2021-2024 CDM FRAMEWORK LOCAL INITIATIVES PROGRAM PY2023

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TABLE OF CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

The Independent Electricity System Operator (IESO) retained EcoMetric Consulting, LLC (EcoMetric) and subcontractors DNV Energy Insights USA Inc. (DNV) and Dunsky Energy + Climate Advisors (Dunsky), collectively referred to as the EcoMetric team, to evaluate the 2021-2024 CDM Framework Local Initiatives Program (LIP) administered in Ontario, Canada.

E.1 PROGRAM DESCRIPTION

The intent of LIP is to deliver 57 MW of demand savings and 230 GWh of energy savings throughout the 2021-2024 CDM framework through program offerings targeting areas of Ontario with identified electricity system needs. The program offerings include programs that target non-residential and residential customers and include a wide range of end-uses and measure types. A key requirement for this program is that it is not duplicative of an existing program offering. As such, the program's projects represent those savings opportunities that do not fit in any existing program offering.

There are currently two major Initiatives active in these regions: BizEnergySaver and CoolSaver. The BizEnergySaver program provides upfront incentives and direct installation of efficient equipment to reduce electricity consumption in industrial, commercial, institutional, and multi-family buildings throughout the targeted regions. The CoolSaver program provides incentives to homeowners and tenants to upgrade their home cooling systems and reduce electricity consumption.

E.2 EVALUATION OBJECTIVES

The goals of the Program Year 2023 (PY2023) evaluation were to:

- Annually verify energy and summer peak demand savings.
- Assess program attribution (net-to-gross or NTG), including free-ridership.
- Conduct annual cost-effectiveness analyses and report on key indicators of cost-effectiveness, including the Program Administrator Cost (PAC) test and the Levelized Unit Energy Cost (LUEC) metric.
- Annually estimate the net greenhouse gas impacts in tonnes of CO_2 equivalent using IESO's Cost-Effectiveness Tool.
- Assess the effectiveness and accuracy of the energy savings calculation methodologies used by participants and technical reviewers.
- Monitor the overall effectiveness and comprehensiveness of key program elements.
- Analyze and make recommendations to improve the program.

- Estimate job impacts and Non-Energy Benefits (NEBs) of the program.

E.3 EVALUATION APPROACH SUMMARY

E.3.1 IMPACT EVALUATION APPROACH

The EcoMetric team used a variety of methods and approaches to assess LIP program impacts. The evaluation team conducted impact evaluation for the BizEnergySaver and CoolSaver programs by conducting engineering desk reviews. EcoMetric sampled 30 out of 43 BizEnergySaver projects and all 32 CoolSaver projects for the PY2023 impact evaluation. The impact evaluation included engineering desk reviews using workpapers and deemed savings workbooks provided by the program delivery vendor. The team then conducted a net savings verification to determine both the portion of project savings attributable to IESO programs and the free ridership score. To best estimate measure-level costs and benefits, the team conducted cost-effectiveness analyses using the CDM CE Tool[1]. The team also analyzed other energy efficiency benefits of the program including avoided greenhouse gas emissions, non-energy benefits, and job impacts.

E.3.2 PROCESS EVALUATION APPROACH

For the process evaluation, the team conducted program material reviews and in-depth interviews with IESO program staff and program delivery vendors to gain insight into the LIP program designs and delivery challenges. The team also conducted participant surveys to learn more about the programs from the perspective of decision-makers within households and organizations that participate. Finally, the team conducted in-depth interviews with qualified contractors for the two programs to better understand how easy it was to become a qualified contractor, information on working with participants and their motivation to participate, and how well program activities are addressing their needs. Section 2 provides detailed information about our methodology and approach.

[1] IESO Cost Effectiveness Tool: https://ieso.ca/-/media/Files/IESO/Document-Library/EMV/IESO-CDM-CE-Tool-V9-2-Feb-17-2023.xlsb

E.4 SUMMARY OF RESULTS

This section summarizes the key evaluation results of LIP in PY2023. Further details on these impacts can be found in Section 3.

E.4.1 IMPACT EVALUATION RESULTS

The BizEnergySaver program achieved a near 100% realization rate for energy savings and peak demand savings. The CoolSaver program achieved a 96% energy savings realization rate and 121% peak demand savings realization rate. At the end of PY2023, LIP achieved 2.5% of its 2021-2024 CDM energy savings target and 1.4% of its peak demand savings target. As LIP continues to grow and acquire more participants and savings, EcoMetric expects that it will make greater contributions to alleviating capacity constraints in the Richview transmission corridor. Monitoring the performance of LIP in improving regional capacity will continue to be a focus of the PY2024 program evaluation.

Table 1: PY2023 LIP Impact Results Summary

Impact	BizEnergySaver	CoolSaver
Number of Projects Evaluated and Reported	43	32
Total Gross Verified First-Year Energy Savings	6,052 MWh	21.7 MWh
Program Level Energy Realization Rate	100.0%	95.9%
Total Gross Verified Summer Peak Demand Savings	0.8085 MW	0.0284 MW
Program Level Demand Realization Rate	100.2%	121.1%
Total Net Verified First Year Energy Savings	5,839 MWh	21.3 MWh
Total Net Verified Summer Peak Demand Savings	0.7787 MW	0.0278 MW
Program Level Net to Gross Ratio	96%	98%
Total Net Verified Energy Savings that Persist through 2026 (MWh)	5,839 MWh	0.9 MWh
Cost Effectiveness – Program Administrator Cost Test Ratio	2.01	0.04
Cost Effectiveness – Levelized Unit Energy Cost	$0.03/kWh	$3.39/kWh

E.4.2 PROCESS EVALUATION RESULTS

The following subsections detail the results of the participant surveys and contractor IDIs.

Participant Surveys

The BizEnergySaver and CoolSaver process survey results indicate that respondents had overall positive feedback on LIP and would be interested in participating in the program again. Respondents stated that the main factors for participation were incentives, support such as marketing, and energy savings. Respondents further reported no barriers to program participation and that the program-

required elements, such as the application process and implementation of program measures, were clear and easy to fulfill.

Contractor IDIs

LIP contractors were motivated to participate in the program because of their previous positive experiences with similar programs, growth opportunities within their networks, and the chance to work more on lighting retrofits and control projects. They noted that BizEnergySaver made it easier to incentivize lighting retrofits and controls, allowing them to better propose those projects to clients. Contractors also noted that CoolSaver provided them with an additional lead stream in reaching new clients.

Because the program is free and helps maintain equipment, contractors believe that the customers participated in this program for financial and energy efficiency reasons.

LIP contractors noted participation barriers related to administration and outreach. Even though the program provided a rebate to customers, the sales process for the contractors did not change. For example, contractors must sell clients on the project and the participant agreement for BizEnergySaver often need to go through internal legal or procurement processes. Further, the program only covers limited areas, and contractors noted a lack of marketing from the program delivery vendor and the IESO.

Despite these barriers, contractors for both BizEnergySaver and CoolSaver thought the program simplified the process of becoming a qualified contractor.

E.5 KEY FINDINGS AND RECOMMENDATIONS

The following sections present the key findings and recommendations for the PY2023 Impact and Process Evaluations. All findings and recommendations are included in Section 7. Findings and recommendations in this section are not numbered sequentially.

E.5.1 IMPACT EVALUATION KEY FINDINGS AND RECOMMENDATIONS

Impact Finding 1: EcoMetric found one possible explanation for the deviation in savings for the CoolSaver program to be incorrect usage of EFLH values. EcoMetric suspects that for CoolSaver AC Tune Up measures the delivery vendor applied Richview South's Effective Full Load Hours (EFLH) to measures installed in the Ottawa and York regions.

Impact Recommendation 1: Apply region-specific EFLH values listed in the 'Appendix F – Energy and Peak Demand Savings Determination CoolSaver' document for AC Tune Up measures. Ensure accuracy and consistency in application of the key parameters that serve as inputs to savings algorithms.

Impact Finding 3: EcoMetric found that the savings listed in the "BizEnergySaver Measure Savings" spreadsheet (i.e., the reported savings workbook provided by the program delivery vendor) did not consider the impact of facility type on the savings for lighting and VFD measures. For example, there was no distinction made between key parameters for office buildings and multi-family residential facilities in the savings calculated by the delivery vendor.

Impact Recommendation 3: Ensure key measure parameters are not facility agnostic. Office buildings have substantially different operating conditions than multi-family residential buildings. Key measure parameters such as operating hours and peak coincidence factors need to be facility specific to ensure accuracy in the savings claimed for the program.

Impact Finding 5: Overall, the net-to-gross ratio (NTGR) for LIP was very high. Little free-ridership was identified. The program level NTGR for BizEnergySaver is 96%. The high NTGR was largely driven by the program's influence on the timing of completing the measures offered. The program level NTGR for CoolSaver was 98%. CoolSaver respondents indicated that without the program they would not have known the benefits of an AC tune-up and would have been unlikely to perform one.

Impact Recommendation 5: LIP is reaching a population that would not complete these upgrades without program support. The EcoMetric team recommends that the IESO continues the program and expands its geographic coverage and/or incentivized measures as well. The EcoMetric team recommends continued monitoring of NTG as programs are expanded, as the change could lead to higher levels of free-ridership.

E.5.2 PROCESS EVALUATION KEY FINDINGS AND RECOMMENDATIONS

Process Finding 1: Eighty percent of CoolSaver respondents (4/5) and 57% of BizEnergySaver respondents (4/7) indicated that their household or organization would be interested in installing an air source heat pump to meet their heating and cooling needs if the IESO provided an incentive. However, the interest in such installation must save money. Respondents for both programs indicated that their primary motivation for LIP program participation was to elicit savings on their energy bills.

Process Recommendation 1: The IESO should continue to consider investigating the possibility of implementing a program (or programs) that incentivize air source heat pumps for space heating and cooling for households and businesses. In parallel, since most respondents claim that energy bill savings are their primary motivator, the IESO should research whether savings are likely to be achieved for customers who install air source heat pumps.

Process Finding 2: For CoolSaver, qualified contractor interviews revealed that households may not understand the limitations of a tune-up and may expect contractors to repair the equipment when

equipment is broken. For example, contractors have arrived at residences where customers think or hope they have a low refrigerant charge and thus need a top-up, only to learn there is a more serious problem like a "bone-dry" unit for which a refrigerant top-up is inappropriate. Customers then fear they are being scammed or at least bait-and-switched, as they believe a free tune-up should fix a problem in need of further repair. One contractor stated three times that using the term "top-up" when describing the program was unhelpful at best and noted that the IESO program delivery vendor could not screen residences with broken air-conditioning units. That same contractor ultimately felt obliged to provide free and unreimbursed repair services to two customers who were unhappy with the appearance of disingenuous upselling, for fear of bad social media postings.

Process Recommendation 2: It is recommended that the program delivery vendor should discuss with contractors what screening question(s) to add to the application form to ascertain the current working condition of the unit. If a customer indicates the system is not working well, the program delivery vendor should consider including a disclaimer that a repair might be necessary (subject to diagnostics) and is not covered by the program rebate. Also, program staff should re-consider using the phrase "top-up," at least not without context.

Process Finding 3: For BizEnergySaver, qualified contractor interviews revealed that postal code limitations are the greatest barrier to additional program uptake. On average, interviewees estimated that 200% more projects could be completed through the program each year if eligible postal codes were expanded.

Process Recommendation 3: The IESO should consider assessing if any postal code eligibility expansion will result in decreased electricity usage and/or peak demand reduction in areas with grid strain. They should also assess if such expansion still results in high NTGR.

1 Introduction

1.1 PROGRAM DESCRIPTION

In November of 2021, the IESO published an integrated regional resource plan addendum with a focus on the areas of Richview and Manby[2]. Peak demand needs in these areas increased from previous estimates due to higher than anticipated near term growth rates and updates to the operational configuration of the system. LIP was developed to target savings for the transmission corridor need. According to the resource plan, "under this program, up to 8 MW…is expected to be achieved in the study area by 2026."

Overall, the intent of LIP is to deliver 57 MW of demand savings and 230 GWh of energy savings throughout the 2021-2024 CDM framework through program offerings targeting areas of Ontario with identified electricity system needs. The program offerings include programs that target non-residential and residential customers and include a wide range of end-uses and measure types. A key requirement for this program is that it is not duplicative of an existing program offering. As such, the program's projects represent those savings opportunities that do not fit in any existing program offering.

The first cycle of local initiatives targets the following areas:

- Richview South area in Toronto
- York Region
- Ottawa
- Belle River area in Essex County

There are currently two major initiatives active in these regions:

- **BizEnergySaver Program (Richview South and Ottawa).** The BizEnergySaver program provides upfront incentives and direct installation of efficient equipment to reduce electricity consumption in industrial, commercial, institutional, and multi-family buildings throughout the targeted regions. Measures installed through the program include LED lighting upgrades,

2 Regional Electricity Planning - Toronto (ieso.ca)

adaptive lighting controls, variable frequency drives (VFDs) for pump systems and fans, and parking garage exhaust fan controls. The program provides free on-site assessments to identify energy savings opportunities unique to each building. Once the participant agreement is approved, qualified Save on Energy partners handle the entire installation process on the participants' behalf.

- **CoolSaver Program (Richview South, York, and Ottawa).** The CoolSaver program provides incentives to homeowners and tenants to upgrade their home cooling systems and reduce electricity consumption. The program offers incentives for air conditioner tune-ups, central air conditioner replacements, portable humidifiers, smart thermostats, and variable speed pool pumps. There is a pool of qualified CoolSaver contractors that are permitted to install and service eligible equipment in the program to ensure quality installation and persistence of savings.

1.2 EVALUATION OBJECTIVES

The Independent Electricity System Operator (IESO) retained EcoMetric Consulting, LLC, to evaluate the 2021-2024 CDM Framework Local Initiatives Program administered in Ontario.

The goals of the Program Year 2023 (PY2023) evaluation were to:

- Annually verify energy and summer peak demand savings.
- Assess program attribution (net-to-gross or NTG), including free-ridership.
- Conduct annual cost-effectiveness analyses and report on key indicators of cost-effectiveness, including the Total Resource Cost (TRC) test, Program Administrator Cost (PAC) test, and the Levelized Unit Energy Cost (LUEC) metric.
- Annually estimate the net greenhouse gas impacts in tonnes of CO_2 equivalent using IESO's Cost-Effectiveness Tool.
- Assess the effectiveness and accuracy of the modeling methods used by participants and technical reviewers.
- Monitor the overall effectiveness and comprehensiveness of key program elements.
- Make recommendations to improve the program.
- Estimate job impacts.

This report contains the impact, process, and cost effectiveness evaluation findings conducted for LIP in PY2023.

2 Methodology

This section of the report outlines the methodologies used in the PY2023 evaluation of LIP. More detailed descriptions of the evaluation methodology are included in Appendix A.

2.1 EVALUATION APPROACH

Methods used for this evaluation include engineering analysis, documentation review, best practice review, and interviews with program participants and qualified program contractors. EcoMetric sampled 30 out of 43 BizEnergySaver projects and all 32 CoolSaver projects as part of the PY2023 impact evaluation. Engineering desk reviews were performed using workpapers and deemed savings workbooks provided by the IESO. EcoMetric also verified quantities of measures installed for each sampled project based on a review of submitted contractor work orders.

Table 2 shows the number of projects in the PY2023 population for BizEnergySaver and CoolSaver.

Table 2: PY2023 LIP Completed Projects

Program Component	Richview South	York	Ottawa
BizEnergySaver	43	-	-
CoolSaver	19	2	11
Total	**62**	**2**	**11**

Table 3 shows the various primary data collection activities and the total number of sampled completes for each evaluation method.

