2021-2024 CDM Framework Small Business Program PY2024 Evaluation Results

Submitted to IESO
in partnership with NMR Group

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Acronyms and Abbreviations

CE	Cost Effectiveness
CF	Coincidence factor (CF) is the summer peak demand (kW) divided by energy (kWh)
EM&V	Evaluation, measurement, and verification
EUL	Effective useful life
FR	Free-ridership
HVAC	Heating, ventilation, and air conditioning
IDI	In depth interview
IESO	Independent Electricity System Operator
kW or kWh	kilowatt or kilowatt-hour
LED	Light emitting diode
MW or MWh	Megawatt or Megawatt-hour
NTG	Net-to-gross
PAC	Program Administrator Cost Effectiveness test
PY	Program year
SO	Spillover

1 Executive Summary

The Independent Electric System Operator (IESO) retained Resource Innovations, Inc., and its subcontractor, NMR Group, Inc., (referenced throughout this report as 'the evaluation team'), for the evaluation of the 2021-2024 Conservation and Demand Management (CDM) Framework business programs. This report presents the results of the impact and process evaluations, cost-effectiveness assessment, and non-energy benefits (NEBs) analysis for the Program Year (PY) 2024 Small Business Program (SBP).

1.1 Program Description

The SBP provides owners and tenants of small businesses (with a peak operating capacity of 50 or fewer employees) an opportunity to receive up to $3,000 in free lighting equipment upgrades and up to $2,500 in free non-lighting equipment upgrades, at no cost. Participants who wish to have qualified equipment installed above incentive limits become eligible for partial cost coverage incentives intended to further the program's impact and reach. The program defines eligible measures, which include a wide variety of lighting fixtures and lamps, refrigeration measures, and HVAC measures. All participants must own or lease the facility where the installation will be carried out, and rental units require the owner/operators' approval before upgrades can be made.

1.2 Evaluation Objectives

The IESO has outlined the following objectives for the PY2024 SBP evaluation:

- Conduct audits of completed projects to evaluate, measure, and verify completion and operating parameters through desk reviews, site visits, and on-site metering.
- Verify gross energy and summer peak demand savings for SBP at a 90% confidence level at 10% precision.
- Assess free-ridership and participant spillover to determine an appropriate net-to-gross (NTG) ratio.
- Research specific areas of interest to help the IESO improve the SBP and prepare for future program designs and evaluations.
- Perform a cost-effectiveness assessment, greenhouse gas (GHG) reduction estimate, non-energy benefits (NEBs) analysis, and job impact quantification for the SBP.
- Conduct a process evaluation by addressing research questions identified with the IESO.
- Deliver annual reports, memos, and impact and CE results templates along with a final report that meet the requirements and deadlines set by the IESO.
- Provide thoughtful recommendations on program improvements based on feedback obtained through the evaluations.

- Provide an overview of the evaluation results from all four program years of the 2021-2024 CDM Framework.

1.3 Summary of Results

1.3.1 Impact Evaluation

The evaluation team conducted an impact evaluation to analyze program impacts and to quantify savings generated due to implementation of SBP projects in Ontario during PY2024. Over the evaluation period, 2,776 projects were completed. The PY2024 SBP achieved effective energy and summer peak demand realization rates of 100.9% and 90.2%, respectively. These realization rates included interactive effects observed on HVAC equipment due to high-efficiency lighting. The energy and summer peak demand NTG ratios were 95.0% and 94.1%, respectively. A total of 98.4% of first year net verified energy savings are projected to persist to 2026. Savings persistence is detailed in section 4.5. In PY2024, the SBP achieved a PAC net benefit ratio of 0.91. Section 5 presents detailed cost effectiveness results. Table 1-1 presents gross and net verified impact results for the PY2024 SBP. Section 4 presents detailed impact results for the PY2024 SBP.

Table 1-1 2024 SBP Impact Results

Savings	Reported Savings	Realization Rate	Gross Verified Savings	NTG Ratio	Net Verified Savings	Net Verified Savings in 2026
Energy (MWh)	10,288	100.9%	10,376	95.0%	9,859	9,699
Summer Peak Demand (kW)	2,702	90.2%	2,436	94.1%	2,292	2,271

Table 1-2 presents energy and summer peak demand realization rates for the PY2024 sample, split into lighting and non-lighting measure tracks. Overall, the sample energy realization rate achieved 7.8% precision at the 90% confidence level and the summer peak demand realization rate achieved 9.1% precision at the 90% confidence level. The overall program realization rates of 100.9% for energy and 90.2% for summer peak demand were weighted by the contribution percentage to total program savings by lighting and non-lighting measures.

Table 1-2 2024 SBP Sample Realization Rates

Measure Type	Energy Realization Rate	Energy Realization Rate Relative Precision	Summer Peak Demand Realization Rate	Peak Demand Realization Rate Relative Precision
Lighting*	101.4%	8.4%	90.4%	10.8%
Non-Lighting**	107.0%	14.3%	111.2%	11.3%

* Reported precision is at 90% confidence interval.
** Reported precision is at 85% confidence interval.

1.4 Key Findings and Recommendations

This section summarizes the top PY2024 evaluation key findings and recommendations. Section 8 presents findings and recommendations in greater detail.

Finding 1. SBP Cost-Effectiveness did not achieve a Program Administrator Cost (PAC) ratio above 1.00 in PY2024. The increased installation of LED troffers in PY2024 was a primary driver of the decreased cost effectiveness compared to previous years of the framework. LED troffers achieved a PAC ratio of 0.66 in PY2024 primarily due to the high incentive cost of the measure. In PY2024 LED troffers experienced a large increase in participation compared to previous years of the SBP, contributing 15% of program net savings while accounting for 25% of program measure costs, bringing down the overall program PAC cost effectiveness results. Similarly, Linear LED fixtures achieved a PAC ratio of 0.68 in PY2024 although they only accounted for 3% of program savings. T8 LED lamps are often a viable retrofit alternative option instead of integrated LED troffer and LED linear fixtures, achieving similar per fixture energy and demand savings at a much lower cost to the program. In PY2024 T8 LED tubes achieved a positive CE with a PAC ratio of 1.12. The average incentive paid per net verified first year energy savings was $0.62/kWh for T8 LED tubes compared to $1.04/kWh for LED troffers and $1.02/kWh for Linear LED fixtures.

