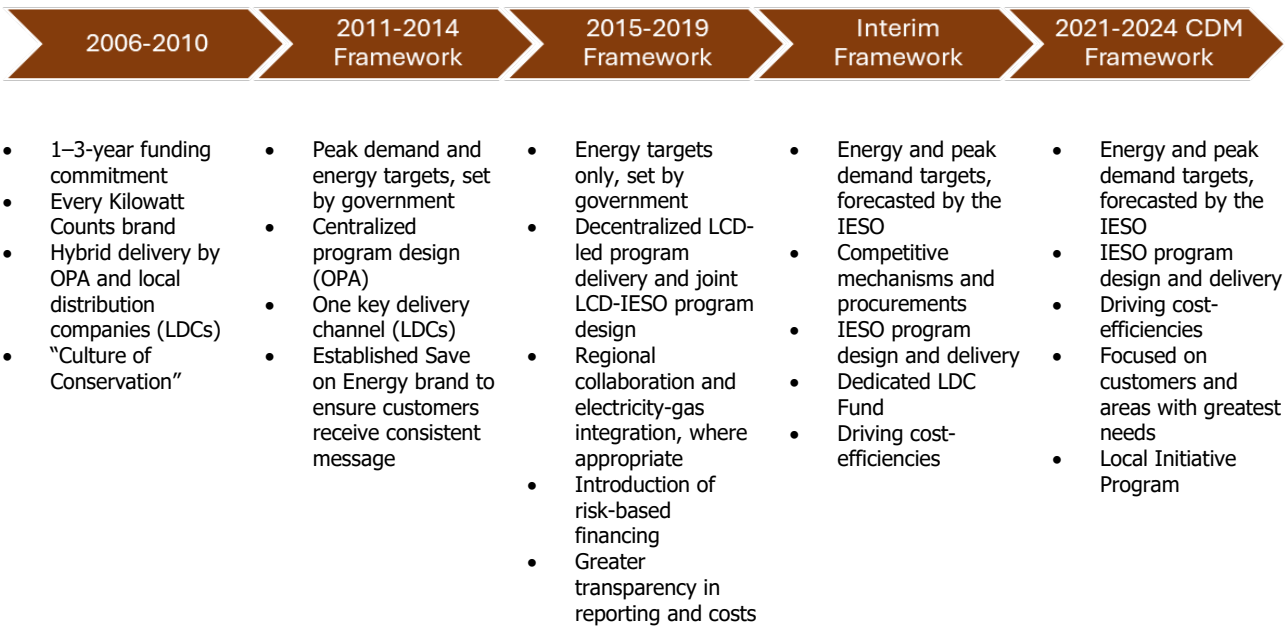
1.1 Energy Efficiency in Ontario

Since 2011, the IESO has been delivering province-wide energy efficiency programs, through its Save on Energy brand, to Ontarians, reducing electricity costs for consumers and helped the province manage electricity demand. Provincial electricity demand is about 15% lower today thanks to energy efficiency efforts¹. The savings achieved² through Save on Energy's CDM initiatives are essential for maintaining a reliable, affordable and sustainable electricity system in Ontario. As electricity demand is expected to rise and existing resources undergo retirement or upgrades, the role of CDM as a low-cost, non-emitting resource becomes increasingly important. It helps Ontario meet changing system needs and supports the province's economic growth and decarbonization efforts.

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 \(APO\)](#).

¹ Code and standards are included.

² Reflects actual and committed savings through the respective Save on Energy programs.



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 from the grid and support economic growth by enabling jobs and purchases of new equipment.

Save on Energy marked its 12th anniversary in 2023. Since the brand was first introduced in 2011, Save on Energy programs have provided energy-efficiency opportunities and resources to more than 412,000 residential and business electricity customers across Ontario to help them better manage their electricity use, saving nearly 19 TWh of electricity. This is equivalent to powering 1.9 million homes for one year. These customers completed more than 80 million energy-efficiency actions over 12 years, which ranged from changing a light bulb to completing complex building retrofits.

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 continually gathers feedback and enhances the quality of programs.



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. 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 Framework Program Plan](#)³ 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, 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.

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-efficient 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:

³ The CDM Framework Program Plan has been updated to reflect the enhanced budget and targets from the [September 29, 2022, ministerial directive](#).