Table 3: PY2023 LIP Summary of Evaluation Activities

Evaluation Component	Category	Population	Completed Samples
BizEnergySaver			
Gross Savings Verification	Projects	43	30
Net Savings Verification + Process Evaluation	Participating Organizations	18	11
Process Evaluation	IESO Program Staff[3]	1	1
Process Evaluation	Implementation Staff	1	1
Process Evaluation	Program Contractors	2	2
CoolSaver			
Gross Savings Verification	Projects	32	32
Net Savings Verification + Process Evaluation	Participants	32	7
Process Evaluation	Implementation Staff	3	3[4]
Process Evaluation	Program Contractors	5	4

2.2 GROSS SAVINGS VERIFICATION

EcoMetric performed energy and peak demand savings analysis for a sample of BizEnergySaver projects. The sampled projects included LED retrofits and VFDs on fans, pumps, and motors. Savings were based on the 'BizEnergySaver Measure Savings Workbook' provided by the IESO. EcoMetric performed a validation check on the Workbook to ensure savings algorithms and input assumptions were correctly applied. The savings listed in the Workbook utilize parameters such as hours of use, wattages, and motor load factors that are based on contractors' experience in the Greater Toronto Area. EcoMetric used measure descriptions in the work order to gather the appropriate savings per measure values from the workbook to determine gross verified savings at the measure level. The per measure savings values were then multiplied by the quantity mentioned in the work order to calculate gross savings for each sampled project.

EcoMetric performed energy and peak demand savings analysis for the entire population of CoolSaver projects. The projects included AC tune-up measures implemented in residential facilities

[3] A combined interview was conducted for both the BizEnergySaver and CoolSaver program with the IESO program staff lead.
[4] A group interview was conducted with all 3 members of the implementation staff team.

in the Greater Toronto Area. Savings were calculated using methodologies and formulae provided in the 'Appendix F – Energy and Peak Demand Savings Determination CoolSaver' document from the Scope of Work legal agreement between IESO and the program delivery vendor. EcoMetric validated key inputs such as the unit capacity and efficiency rating provided by the delivery vendor, and then applied region-specific hours of use to calculate gross verified savings.

2.3 NET SAVINGS VERIFICATION

Net-to-gross (NTG) is the process of determining what portion of project savings is attributable to the influence of the IESO programs versus what the customer would have done in the absence of the program. The calculation of NTG factors includes *free-ridership*, defined as the savings customers would have achieved in the absence of the program's influence, and *spillover*, defined as energy savings influenced by the program but not formally incentivized and/or claimed by the program. Additional context surrounding NTG methodology and calculations can be found in Appendix 1.

The primary method of determining a program NTG ratio is through direct query telephone interviews with decision-maker(s) at participating customer organizations. The EcoMetric team combined the NTG data collection with the process evaluation data collection through in-depth interviews with program participants.

2.4 COST EFFECTIVENESS ANALYSIS

EcoMetric used the IESO Conservation and Demand Management (CDM) Cost-Effectiveness Tool to estimate measure-level costs and benefits, aggregated to program- and portfolio-level cost effectiveness. Program administrative costs were provided to EcoMetric by the IESO. Other key inputs for the cost effectiveness analysis include lifetime electric energy and demand savings, measures' effective useful lives, energy savings load shapes, and incremental project costs.

EcoMetric states the benefits and costs in present value terms, using the appropriate discount and inflation rates conforming to the IESO's requirements outlined in the IESO CDM Cost-Effectiveness Guide.

2.5 PROCESS EVALUATION APPROACH

The EcoMetric team conducted in-depth interviews (IDIs) with IESO LIP program lead, the Implementation Contractors (IC), qualified contractors (QCs) such as HVAC firms, and the same participants interviewed for NTG purposes to answer key research questions on satisfaction, barriers, and growth potential. This section details the methodologies for the comprehensive PY2023 LIP process evaluation.

2.5.1 RESEARCH QUESTIONS

The process evaluation focused on the following research questions, which the EcoMetric team developed with the IESO LIP program design and delivery team:

- Is the IESO on track to meet savings goals for this program within the current framework?
- What processes are in place for Quality Control? For project tracking?
- What are the challenges related to open procurement?
- What are the customer motivations and barriers to participating in the LIP? We will inquire about how LIP does not allow customers to choose a contractor.
- How is the customer program experience?
- What are the qualified contractors' motivations and barriers for participating in the program?
- How is the qualified contractor program experience?
- Where are the opportunities to improve the delivery of LIP?
- How can the IESO increase the participation of customers? Are there significant current program delivery inefficiencies?

2.5.2 DATA COLLECTION

All primary data collected was completed either by phone or video calls from the EcoMetric team. Interview instruments for all process evaluation data collection activities are included in Appendix. The EcoMetric team leveraged several primary data collection activities to explore key research topics and gather market actor perspectives to complete the process evaluation.

2.5.2.1 IESO and Program Delivery Vendor Staff

The EcoMetric team conducted one interview with the IESO LIP program lead. This interview covered both the BizEnergySaver and CoolSaver programs. Additionally, the team conducted interviews with the program delivery vendor teams responsible for BizEnergySaver and CoolSaver. For BizEnergySaver, one interview was conducted with the program manager of the implementation team. For CoolSaver, one group interview was conducted with two program managers (one outgoing and one incoming) and a program analyst. All interviews focused on topics relating to the research questions – including program design, such as procedures to determine targeted areas for local initiatives, marketing and outreach, the RFP process, tracking and reporting proposals, QA/QC practices, and challenges and barriers for customers to participate in LIP.

2.5.2.2 Participants

The EcoMetric team combined participant process surveys with NTG survey questions in order to avoid over-contacting participants and streamline the data collection process. These surveys leveraged the impact and NTG samples detailed in Table 2 and gathered information on customer motivations to participate in programs, how easy it was for them to navigate the application process, the usability of program resources, motivations behind energy reduction behaviors and investment, future investment plans, and how well program activities are addressing their needs.

2.5.2.3 Program Contractors

The EcoMetric team completed six in-depth interviews with qualified contractors who were involved with the projects included in the sample detailed in Table 2. Two contractors were asked about their involvement with the BizEnergySaver program, and four were asked about their involvement with the CoolSaver program. The EcoMetric team attempted to contact a fifth CoolSaver contractor but had no response following three email and two phone call attempts. These interviews gathered information on working with participants and their motivation to participate, how easy it was for respondents to become qualified contractors, the usability of resources, motivations behind energy efficiency behaviors and investment, future upgrade plans, and how well program activities are addressing their needs.

2.6 OTHER ENERGY EFFICIENCY BENEFITS APPROACH

2.6.1 AVOIDED GREENHOUSE GAS EMISSIONS ESTIMATION

EcoMetric estimated net greenhouse gas (GHG) impacts for each facility by utilizing facility-level energy savings load shapes based on metered data and emissions factors (EFs) provided by the IESO at the annual and hourly level and aggregated to the eight IESO peak periods as defined in the IESO's Conservation and Demand Management Energy Efficiency Cost Effectiveness Tool.

2.6.2 NON-ENERGY BENEFITS ESTIMATION

For the PY2023 evaluations, questions with respect to Non-Energy Benefits (NEBs) were included in the process evaluation surveys. The purpose was to assess whether participants' valuation of the NEBs realized through participation in the LIP programs – CoolSaver (residential) and BizEnergySaver (commercial) – are aligned with the NEB values currently used. The questions focused on the same set of NEBs that have been quantified in previous evaluations. The NEBs included are the ones

ranked most relevant and quantified in Dunsky's 2020/21 assessment of NEBs for the IESO[5], as shown in Table 4.

Table 4: NEBs Included in Participant Surveys and Evaluations

Non-Energy Benefits	Sector	Program
Thermal Comfort	Residential and Commercial	CoolSaver and BizEnergySaver
Reduced Building and Equipment O&M	Residential and Commercial	CoolSaver and BizEnergySaver
Improved Indoor Air Quality	Residential and Commercial	CoolSaver and BizEnergySaver
Reduced Spoilage	Commercial	BizEnergySaver
Reduced Financial Stress	Residential	CoolSaver
Sense of Control Over Energy Decisions	Residential	CoolSaver

The surveys used two different types of questions to gauge NEBs:

- Relative scaling: Relative scaling questions ask participants to state the value of an item of interest relative to some base. For this survey, participants were asked to state the value of each NEB relative to the annual electricity bill savings that they estimated or (if they could not estimate savings) their annual electricity bill.
- Willingness-to-pay: Willingness-to-pay questions ask participants to assign the dollar value they would be willing to pay for the item of interest. In this case, participants were asked what they would be willing to pay for each relevant NEB.

All survey respondents were asked to value all NEBs (for their given sector) using both techniques. The reported values were then divided by the total gross savings for each participant. This calculation was completed for each individual NEB using both the Relative Scaling and Willingness to Pay NEB values, where possible.

In some cases, participants responded either 'don't know' or valued a NEB at zero when asked to value a NEB using one valuation approach but provided a non-zero value when asked using the other valuation approach. These values were not considered to be true zeros – rather, they pointed to participants having difficulty responding to the question. To ensure the responses from these

[5] Dunsky Energy + Climate Advisors (2021). *Non-Energy Benefits Study: Phase II – Quantitative Benefits and Qualitative Insights.* Prepared for the Independent Electricity System Operator (IESO). Available on-line at: https://www.ieso.ca/en/Sector-Participants/IESO-News/2021/08/Non-Energy-Benefits-Study-Released

participants were considered, hybrid values were calculated (using the responses provided to the relative scaling question for some participants and the responses provided to the willingness-to-pay question for others). These hybrid values are more representative of the sample as they include all participants that responded to at least one of the two questions with a non-null value.

Two approaches were considered to determine the hybrid values:

- Hybrid, relative scaling priority – in which priority was given to the relative-scaling response value given the preference for this approach in previous NEBs research. In this approach, only willingness-to-pay was considered if the participant did not answer the relative scaling question.
- Hybrid, minimum approach – in which the lowest non-null response between the relative scaling and the willingness-to-pay questions was used.

EcoMetric followed a similar approach to the IESO Non-Energy Benefits Study, and all values included in this evaluation report are based on the hybrid, minimum approach[6]. However, due to a small participant population and sample size, it is not possible to provide a statistically significant result. The estimates have low statistical power, are unlikely to allow detection of differences with previous NEB estimates and are most probably biased.

Furthermore, usable responses and data were limited due to a combination of factors, including responses provided by participants in the wrong format (e.g., values which were not a percentage, as needed) and respondents that reported relative scaling for some NEBs but did not report yearly electricity savings or energy bills. Table 5 shows the usable responses for the NEBs assessment.

[6] See Section 2 of the 2021 Dunsky NEB report for rationale and detailed methodologies.

Table 5: Usable Responses Included in the NEB Assessment

Non-Energy Benefits	Number of Usable Responses in 2024 Survey - CoolSaver	Number of Usable Responses in 2024 Survey - BizEnergySaver
Thermal Comfort	4	0
Reduced Building & Equipment O&M	3	2
Improved Indoor Air Quality	2	0
Reduced Spoilage	N/A	0
Reduced Financial Stress	1	N/A
Sense of Control Over Energy Decisions	1	N/A

EcoMetric estimated NEBs ($) by utilizing sector-based $/kWh NEBs values provided by the IESO and defined in the IESO's Conservation and Demand Management Energy Efficiency Cost Effectiveness Tool. Finally, it should also be noted that all NEBs quantified in this report reflect the value of the NEB across the surveyed sector population as a whole, not just among those who reported experiencing the particular NEB. Those survey respondents who reported that they had not experienced a given NEB were assumed to have valued the NEB as $0 and were included when calculating the overall value.

2.6.3 JOB IMPACTS ESTIMATION

EcoMetric leveraged the Statistics Canada (StatCan) custom input/output (I/O) economic model to estimate the job impacts of LIP. The StatCan I/O model simulates the economic and employment impacts of economic activity related to the program. The economic activity related to LIP was leveraged as "shocks," which act as inputs into the model to show the direct, indirect, and induced impacts on the number of jobs created by the program. The I/O model uses regional and national multipliers to estimate the economy-wide effects of the economic activity induced by the program. The I/O model used three shocks to determine the job impacts of LIP:

- Demand for goods and services related to the program
- Business reinvestment
- Program funding

EcoMetric and StatCan developed the shocks using the net verified savings for the program summarized in Section 3.2. The output of the model expresses job impacts in "person-years"—representing a job for one person for one year.

3 Impact Evaluation Results

3.1 GROSS VERIFIED SAVINGS RESULTS

EcoMetric calculated savings at the measure level for each sampled project to determine program level energy and peak demand savings realization rates and applied those to the PY2023 population. The gross verified energy savings and peak demand savings for the program are listed in Table 6.

Table 6: PY2023 LIP Gross Verified Savings Results

Initiative	Reported Energy Savings (MWh)	Energy Realization Rate	Gross Verified Energy Savings (MWh)	Reported Peak Demand Savings (MW)	Peak Demand Realization Rate	Gross Summer Peak Demand Savings (MW)	90% CI Error Margin
BizEnergySaver	6,052	100.0%	6,052	0.8071	100.2%	0.8085	0.1%
CoolSaver	22.6	95.9%	21.7	0.0235	121.1%	0.0284	0%
Total	6,074		6,074	0.8305		0.8369	<0.1%

The evaluation was designed to achieve statistical validity at the regional level. Table 7 and Table 8 list the gross verified energy savings and gross verified peak demand savings for each region.

Table 7: PY2023 LIP Gross Verified Energy Savings by Region

Initiative	Gross Energy Savings (MWh)		
	Richview South	York	Ottawa
BizEnergySaver	6,052	-	-
CoolSaver	11.3	0.9	9.5
Total	6,063.2	0.9	9.5

Table 8: LIP Gross Verified Summer Peak Demand Savings by Region

Initiative	Gross Summer Peak Demand Savings (MW)		
	Richview South	York	Ottawa
BizEnergySaver	0.8085	-	-
CoolSaver	0.0155	0.001	0.0097
Total	0.8241	0.001	0.0117

While recreating savings for the gross verified analysis, EcoMetric found that the implementation contractor applied Richview South region's effective full load hours to measures installed in the York and Ottawa regions. EcoMetric updated these values to adjust savings for CoolSaver projects, and this resulted in a greater than 100% realization rate for CoolSaver.

3.2 NET VERIFIED SAVINGS RESULTS

Table 9 summarizes the LIP net savings. The program level NTG for BizEnergySaver was 96% for PY2023 projects, reflecting a free ridership score of 4%. Spillover was assessed through the NTG survey by asking respondents if they have completed any additional energy efficiency programs without receiving an incentive because of the influence of their BizEnergySaver participation. No BizEnergySaver respondents reported any spillover. Total net first year savings for BizEnergySaver projects evaluated in PY2023 was 5,839 MWh, and net peak demand savings were 0.7787 MW. The first-year net savings persist to 2026 for the BizEnergySaver program. Table 10 breaks down NTG ratios for both programs by region.

The program level NTG for CoolSaver was 98% for PY2023 projects, reflecting a free ridership score of 2%. Spillover was assessed for CoolSaver using the same method as BizEnergySaver, and no reasonable spillover was found. Total net first year savings for CoolSaver projects evaluated in PY2023 was 21.3 MWH, and net peak demand savings were 0.0278 MW. Since AC tune-ups have an a 3-year EUL, only a fraction of the first-year net savings persists through 2026.

BizEnergySaver respondents reported that LIP influenced when they would have installed the energy efficient measures. Respondents mentioned that the program incentive sped up the completion of the projects. For CoolSaver, all of the participants had AC tune-ups completed through the program. Most respondents reported that they would have never completed the AC tune-up without the program, with several respondents mentioning that they were not aware of the benefits of tune-ups before the program.

Table 9, Table 10 and Table 11 show the NTG ratios and net energy and peak demand savings breakdown by region. Note that LIP's savings target is based on savings persisting to 2026.

Table 9: PY2023 LIP Net Verified Savings Results

Initiative	Population	NTG Ratio	Net First Year Energy Savings (MWh)	Net 2026 Energy Savings (MWh)	Net Verified First Year Summer Peak Demand Savings (MW)	Net 2026 Summer Peak Demand Savings (MW)
BizEnergySaver	43	96%	5,839	5,839	0.7787	0.7787
CoolSaver	32	98%	21.3	0.9	0.0278	0.0012
Total	75		5,860.3	5,831.3	0.8066	0.7800

Table 10: PY2023 LIP Net Energy Savings by Region

Initiative	Net Energy Savings (MWh)		
	Richview South	York	Ottawa
BizEnergySaver	5,839	-	-
CoolSaver	11.1	0.9	9.3
Total	5,850	0.9	9.3

Table 11 12: PY2023 LIP Net Summer Peak Demand Savings by Region

Initiative	Net Summer Peak Demand Savings (MW)		
	Richview South	York	Ottawa
BizEnergySaver	0.7787	-	-
CoolSaver	0.0152	0.0012	0.0114
Total	0.7939	0.0012	0.0114

4 Cost Effectiveness Results

As shown in Table 13, the BizEnergySaver initiative of LIP is cost effective from the Program Administrator Cost (PAC) test perspective, while the CoolSaver initiative of LIP is not cost effective using a benefit/cost threshold of 1.0. Overall, for LIP PAC benefits totaled $2,268,992, while costs totaled $1,342,641. The levelized cost (LC) of electricity was $0.03/kWh for the BizEnergySaver initiative and $3.39/kWh for the CoolSaver initiative.