- **Recommendation 1.** When a participant has options to install either integrated LED troffers/LED Linear fixtures or lower cost T8 LED tubes, consider cost-sharing requirements if the participant decides to implement the high-cost integrated LED fixture option. Cost-sharing requirements would decrease the program incentive payments for these measures and improve PAC CE.

Finding 2. Awareness of and interest in SBP's non-lighting equipment offerings continued to be relatively low among participants, although implementation of these measures did increase in PY2024. Non-Lighting measures contributed 8% of PY2024 net-verified energy savings. This is a notable increase compared to only 2% of savings in PY2023, 4% in PY2022, and 0% in PY2021. However, one SBP delivery region, which accounts for a significant portion of all projects and energy savings in PY2024, did not install

any non-lighting measures during the program year. The delivery vendor for this region noted that the amount of travel required coupled with related program cost caps are key barriers to completing assessments and installations in this region. Only about one-third (35%) of participants who installed lighting-only equipment were aware that the program offered non-lighting equipment upgrades. Relevant recommendations from in-depth interviews with IESO staff and delivery vendors, and the web survey of assessors and installers include additional assessor and installer training associated with non-lighting equipment and services; ensuring that the program continues to emphasize the customer's experience and satisfaction; considering cost share models; improving marketing; providing incentives for thermostat C-wires; conducting a gap analysis of equipment and incentives offered; and reviewing cost caps frequently.

- **Recommendation 2a.** Identify opportunities to minimize the risks and costs associated with non-lighting equipment and services to customers and program delivery vendors (e.g., considering cost share models, conducting a gap analysis of equipment and incentives offered, and reviewing cost caps frequently). Work with the regional service providers to identify solutions for overcoming barriers to implementing non-lighting measures in the region with zero participation in PY2024 and assess whether additional resources or education are needed in that region. Investigate what strategies in other regions led to the successful increase in non-lighting measure implementation.
- **Recommendation 2b.** Ensure that the program continues to emphasize the customer's experience and satisfaction. For non-lighting equipment specifically, consider devoting more focus to ensuring customers understand what equipment will be installed, ensuring customers know who to reach out to if an issue emerges and what the resulting procedure is, and ensuring the assessors and installers are escalating issues to the senior delivery vendor staff when necessary.
- **Recommendation 2c.** Consider refreshing the non-lighting options to better align with customer interest where feasible and cost-effective. Refer to Process Progress Update 1 in the Progress Updates on Previous Recommendations section for non-lighting equipment and service recommendations.

Finding 3. Errors in the SBP eligible measures list led to inaccurate reported savings. For ECM measures, there is a mismatch in the savings in the eligible measures list (which matches the program reported savings) and what the reported savings should be as established by the SBP Measures and Assumptions List (MAL). The error results in reported savings being lower than they should be (as established in the MAL and aligning with verified savings results) for the ECM for evaporator fan (Cooler) of two motor sizes and ECM for evaporator fan (Freezer) for all motor sizes. Another observation is the 8' length T8 LED tube replacement offered in the program is listed as a type A (tube re-lamp). However, program data and field verification show these measures are type B lamp retrofits. Type A LED lamps are ballast driven and directly replace fluorescent lamps with no electrical work

required. Type B LED lamps require rewiring of the fixture to supply the lamp with line voltage without the ballast. Additionally, the evaluator encountered situations where the installed light fixtures were of higher wattage than the maximum allowed as established by the SBP Eligible Measures List.

- **Recommendation 3a.** Update the SBP Eligible Measures List to ensure that it aligns with the measure savings as established by the SBP Measures and Assumptions List.
- **Recommendation 3b.** Update the SBP Eligible Measures List to align with the type of retrofit that is actually offered and installed in the field by service providers.
- **Recommendation 3c.** Require implementers to include model numbers on project invoices. These can be used to verify measure eligibility.

Finding 4. The level of project documentation available was not of consistent quality across all SBP delivery regions. One region typically lacked clear and comprehensive photographs of baseline and retrofit equipment. Additionally, this region included the two projects with highest reported energy savings in the PY2024 sample – both of which had significantly lower verified savings than reported. The main reason for the low realization rate of both projects was due to lower verified annual operating hours than reported values. These projects had lighting measures installed in multiple unique spaces within the facility. Even though some of these spaces had low annual operating hours, the operating hours from the highest usage areas were applied to all measures in the project. The verified savings of these two projects showed substantial variance from the reported values and the rest of the PY2024 lighting sample.

- **Recommendation 4a.** Require an extra level of project review for projects over a savings threshold, such as 25,000 kWh. For these large projects, IESO staff should reach out directly to program participants to verify measure baselines and annual operating hours.
- **Recommendation 4b.** Consider allowing for the collection of operating hours by each space with unique operating hours instead of applying one schedule to all fixtures and spaces in a facility.
- **Recommendation 4c.** Specify what information should be captured in pre-retrofit and post-retrofit pictures taken by SBP assessors/installers. All pre and post retrofit equipment should be clearly photographed showing the wattage and/or model number with accurate labeling of the equipment type, location within the facility, and condition of the equipment.

2 Introduction

The Independent Electric System Operator (IESO) retained Resource Innovations and its partner, NMR Group, Inc. (referred to throughout this report as 'the evaluation team'), to evaluate the 2021-2024 Conservation and Demand Management (CDM) Framework business programs. This report provides impact and process evaluations, a cost-effectiveness (CE) assessment, non-energy benefits (NEBs), and job impact results for the PY2024 Small Business Program (SBP).

2.1 Program Description

The SBP provides owners and tenants of small business commercial, institutional, agricultural, and multifamily facilities that have a peak operating capacity of 50 or fewer employees with an opportunity to receive up to $3,000 in free lighting upgrades and up to $2,500 in free non-lighting upgrades. Participants seeking to install qualified equipment above incentive limits become eligible for additional incentives, intended to further the program's impact and reach. The program defines eligible measures, which include a wide variety of lighting fixtures, lamps, refrigeration measures, and HVAC measures. All participants must own or lease the facility where installations will be carried out, and rental units require an owner/operators' approval before upgrades can be made.