- **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.⁴
- **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.⁵
- **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.

2.3 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 because of the pandemic:

⁴ The Small Business Lighting program has evolved and was re-launched in March 2022 as the [Small Business Program](#).

⁵ The Energy Manager program has been replaced by a new program called the [Strategic Energy Management program](#) in 2022.

- 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

2019-2020 IF

The Save on Energy programs under the 2019-2020 IF were focused on ensuring value for customers and the electricity system. 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. The 2019-2020 IF performance is outlined in [Section 2.6](#).

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. By 2021, CFF investments have totalled nearly \$1.7 billion and have resulted in 8.1 TWh of annual energy savings and more than 1,000 MW of peak demand reductions.

Considering the ongoing impacts of COVID-19, extensions were issued to allow for project completions to take place into 2022; therefore, CFF commitments have continued to deliver results beyond 2021. The 2015-2019 CFF performance is outlined in [Section 2.7](#).

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 considering 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 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 considering 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
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)			
Program	Energy Savings⁶ (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Retrofit Program	585.0	93.0	93.0
Small Business Lighting Program	45.0	11.0	15.0
Energy Manager Program	45.0	13.0	7.7
Process & Systems Upgrade Program	18.0	1.5	6.5

⁶ 100% of savings persist in 2021.

Energy Performance Program	0.6	0.1	0.4
Home Assistance Program	25.0	2.5	34.0
Indigenous Programs	0.6	0.1	5.7
LDC Local Programs	14.0	2.4	11.0
Total	733	123	173
IF CDM Plan Program Targets	1,429	190	325
Progress to Targets	51%	65%	53%

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

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

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 Savings⁷ (TWh)	Net Peak Demand Savings⁸ (MW)	Budget (\$M)
Framework Progress	8.1	1,094	1,674
Framework CDM Plan	7.4	N/A	2,455
Performance Against Plan ⁹	109%	N/A	68%

⁷ CFF savings are evaluated as persisting through 2020. Additional savings achieved in 2021 are not evaluated for persistence but would persist through 2021 at minimum.

⁸ CFF savings are evaluated as persisting through 2020. Additional savings achieved in 2021 are not evaluated for persistence but would persist through 2021 at minimum.

⁹ CFF 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
PAC	3.3
LUEC (\$/kWh)	0.02

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 second year of the 2021-2024 CDM Framework, the framework delivered 285 GWh of incremental¹⁰ 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 emissions¹¹, the equivalent of removing 1,610¹² 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.

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:

¹⁰ Reflects performance over the prior year's program results

¹¹ 26 grams of GHG reduction = 1 kWh

¹² A typical passenger vehicle emits about 4.6 metric tonnes of CO₂ per year

- The September 30, 2020, CDM directive required the IESO to undertake the [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.

Overview of CDM Programs

Programs launched in 2021 are outlined in [Section 2](#).

In 2022, new programs launched included:

- **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 Initiatives Program**, to facilitate implementing CDM solutions to address regional and local electricity planning needs. In 2022, the IESO launched the BizEnergySaver, direct install program designed to help industrial, commercial and institutional, and multi-residential building owners and operators make equipment improvements to reduce their energy consumption. BizEnergySaver launched in the Richview South area of Toronto in 2022 with plans to expand into Ottawa in 2023.
- **Small Business Program**, which replaced the Small Business Lighting 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 in Ontario.
- **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.

Mid-Term Review

The September 30, 2020, CDM directive required the IESO to undertake the 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.
- 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, 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.

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 outlook 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.

3.3 Winding Down Legacy CDM Frameworks

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](#).

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. Considering 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
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 Savings¹³ (GWh)	Peak Demand Savings¹⁴ (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 Targets	70%	80%	59%

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

Cost-Effectiveness Metric	Cost-Effectiveness Result
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 2015-2019 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.

Cumulative (2015-2022) CFF Performance	Energy Savings¹⁵ (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Total	9,630	1,217	1,751
CFF CDM Plan Target	7,400	N/A	2,455
Progress to Plan Targets ¹⁶	130%	N/A	71%

¹³ 100% of Savings Persistence in 2022

¹⁴ 100% of Savings Persistence in 2022

¹⁵ Includes savings that are persistent to 2020, and additional savings incurred in year 2021, and 2022.

¹⁶ The 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.