LIP is cost effective even though the CoolSaver initiative was not cost effective in PY2023 with a low PAC. BizEnergySaver contributed lighting and VFD measures which yielded substantial savings whereas CoolSaver's AC Tune up measures had lower impact compared to the program spending. As more homeowners and tenants participate and contribute savings to the CoolSaver initiative, the cost effectiveness will improve.

Table 13: PY2023 LIP Cost Effectiveness Results

Initiative	PAC Costs	PAC Benefits	PAC Ratio	LC $/kWh
BizEnergySaver	$1,125,332	$2,260,797	**2.01**	**0.03**
CoolSaver	$217,310	$8,195	**0.04**	**3.39**
Total	$1,342,641	$2,268,992	1.69	0.03

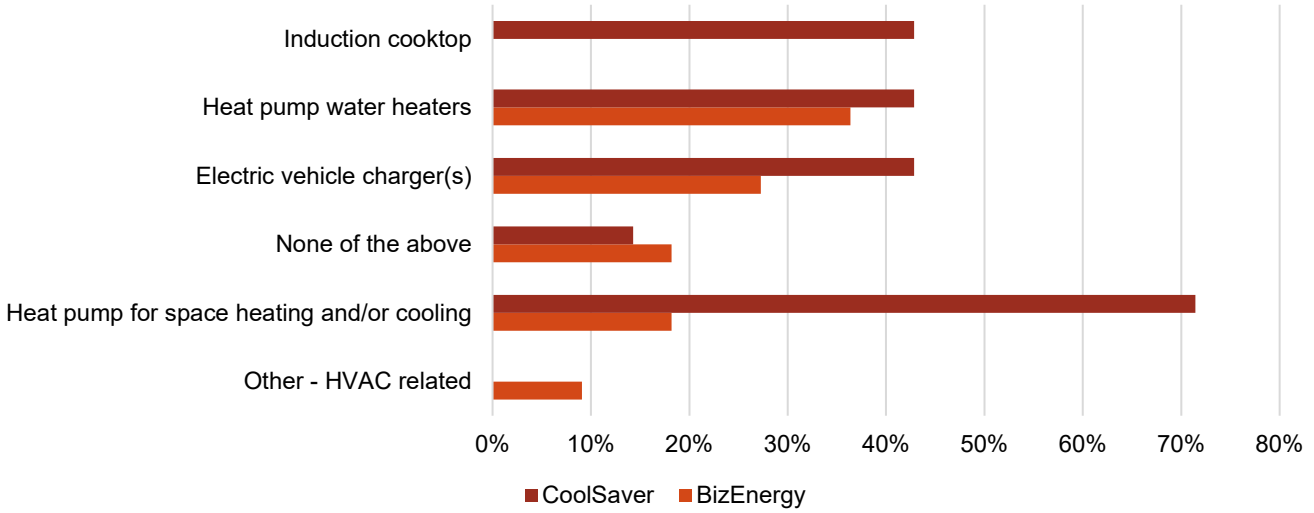
5.1 PARTICIPANT SURVEY RESULTS

The process survey results indicate that both CoolSaver and BizEnergySaver respondents had positive feedback on LIP. Respondents were primarily motivated to participate because of the incentives and to save energy. There were no barriers to program participation reported. Respondents indicated that program elements were easy to complete. The following sections further explore respondents' motivations/barriers and program experience.

Most respondents indicated that they were interested in participating in LIP again. 67% of respondents said they would be interested in installing an air source heat pump for an incentive. No respondents reported challenges working with their contractor. However, 67% of BizEnergySaver and 71% of CoolSaver respondents reported being more likely participate in LIP again if they could select their own contractor.

CoolSaver and BizEnergySaver respondents both reported plans to install a variety of measures in the next two years. Figure 1 below, presents the measures. The results are based on a small sample of early participants and so should be considered directional. With that recognized, the collective signal participants gave is that they plan substantial additional energy efficiency action across diverse technologies in the near future.

Figure 1: Measures Respondents Plan to Implement in the Next 2 Years

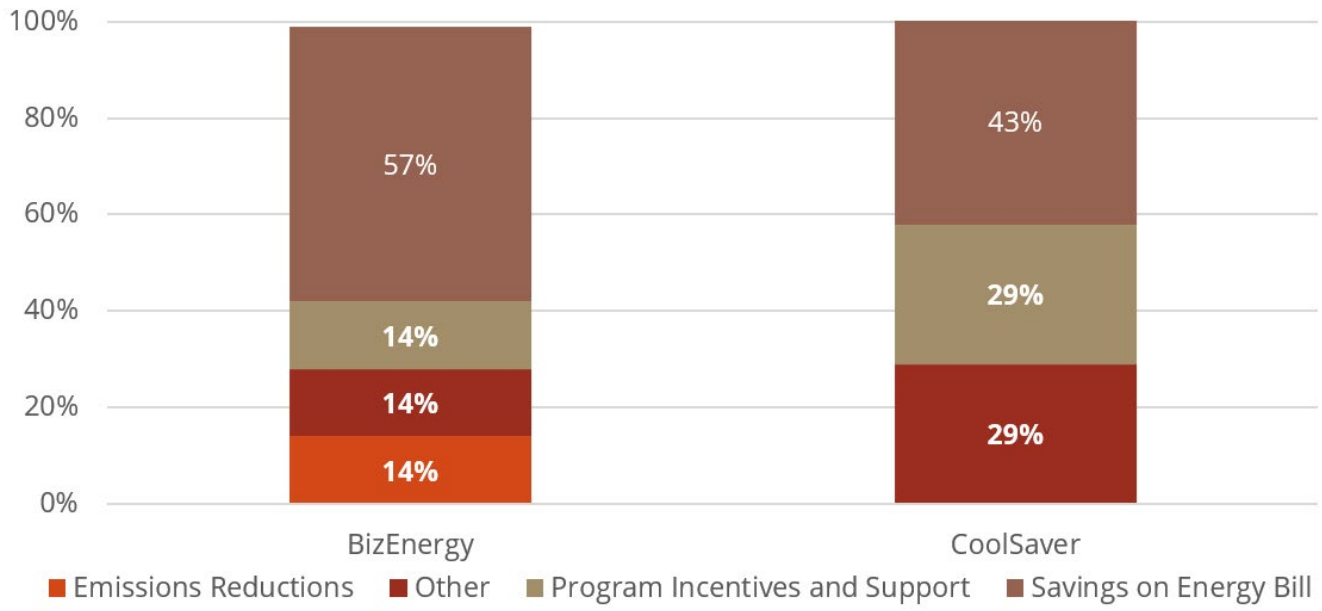


5.1.1 MOTIVATIONS AND BARRIERS

For both BizEnergySaver and CoolSaver, respondents reported having no challenges with the program. Respondents were asked if they had challenges with access to funding, access to information on program requirements, unfamiliarity with program benefits, estimation of payback, finding a contractor, or installation delays. Respondents did not indicate that they had challenges in any of these areas.

For both BizEnergySaver and CoolSaver, respondents stated that the primary motivating factors for participation were incentives and support and energy savings. Figure 4, below, shows reported motivations for participation.

Figure 2: PY2023 LIP Primary Motivation for Participation



5.1.1.1 BizEnergySaver

The majority of respondents said that incentives/support and energy savings were motivating factors. Figure 2 above, shows that the primary motivating factor for most respondents was energy savings, followed by program incentives and support. 45% of respondents listed emissions reductions as a motivating factor but only 14% listed it as a primary motivation. Two BizEnergySaver participants listed other motivations, long-term savings, and seamlessness of the program.

Table 14, below, shows verbatim responses from BizEnergySaver respondents explaining their motivations for participation.

Table 14: PY2023 BizEnergySaver Primary Motivation for Participation

Motivation	Verbatim
Savings on energy bill	By upgrading lighting [there is a] long term kilowatt reduction, producing less carbon, better quality light
	Costs for condo buildings are going up, try to save money and reduce costs wherever we can
	Organization has large utility bill, 50% of budget is for utility bill. So, money savings can be used for something better
	Long-term costs of fluorescents over LED, long term savings. The earlier you do the project, the faster the payback. Savings on maintenance, energy conservation and labour conservation.
Emissions reductions	Older building, old lighting not energy efficient. LED offers a notable improvement in electricity consumption.
Other	Previous programs require leg work, more processes. Everything is done for you.
Program incentives and Support	Support given was close, made it easy to participate.

5.1.1.2 CoolSaver

The majority of CoolSaver respondents also reported incentives/support and energy savings as motivating factors. Figure 4, above, shows that the primary motivating factor for most respondents was savings on energy bills followed by incentives/support. None of the CoolSaver respondents said emission reduction was their primary motivating factor. Table 15, below, shows verbatim responses from CoolSaver respondents explaining their motivations for participation.

Table 15: PY2023 CoolSaver Primary Motivation for Participation

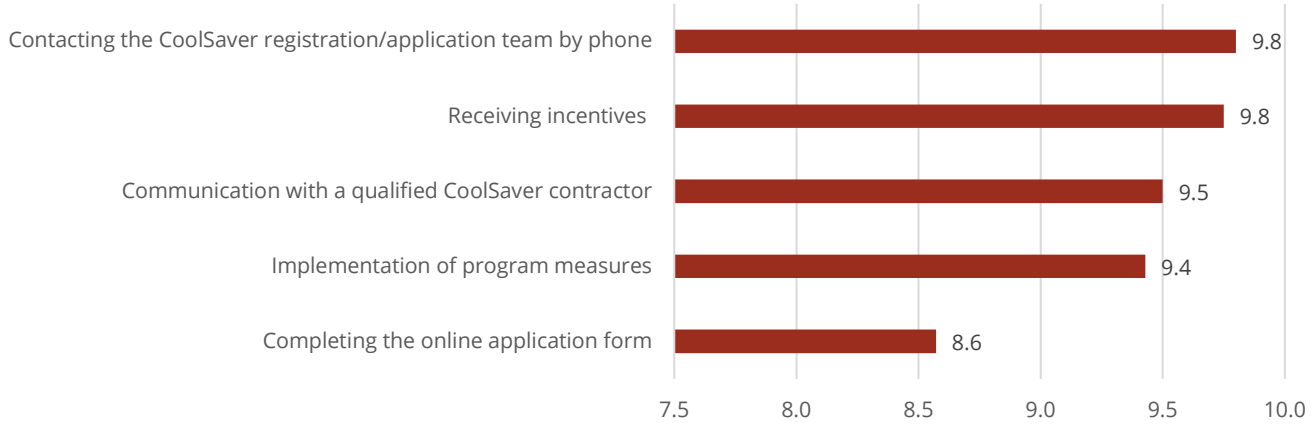
Motivation	Verbatim
Program incentives and support	Because expenses are high
	Situational, single woman living in the home, cost savings
Savings on energy bill	Because air conditioner was 25 years old, hadn't received maintenance up until then
	Make sure AC was functioning well, more difficult to replace the entire unit

5.1.2 PROGRAM EXPERIENCE

5.1.2.1 CoolSaver

Overall, respondents rated CoolSaver program elements highly. CoolSaver respondents were asked to rate program elements on a scale of 0 to 10, where 0 is not at all easy and 10 is extremely easy. Figure 3 shows the average rating per each program element

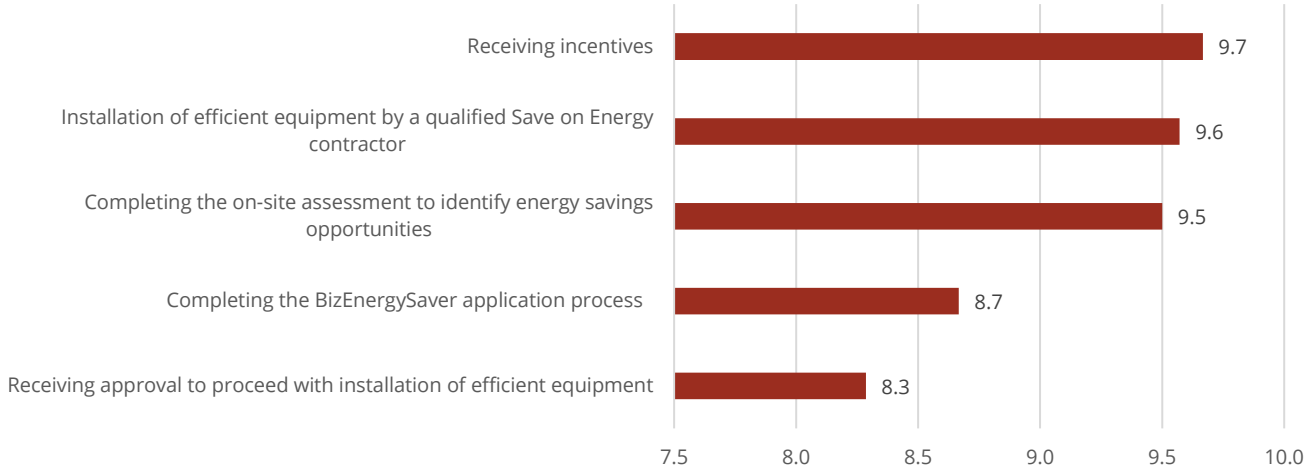
Figure 3: PY2023 CoolSaver Program Elements Average Rating



5.1.2.2 BizEnergySaver

Similar to CoolSaver, BizEnergySaver respondents rated program elements highly. BizEnergySaver respondents were also asked to rate program elements from 0 to 10. Figure 4 shows the average respondent rating per program element. Respondents indicated that they had difficulties getting approval from the Board to install equipment.

Figure 4: PY2023 BizEnergySaver Program Elements Average Rating



5.2 CONTRACTOR IDI RESULTS

The EcoMetric team spoke with six qualified contractors, two BizEnergySaver and four CoolSaver, who participated in LIP. Each LIP contractor underwent a distinct learning process about the program before participation. The team found that LIP program and the program delivery vendor staff informed the contractors of necessary program information.

5.2.1.1 BizEnergySaver

Specific to BizEnergySaver, some contractors reported an added benefit of previously working with the program delivery vendors. Additionally, they reported that their customers who participated in the program are likely to make future improvements and upgrades.

5.2.1.2 CoolSaver

CoolSaver contractors learned about the program through the CoolSaver program delivery vendor staff. CoolSaver contractors did not hear that their customers were planning further upgrades.

5.2.2 MOTIVATIONS AND BARRIERS

5.2.2.1 BizEnergySaver

For BizEnergySaver, contractors mentioned previous positive experiences with similar programs, the opportunity to grow their network, and the chance to work on more lighting retrofits and control projects as motivations. Contractors noted that many customers have energy efficiency goals now because of corporate sustainability initiatives, personal beliefs, or understanding of the financial benefits.

> *"From a service standpoint, we're on the up and up. We like to keep current, particularly on incentive offerings. We like to be involved in bettering our industry. It also helps us get our name out more so we can pick up new clients."*

One BizEnergySaver contractor mentioned that, in the past, lighting retrofits and controls programs provided by the IESO were sunsetting, incentives were phased out, and measures were delisted. The contractor indicated that BizEnergySaver addressed the gap and made these projects easier to propose to clients again.

BizEnergySaver contractors felt that the customer's main motivation was reducing energy consumption. Both VFD and lighting retrofits/controls can save significant energy, and customers

are happy to be able to install these measures. One contractor noted that about half of the customers were not considering lighting controls but, with the incentive, installed them.