During the PY2023 program year, the SBP increased the lighting measures incentive cap from $2,000 to $3,000 on November 6, 2023. Past SBP participants can apply for an additional top up incentive to the total of $3,000, which includes receiving a new assessment to identify additional lighting opportunities.

2.2 Evaluation Objectives

The IESO outlined the following objectives for the PY2024 SBP evaluation:

- Conduct audits of completed projects to evaluate, measure and verify completion and operating parameters through desk reviews, site visits, and on-site metering.
- Verify gross energy and summer peak demand savings for SBP at a 90% level of confidence at 10% precision.
- Assess free-ridership and participant spillover to determine an appropriate net-to-gross (NTG) ratio.
- Research specific areas of interest to help the IESO improve the SBP and prepare for future program design and evaluations.
- Perform a cost-effectiveness (CE) assessment, greenhouse gas reduction (GHG) estimate, Non-Energy Benefits (NEBs) analysis, and job impact quantification for SBP.
- Conduct a process evaluation by addressing research questions identified with the IESO.

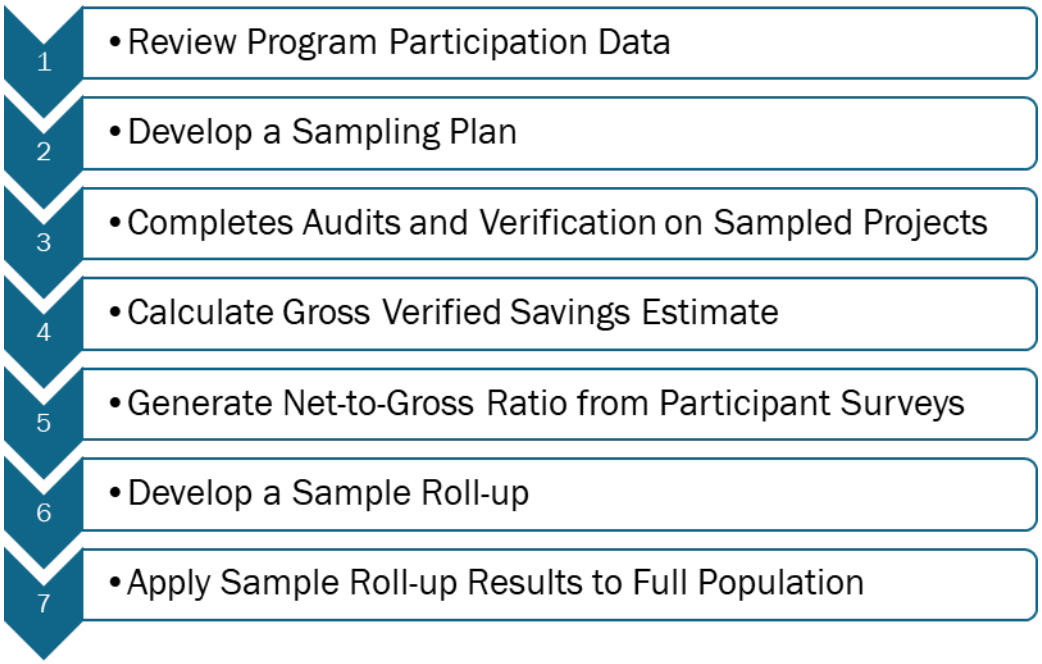
- Deliver annual reports, memos, and impact and CE results templates along with a final report that meet the requirements and deadlines set by the IESO.
- Provide thoughtful recommendations on program improvements based on feedback obtained through the evaluations.
- Provide an overview of the evaluation results from all four program years of the 2021-2024 CDM Framework including energy and summer peak demand savings, adjustment factors, NTG, CE, GHG, NEBs, job impacts, and program design and implementation.
- Provide an overview of 2021-2024 CDM Framework Key Findings & Recommendations (KF&Rs) and how the program responded to the KF&Rs throughout the framework.

3 Evaluation Methodology

3.1 Impact Evaluation Methodology

Figure 3-1 portrays the impact evaluation methodology's distinct components.

Figure 3-1: Impact Evaluation Methodology



3.1.1 Project Participation and Sampling

The evaluation team drew an impact evaluation sample from PY2024 SBP projects completed and paid for between January 1 and December 31, 2024. The PY2024 SBP population was stratified into lighting and non-lighting tracks. While the evaluation objectives established the target for verified savings at a 90% level of confidence at 10% precision at the program level, the evaluators attempted to verify savings at the 90% level of confidence at 10% precision for each lighting and non-lighting tracks. As shown in Table 3-1, the team achieved the targeted sample size for both the lighting and non-lighting tracks.

Table 3-1: Impact Evaluation Sample

Project Type	Target Sample	Achieved Sample
Lighting	68	68
Non-Lighting	56	56
Total	**124**	**124**

The team reviewed each sample project to verify gross and net savings, using these individual sample project results to calculate realization rates ratio adjustment factors applied to savings for all projects in the PY2024 population. Appendix C and Appendix D provide additional details.

3.1.2 Net-to-Gross Evaluation Methodology

The evaluation team utilized the participant self-report survey results to estimate the NTG ratio. The survey used the same sample design for the NTG and process evaluations as the participant self-report survey included both evaluation areas. The evaluation team developed the sample at a province-wide level. The survey sought and achieved a NTG at 90% confidence and 10% precision in the results.

The evaluation team calculated net energy and summer peak demand savings attributable to the SBP by multiplying the gross verified energy and summer peak demand savings by the NTG. The team used this equation and the general methodology to estimate net energy and summer peak demand savings. The team based the NTG ratio on measurement of free-ridership and spillover, as defined in Equation 3-1.

Equation 3-1: NTG Ratio

$$NTG = 1 - Free\ Ridership + Spillover$$

Appendix D provides additional details on the NTG methodology.