4. 2023 CDM Results

4.1 Overview

In 2023, the IESO focused on delivering the existing suite of programs while also expanding its program offerings, as proposed in its 2022 MTR and in accordance with the updated ministerial directive of September 29, 2022. The addition of these new and expanded offerings resulted in higher total 2021-2024 CDM Framework targets of 725 MW of peak demand savings and 3.8 TWh of energy savings, and a total budget of more than \$1 billion. More information on the new and updated offerings is included in [Section 4.2](#).

In 2023, the 2021-2024 CDM Framework delivered 302 GWh of incremental net verified energy savings and 31 MW of incremental net verified peak demand savings. When combined with the 2021 and 2022 performance outlined in [Section 2](#) and [Section 3](#), respectively, and including new projects committed in 2023, the first three years of the framework achieved 1,698 GWh of actual and committed energy savings, and 283 MW of actual and committed peak demand savings. The actual and committed savings totals represent 77 percent of the 2021-2023 energy savings target and 68 percent of the 2021-2023 peak demand savings target. These achievements are a result of 162,303 energy-efficiency projects initiated across the suite of Save on Energy programs. They also represent a total of 7,852 tonnes of annually avoided GHG emissions¹⁷, the equivalent of removing 1,700¹⁸ cars from Ontario roads. More information on CDM Framework performance is included in [Section 4.4](#).

Under the IF, the IESO continued to work with participants in 2023 to bring projects into service and realize their savings. By the end of 2023, 1,215 GWh of actual verified energy savings (85 percent of the IF target) and 163 MW of actual verified peak demand savings (86 percent of the IF target) were achieved. IF savings of 69 GWh and 15MW, and budget of \$27M remain in the committed stage at the end of 2023; these represent projects expected to be in service in 2024. More information on IF performance is included in [Section 4.5](#).

Under the CFF, a total of 8.9 TWh of actual energy savings were achieved by the end of 2023 (120 percent of the CFF target), as well as 1,273 MW of actual peak demand reductions (CFF did not have a peak demand savings target). The final extension of the CFF required projects to be completed by end of 2023, with measurement and verification activities continuing into 2024. Incremental savings therefore will continue to be reported in 2024. More information on CFF performance is included in [Section 4.6](#).

¹⁷ 26 grams of GHG reduction = 1 kWh

¹⁸ A typical passenger vehicle emits about 4.6 metric tonnes of CO2 per year

4.2 2021-2024 CDM Framework

Programs launched in 2021 are outlined in [Section 2](#).

Programs launched in 2022 are outlined in [Section 3](#).

In 2023, the IESO continued to focus on delivering programs and building momentum toward the achievement of the 2021-2024 CDM Framework targets. In 2023, two new programs launched as planned in the original CDM Plan:

- **Existing Building Commissioning Program**, to help owners, operators and managers of commercial and institutional buildings improve their energy performance by implementing building operational changes and best practices.
- **Instant Discounts Program**, a commercial midstream lighting program where incentives are directed to the lighting distributors to increase sales of energy-efficient lighting through point-of-sale discounts, improved product stocking, marketing, and distributor training. Almost all commercial lighting incentives were transferred from the Retrofit Program to Instant Discounts in December 2023.

New programs as directed in the 2022 directive also launched in 2023, including:

- **Peak Perks**, 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 Greenhouse Program**, a program in Southwestern Ontario, including incentives to install LED lighting, advanced controls and behind-the-meter distributed energy resources.
- **Enhancements to the Retrofit Program**, adding a custom stream to support businesses to undertake more complex energy-efficiency projects with a standard incentive rate based on energy or demand savings achieved.
- **Enhancements to the Local Initiatives Program**, including:
 - Regional incentive adders to province-wide programs to help address local area needs and constraints.
 - The **BizEnergySaver** program was made available in Ottawa in 2023.
 - The launch of **CoolSaver**, which helps homeowners and tenants tune up and upgrade their home cooling systems to reduce their electricity consumption and energy costs. Launched in the Richview South area of Toronto, York Region and Ottawa in 2023.

In 2023, the new programs saved 464 GWh in energy savings and 111 MW in peak demand savings with spending just over \$102M. More details about the AAR programs are provided [here](#).