BizEnergySaver contractors reported several barriers on the administrative, program, and outreach fronts. Even though the program provided a rebate to customers, the sales process for the contractors was still the same. Contractors still have to sell clients on the project, and the scopes of work often need to go through internal legal or procurement processes. One contractor said:

> *"[Participation] should be so easy, but it is not. We still have to sell people on the process. The contracts sometimes are difficult. There are carbon rebates and sharing between the customer and the IESO means that some of our customers are reluctant to sign. It typically needs to go through their legal/procurement and then there are also a lot of installation requirements that are going to be different for every contract."*

Contractors reported program limitations as a barrier. The program covers a specific set of projects, and contractors would encounter unusual projects that do not fit under the program. Additionally, the contractors are limited by the area covered by the program. Thirdly, contractors mentioned that there was not enough marketing from the program delivery vendor and the IESO. Lastly, as the program expands and more contractors are added, there could be too much competition between contractors.

BizEnergySaver contractors felt that customers were limited in participation by program area and awareness. Contractors had to turn away customers who were not in the covered area.

5.2.2.2 CoolSaver

For CoolSaver, the contractors felt the primary motivation for customers was that it was free, and it is a way to keep equipment in good shape. CoolSaver contractors were motivated by the opportunity to reach new clients and felt it was a good offering. Contractors noted that many customers have energy efficiency goals now because of corporate sustainability initiatives, personal beliefs, or understanding of the financial benefits.

Two CoolSaver contractors reported time-related barriers that will prohibit them from continued participation. First, the locations covered by the program are further away from their offices, so with the travel the tune-ups take too long to be profitable. The contractor mentioned they

only got a handful of leads from the program, so their costs were not being covered. Second, one contractor mentioned they have been very busy and cannot take on any discretionary jobs.

CoolSaver contractors reported that some customers were skeptical of a free service, fearing that it was a scam or a trick.

5.2.3 PROGRAM EXPERIENCE

5.2.3.1 BizEnergySaver

One BizEnergySaver contractor felt it was easy to become a qualified contractor. While the other BizEnergySaver contractor felt it was somewhat difficult, they mentioned that they had some difficulties getting all the necessary information together because of the level of detail requested.

BizEnergySaver contractors largely felt the program had a positive impact on their sales. Most contractors mentioned that the program has allowed them to reach more clients. One BizEnergySaver contractor mentioned that while the program is helping more people to move forward with energy savings projects, they are making less per customer because the profit is shared.

BizEnergySaver contractors used some program materials. They mentioned sharing the marketing brochure and LinkedIn announcements. One contractor suggested more IESO outreach and mentioned they would like to see IESO staff at conferences.

5.2.3.2 CoolSaver

All CoolSaver contractors felt it was easy to become a qualified contractor. While it was easy to become qualified, CoolSaver contractors did not report an increase in sales as a result of their qualification.

CoolSaver contractors largely did not report using program materials. Some contractors were unaware of them, and others did not feel they were relevant. Contractors suggested changing language in marketing materials to be consistent with federal offerings and increasing the level of training.

6 Other Energy Efficiency Benefits

6.1 AVOIDED GREENHOUSE GAS EMISSIONS

An often-overlooked impact of electric energy efficiency measures is the avoided greenhouse gas emissions from the avoided generation, transmission, and distribution of electricity in Ontario's grid. Net first-year greenhouse gas (GHG) reductions total 1,276 metric tonnes of CO_2 equivalent (CO_2e) for BizEnergySaver and about 6 metric tonnes of CO_2e for CoolSaver, as summarized in Table 16. As LIP projects focus on electricity savings, these GHG reductions are derived from the avoided generation of electricity. Over the lifetime of the PY2023 evaluated projects, net GHG reductions total 11,204 tonnes of CO_2e for BizEnergySaver and 17 tonnes of CO_2e for CoolSaver.

Table 16: PY2023 LIP Avoided Greenhouse Gas Emissions

Initiative	First Year GHG Impacts (tonnes CO_2e)	Lifetime GHG Impacts (tonnes CO_2e)
BizEnergySaver	1,276	11,204
CoolSaver	6	17
Total	1,281	11,221

6.2 NON-ENERGY BENEFITS

In 2020/21, Dunsky Energy + Climate Advisors assessed the Non-Energy Benefits (NEBs) from energy efficiency projects funded by the IESO from 2017-2019. This included the quantification of NEBs in the seven sectors served by the IESO programs, and an assessment of how those values might be included in cost-effectiveness testing.

Benefits created by measures completed in LIP facilities and residences extend well beyond just avoided kWh and kW. NEBs refer to the value that DSM programs offer participants beyond simply energy savings. NEBs for BizEnergySaver and CoolSaver initiatives can include thermal comfort for building occupants, reduced building and equipment maintenance, and improved air quality.

Table 17 shows the business sector NEBs as quantified by the 2021 NEBs study for BizEnergySaver initiative of LIP. In PY2023, NEBs for the BizEnergySaver initiative totaled $835,915. Benefits from reduced building and equipment operations and maintenance represented 58% of the NEBs, followed by thermal comfort at 36%. Overall, NEBs accounted for about 33% of the $2,563,107 in total benefits achieved by the BizEnergySaver initiative in PY2023.

Table 17: PY2023 LIP BizEnergySaver Non-Energy Benefits

Non-Energy Benefit	Measure Type	$/net kWh	Total TRC and SC Benefits from NEBs
Thermal Comfort	HVAC, Envelope	0.050	$303,748
Reduced Building and Equipment O&M	All	0.080	$485,996
Improved Indoor Air Quality	HVAC, Envelope	0.007	$42,525
Reduced Spoilage	HVAC, Refrigeration	0.0002	$1,215
Air Quality	All	0.0004002	$2,431
Total			$835,915

Table 18 shows the consumer sector NEBs as quantified by the 2021 NEBs study for the CoolSaver initiative of LIP. In PY2023, NEBs for the CoolSaver initiative totaled $5,980. Benefits from thermal comfort represented about 41% of the NEBs, followed by sense of control over energy decisions at 22%. Overall, NEBs accounted for about 74% of the $8,107 in total benefits achieved by the CoolSaver initiative in PY2023.

Table 18: PY2023 LIP CoolSaver Non-Energy Benefits

Non-Energy Benefit	Measure Type	$/net kWh	Total TRC and SC Benefits from NEBs
Reduced financial stress	All	0.030	$663
Thermal Comfort	HVAC, Envelope	0.110	$2,433
Reduced Building & Equipment O&M	All	0.020	$442
Improved Indoor Air Quality	HVAC, Envelope	0.050	$1,106
Sense of control over energy decisions	Control equipment	0.060	$1,327
Air Quality	All	0.0004002	$9
Total			$5,980

In addition to the program evaluation, IESO requested that the evaluation team reassess and validate the current NEB values which may be used for cost-effectiveness testing going forward. Questions related to the NEBs were included in the participant survey tool, and the methodology used to quantify the values is outlined in Section 2.6.2.

Table 19 and Table 20 provide a comparison of the initial NEB values and the results from the recently completed self-reported assessment for PY2023.

Table 19: Comparison Between PY2023 LIP NEBs and Survey Results – BizEnergySaver

Non-Energy Benefit	Quantified Value, based on 2021 study ($/kWh)	Quantified Value, based on 2024 survey ($/kWh)	Number of Usable Responses in 2024 Survey
Thermal Comfort	0.050	0.000	0
Reduced Building and Equipment O&M	0.080	0.002	2
Improved Indoor Air Quality	0.007	0.000	0
Reduced Spoilage	0.0002	0.000	0

Table 20: Comparison between PY2023 LIP Non-Energy Benefits and Survey Results – CoolSaver

Non-Energy Benefit	Quantified Value, based on 2021 study ($/kWh)	Quantified Value, based on 2024 survey ($/kWh)	Number of Usable Responses in 2024 Survey
Thermal Comfort	0.110	0.012	4
Reduced Building and Equipment O&M	0.020	0.081	3
Improved Indoor Air Quality	0.050	0.087	2
Reduced financial stress	0.030	0.125	1
Sense of control over energy decisions	0.060	0.012	1

The participant population and sample sizes were small, and in terms of NEBs, results were derived at low statistical power. That said, the quantified values are directionally informative when compared with the 2021 NEBs study.

EcoMetric does not recommended updating the NEBs at this time, but the IESO should continue to reassess NEB values when it has a larger pool of participants and survey respondents.

6.3 JOB IMPACTS

As summarized in Table 21, the BizEnergySaver initiative of LIP program created an estimated ten jobs in PY2023. Of these ten jobs, four were direct, four were indirect, and two were induced. All ten jobs created were in Ontario. In terms of full-time equivalent (FTE), the program created an estimated eight jobs.

As the savings for CoolSaver Initiative were too small to calculate the shocks for StatCan's I/O model, the job impacts are calculated for only the BizEnergySaver initiative.

Table 21: PY2023 LIP Job Impacts

Job Impact Type	Ontario FTE	Canada Total FTE	Ontario Jobs	Canada Total Jobs
BizEnergySaver				
Direct	4	4	4	4
Indirect	2	2	4	4
Induced	2	2	2	2
GRAND TOTAL	**8**	**8**	**10**	**10**

Jobs and FTEs are expressed in person-years, meaning each job or FTE represents one job for one person for one year.

Direct jobs include all jobs created by LIP activity, such as administrative jobs, contractors hired to complete projects, engineers, and inspectors, among many others. Indirect jobs include the additional jobs created from economic activity related to program participation, including equipment and supply distribution centers, delivery drivers, and manufacturing, among many others. Induced jobs include those supported by the "ripple effects" of economic activity from LIP participation (i.e., the re-spending of income and benefits resulting from LIP activity).

6.3.1 JOB IMPACTS BY INDUSTRY

The job impacts for PY2023 by industry for the BizEnergySaver initiative of the LIP program is summarized in Table 22. The majority of the jobs created by the program are in the other provincial and territorial government services sector, retail and wholesale trade sectors, followed by accommodation and food services, non-residential building construction, other engineering construction, and transportation engineering construction sectors. In total, the jobs impacts from the BizEnergySaver initiative of LIP program reached seven different industries in StatCan's I/O model.

Table 22: LIP Job Impacts by Industry – BizEnergySaver

Industry	Ontario FTE	Canada Total FTE	Ontario Jobs	Canada Total Jobs
Other provincial and territorial government services	2	2	2	2
Retail trade (except cannabis)	1	1	2	2
Wholesale trade	1	1	2	2
Accommodation and food services	1	1	1	1
Non-residential building construction	1	1	1	1
Other engineering construction	1	1	1	1
Transportation engineering construction	1	1	1	1
GRAND TOTAL	**8**	**8**	**10**	**10**

6.3.2 JOB IMPACTS BY MODEL SHOCK

EcoMetric estimated job impacts of LIP by leveraging three shocks in the StatCan I/O model: demand for goods and services related to the program, business reinvestment, and program funding. The shock that resulted in the largest number of jobs created was the demand for goods and services related to LIP. As detailed in Table 23, the demand shock resulted in five jobs supported in Ontario and five throughout Canada. Economic activity across the value chain serving the participants and supporting their projects resulted in three indirect and induced jobs across Canada. Per $1M in funding, the BizEnergySaver initiative of LIP in this framework, supported 7 FTEs throughout Canada.

Table 23: LIP Job Impacts from Goods and Services Shock

Job Impact Type	Ontario FTE	Canada Total FTE	Ontario Jobs	Canada Total Jobs
BizEnergySaver				
Direct	2	2	2	2
Indirect	1	1	2	2
Induced	1	1	1	1
GRAND TOTAL	**4**	**4**	**5**	**5**

The job impacts of the business reinvestment shock are summarized in Table 24. This shock represents the amount of bill savings the participating organizations reinvest in their company to spur further economic activity. The business reinvestment shock resulted in five total jobs supported in Canada, all of which are in Ontario.

Table 24: LIP Job Impacts from Business Reinvestment Shock

Job Impact Type	Ontario FTE	Canada Total FTE	Ontario Jobs	Canada Total Jobs
BizEnergySaver				
Direct	2	2	2	2
Indirect	1	1	2	2
Induced	1	1	1	1
GRAND TOTAL	**4**	**4**	**5**	**5**

The program funding shock represents the increase in Ontario residents' hydro bills from funding LIP. EcoMetric estimates that $95,200 of the $272,000 PY2023 LIP budget was supplied by the residential sector. [7] As this shock represents less money available to the residential sector for spending throughout the economy, the job impacts are zero.

[7] The IESO estimates that 35% of the portfolio's funding is supplied by the residential sector.

7 Findings and Recommendations

7.1 IMPACT FINDINGS AND RECOMMENDATIONS

Impact Finding 1: EcoMetric found one possible explanation for the deviation in savings for the CoolSaver program to be incorrect usage of EFLH values. EcoMetric suspects that for CoolSaver AC Tune Up measures the delivery vendor applied Richview South's Effective Full Load Hours (EFLH) to measures installed in the Ottawa and York regions.

Impact Recommendation 1: Apply region-specific EFLH values listed in the 'Appendix F – Energy and Peak Demand Savings Determination CoolSaver' document for AC Tune Up measures. Ensure accuracy and consistency in application of the key parameters that serve as inputs to savings algorithms.

Impact Finding 2: EcoMetric found that the EFLH values applied by the delivery vendor to CoolSaver AC Tune Up measures vary substantially between regions in geographical proximity as shown in Table 25. Further investigation is needed to investigate why these values are substantially different.

Table 25: AC Tune Up EFLH Values for CoolSaver Program

Parameter	Richview South	York	Ottawa
EFLH	803	602	421

Impact Recommendation 2: EcoMetric recommends the IESO commission an in-depth measure parameter study to investigate the methodologies and assumptions used to calculate key parameters such as EFLH values for the program.

Impact Finding 3: EcoMetric found that the savings listed in the "BizEnergySaver Measure Savings" spreadsheet (i.e. the reported savings workbook provided by the program delivery vendor) did not consider the impact of facility type on the savings for lighting and VFD measures. For example, there was no distinction made between key parameters for office buildings and multi family residential facilities in the savings calculated by the delivery vendor.

Impact Recommendation 3: Ensure key measure parameters are not facility agnostic. Office buildings have substantially different operating conditions than multi family residential buildings. Key measure parameters such as operating hours and peak coincidence factors need to be facility specific to ensure accuracy in the savings claimed for the program.

Impact Finding 4: EcoMetric found that the information provided by the program delivery vendor in the BizEnergySaver Measure Savings (particularly the 'Measure Assumptions' tab) workbook and

source documentation of key parameters that serve as inputs to savings algorithms could be improved to validate savings.

Impact Recommendation 4: Provide more insight into the sources and assumptions behind baseline and efficient case parameters such as fixture wattages and hours of operation for BizEnergySaver measures. Key parameter assumptions should be supported by source documentation that can be traced and verified.

Impact Finding 5: Overall, the net-to-gross ratio (NTGR) for LIP was high. Little free-ridership was identified. The program level NTGR for BizEnergySaver is 96%. Four out of ten respondents received VFDs and the other six received lighting. The high NTGR was largely driven by the program's influence on the timing of completing the measures offered. Two out of ten respondents indicated they would have never installed the measure without the program, and seven indicated they would not have installed the measures within the next two years without the program. BizEnergySaver respondents indicated that the funding from the IESO was very important for getting the measures installed. All 10 respondents reported that the IESO funding was the only external funding they received for the project, and eight reported it was critical for completing the upgrades.

The program level NTGR for CoolSaver was 98%. All seven CoolSaver respondents received AC tune-ups. Six out of the seven CoolSaver respondents reported they were very unlikely or unlikely to perform the AC tune-up without the program. Three respondents indicated in their verbatim responses that they would never have known about the benefits or thought to do a tune-up without the program marketing.

Impact Recommendation 5: LIP is reaching a population that would not complete these upgrades without program support. EcoMetric recommends continuing the program and expanding at least its geographic coverage and likely expanding measures, as well. The EcoMetric team recommends continued monitoring of NTG as programs are expanded, as the change could lead to higher levels of free-ridership.

7.2 PROCESS FINDINGS AND RECOMMENDATIONS

Process Finding 1: Eighty percent of CoolSaver respondents (4/5) and 57% of BizEnergySaver respondents (4/7) indicated that their household or organization would be interested in installing an air source heat pump to meet their heating and cooling needs if the IESO provided an incentive. However, the interest in such installation must save money. Respondents for both programs indicated that their primary motivation for LIP program participation was to elicit savings on their energy bills.