3.2 Process Evaluation Methodology

The process evaluation focused on program design and delivery, assessing program processes through interviews and surveys with relevant program actors. These included IESO program staff, program delivery vendor staff, assessors and installers, and participants. For each respondent type, the evaluation team developed a customized interview guide or survey instrument to ensure the responses produced comparable data and allowed for the inference of meaningful conclusions.

Table 3-2 presents the survey methodology, the total population invited to participate in surveys or interviews, the total number of completed surveys or in-depth interviews (IDIs), and the sampling error at the 90% confidence level for each respondent type. Appendix E provides additional detail regarding the process evaluation methodology.

Table 3-2: Process Evaluation Primary Data Sources

Respondent Type	Methodology	Population	Completes (Web)	Completes (Phone)	Completes (Total)	Response Rate	90% CI Error Margin
IESO Program Staff	Phone IDI	3	-	3	3	100%	0%
Program Delivery Vendor Staff	Phone IDI	2	-	2	2	100%	0%
SBP Assessors and Installers	Web Survey	53	13	-	13	25%	N/A*
SBP Participants	Web and Phone Survey	2,196	320	17	337[1]	15%	4.1%

* Error margin not displayed if the respondent count falls below 30 unless a census is achieved.

3.3 Non-Energy Benefits Methodology

For PY2024, the SBP evaluation utilized the same NEBs methodology used from the four previous studies (the *PY2023, PY2022, and PY2021 SBP Evaluation Reports* and the *Non-Energy Benefits Study: Phase II*). These studies assessed NEBs from energy-efficiency projects funded by the IESO over the 2017-2023 period.[2]

For this evaluation, the team calculated NEBs using two different techniques: the relative scaling approach and the willingness-to-pay approach. These determined the value of NEBs, as realized by program participants that installed program measures. All survey respondents were asked to value all NEBs using both techniques. The team used data collected from these surveys to quantify the NEBs. Appendix I provides additional details regarding the NEB methodology.

[1] The NTG evaluation included more respondents (n=347) than the process evaluation (n=337), as 10 respondents did not fully answer the process evaluation survey questions.
[2] Dunsky. (July 2021). *Non-Energy Benefits: Phase II; Quantified Benefits and Qualitative Insights*. https://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Non-Energy-Benefits-Study-Phase-II.ashx

4 Impact Evaluation Results

4.1 Participation

During PY2024, 2,776 SBP projects were completed in the province. This was the highest participation count during the four years of the 2021-2024 CDM framework. The SBP is delivered in five distinct Delivery Regions: Central, Eastern, Northern, Southwestern, and Toronto. Figure 4-1 below presents the full breakout of the percentage of projects completed in each geographical region. In PY2024, the Central region contributed the most to the SBP project count, accounting for 33% of all completed projects.

Figure 4-1: PY2024 SBP Project Count by Region

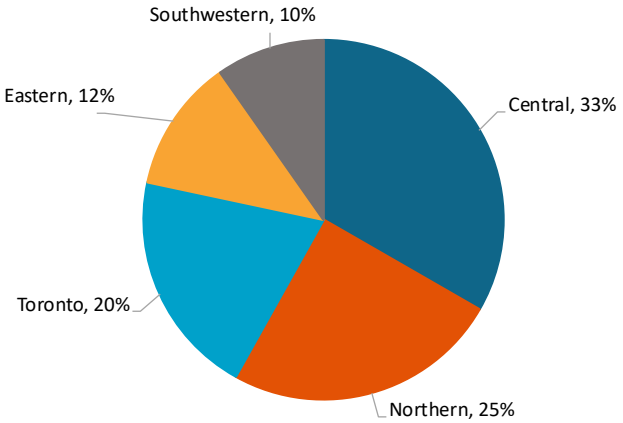


Table 4-1 compares the PY2024 SBP project count to the four years of the 2021-2024 CDM Framework.

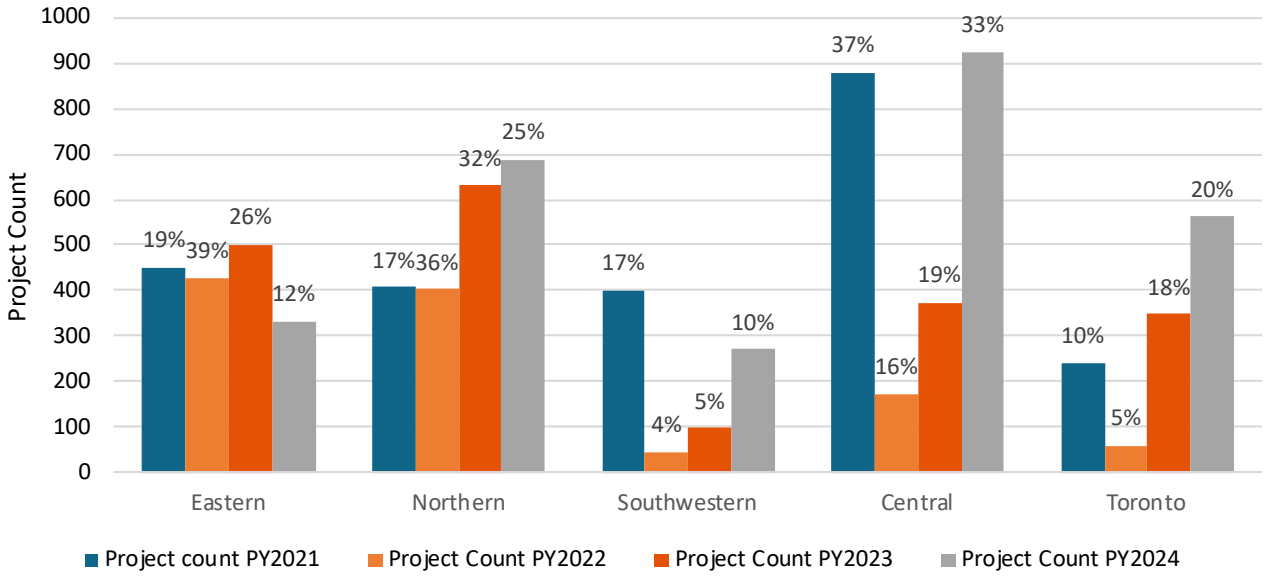
Table 4-1: 2021-2024 CDM Framework SBP Delivered Project Counts