4.3 Winding Down Legacy CDM Frameworks

2019-2020 IF

The IESO continued to administer the IF programs in 2023 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 and cancel project applications that were not going forward. When accounting for these extended commitments, the IF achieved 1,215 GWh energy saving and 163 MW peak demand saving. The 2023 IF performance is outlined in [Section 4.5](#).

2015-2019 CFF

In 2023, 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 \$1.8 billion and have resulted in 8.9 TWh of net verified energy savings and over 1,273 MW of peak verified demand savings. The 2023 CFF performance outlined in [Section 4.6](#).

4.4 2021-2024 CDM Framework Performance

The IESO continued to administer the current framework programs in 2023 and worked with participants to realize incremental in-service project savings. The data below represents actual net verified and non-verified actual and committed savings and costs at the end of 2023.

Cumulative (2021-2023)

Program	Energy Savings (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Retrofit Program - Prescriptive Track	1,014.8	151.2	151.1
Retrofit Program - Custom Track	188.2	28.9	40.8
Targeted Greenhouse	242.0	2.4	46.2
Small Business Lighting Program	23.9	6.5	10.6
Energy Manager Program	9.9	1.3	3.8
Existing Building Commissioning program	23.7	3.0	2.1
Strategic Energy Management	0.0	0.0	0.8

Energy Performance Program	37.9	5.3	5.4
Energy Affordability Program	28.7	2.4	53.3
Industrial Energy Efficiency Program	87.3	0.9	5.8
Local Initiatives	6.8	0.9	2.2
Enhanced Local Initiatives	33.0	6.0	4.2
Foodservice Distributor Discount Program	0.0	0.0	0.0
Peak Perks	0.0	74.0	10.9
Instant Discounts	0.0	0.0	0.1
First Nations Programs	2.1	0.3	5.7
Total	1,698	283	343¹⁹
CDM Targets (2021-2023)	2,225	431	532
Progress to CDM Targets	76%	66%	64%

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 2023, the 2021-2024 CDM programs remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
PAC	2.86
LUEC (\$/kWh)	0.02

4.5 2019-2020 IF Performance

The data below represents customer participation and net-verified actual costs and in-service project savings at the end of 2023.

Cumulative (2019-2023) Program	Energy Savings²⁰ (GWh)	Peak Demand Savings²¹ (GW)	Budget (\$M)
Retrofit Program	935.3	125.2	193.9
Small Business Lighting Program	45.2	11.2	14.1
Energy Manager Program	75.8	16.9	15.3
Process & Systems Upgrade Program	107.6	3.1	50.8
Energy Performance Program	1.9	0.4	1.5
Foodservice Distributor Discount Program	0.5	0.1	0.0
Home Assistance Program	28.9	2.8	34.4

¹⁹ Central Services budgets were excluded from this table.

²⁰ 100% of Savings Persistence in 2023.

²¹ 100% of Savings Persistence in 2023.

Conservation on the Coast - Home Assistance Program	0.2	0.0	2.6
First Nations Conservation Programs	0.6	0.1	2.2
Remote Indigenous Pilot	0.1	0.0	2.3
LDC Local Program	19.3	3.3	18.0
Total	1,215	163	335²²
IF Targets	1,429	190	353
Progress to the IF Targets	85%	86%	95%

In 2023, the IF programs remained cost-effective, demonstrated in the following results:

Cost-Effectiveness Metric	Cost-Effectiveness Result
PAC	3.97
LUEC (\$/kWh)	0.01

For additional detail regarding IF programs results, the 2023 EM&V report is available on the [IESO website](#).

4.6 2015-2019 CFF Update

By the end of 2023, 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 2023.

Cumulative (2015-2023)

CFF Performance	Energy Savings²³ (GWh)	Peak Demand Savings (MW)	Budget (\$M)
Total	8,880 ²⁴	1,273	1,746
CFF Target	7,400	N/A	2,455
Progress to CFF Targets ²⁵	120%	N/A	71%

²² Central Services budgets were excluded from this table.

²³ Includes savings that are persistent to 2020, and additional savings incurred in year 2021, 2022, and 2023.

²⁴ 2023 CFF cumulative energy savings have decreased compared to 2022 values due to the net impacts of a data correction and incremental projects completed in 2023.

²⁵ The CFF did not include committed projects. As of the end of 2023, a portion of projects approved under the CFF remain incomplete. The IESO will continue to report on additional progress annually.

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