Process Recommendation 1: The IESO should continue to consider investigating the possibility of implementing a program (or programs) that incentivize air source heat pumps for space heating and cooling for households and businesses. In parallel, since most respondents claim that energy bill savings are their primary motivator, the IESO should research whether savings are likely to be achieved for customers who install air source heat pumps.

Process Finding 2: For CoolSaver, qualified contractor interviews revealed that households may not understand the limitations of a tune-up and may expect contractors to repair the equipment when equipment is broken. For example, contractors have arrived at residences where customers think or hope they have a low refrigerant charge and thus need a top-up, only to learn there is a more serious problem like a "bone-dry" unit for which a refrigerant top-up is inappropriate. Customers then fear they are being scammed or at least bait-and-switched, as they believe a free tune-up should fix a problem in need of further repair. One contractor stated three times that using the term "top-up" when describing the program was unhelpful at best and noted that the IESO program delivery vendor could not screen residences with broken air-conditioning units. That same contractor ultimately felt obliged to provide free and unreimbursed repair services to two customers who were unhappy with the appearance of disingenuous upselling, for fear of bad social media postings.

Process Recommendation 2: It is recommended that the program delivery vendor should discuss with contractors what screening question(s) to add to the application form to ascertain the current working condition of the unit. If a customer indicates the system is not working well, the program delivery vendor should consider including a disclaimer that a repair might be necessary (subject to diagnostics) and is not covered by the program rebate. Also, program staff should re-consider using the phrase "top-up," at least not without context.

Process Finding 3: For BizEnergySaver, qualified contractor interviews revealed that postal code limitations are the greatest barrier to additional program uptake. On average, interviewees estimated that 200% more projects could be completed through the program each year if eligible postal codes were expanded.

Process Recommendation 3: The IESO should consider assessing if any postal code eligibility expansion will result in decreased electricity usage and/or peak demand reduction in areas with grid strain. They should also assess if such expansion still results in high NTGR.

Secondary Process Finding: One contractor was unclear about who pays for the material cost of the filter installed as part of the tune-up.

Secondary Process Recommendation: If the program reimburses the contractor for the filter material cost, make that clear in internal contractor training materials. If the customer must provide

the filter for the contractor to install or must pay the contractor for a contractor-provided filter, make that explicit in customer promotional materials and the screening calls as well as internal contractor training materials.

8 Appendix - Detailed Methodologies

8.1 GROSS SAVINGS ANALYSIS

8.1.1 COOLSAVER AC TUNE UP SAVINGS MODELLED APPROACH METHODOLOGY

The following approach has been detailed in the 'Appendix F – Energy and Peak Demand Savings Determination CoolSaver' which was a part of the Scope of Work legal agreement between IESO and CLEAResult.

The modelled approach includes post measurements and determination of Confirmed Peak Demand Savings based on Efficiency Loss value developed from over 9,000 historical measures and verified tune-ups the Service Provider has completed on residential AC and Heat Pumps units. The modeled approach does not require pre-measurements.

The modeled approach includes the following:

- Post measurements collected to determine:
  - Useful Cooling Capacity
  - Net Power Consumed
  - EER Adjustment to AHRI Conditions
  - Savings Calculations
- Energy Savings and Peak Demand Savings calculations will leverage an Efficiency Loss value developed by the Service Provider from over 9,000 measured and verified tune-ups, which includes both pre- and post-measurements.
  - Efficiency Loss is determined by:
    - Eff Loss = 1- (EERpre_ari / EERpost_ari)
  - The statistically significant variable for residential units is whether there was a Refrigerant Charge Adjustment (RCA) or not. The amount of refrigerant adjusted was not significant, regardless of whether it was added or removed. The resulting average All CoolSaver Efficiency Loss values are:

1.1.1 All CoolSaver Residential Efficiency Loss_noRCA: 0.185

1.1.2 All CoolSaver Residential Efficiency Loss_RCA: 0.241

Peak Demand Savings Calculations:

Peak Demand (kW) Savings = Nominal Tonnage x (12/EERpre – 12/EERpost_ari) x CF_summer

Where,

EERpost = Useful Cooling Capacity (Btu/hr) / Net Power Consumed (W)

EERpost_ari = With EERpost adjustment to AHRI Conditions (R^2 > 95%)

EERpre = (1-EFF Loss) x EERpost_ari

Efficiency Loss = without RCA 0.185, with RCA 0.241

CF_summer = 0.872 for residential

Coincidence Factor used to correlate AHRI adjusted results to peak design load conditions as per Peak Demand Savings definition.

Energy Savings Calculation:

Energy (kWh) Savings = Nominal Tonnage x EFLHcooling x (12/EERpre – 12/EERair)

Where,

EFLH equivalent full load hours_cooling = 803 (Richview South)

EFLH equivalent full load hours_cooling = 421 (Ottawa)

EFLH equivalent full load hours_cooling = 602 (York)

8.1.1.1 Data Sources

Table 26 contains a list of the data sources used from verifying gross savings.

Table 26: Data and Information Sources Used for Evaluation

Item	Description	Source
Reported (Ex-Ante) participation and savings	Savings by facility	Technical Reviewer and IESO
Participant contact information	For survey administration	IESO
Project files	Including M&V data and documentation	Technical Reviewer and IESO
Reporting template(s)	For impact reporting	IESO
Cost-effectiveness parameters	Avoided costs, admin costs, discount rate	IESO
Greenhouse gas (GHG) factors	Emissions factors based on generation mix of the electrical grid	IESO

Savings reports and meter data submitted by the participants for each facility site will be the primary data sources for LIP projects in the gross impact evaluation.

8.1.1.2 Cost Effectiveness Assumptions

- Program administrative costs (CE Tool Budget Inputs) were provided by the IESO Evaluation Team for PY2023.
- EcoMetric utilized the most appropriate IESO-provided load shape based on measure technologies and premise type.

8.2 INTERVIEW GUIDES

8.2.1 IESO'S LIP PROGRAM STAFF INTERVIEW GUIDE

8.2.1.1 Instrument Overview

Objective: The Evaluation Team will interview IESO LIP program staff, as well as two third-party LIP implementation leads. The purpose of these interviews is to obtain a more detailed understanding of how LIP (including both CoolSaver and BizEnergySaver) is promoted and communicated to households and businesses, and what challenges staff are facing in scaling LIP through current participation, as well as open procurement in the 2021-2024 Conservation and Demand Management (CDM) Framework.

Table 27 documents research objectives and associated questions.

Anticipated timing (interview length): 45 minutes – 1 hour
Method of data collection: Phone interview

Table 27: Research Objectives Mapped to Questions in this Instrument

Research Objectives	Questions
Is the IESO on track to meet savings goals for this program within the current framework? Besides savings, are there other key metrics being tracked to indicate program success?	Q2 - Q3
What are challenges related to open procurement/the RFP process?	Q4
What procedures are utilized to determine targeted areas and measures for local initiatives?	Q5 - Q7
What processes are in place for Quality Control? For project tracking?	Q15 - Q16
What are the opportunities to improve the delivery of LIP?	Q9 - Q12, Q22 - Q23
How is the customer program experience? How can the IESO increase the participation of customers?	Q13 - Q14
Are there significant current program delivery inefficiencies?	Q17 - Q19
What are the customer motivations and barriers to participating in the LIP? We will inquire about how LIP does not allow customers to choose a contractor.	Q8
How is the qualified contractor program experience? What are the qualified contractors' motivations and barriers for participating in the program?	Q20 - Q21

8.2.1.2 Interview

[INTERVIEWER: Send an email introducing yourself, explaining the purpose of the interview, and scheduling a time for the interview.]

A. EMAIL INTRODUCTION

[INTERVIEWER ADAPT EMAIL IF NEEDED]

Subject: LIP (CoolSaver/BizEnergySaver) discussion

Hi [INPUT CONTACT NAME],

As you may already be aware, we are starting the evaluation of the Local Initiatives Program.

We would like to speak to you about your role in the CoolSaver/BizEnergySaver program and opportunities for continued program growth. We expect our discussion to take 45 minutes to an hour.

Please let us know when it would be a good time to talk. Below is my availability for the next two weeks:

[OFFER SEVERAL TIME SLOTS FOR THE INTERVIEW]

Respectfully Yours,

[INTERVIEWER NAME, TITLE, AND COMPANY SIGNATURE]

B. INTERVIEW

Today, we'll be discussing your role in the IESO CoolSaver/BizEnergySaver program and opportunities for continued program growth. Your comments are confidential. If I ask you about areas you don't know about, please feel free to tell me that and we will move on. Also, if you want to refer me to specific documents to answer any of my questions, that's great – I'm happy to look things up if I know where to get the information.

I would like to record this interview for my note-taking purposes. Do I have your permission?

Roles and Responsibilities [ASK ALL]

Q1. Can you briefly describe your role in the CoolSaver/BizEnergySaver program and provide your current job title?

Savings Goals and Reasons for LIP [Ask IESO staff only]

First, I would like to ask you about savings expectations and metrics.

Q2. We see that LIP is intended to deliver 57 MW of demand savings and 230 GWh of energy savings over four years as per the 2021-2024 CDM program plan. Do you have any concerns towards meeting those goals?

a. How are these savings being tracked?

Q3. Besides savings, what other key metrics are you tracking to indicate program success?

a. If any, what are your goals for those metrics?

b. If there are goals, are you on track to meet those goals? Why or why not?

Q4. What, if any, challenges related to open procurement/the RFP process have you experienced?

Program Design [Ask IESO Staff All, Ask CLEAResult About CoolSaver, Ask Guidehouse About BizEnergySaver]

Next, I would like to ask you about program design related to CoolSaver and/or BizEnergySaver.

Q5. How were regions of eligibility selected for the program? (Probes: York Region, Ottawa or the Richview South area of Toronto for CoolSaver and Toronto Hydro non-residential customers for BizEnergySaver)

Q6. How were measures of eligibility selected for the program? (Probes: air conditioner tune ups/replacements, dehumidifier replacements, smart thermostats, and variable speed pool pumps for CoolSaver and lighting, VFDs, and carbon monoxide sensors for BizEnergySaver)

Q7. How were incentive amounts established for qualifying measures? (Probes: ranging from $40 for dehumidifier replacement to $350 for variable speed pool pumps for CoolSaver and ranging from $13 for LED lighting to $47,650 for VFDs [with some lighting/VFD measures for free] for BizEnergySaver)

Q8. A qualified contractor must be utilized for participation in LIP (CoolSaver and BizEnergySaver). Why was this rule established?

a. What do contractors have to do to become a qualified contractor?

b. Do you think this requirement has limited program participation?

Program Processes – LIP [Ask as Noted]

My next set of questions relate to LIP processes.

Q9. *[Ask IESO staff and CLEAResult only]* What are CLEAResult responsibilities in supporting the CoolSaver program? (Probes: application processing, incentive fulfillment, call center, marketing/recruitment, and technical review of savings)

Q10. *[Ask IESO staff and Guidehouse only]* What are Guidehouse Consulting responsibilities in supporting the BizEnergySaver program? (Probes: application processing, incentive fulfillment, call center, marketing/recruitment, and technical review of savings)

Q11. *[Ask IESO staff only]* What issues, if any, has the IESO experienced with CLEAResult's' delivery of CoolSaver?

Q12. *[Ask IESO staff only]* What issues, if any, has the IESO experienced with Guidehouse's delivery of BizEnergySaver?

Q13. *[Ask IESO staff and CLEAResult only]* How many participants have there been in the CoolSaver program thus far?

a. What concerns, if any, do you have with this participation?

b. What challenges, if any, have you experienced with applications you have received to date? (Probe for application errors, whether any are rejected and why, as well as if there are delays in approving the applications.)

Q14. *[Ask IESO staff and Guidehouse only]* How many participants have there been in the BizEnergySaver program thus far?

a. What concerns, if any, do you have with this participation?

b. What challenges, if any, have you experienced with applications you have received to date? (Probe for application errors, whether any are rejected and why, as well as if there are delays in approving the applications.)

Q15. *[Ask IESO staff and CLEAResult only]* How do you track projects completed through the CoolSaver program?

a. What QA/QC processes do you have in place to ensure successful project completion?

b. What QA/QC processes do you have in place to ensure successful savings tracking?

Q16. *[Ask IESO staff and Guidehouse only]* How do you track projects completed through the BizEnergySaver program?

a. What QA/QC processes do you have in place to ensure successful project completion?

b. What QA/QC processes do you have in place to ensure successful savings tracking?

Program Experience and Opportunities for Future Growth [Ask IESO Staff All, Ask CLEAResult About CoolSaver, Ask Guidehouse About BizEnergySaver]

Q17. How have you communicated the CoolSaver and/or BizEnergySaver program to potential participants?

a. What type of marketing or promotion are you planning in the near-term future?

b. What concerns, if any, do you have about program promotion or communication to potential participants?

Q18. What do you think is the primary motivation for customers to participate in CoolSaver and/or BizEnergySaver?

Q19. What do you think is the primary barrier stopping more customers from participating in CoolSaver and/or BizEnergySaver?

Q20. What do you think is the primary motivation for qualified contractors to participate in CoolSaver and/or BizEnergySaver?

Q21. What do you think is the primary barrier stopping contractors from becoming qualified and participating in CoolSaver and/or BizEnergySaver?

Wrap-up [Ask All]

Q22. Besides what we have already discussed, do you see any opportunities to improve the delivery of LIP?

Q23. What would you like to learn from the program evaluation?

8.2.2 IESO'S LIP PARTICIPANT NET-TO-GROSS AND PROCESS SURVEY SCRIPTS

8.2.2.1 Net-to-Gross (NTG) Survey Instrument

Net-to-Gross (NTG) is the process of determining what portion of project savings is attributable to the influence of the IESO programs versus what the customer would have done in the absence of incentive programs. The core components of the NTG assessment are free-ridership, defined as the savings customers would have achieved in the absence of the program's influence, and spillover, defined as savings influenced by the program but not formally incentivized or claimed by the IESO programs. To estimate NTG or net savings, the EcoMetric team will use the following formula:

Net savings = gross verified savings * (1 – Free-ridership + Spillover).

The primary method of determining NTG ratios is through direct query surveys with decision-maker(s) at the participating customer organizations. The approach for PY2023 will include questions on the program's effect on the efficiency level installed, quantity installed, and timing of the project. The timing, quantity, and efficiency effects of the program are each informative to understand how programs are benefiting customers. We will utilize established procedures and algorithms for combining this information into an overall FR score. Computational algorithms are included following the instrument questions.

PROCESS EVALUATION PARTICIPANT SURVEYS

The purpose of the process surveys is to gather information on the participant experience as well as inquire about motivations and barriers to participate in the Local Initiatives Program (LIP), LIP communications, and future energy efficiency behaviors and investment plans.

SURVEY APPROACH AND ANTICIPATED LENGTH

The questionnaire was drafted in the formal style of a Computer Assisted Telephone Interview (CATI) script to ensure flow patterns and logic are clear. Professional staff from a survey and research firm will conduct the discussions. The interviewers will endeavor to maintain a conversational nature throughout the interview, while at the same time carefully following the language and skip pattern logic. We anticipate that this survey will take approximately 25-30 minutes to complete. This timing is consistent with other NTG/process surveys.

Table 28 documents the research objectives and associated questions for LIP participants.

Table 28: LIP Research Objectives Mapped to Questions in this Instrument

Research Objectives	Questions
Customer screening	I1 – I4
NTG	FRI1 – SO5
Assess free ridership	FRI1 – FRB15
Assess spillover	SO1 – SO5
Process Evaluation	Plip1 – Plip17
Assess motivations for participating	Plip1 – Plip3
Assess the customer program experience	Plip4 – Plip7
Assess challenges with participating in the program	Plip8 – Plip11
Determine opportunities to increase future customer participation	Plip12 – Plip15
Job Impacts	JI1
Non-Energy Benefits	NEB1-NEB7

Table 29 summarizes the PY2023 LIP population.

Table 29: PY2023 LIP Population

Program Component	Number of Projects in PY2023 Population			
	Richview South	York	Ottawa	Belle River
BizEnergySaver	43	-	-	-
CoolSaver	19	2	11	-
Total	62	2	11	0

NTG SURVEY SCRIPT

INTRODUCTION / SCREENING

The screening ideally will be conducted separately from the rest of the interview, via telephone during the on-site recruitment.