Program Year	Project Count
2021	2,377
2022	1,107
2023	1,948
2024	2,776
2021-2024 CDM Framework Total	8,208

Figure 4-2 compares the 2021- 2024 CDM Framework SBP project counts by region and includes each region's percentage contribution to total SBP projects for that program year. The Southwestern, Central, and Toronto regions experienced reduced program participation during PY2022 and PY2023. Notably, those regions experienced an unplanned

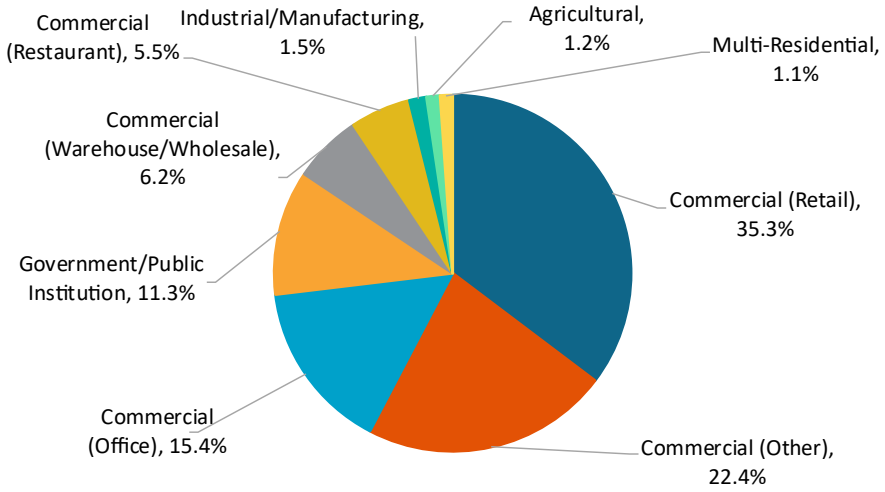
mid-cycle transition to a new implementer during PY2022, which significantly affected program delivery during PY2022 and PY2023 but appeared to recover well in PY2024.

Figure 4-2: 2021-2024 CDM Framework SBP Projects by Region



The SBP database contained information regarding each completed project's facility type, reporting a total of 36 unique facility types. The team re-categorized each unique entry into one of nine possible facility types. Appendix J provides a full list of facility types reported in the PY2024 SBP database and their respective re-categorized designation. The retail sector, followed by commercial (other) and commercial (office), contributed the most to the PY2024 SBP, accounting for 73% of completed projects. For the PY2024 SBP, Figure 4-3 presents the full project-count distribution by identified facility type.

Figure 4-3: Project Count Percentage by Facility Type



4.2 Energy and Demand Savings

Table 4-2 provides the PY2024 SBP's overall impact savings results. The net verified energy and summer peak demand savings persisting to 2026 were 9,699 MWh and 2,271 kW, respectively. Gross verified savings include interactive effects for applicable lighting measures.

Table 4-2: PY2024 SBP Energy and Summer Peak Demand Savings

Savings Type	Gross Reported Savings	Gross Verified Savings	Net Verified Savings	Net Verified Savings Persisting at 2026
Energy (MWh)	10,288	10,376	9,859	9,699
Summer Peak Demand (kW)	2,702	2,436	2,292	2,271

Table 4-3 provides energy and summer peak demand sample realization rates for lighting measures and non-lighting measures in the PY2024 SBP sample. The program achieved a weighted-average[3] 100.9% energy realization rate and a 90.1% summer peak demand realization rate. Program realization rates presented in Table 4-3 include interactive effects that occurred for HVAC operation due to lighting retrofits. Appendix C describes the methodology used for calculating interactive effects.

[3] Two lighting projects in the sample were determined to be outliers not representative of the population and their verified savings results were not extrapolated to the rest of the PY2024 population. This is discussed further in Section 4.3.2.1

Table 4-3: PY2024 SBP Sample Realization Rates

Measure Type	Energy Realization Rate	Energy RR Relative Precision	Summer Peak Demand Realization Rate	Peak Demand RR Relative Precision
Lighting*	101.4%	8.4%	90.4%	10.8%
Non-Lighting**	107.0%	14.3%	111.2%	11.3%
Program Total*	100.9%	7.8%	90.1%	9.1%

* Reported precision is at 90% confidence interval.
** Reported precision is at 85% confidence interval.

Figure 4-4 presents PY2024 SBP's first year net-verified energy savings contribution and completed project count by region. The Central and Northern regions each accounted for 31% of the program's net-verified energy savings.

Figure 4-4: 2024 SBP First Year Net Verified Energy Savings and Completed Projects by Regions

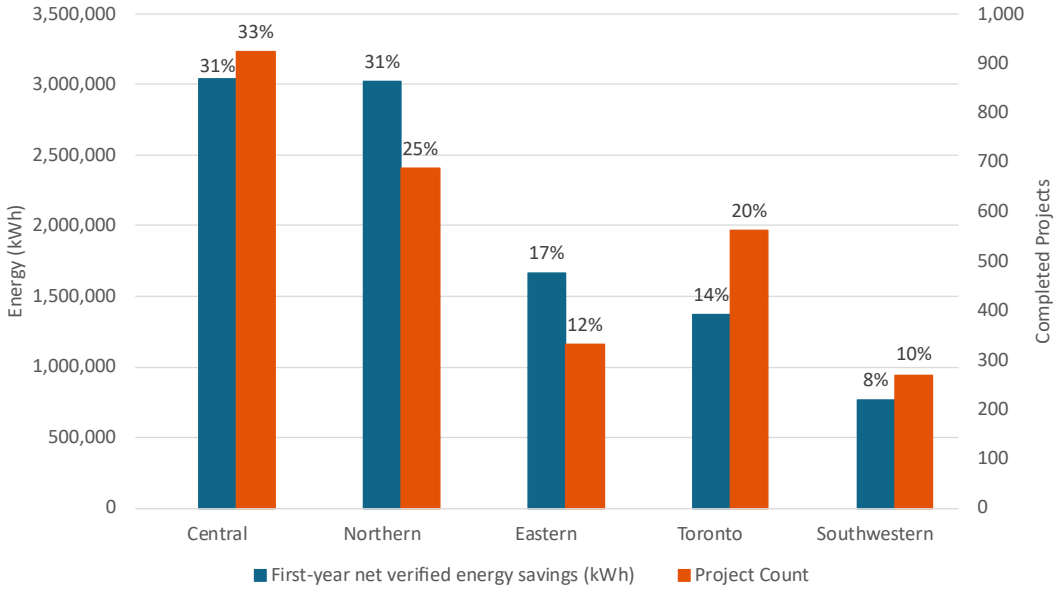


Table 4-4 shows the average first year net verified energy savings per project for each of the five SBP delivery regions. The Eastern region achieved the highest average project size at 5,033 kWh per project, over double the Toronto region average project size of 2,442 kWh, which was the lowest of the regions.

Table 4-4: Average Project Energy Savings by Regions

Region	Project Count	Net Verified First Year Energy (MWh)	Average Project Size (kWh)
Central	925	3,041	3,287
Northern	688	3,018	4,387
Toronto	562	1,373	2,442
Eastern	331	1,666	5,033
Southwestern	270	762	2,822
Total	2,776	9,859	3,552

4.3 Impact Evaluation Findings

The following sections provide details on impact findings for installed measures, first year net savings, contributions by measure, upgraded facility types, incentives, and program realization rates.

4.3.1 SBP Measure Types

In PY2024, lighting measures produced the majority of the SBP's net-verified first year savings (92%) and savings persisting to 2026 (94%). Refrigeration and HVAC measures each contributed 3% of persisting net energy savings. While refrigeration measures contributed 5% of first year net savings, the persisting savings in 2026 attributed to refrigeration measures are lower due to the one-year EUL of the condenser coil cleaning measure. Among refrigeration measures, coil cleanings were the largest contributor to first year savings at 33% followed by ECMs at 29%, night covers at 27%, and strip curtains at 10%. Table 4-5 shows the breakdown of both first year verified energy and summer peak demand savings and savings persisting to 2026 by end-use.

Table 4-5: Net Verified Savings by End-Use

End-Use	Net Verified First year Energy Savings (MWh)	Net Verified First Year Summer Peak Demand Savings (kW)	Net Verified Energy Savings in 2026 (MWh)	Net Verified Summer Peak Demand Savings in 2026 (kW)
Lighting	9,102	2,193	9,102	2,193
Refrigeration	481	44	320	24
HVAC	276	54	276	54
Total	9,859	2,292	9,699	2,271

During PY2024 the SBP experienced a significant increase in the implementation of non-lighting measures compared to previous years of the framework. One of the key findings and recommendations from the PY2023 evaluation was to increase implementation of non-lighting measures in the program through increased marketing, training and assistance. These efforts appeared to be successful seeing non-lighting measures contribute 8% of PY2024 first year net-verified energy (0.76 GWh) savings compared to only 2% in PY2023 (0.17 GWh), 4% in PY2022 (0.20 GWh) and 0% PY2021.

Figure 4-5 below shows the full distribution of energy savings by measure type for SBP in PY2024. T8 LED lamps and LED troffers produced the most lighting savings, making up 61% and 15% of total first year net-verified energy savings, respectively. The T8 lamps category was consistently the largest contributor to program savings for all four years of the 2021-2024 CDM framework. LED troffers' contribution to program savings is increasing, contributing 15% this year compared to 7% in PY2023. Conversely, savings contribution from screw-in LED is decreasing, being the fourth largest contributor in PY2024 (0.65 GWh) while it ranked second in PY2023 (0.79 GWh) as well as the previous years of the framework.

Figure 4-5: 2024 SBP Net Energy Savings Contributions by Measure Type

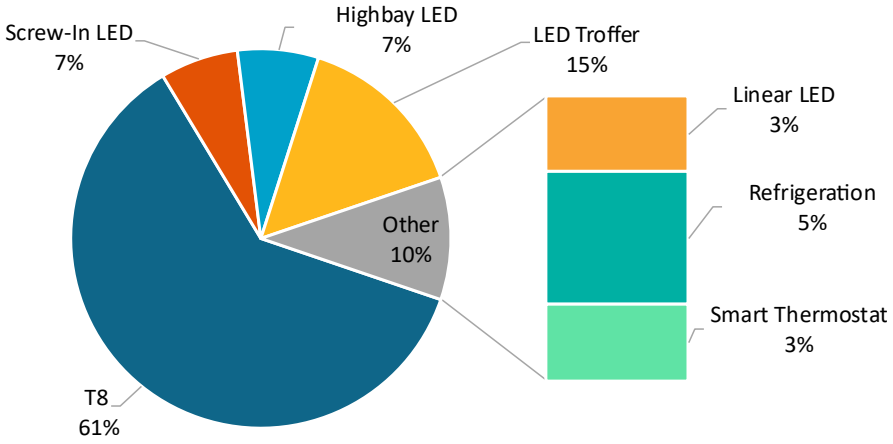
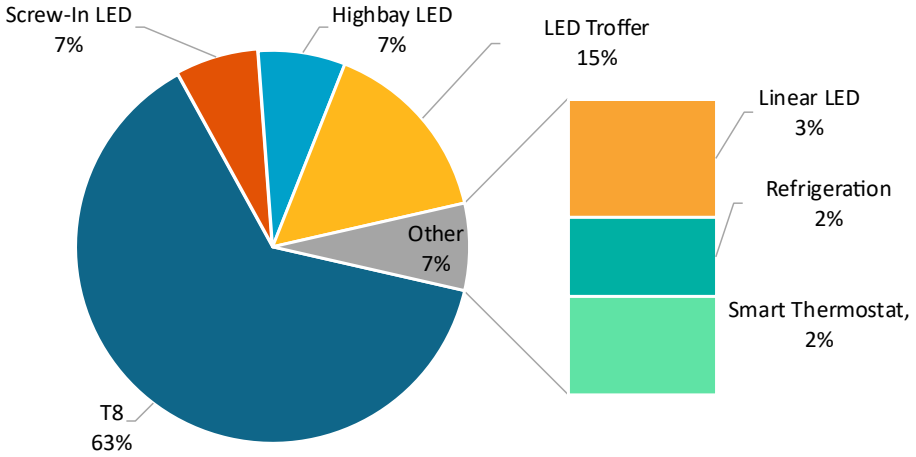


Figure 4-6 shows the full distribution of summer peak demand savings by measure type for the 2024 SBP T8 Linear LEDs and LED troffers served as the two main contributors to 2024 SBP's total net-verified summer peak demand savings, accounting for 63% and 16%, respectively.