Hello. This is _____ calling from the EcoMetric team, on behalf of the Ontario Independent Electricity System Operator, the IESO. Our records show that you completed an energy efficiency project through the [if PROGRAM = COOLSAVER] IESO's (Save on Energy) CoolSaver [if program = BizEnergySaver] IESO's (Save on Energy) BizEnergySaver program in 2023.

We are calling as part of a follow-up study to learn about your experience. Any information provided by you during the interview will be kept confidential and our analysis will not identify any individual respondents or firms. It is purely for research purposes and will not affect any of your past or future incentives or other benefits.

Our records show that your firm completed a project/multiple projects during 2023. *<Name and describe them>*. Does this sound correct?

I1. Were you involved in the decision to approve and install these projects?

1. Yes – *Go to I2 if BizEnergySaver or FR1 if CoolSaver*
2. No – *Go to I3*
3. DK/Refused – *Go to I4*

I2. What is your job title?

[SINGLE RESPONSE]

1. Facilities Manager – *Go to FR1*
2. Energy Manager – *Go to FR1*
3. Other facilities/maintenance position – *Go to FR1*
4. Chief Financial Officer – *Go to FR1*
5. Other financial/administrative position – *Go to FR1*
6. President/CEO – *Go to FR1*
7. Other, please specify: [Open-ended response] – *Go to FR1*

I3. Can you refer me to someone [IF PROGRAM = COOLSAVER: in your household] [IF PROGRAM = BizEnergySaver: at your organization] that was involved in the process?

1. Yes – *Get name, phone, email address. Continue to I4. Also* attempt interview with new contact.
2. No – *Go to I4*
3. DK/Refused – *Go to I4*

I4. Are you aware of the decision-making process that led to project completion?

1. Yes – Proceed with FR1
2. No – Terminate
3. DK/Refused – *Terminate*

At this time either schedule a later telephone interview, or immediately proceed.

FREERIDERSHIP – COOLSAVER

[IF PROGRAM = COOLSAVER THEN DISPLAY FR1 – FR11]

FR1. How did you first hear about the measures offered through the IESO's (Save on Energy) CoolSaver Program?

1. Bill inserts or information included on energy bill
2. From the Save On Energy website
3. Social media/program marketing
4. Word of mouth
5. Email
6. Google search
7. Other, please specify: [OPEN-ENDED RESPONSE]
8. Don't know

[REPEAT FOR MEASURE 1 AND MEASURE 2]

IESO records show that you implemented [MEASURE X] in [DATE] through the CoolSaver Program and received a program incentive of approximately $[DISCOUNT AMOUNT].

FR2. Without the incentives and support (such as list of approved contractors) offered from the CoolSaver Program how likely would you have been to have select and install [MEASURE X] at your own expense?

1. Very likely
2. Somewhat likely
3. A 50/50 chance
4. Somewhat unlikely
5. Very unlikely
6. Don't know

[IF FR2 = "Very likely" OR "Somewhat likely" & MEASURE X = "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" display FR3a]

[IF FR2 = "Very likely" OR "Somewhat likely" & MEASURE X <> "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" display FR3b]

FR3a. You indicated that you were likely to implement [MEASURE X] at your own expense. Why did you decide to have the [MEASURE X] done through the IESO's (Save on Energy) CoolSaver Program rather than through non-IESO (non-Save on Energy) contractors or technicians?

FR3b. You indicated that you were likely to install [MEASURE X] at your own expense. Why did you decide to implement [MEASURE X] through the IESO's (Save on Energy) CoolSaver Program rather than through stores or sellers?

Timing

[IF MEASURE X = "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" DISPLAY FR4a ELSE DISPLAY FR4b]

FR4a. If the [MEASURE X] had cost approximately $[DISCOUNT AMOUNT] more than it did, when would you have done the [MEASURE X]?

1. At the same time or earlier
2. Later than I did
3. Never

FR4B. If the [MEASURE X] had cost approximately $[DISCOUNT AMOUNT] more than it did, when would you have implemented the [MEASURE X]?

1. At the same time or earlier
2. Later than I did
3. Never

[IF MEASURE X = "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" DISPLAY FR5a ELSE DISPLAY FR5b]

FR5a. [If FR4 = "Later than I did"] How much later would you have had the [MEASURE X] done? Please provide your best guess.

1. Within 6 months
2. 7 to 12 months
3. 13 to 18 months later
4. 19 to 24 months (about 2 years)
5. More than 24 months later

FR5b. [If FR4 = "Later than I did"] How much later would you have implemented [MEASURE X]? Please provide your best guess.

1. Within 6 months
2. 7 to 12 months

3. 13 to 18 months later
4. 19 to 24 months (about 2 years)
5. More than 24 months later

Efficiency

FR6. [IF MEASURE_X = Dehumidifier_Replacement] [IF QTY = 1] If the dehumidifier that you implemented had cost approximately $[DISCOUNT AMOUNT] more than it/they did, would you have implemented a…? (Please provide your best guess)

[IF QTY > 1] If the dehumidifiers that you implemented had each cost approximately $[DISCOUNT AMOUNT] more than they did, would you have implemented a…? (Please provide your best guess)

1. ENERGY STAR® CANADA dehumidifier, like you purchased
2. Non-ENERGY STAR® CANADA dehumidifier
3. No dehumidifier at all

FR7. [IF MEASURE_X = Central_Air_Conditioner] [IF QTY = 1] If the central air conditioner that you implemented had cost approximately $[DISCOUNT AMOUNT] more than it/they did, would you have implemented a…? (Please provide your best guess)

1. High efficiency central air conditioner (SEER 18 rating or higher), like you implemented
2. Intermediate efficiency central air conditioner (SEER rating less than 18 but higher than 14)
3. Low efficiency central air conditioner (SEER rating of 14 or less)
4. No central air conditioner at all

FR8. [IF MEASURE_X = Smart_Thermostat=] [IF QTY = 1] If the Wi-Fi-enabled thermostat with occupancy sensors and learning capabilities that you implemented had cost approximately $[DISCOUNT AMOUNT] more than it/they did, would you have implemented a…? (Please provide your best guess)

[IF QTY > 1] If the Wi-Fi-enabled thermostats with occupancy sensors and learning capabilities that you implemented had each cost approximately $[DISCOUNT AMOUNT] more than they did, would you have implemented a…? (Please provide your best guess)

1. Wi-Fi-enabled thermostats with occupancy sensors and learning capabilities, like you implemented
2. Non-programmable thermostat (you manually turn it on/off and adjust the temperature)
3. Programmable thermostat (allows you to adjust the temperature using settings that turn on at different times of day)
4. Wi-fi/Communicating thermostat (internet-connected, allowing remote control, but only operates on pre-set schedule and temperature settings)
5. No thermostat at all

FR9. [IF MEASURE_X = Variable_Speed_Pool_Pumps] [IF QTY = 1] If the variable speed pool pump that you implemented had cost approximately $[DISCOUNT AMOUNT] more than it/they did, would you have implemented a…? (Please provide your best guess)

[IF QTY > 1] If the variable speed pool pumps that you implemented had each cost approximately $[DISCOUNT AMOUNT] more than they did, would you have implemented a…? (Please provide your best guess)

1. Variable speed pool pump, like you purchased
2. Two-speed pool pump
3. Single speed pool pump
4. No variable speed pool pump at all

Quantity

[IF MEASURE X = "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" DISPLAY FR10a ELSE DISPLAY FR10b]

FR10a. [If QTY > 1] According to our records you had [MEASURE_X_QUANTITY] [MEASURE X] done. had each tune-up cost approximately $[DISCOUNT AMOUNT] more than they did, would you have …? (Please provide your best guess)

1. Done the same amount or more [MEASURE X] than you did
2. Some of the [MEASURE X], but less than I you did
3. No [MEASURE X] at all

FR10b. [If QTY > 1] If [MEASURE X]s had each cost approximately $[DISCOUNT AMOUNT] more than they did, would you have purchased…? (Please provide your best guess)

1. The same amount or more than I implemented
2. Some [MEASURE X](s), but less than I implemented
3. No [MEASURE X](s) at all

[IF MEASURE X = "Air Conditioner Tune-ups" "Air Conditioner Tune-ups with Refrigerant Adjustments" DISPLAY FR11a ELSE DISPLAY FR11b]

FR11a. [IF FR10 = b] Compared to the number you implemented, about how many fewer [MEASURE X] would you have done if the [MEASURE X] had cost approximately $[DISCOUNT AMOUNT] more than they did?

1. About half as many
2. Less than half as many
3. More than half as many

FR11b. [IF FR10 = b] Compared to the number you purchased, about how many fewer [MEASURE X](s) would you have implemented if the [MEASURE X](s) had cost approximately $[DISCOUNT AMOUNT] more than it/they did?

1. About half as many
2. Less than half as many
3. More than half as many

Consistency

[IF FR2 = 4/5 & FR4A/FRB = 1 & (IF MEASURE_X = Dehumidifier_Replacement THEN FR6 = 1 | IF MEASURE_X = Central_Air_Conditioner THEN FR7 = 1 | MEASURE_X = Smart_Thermostat THEN FR8 = 1 | IF MEASURE_X = Variable_Speed_Pool_Pumps THEN FR9 = 1) & FR10A/FR10B = 1]

Respondent indicated they were unlikely to install without program and then chose same time, same efficiency, same quantity in the TEQ questions.

FR12. Earlier in the interview you said that you were unlikely to likely to install [MEASURE X] at your own expense, but you also indicated that you would have installed the same quantity [IF EFFIENCY = Yes] and efficiency of [MEASURE X] at the same time in without the CoolSaver incentive. Which of these statements is more accurate?

1. I would have installed the same quantity [IF EFFIENCY_X = Yes] and efficiency of [MEASURE X] at the same time without the CoolSaver incentive?
2. The CoolSaver incentive influenced the timing, quantity [IF EFFIENCY_X = Yes], or efficiency of the [MEASURE X] installed.
3. Something else [OPEN ENDED RESPONSE]
4. Don't know

[IF FR2 = 1/2 & (FR4A/FRB = 3 | FR5A/FRB = 5)]

Respondent indicated they were likely to install without program and then chose they would not have installed within two years.

FR13. Earlier in the interview you said that you were likely to install the [MEASURE X] at your own expense, but you also indicated that you would not have installed [MEASURE X] within 2 years for when you did. Which of these statements is more accurate?

1. I was likely to install [MEASURE X] within 2 years of when I did without the CoolSaver incentive.
2. I would not have installed [MEASURE X] within 2 years of when I did without the CoolSaver incentive.
3. Something else [OPEN ENDED RESPONSE]
4. Don't know

TEQ

FR13. In your own words can you please summarize how the CoolSaver program offerings affected the timing, efficiency, and/or quantity of [MEASURE X] you bought.

FREERIDERSHIP – BIZENERGYSAVER

[IF PROGRAM = BIZENERGYSAVER THEN DISPLAY FRB1 – FRB10]

Intention

[IF NUM_SITES>1 THEN DISPLAY FRB1A]

FRB1a. IESO records show that you implemented [MEASURE 1] at [NUM_SITES] [COMPANY NAME] locations. Was your decision-making process the same for all [MEASURE 1] implemented at [COMPANY NAME] sites?

1. Yes
2. No

[IF NUM_SITES>1 & FRB1A = 2 THEN REPEAT FOR MEASURE 1 AND MEASURE 2]

[IF NUM_SITES=1 & MEASURE 2 IS NOT BLANK REPEAT FOR MEASURE 1 AND MEASURE 2]

IESO records show that [COMPANY NAME] implemented [MEASURE X] on [DATE] through the BizEnergySaver Program and received a program incentive of approximately $[DISCOUNT AMOUNT].

FRB1. How likely would you have been to have select and install [MEASURE X] without the incentive from BizEnergySaver Program?

1. Very likely
2. Somewhat likely
3. A 50/50 change
4. Somewhat unlikely

5. Very unlikely
6. Don't know

Timing

FRB2. Without the assistance received from the BizEnergySaver Program when would your organization have installed [MEASURE X]?

1. At the same time or earlier than you did
2. Later than you did
3. Never
4. Don't know

FRB3. [IF FRBB2 = "Later than you did"] Without the assistance received from the program, how much later would your organization have installed the [MEASURE_X]?

1. Within 6 months of when you did the program rebated project
2. 7 to 12 months
3. 13 to 18 months
4. 19 to 24 months
5. More than 24 months later

Efficiency

[IF MEASURE X = "Lighting"]

FRB4. What type(s) of lighting equipment would your organization have installed without the assistance received from the program? [RANDOMIZE BEORE 'OTHER']

1. High efficiency LED (like you installed)
2. LED (but less efficient than what you installed)
3. CFL
4. Incandescent
5. Fluorescent (like T5 or T8)
6. Metal halide
7. High-pressure sodium
8. Halogen
9. Other, please specify [OPEN-ENDED RESPONSE]
10. Don't know

Quantity

FRB6. The IESO (Save on Energy) data show that your organization installed [QUANTITY_X] [MEASURE_X] that received program incentives as part of this project. Without the assistance received from the program how much program-eligible, high-efficiency equipment would your organization have installed?

1. Less than what you installed
2. More than what you installed
3. The same quantity you installed
4. Don't know

FRB7. [IF FRBB6 = "Less than what you installed"] How much program-eligible, high-efficiency equipment would your organization have installed? Please choose the option that is closest to your answer.

1. None (would not have installed any)
2. About half as much as you installed (~50%)
3. More than half as much as you installed (~75%)
4. Less than half as much as you installed (~25%)
5. Don't know

Consistency

[IF FRB1 = 4/5 & FRB2 = 1 & (IF MEASURE_X = Lighting THEN FRB4 = 1 & FRB6 = 3]

Respondent indicated they were unlikely to install without program and then chose same time, same efficiency, same quantity in the TEQ questions.

FRB8a. Earlier in the interview you said that your organization was unlikely to likely to install [MEASURE X] at your own expense, but you also indicated that your organization would have installed the same quantity [IF EFFIENCY = Yes] and efficiency of [MEASURE X] at the same time in without the BizEnergySaver incentive. Which of these statements is more accurate?

1. My organization would have installed the same quantity [IF EFFIENCY_X = Yes] and efficiency of [MEASURE X] at the same time without the BizEnergySaver incentive?
2. The BizEnergySaver incentive influenced the timing, quantity [IF EFFIENCY_X = Yes], or efficiency of the [MEASURE X] installed.
3. Something else [OPEN ENDED RESPONSE]
4. Don't know

[IF FRB1 = 1/2 & (FRB2 = 3 | FRB3 = 5)]

Respondent indicated they were likely to install without program and then chose they would not have installed within two years.

FRB8b. Earlier in the interview you said that your organization was likely to install the [MEASURE X] at without the incentive, but you also indicated that your organization would not have installed [MEASURE X] within 2 years for when you did. Which of these statements is more accurate?

1. My organization was likely to install [MEASURE X] within 2 years of when we did without the BizEnergySaver incentive.

2. My organization would not have installed [MEASURE X] within 2 years of when we did without the BizEnergySaver incentive.
3. Something else [OPEN ENDED RESPONSE]
4. Don't know

TEQ

FRB8c. In your own words can you please summarize how the BizEnergySaver program offerings affected the timing, efficiency, and/or quantity of [MEASURE X] you bought.

Influence

FRB9. Before participating in IESO's BizEnergySaver Program in 2022-2023, had your organization participated in any energy efficiency programs offered by IESO?

1. Yes
2. No
3. Don't know

FRB10. Several statements about your organization's prior experience with IESO energy efficiency programs are presented below. For each statement, please indicate whether you agree or disagree that this statement applies to your organization.

Our previous experience implementing energy efficiency projects through IESO's energy efficiency programs...	Agree	Disagree	Don't Know
Has made our organization more likely to consider energy efficient equipment	❍	❍	❍
Has made our organization more likely to install energy efficient equipment	❍	❍	❍
Has given us more confidence in the financial benefits of energy efficient equipment	❍	❍	❍
Has given us more confidence in the non-financial benefits of energy efficient equipment	❍	❍	❍

FRB11. If your organization had not received an energy assessment to identify energy-efficiency opportunities for your building(s) from the BizEnergySaver program, would your organization have paid for a similar energy assessment?