Figure 4-6: 2024 SBP Net Summer Peak Demand Savings by Measure Type*



*Does not sum to 100% due to rounding.

4.3.2 Realization Rates

4.3.2.1 Lighting Measures

The standard equations for calculating energy and peak demand savings produced by lighting upgrades depend on three main inputs: hours of use (HOU), fixture wattages, and fixture counts. A difference between verified and reported values across these three main

inputs leads to an adjustment in savings through the realization rate. As discussed, lighting measures achieved 92% of program first year net-verified energy and demand savings. Table 4-6 shows reported and verified savings for lighting measures in PY2024 SBP.

Table 4-6: PY2024 SBP Lighting Savings

Measurement	Gross Reported Savings	Realization Rate	Gross Verified Savings
Energy (MWh)	9,543	100.4%	9,579
Summer Peak Demand (kW)	2,608	89.4%	2,332

During the PY2024 evaluation, two projects in the evaluation sample were significantly larger than the other projects in the sample and had an outsized impact on evaluation results. These two projects averaged 59,329 kWh in reported energy savings compared to the PY2024 average project size of 3,552 kWh. Additionally, the verified savings for these two projects had very high variance compared to other evaluated projects in the sample. The verified savings results for these two projects were not extrapolated to the remaining population and were only attributed to the individual projects. For future program evaluations, stratifying lighting projects by project size will be considered if similar outliers are encountered.

4.3.2.1.1 Hours of Use[4]

The SBP assessment tool only accepted one schedule for an entire facility. The PY2024 lighting sample (n=68) included 8 instances where lighting equipment was installed in multiple spaces with varying schedules or seasonal operational variations verified. With only one input schedule available for reported energy savings, assessors tended to input the schedule corresponding to the greatest number of hours among the various schedules. This is observed in the lower realization rates of the 8 projects with multiple verified operating schedules which achieved an 82.1% energy realization rate compared to the sampled projects with a single verified operating schedule which achieved a 103.3% energy realization rate. Based on the weighting of project savings the overall lighting sample energy realization rate was 101.4% as shown in Table 4-3.

The evaluators also compared the verified annual operating hours against the hours recorded in the project work order during the initial project proposal walkthrough. The weighted average reported annual operating hours of 4,105 was only 2% higher than the weighted average verified annual operating hours of 4,027. This demonstrates that the

[4] This excludes the two outlier projects whose results were not extrapolated to the rest of the PY2024 population.

program succeeded in collecting accurate annual operating hours from participants in PY2024.

4.3.2.1.2 Interactive Effects

Reported savings achieved through the SBP did not include interactive effects observed for HVAC equipment operations through the installation of more efficient lighting fixtures. Verified savings were calculated with and without these interactive effects. Table 4-7 below shows the verified energy savings with and without interactive effects. Verified energy and demand savings presented elsewhere in this report include interactive effects. This table also presents the additional verified energy savings and gas penalty attributable to HVAC interactive effects in PY2024.

Table 4-7: Significance of Interactive Effects on 2024 SBP Energy Savings

Interactive Effects	Reported Energy Savings (MWh)	Energy Realization Rate	Gross Verified Energy Savings (MWh)	Additional Interactive Savings (MWh)	Gas Heating Penalty (MMBtu)
Not Included	10,288	99.1%	10,191	-	-
Included	10,288	100.9%	10,376	185	-11,875

Table 4-8 below shows the verified summer peak demand savings with and without interactive effects, and the additional verified demand savings attributed to HVAC interactive effects in PY2024.

Table 4-8: Significance of Interactive Effects on 2024 SBP Summer Peak Demand Savings

Interactive Effects	Reported Demand Savings (kW)	Summer Peak Demand Realization Rate	Gross Verified Summer Peak Demand Savings (kW)	Additional Interactive Savings (kW)
Not Included	2,702	84.9%	2,294	-
Included	2,702	90.2%	2,436	143

4.3.2.2 Non-Lighting Measures

Of the 2,776 projects implemented in PY2024, 211 included lighting and non-lighting measures, and an additional 105 consisted of non-lighting measures only. Five non-lighting measure categories were implemented in PY2024: ECM motors, strip curtains, coil cleaning, night covers, and smart thermostats. Table 4-9 presents energy and summer peak demand realization rates for sampled non-lighting measures in PY2024.

Table 4-9: Non-Lighting Energy and Summer Peak Demand Realization Rates for 2024 SBP

Measurement	Reported Savings	Realization Rate	Gross Verified First Year Savings
Energy (MWh)	745	107.0%	797
Summer Peak Demand (kW)	94.0	111.2%	104.5

Table 4-10 presents the quantity of measures and resulting energy and summer peak demand savings for non-lighting measures implemented in PY2024. Smart thermostats were the largest contributor to PY2024 energy and demand savings, followed by coil cleaning and ECM measures.

Table 4-10: 2024 SBP Non-Lighting Participation by Measure Type

Measure Type	Quantity	Net Verified First Year Energy Savings (kWh)	Net Verified First Year Summer Peak Demand Savings (kW)
Smart Thermostat	273	276,289	54
Coil Cleaning	565	160,749	20
ECM	467	140,348	18
Night Cover	93	130,820	0
Strip Curtains	96	49,083	6
Total	1,494	757,290	98

This section details the key inputs for calculating energy and summer peak demand savings produced by each non-lighting measure category. The difference between verified and reported values across these inputs lead to adjustments in savings through the project realization rates.