1. Yes
2. No
3. Don't know

FRB12. Using a number from 0 to 10, where 0 means not at all influential and 10 means extremely influential, how influential was the BizEnergySaver program's energy assessment on your decision to install the program-rebated equipment?

1. [NUMERIC RESPONSE FROM 0-10]
2. Don't know

FRB13. In addition to the BizEnergySaver Program, what other funding assistance did your organization receive?

1 An IESO (Save on Energy) non-BizEnergySaver Program incentive/rebate
2 Another non-IESO (non-Save on Energy) incentive/rebate
3 Grant
4 Loan
5 Tax Credit
6 Technical assistance outside of the program (e.g. audits, walk-throughs, scoping studies, etc.)
7 Other, please specify: [OPEN-END RESPONSE]
8 None of the above
9 Don't know

[FOR QUESTION FRB9 AND FRB10 ONLY DISPLAY SOURCES SELECTED IN FRB8]

FRB14. Using a number from 0 to 10, where 0 means not at all influential and 10 means extremely influential, how influential were each of the following factors?

1. BizEnergySaver incentive
2. An IESO (Save on Energy) non-BizEnergySaver Program incentive/rebate
3. Another non-IESO (non-Save on Energy) incentive/rebate
4. Grant
5. Loan
6. Tax Credit
7. Technical assistance outside of the program (e.g. audits, walk-throughs, scoping studies, etc.)
8. Other, please specify: [OPEN-END RESPONSE]
9. None of the above
10. Don't know

FRB15. Which funding sources were critical? [MULTIPLE SELECTION]

1. BizEnergySaver incentive
2. An IESO (Save on Energy) non-BizEnergySaver Program incentive/rebate
3. Another non-IESO (non-Save on Energy) incentive/rebate
4. Grant
5. Loan
6. Tax Credit
7. Technical assistance outside of the program (e.g. audits, walk-throughs, scoping studies, etc.)
8. Other, please specify: [OPEN-END RESPONSE]
9. None of the above
10. Don't know

[IF FRB14A > 8 & FRB15A NOT SELECTED DISPLAY FRB16]

FRB16. You indicated that the incentive from BizEnergySaver Saver was influential to the energy efficiency project but not critical, can you please explain why?

SPILLOVER

SO1. Since completing the program-rebated project(s) discussed during this survey, has your organization done other energy-saving projects?

1. Yes
2. No [SKIP TO PROCESS]
3. Don't know [SKIP TO PROCESS]

SO2. Thinking about these recent energy-saving projects, are there any that did not receive a rebate or incentive from the IESO (Save on Energy)?

SO3. What additional energy-saving projects did your organization complete that did not receive a rebate/incentive? Please select all that apply. [MULTIPLE RESPONSE; RANDOMIZE BEFORE 'OTHER']

[IF PROGRAM = COOLSAVER THEN DISPLAY OPTIONS 1–6 & 10 ELSE DISPLAY 7-10]

1. Air Conditioner Tune-ups [RECORD QUANTITY & TYPE]
2. Air Conditioner Tune-ups with Refrigerant Adjustments [RECORD QUANTITY & TYPE]
3. Dehumidifier Replacement [RECORD QUANTITY & TYPE]
4. Central Air Conditioner [RECORD QUANTITY & TYPE]
5. Smart Thermostat [RECORD QUANTITY & TYPE]
6. Variable Speed Pool Pumps [RECORD QUANTITY & TYPE]
7. Lighting – lamps and/or fixtures [RECORD QUANTITY & TYPE]
8. Lighting controls – sensors, etc. [RECORD QUANTITY & TYPE]

9. Variable frequency drives (VFDs) [RECORD QUANTITY & TYPE]
10. Other [RECORD QUANTITY & TYPE]
11. Don't know

SO4. How much influence did your experience with the BizEnergySaver Program have on your decision to complete the non-rebated energy saving projects? Please answer with a number from 0-10 where 0 means 'not at all influential' and 10 means 'extremely influential'. [0-10 SCALE PLUS A DON'T KNOW OPTION]

SO5. Please explain why you did not seek or receive rebates/incentive from the IESO (Save on Energy) for this energy saving project.

8.2.2.2 PROCESS

[ASK ALL (BUT THEY HAVE TO PASS THE SCREENING)]

MOTIVATIONS

[ASK ALL]
Plip1. What motivated you to participate in the [IF PROGRAM = COOLSAVER: IESO's (Save on Energy) CoolSaver] [IF PROGRAM = BizEnergySaver: IESO's (Save on Energy) BizEnergySaver] program? Please indicate all that apply.

[MULTIPLE RESPONSE]

1. Savings on energy bill
2. Program incentives and support
3. Emissions reductions
4. Other environmental benefits
5. [ONLY ASK IF BizEnergySaver] Support the participant organization's image/mission/customer values
6. [ONLY ASK IF BizEnergySaver] Needing support for facility improvements
7. Other, please specify: [OPEN-ENDED RESPONSE]
8. Don't know

[ASK IF PLIP 1 = 1-6 OR 96]
Plip2. You noted the following motivations for participating in the [IF PROGRAM = COOLSAVER: IESO's (Save on Energy) CoolSaver] [IF PROGRAM = BizEnergySaver: IESO's (Save on Energy) BizEnergySaver] program [LIST SELECTED CHOICES 1-6 AND TEXT ENTERED IN 96 IN Plip1]. Which was the most important reason for your participation?

[DISPLAY ONLY CHOICES THEY SELECTED IN Plip1, SINGLE RESPONSE]

1. Savings on energy bill
2. Program incentives and support

3. Emissions reductions
4. Other environmental benefits
5. [ONLY ASK IF BizEnergySaver] Support the participant organization's image/mission/customer values
6. [ONLY ASK IF BizEnergySaver] Needing support for facility improvements
7. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF PLIP 2 IS ANSWERED]
Plip3. You noted that [LIST ANSWER FROM PLIP 2] was the most important reason for your participation. Please explain why this was the main driver of your participation in the [IF PROGRAM = COOLSAVER: IESO's (Save on Energy) CoolSaver] [IF PROGRAM = BizEnergySaver: IESO's (Save on Energy) BizEnergySaver] program?

[OPEN-ENDED RESPONSE]

PROGRAM PROCESS AND EXPERIENCE

[ASK IF PROGRAM = BIZENERGYSAVER]
Plip4. Based on your experience in the IESO's (Save on Energy) BizEnergySaver program, please rate the following program elements on a scale of 0 to 10, where 0 is not at all easy to do and 10 is extremely easy to do. If an element is not relevant to your facility, please select Not Applicable.

[INSERT SCALE FOR EACH ITEM WITH DON'T KNOW RESPONSE AND N/A RESPONSE]

1. Completing the BizEnergySaver application process
2. Completing the on-site assessment to identify energy savings opportunities
3. Receiving approval to proceed with installation of efficient equipment
4. Installation of efficient equipment by a qualified Save on Energy contractor
5. Receiving incentives

[ASK IF RATING < 7 for Plip4.1-Plip4.5]
Plip5. You noted some difficulty with [LIST ITEMS RATED LESS THAN 7] Please explain.

[OPEN-ENDED RESPONSE]

[ASK IF PROGRAM = COOLSAVER]
Plip6. Based on your experience in the IESO's (Save on Energy) CoolSaver program, please rate the following program elements on a scale of 0 to 10 where 0 is not at all easy to do and 10 is extremely easy to do. If an element is not relevant to your household, please select Not Applicable.

[INSERT SCALE FOR EACH ITEM WITH DON'T KNOW RESPONSE AND N/A RESPONSE]

1. Completing the online application form
2. Contacting the CoolSaver registration/application team by phone

3. Communication with a qualified CoolSaver contractor
4. Implementation of program measures
5. Receiving incentives

[ASK IF RATING < 7 for Plip6.1-Plip6.5]
Plip7. You noted some difficulty with [LIST ITEMS RATED LESS THAN 7] Please explain. [OPEN-ENDED RESPONSE]

PROGRAM CHALLENGES

[ASK IF PROGRAM = BIZENERGYSAVER]
Plip8. Which, if any, of the following measure installations did your organization have challenges with?

[DISPLAY ONLY MEASURES THEY INSTALLED, MULTIPLE RESPONSE]

1. LED lighting upgrades
2. Adaptive lighting controls
3. Variable frequency drives (VFDs) for pump systems and fans
4. Parking garage exhaust fan controls
5. Other, please specify: [OPEN-ENDED RESPONSE]
6. Don't know

[IF Plip8=1-4 OR 96]
Plip9. What were the challenges you experienced?

[MULTIPLE RESPONSE]

1. Access to upfront capital
2. Access to adequate information of program requirements
3. Unfamiliarity with/skeptical about project's energy savings benefits
4. Unfamiliarity with/skeptical about project's environmental benefits
5. Estimated project payback was not what we wanted it to be
6. Finding the right contractor
7. Installation delays
8. Other, please specify: [OPEN-ENDED RESPONSE]
9. Don't know

[ASK IF PROGRAM = COOLSAVER]
Plip10. Which, if any, of the following energy efficient upgrades and/or services did your household have challenges with?

[DISPLAY ONLY UPGRADES OR SERVICES THEY RECEIVED AN INCENTIVE FOR, MULTIPLE RESPONSE]

1. Air conditioner tune-up

2. Air conditioner tune up with refrigerant adjustments
3. Dehumidifier replacement (ENERGY STAR qualified – 3 sizes)
4. Central Air Conditioner (CAC) replacement, SEER 18
5. Smart thermostat
6. Variable speed pool pump
7. Other, please specify: [OPEN-ENDED RESPONSE]
8. Don't know

[IF Plip10=1-6 OR 96]
Plip11. What were the challenges you experienced?

[MULTIPLE RESPONSE]

1. Access to upfront funding
2. Access to adequate information of program requirements
3. Unfamiliarity/skeptical about project's energy savings benefits
4. Unfamiliarity/skeptical about project's environmental benefits
5. Estimated project payback was not what we wanted it to be
6. Finding the right contractor
7. Installation delays
8. Other, please specify: [OPEN-ENDED RESPONSE]
9. Don't know

PROGRAM FUTURE OPPORTUNITIES

[ASK ALL]

Plip12. If the IESO (Save on Energy) provided an incentive, would your [IF PROGRAM = COOLSAVER: household] [IF PROGRAM = BizEnergySaver: organization] be interested in installing an air source heat pump to meet your heating and cooling needs?

[SINGLE RESPONSE]

1. Yes
2. No
3. Don't know

[ASK ALL]

Plip13. If the IESO (Save on Energy) allowed your [IF PROGRAM = COOLSAVER: household] [IF PROGRAM = BizEnergySaver: organization] to choose your own contractor, would you be more likely to participate in the [IF PROGRAM = COOLSAVER: IESO's (Save on Energy) CoolSaver] [IF PROGRAM = BizEnergySaver: IESO's (Save on Energy) BizEnergySaver] program again in the future?

[SINGLE RESPONSE]

1. Yes
2. No
3. Don't know

[ASK ALL]

Plip14. Which, if any, of the following [IF PROGRAM = COOLSAVER: energy efficiency upgrades and/or services] [IF PROGRAM = BizEnergySaver: measures] do you plan to implement or install in the next 2-3 years?

[MULTIPLE RESPONSE]

1. Heat pump for space heating and/or cooling
2. Electric vehicle charger(s)
3. Heat pump water heaters
4. Induction cooktop
5. None of the above
6. Other, please specify: [OPEN-ENDED RESPONSE]
7. Don't know

[ASK IF PLIP 14 = 1-4 OR 96]

Plip15. Where do you look to learn more about [IF PROGRAM = COOLSAVER: energy efficiency upgrades and/or services] [IF PROGRAM = BizEnergySaver: measures] you are considering implementing or installing?

[MULTIPLE RESPONSE]

1. Trade association meetings
2. From the Save On Energy website
3. Colleagues
4. Social media
5. Other, please specify: [OPEN-ENDED RESPONSE]
6. Don't know

Job Impacts Questions

[IF PROGRAM = BizEnergySaver] Let's talk about the economic impacts of the IESO's (Save on Energy) BizEnergySaver Program.

JI1. [ASK IF PROGRAM = BizEnergySaver, SKIP IF PROGRAM = CoolSaver] What percentage of the bill savings derived from the energy efficiency projects your organization completed in program do you expect to reinvest in your business?

Non-Energy Benefits

Let's go back to any potential impacts or benefits beyond energy you have experienced so far.

NEB1. Since making the changes or implementing the project, did you experience electricity savings from [MEASURE 1] or [IF NECCESARY=MEASURE 2]?

1. Yes
2. No

[ASK IF NEB1 = 1]

NEB2A. How much do you estimate your electricity savings in dollars is from these changes or improvements bill is for a full year? [OPEN END]

[ASK IF NEB1 = 2]

NEB2B. How much do you estimate the electricity bill is for a full year? [OPEN END]

[ASK IF PROGRAM = COOLSAVER]

NEB3. In addition to energy savings, did you experience any benefits beyond energy savings as a result of the changes or projects made to save energy in CoolSaver? Did you experience: [Read options, select all that apply. Prompt as needed.]

1. Reduced financial stress [If needed, Reduced stress related to making bill payments, reduced worries about shut-offs due to bill non-payment, increased overall satisfaction in home]
2. Reduced cold/heat-related stress (improved thermal comfort) [If needed: Buildings that maintain a comfortable temperature (not too hot, not too cold) may be indicated by reduced employee or customer complaints, or increased employee productivity]
3. Reduced time and costs for home and equipment operations and maintenance [If needed: Fewer hours needed from operations and maintenance teams to maintain home systems after efficient measure implementation (e.g., fewer light bulb change-outs, reduced HVAC equipment maintenance).
4. Improved Air Quality [If needed, For those with respiratory sensitivities: less irritation, Reduced dust]
5. Sense of control over energy decisions [If needed, Increased awareness of opportunities to reduce energy use and/or knowledge of how to implement energy saving measures]

[ASK IF PROGRAM = BizEnergySaver]

NEB4. In addition to energy savings, did you experience any benefits beyond energy savings as a result of the changes or projects made to save energy in BizEnergySaver? Did you experience: [Read options, select all that apply. Prompt as needed.]

1. Reduced food spoilage [If needed, reduced spoilage time for perishable products due to improved refrigeration or ventilation following measure implementation]
2. Improved indoor air quality [If needed: For those with respiratory sensitivities, less irritation, reduced dust.]
3. Reduced cold/heat-related stress (improved thermal comfort) [If needed: Buildings that maintain a comfortable temperature (not too hot, not too cold) may be indicated by reduced employee or customer complaints, or increased employee productivity]
4. Reduced time and costs for buildings and equipment operations and maintenance [If needed: Fewer hours needed from operations and maintenance teams to maintain building systems after efficient measure implementation (e.g., fewer light bulb change-outs, reduced HVAC equipment maintenance). Fewer hours needed from other staff due to measure installation (e.g., reduced invoice processing)]

[ASK NEB5 ONCE FOR EACH OPTION SELECTED IN NEB3 or NEB4]
[ASK NEB5A IF NEB1 = 1]

NEB5A. Relative to the energy savings and associated bill savings you experienced, would you say that [Insert NEB3 or NEB4 option] has a higher, equal or lower value on a yearly basis than the energy bill savings alone?

1. Higher [FOLLOW UP: by what percent? 1% TO over 100%] [OPEN ENDED]
2. Equal
3. Lower [FOLLOW UP: by what percent? 1% TO over100%] [OPEN ENDED]

[ASK NEB5B IF NEB1 = 2]

NEB5B. Would you say that [Insert NEB3 or NEB4 option] has a higher, equal or lower value on a yearly basis than the amount of your electricity bill?

1. Higher [FOLLOW UP: by what percent? 1% TO over 100%] [OPEN ENDED]
2. Equal
3. Lower [FOLLOW UP: by what percent? 1% TO over 100%] [OPEN ENDED]

[IF PROGRAM=CoolSaver, ASK NEB6 ONCE FOR EACH OPTION SELECTED IN NEB3]

NEB6. Thinking about the value of [Insert NEB3 option] to your household, if you had to pay for this benefit independently from the energy savings, how much would you be prepared to pay per year? [OPEN END]

[IF PROGRAM=BizEnergySaver, ASK NEB7 ONCE FOR EACH OPTION SELECTED IN NEB3]

NEB7. Thinking about the value of [Insert NEB4 option] to your firm, if you had to pay for this benefit independently from the energy savings, how much would you be prepared to pay per year? [OPEN END]

CLOSING

Thank you so much for your time. The information you have provided is extremely valuable.

We may follow up with you in a year or so to find out if you have installed any additional projects related to this one, or to revisit the long-term performance of your 2023 projects.

Emphasize the following if there were a lot of "don't know" or uncertain responses: Is there anyone else that you believe would add helpful perspective on the decision-making associated with the project(s) we have talked about?

1 Yes – Get name, phone, email address _____
2 No
3 Other
4 DK/Refused

COOLSAVER

FREE RIDERSHIP

Values are calculated at the person-measure level, as follows:

Freeridership (FR)=$FR_t * (FR_{e-d}$ or FR_{e-c} or FR_{e-t} or $FR_{e-v}) * FR_q$

Where:

FR_t=free ridership related to **timing** of purchase without rebate

FR4. If the [measure](s) had cost $[rebate amount] more than it/they did, when would you have implemented the [measure](s)?	
At the same time or earlier than you did	$FR_t = 1$
Later than you did	FR_t derived from FR5
Never	$FR_t = 0$
Don't know	FR_t = Avg. of non-missing FR_t for same measure

FR5. How much later would you have implemented the [measure](s)?	
Within 6 months	$FR_t = 0.667$
7 to 12 months later	$FR_t = 0.333$
13 to 18 months later	$FR_t = 0$
19 to 24 months later	$FR_t = 0$
More than 24 months later	$FR_t = 0$
Don't know	FR_t = Avg. of non-missing FR4/FR5 for same measure

FR_{e-d}=free−ridership related to **type** of dehumidifier implementedwithout rebate

FR6. If the dehumidifier(s) that you implemented had cost $[rebate/discount amount] more than it/they did, would you have implemented a...?	
Non-ENERGY STAR® CANADA dehumidifier	$FR_{e-d} = 0$
ENERGY STAR® CANADA dehumidifier, like you purchased	$FR_{e-d} = 1$
No dehumidifier at all	$FR_{e-d} = 0$
No response	FR_{e-d} = Avg. of non-missing FR_{e-d} for same measure

FR_{e-c}=free−ridership related to **type** of central air conditioner implemented without rebate

FR7. If the central air conditioner(s) that you implemented had cost $[rebate/discount amount] more than it/they did, would you have implemented a...?	
High efficiency central air conditioner	$FR_{e-c} = 1$
Intermediate efficiency central air conditioner	$FR_{e-c} = .5$
Low efficiency central air conditioner	$FR_{e-c} = 0$
No central air conditioner at all	$FR_{e-c} = 0$
No response	FR_{e-c} = Avg. of non-missing FR_{e-c} for same measure

FR_{e-t}=free−ridership related to **type** of thermostat implementedwithout rebate

FR8. If the thermostat(s) that you implemented had cost $[rebate/discount amount] more than it/they did, would you have implemented…?	
Non-programmable thermostat	FR_{e-t} = 0
Programmable thermostat	FR_{e-t} = 0.333
Wi-fi/Communicating thermostat	FR_{e-t} = 0.667
Smart Wi-fi/Communicating thermostat	FR_{e-t} = 1
No thermostat at all	FR_{e-t} = 0
No response	FR_{e-t} = Avg. of non-missing FR_{e-t} for same measure

FR_{e-v}=free−ridership related to **type** of power strip implementedwithout rebate

FR9. If the variable speed pool pump that you implemented had cost $[discount amount] more than it/they did, would you have implemented…?	
High efficiency variable speed pool pump	FR_{e-v} = 1
Intermediate efficiency variable speed pool pump	FR_{e-v} = .5
Low efficiency variable speed pool pump	FR_{e-v} = 0
No response	FR_{e-v} = Avg. of non-missing FR_{e-v} for same measure

FR_q=free−ridership related to quantity of measure implementedwithout rebate FRq=free−ridership related to ***quantity*** of measure implementedwithout rebate

FR10. If [measure](s) had each cost $[rebate/discount amount] more than it/they did, would you have purchased…?	
The same number or more than I **implemented**	FR_q = 1
Some [measure](s), but less than I **implemented**	FR_q derived from NTGE12
No [measure](s) at all	FR_q = 0
Don't know	FR_q = Avg. of non-missing FR_q for same measure

FR11. Compared to the number you purchased, about how many fewer [measure](s) would you have implemented if the [measure](s) had cost $[discount amount] more than it/they did?	
About half as many	FR_q = 0.5
Less than half as many	FR_q = 0.25
More than half as many	FR_q = 0.75
Don't know	FR_q = Avg. of non-missing FR_q for same measure

Consistency	
If FR = 1 & FR12 = 1	FR = 1
If FR = 1 & FR12 = 2	FR = .5
If FRt = 0 & FR13 = 1	FR = FR
If FRt = 0 & FR13 = 1	FR = .5

SPILLOVER

Spillover = Deemed measure savings of qualifying spillover measures * Influence Value (0-10 value from SO4, divided by 10)

NET-TO-GROSS (NTG)

NTG = FREERIDERSHIP + SPILLOVER

BizEnergySaver

FREE RIDERSHIP

Values are calculated at the person-measure level, as follows:

Free-ridership = Intention Score (person-measure level) + (Influence Score * Adjustments) (person level)

Influence Score = 0.5 × 1−(Q / (10 × n)), where…		
Q	No sources of funding or other assistance were deemed "critical" (FRB14 = 0 for all)	0-10 value from FRB13_1
	At least one funding source deemed "critical" AND IESO program deemed "critical" (FRB14)	0-10 value from FRB13_1
	At least one funding source deemed "critical" AND IESO program not deemed "critical" (FRB14)	Q = 0
n	No sources of funding or other assistance were deemed "critical" (FRB14= 0 for all)	Total number of other (non-IESO) sources of funding or assistance (number of responses showing in FRB12 for respondent)
	At least one funding source deemed "critical"	Total number of other (non-IESO) sources of funding or assistance deemed "critical" (FRB14) + 1 (representing internal funding)
	Would not have performed assessment without program (FR14 = 2) AND assistance was influential (FRB12 > 6)	Influence score is multiplied by 0.5

Influence Score may have a Previous Participation and/or Technical Assessment Adjustment, depending on responses to questions		
Previous Participation	No previous program participation FRB8	No adjustment
	Agrees with all 4 statements regarding positive influence of past participation in FRB9	Influence score multiplied by .25
	Agrees with 3 statements regarding positive influence of past participation in FRB9	Influence score multiplied by 0.625
	Agrees with 2 or fewer statements regarding positive influence of past participation in FRB9	No adjustment
Energy Assessment	Would have performed assessment without program (FRB11 = 1) OR assistance was not influential (FRB12 $\leq$ 6)	No adjustment
	Would not have performed assessment without program (FR14 = 2) AND assistance was influential (FRB12 > 6)	Influence score is multiplied by 0.5

Intention Score = 0.5 * FR_T * FR_E * FR_Q			
FR_T	FRB2. Without the assistance received from the program (including incentive funds, technical assistance, engineering support, etc.), would your organization have made the [MEASURE_X] improvement(s)…?	At the same time or earlier than you did	FR_T = 1
		Later than you did	(go to FR5)
		Or never	FR_T = 0
		Don't know	FR_T = avg. of other respondents for that measure type
	FRB3. How much later would your organization have done the [MEASURE_X] project?	Within 6 months of when you did the program-rebated project	FR_T = 1
		7 to 12 months later	FR_T = 0.8
		13 to 24 months later	FR_T = 0.6
		25 to 36 months later	FR_T = 0.4
		37 to 48 months later	FR_T = 0.2
		More than 48 months later	FR_T = 0
		Don't know	FR_T = avg. of other respondents for that measure type
FR_E	FRB4. What type(s) of lighting equipment would your organization have installed without the assistance received from the program? [RANDOMIZE BEORE 'OTHER']	High efficiency LED (like you installed)	FR_E = 1
		LED (but less efficient than what you installed)	FR_E = .5
		Fluorescent (like T5 or T8)	FR_E = 0
		Other, please specify: [OPEN-END RESPONSE]	FR_E = post code responses and score
		Don't know	FR_E = avg. of other respondents for that measure type
	FRB5. Without the assistance received from the program (including incentive funds, technical assistance, engineering support, etc.), would your organization have installed equipment that was…?	Minimum efficiency available on the market	FR_E = 0
		High efficiency (like the equipment you installed)	FR_E = 1
		Between market minimum and high efficiency	FR_E = 0.5
		Don't know	FR_E = avg. of other respondents for that measure type
FR_Q	FRB6. Without the assistance received from the program (including incentive	Less than what you installed	(go to FR11)

	funds, technical assistance, engineering support, etc.), how much program-eligible, high-efficiency equipment would your organization have installed?		
		More than what you installed	FR_Q = 1
		The same quantity as you installed	FR_Q = 1
		Don't know	FR_Q = avg. of other respondents for that measure type
	FRB7. How much program-eligible, high-efficiency equipment would your organization have installed? Please choose the option that is closest to your answer.	None (would not have installed any)	FR_Q = 0
		About half as much as you installed (~50%)	FR_Q = 0.5
		More than half as much as you installed (~75%)	FR_Q = 0.75
		Less than half as much as you installed (~25%)	FR_Q = 0.25
		Don't know	FR_Q = avg. of other respondents for that measure type

Consistency	
If FR = 1 & FRB8a = 1	FR = 1
If FR = 1 & FRB8a = 2	FR = .5
If FRt = 0 & FRB8b = 1	FR = FR
If FRt = 0 & FRB8b = 1	FR = .5

SPILLOVER

Spillover = Deemed measure savings of qualifying spillover measures * Influence Value (0-10 value from SO4, divided by 10)

NET-to-GROSS (ntg)

NTG = FREERIDERSHIP + SPILLOVER

8.2.3 QUALIFIED CONTRACTORS INTERVIEW GUIDE

INSTRUMENT OVERVIEW

Objective: The Evaluation Team will interview up to 6 qualified contractors involved with the IESO's LIP program. This will include contractors from both CoolSaver and BizEnergySaver. The purpose of these interviews is to obtain a more detailed understanding of how easy it was to become a qualified contractor, information on working with participants and their motivation to participate, and how well program activities are addressing their needs.

Table 30 documents research objectives and associated questions.

Anticipated timing (interview length): 45 minutes – 1 hour

Method of data collection: Phone interview

Table 30: Research Objectives Mapped to Questions in this Instrument

Research Objectives	Questions
What processes are in place for Quality Control? For project tracking?	Q5, Q7, Q8
What are the opportunities to improve the delivery of LIP?	Q18
How is the customer program experience? How can the IESO increase the participation of customers?	Q5, Q6, Q11
Are there significant current program delivery inefficiencies? How usable are the current program resources?	Q9, Q10
What are the customer motivations and barriers to participating in LIP? We will inquire about how LIP does not allow customers to choose a contractor.	Q12, Q15
What are the customer motivations behind their energy efficiency behaviors and investments? Do customers have future upgrade plans?	Q13, Q14
How is the qualified contractor program experience, including ease of becoming a qualified contractor? What are the qualified contractors' motivations and barriers for participating in the program?	Q2, Q3, Q4, Q9, Q22, Q17

INTERVIEW

[INTERVIEWER: Send an email introducing yourself, explaining the purpose of the interview, and scheduling a time for the interview.]

Email Introduction

[INTERVIEWER ADAPT EMAIL IF NEEDED]

Subject: LIP (CoolSaver/BizEnergySaver) discussion

Hi [INPUT CONTACT NAME],

DNV is conducting research on behalf of the IESO to evaluate the CoolSaver/BizEnergySaver program.

We would like to speak to you about your role in the CoolSaver/BizEnergySaver program and opportunities for continued program growth. We expect our discussion to take 45 minutes to an hour.

Please let us know when it would be a good time to talk. Below is my availability for the next two weeks:

[OFFER SEVERAL TIME SLOTS FOR THE INTERVIEW]

Respectfully Yours,

[INTERVIEWER NAME, TITLE, AND COMPANY SIGNATURE]

INTERVIEW

Today, we'll be discussing your role in the IESO CoolSaver/BizEnergySaver program and opportunities for continued program growth. Your comments are confidential. If I ask you about areas you don't know about, please feel free to tell me that and we will move on. Also, if you want to refer me to specific documents to answer any of my questions, that's great – I'm happy to look things up if I know where to get the information.

I would like to record this interview for my note-taking purposes. Do I have your permission?

Roles and Responsibilities [ASK ALL]

Q1. Can you briefly describe your role in the CoolSaver/BizEnergySaver program and provide your current job title? (Probe: confirm the interviewee has knowledge of

projects/implementation before proceeding with the discussion; if not, obtain information for more appropriate party at organization)

Program Experience

First, I would like to ask you about your experience with the CoolSaver/BizEnergySaver program.

Q2. How did you first hear about the CoolSaver/BizEnergySaver program? (Probes: The IESO staff, vendor staff, another contractor, program participant, web search, word of mouth)

Q3. What motivated you to be affiliated with the CoolSaver/BizEnergySaver program as a qualified contractor? (Probes: expand network of customers, wanted more work, wanted jobs with a better profit margin)

Q4. How easy was it for you to become a qualified contractor for the CoolSaver/BizEnergySaver program?

a. [If they say it was not easy:] What was the most challenging step in becoming a qualified contractor?

Q5. Has being a program qualified contractor impacted your sales in terms of the number of customers, price per customer, or both? (Probe: by how much?)

Q6. Do you use your program relationship in advertising or when speaking to individual customers?

Q7. What tracking systems are in place for you to record program participation/project status/energy savings?

Q8. What, if any, processes are in place for quality assurance/quality control checks of data from completed projects?

Q9. What, if any, barriers prevent you from completing more projects for the CoolSaver/BizEnergySaver program? (Probe: are there inefficiencies in program delivery or burdens faced by contractors)

Q10. What, if any, program resources do you use? (Probes: marketing/outreach material, training provided by the program, installation or monitoring tools provided by the program)

a. [If they use at least one program resource:] Do you have any suggestions on how the IESO could improve the resource(s)?

b. [If they participate in training provided by the program:] how valuable was the training provided by the program? Please explain.

c. Is there any program outreach that the program is not doing that you recommend considering?

Customer Experience

Next, I would like to ask you about the customer experience of the CoolSaver/BizEnergySaver program.

Q11. Can you describe the participation process in the program from the customer's perspective, from first contact through rebate payment (or program completion)?

Q12. In your opinion, what are the main motivations for customers to participate in the CoolSaver/BizEnergySaver program? (Probe: incentives)

a. [If more than one motivation provided:] What is the main motivation?

Q13. [If not covered in previous question:] What are the main motivations behind customers completing energy efficiency investments? (Probes for BizEnergySaver: corporate sustainability goals, reducing energy usage, decreasing energy bills/cost. Probes for CoolSaver: personal sustainability interests, reducing energy usage, decreasing energy bills/cost)

a. [If more than one motivation provided:] What is the main motivation?

Q14. Have any of your customers, who participated in the BizEnergySaver/CoolSaver program, indicated having any future upgrade/improvement project plans they will complete in the next year?

Q15. In your opinion, what is the main barrier for customers to participate in the CoolSaver/BizEnergySaver program? (Probe: have any customers provided feedback on the requirement to work with a qualified contractor)

Wrap-up/Future Opportunity

Finally, I have a few questions about future growth opportunities for the CoolSaver/BizEnergySaver program.

Q16. Do you install incentivized equipment in non-participating [for BizEnergySaver: buildings, for CoolSaver: homes]?

a. If yes, on average, how many measures per year?

Q17. To what extent does the program influence you to recommend incentivized equipment to non-participants?

Q18. Finally, besides what we have already discussed, do you see any opportunities to improve the delivery of CoolSaver/BizEnergySaver?

Those are all the questions I have. Unless you have any questions for me or additional feedback, we are finished. Please feel free to reach out via email or phone if you think of anything we did not cover during our discussion today.