Assessed savings for ECM motors depended on five main inputs: ECM input power, baseline motor types, cooler or freezer installations, walk-in or reach-in unit installations, and condenser fan or evaporator fan installation. For an ECM motor installed on a condenser fan, an additional consideration arises from the facility's geographic location, due to the weather-dependence of equipment operation. Main factors influencing the ECM motors' RR included the baseline motor type (shaded pole [SP] or permanent split capacitor [PSC]) and installations in walk-in or reach-in units. Baseline motor types could not be verified with information collected by delivery vendors and typically could not be verified by participants during site visits and desk reviews, resulting in an unknown baseline motor type. When the baseline motor type remained unknown, the evaluation team assumed a weighted average input wattage for SP and PSC motor types. Installation in walk-in or reach-in units could be verified by participants during site visits and desk reviews. In PY2023, multiple evaluated

projects reported improperly installed ECM retrofits, resulting in broken coolers/freezers that were no longer used and resulting in zero verified savings for those measures. None of these issues were encountered during the PY2024 impact evaluation indicating that the program properly addressed these issues and was one of the main reasons for the improved non-lighting realization rates in PY2024. ECM measures had a high realization rate in PY2024 due to the error in measure reported savings as detailed in Finding 3 of the Key Findings and Recommendations.

Assessed savings for strip curtains depended on four main inputs: facility type, installation in a cooler or freezer, the curtain area, and whether curtains previously existed. The curtain area and facility type proved to be the main factor influencing RRs for strip curtains. Due to usage characteristics, strip curtains in a supermarket have much higher savings than those installed in a convenience store or restaurant. There were some smaller supermarket stores that participated in the SBP in PY2024. Though delivery vendors did not capture the curtain area, these details were able to be verified during site visits and desk reviews.

Assessed savings for the night cover measure relied on hours of use per day, case temperature, area of covers installed, and equipment configuration. Out of the 316 total non-lighting projects in PY2024, only 10 projects (3%) installed night covers, and none of those projects were in the random sample during this year's evaluation.

Assessed savings for coil cleaning depended on four main inputs: the geographic location of the facility, whether it is applied to a reach-in, display case, or a walk-in unit, capacity of the condensing unit, and the cooling efficiency of the system. Application in walk-in versus smaller reach-in and display case units proved a main factor influencing RRs for coil cleaning. It was observed that a significant portion of this measure was implemented on display case and reach-in units, which were verified to have lower energy and demand impacts than walk-in units.

Assessed savings for smart thermostats depended on six main inputs: facility type, facility geographic location, baseline thermostat type, cooling capacity controlled, cooling efficiency, and heating type. For an electric heating type, additional inputs included the heating capacity and the heating system efficiency. The main factors influencing the RR for smart thermostats included the baseline thermostat type and the cooling capacity controlled. While delivery vendors collected baseline thermostat types, reported savings for smart thermostat measure are the same as those for traditional programmable thermostat baselines and non-programmable thermostat baselines. Verified smart thermostat savings, however, are higher per unit for non-programmable thermostat baselines compared to traditional programmable thermostat baselines. Though the delivery vendor did not collect the cooling capacity controlled, the evaluation team estimated this based on information available from participants and on-site verification activities. Other variables that resulted in

reduced verified savings included projects with two thermostats installed where even though they control the same conditioned space, full savings are reported for both units. Additionally, two instances of smart thermostats were installed but not in-use or replaced with traditional programmable thermostats after the initial installation.

4.4 Net-to-Gross

Table 4-11 presents results for the PY2024 SBP NTG evaluation. The evaluation targeted and achieved 90% confidence and 10% precision levels when calculating the NTG ratio for the program. Appendix F.2 provides additional analyses performed to assist in the interpretation of these values.

Table 4-11: SBP NTG Results

Unique Participants	NTG Responses	Savings Weighted Free-Ridership	SO: Energy	SO: Summer Demand	Weighted NTG: Energy	Weighted NTG: Summer peak Demand	Energy NTG Precision at 90% Confidence
2,196	347	6.7%	1.7%	0.8%	95.0%	94.1%	±1.9%

Participant feedback indicates low free-ridership levels at 6.7%, indicating the program largely reached participants who would not have implemented energy-efficiency upgrades without the program.[5] Nearly three-fourths of participants (74%) were not planning on upgrading their equipment before learning about the program.

Of the one-fifth (21%) of participants already planning to upgrade their equipment, almost one-half (49%) would have put off the upgrades for at least one year without the program's support, nearly one-fifth (18%) would have installed less expensive or less efficient equipment, and over one-tenth (11%) would have cancelled the installation altogether. Over one-tenth (13%) would have installed the same equipment and paid the full cost themselves, which is indicative of a high free-ridership level for this subset of respondents. Program participation resulted in lower SO at 1.7%, compared to prior evaluation years, with less than one-tenth (6%) of respondents installing equipment with attributable SO savings.[6] Appendix F.2 provides additional details and visualizations of these analyses.

[5] In the first three years of the 2021-2024 CDM framework, SBP FR values ranged from 7.6% to 13.5%.
[6] In the first three years of the 2021-2024 CDM framework, SBP SO values ranged from 2.9% to 6.3%.

4.5 Savings Persistence

The PY2024 SBP is expected to achieve 128,764 MWh of lifetime net-verified energy savings, based on installed measures and their respective effective useful lives (EULs). Nearly all (98.4%) net savings will persist until 2026. SBP's lifetime savings depend mainly on EULs of the program's measures, which describe how long savings associated with the measure will persist. Persisting annual savings begin to reduce after the first program year due to the Condenser Coil Cleaning measures reaching the end of their one-year EUL. The Condenser Coil Cleaning measure is the only measure with savings that do not persist until 2026.

The IESO's list of eligible SBP lighting measures provides an estimated rated lifespan in hours for each measure, with each measure's EUL calculated using rated life and assumed HOUs. The IESO's list of eligible refrigeration and HVAC measures provides an estimated EUL in years for each measure. Figure 4-7 illustrates annual, net-verified energy savings for the 2024 SBP over time. Coil cleaning offered the shortest EUL among the PY2024 SBP measures at one year, and over 87% of first year net-verified savings had an EUL over 13 years, persisting through 2037.

Figure 4-7: Net Verified Energy Savings Over Time

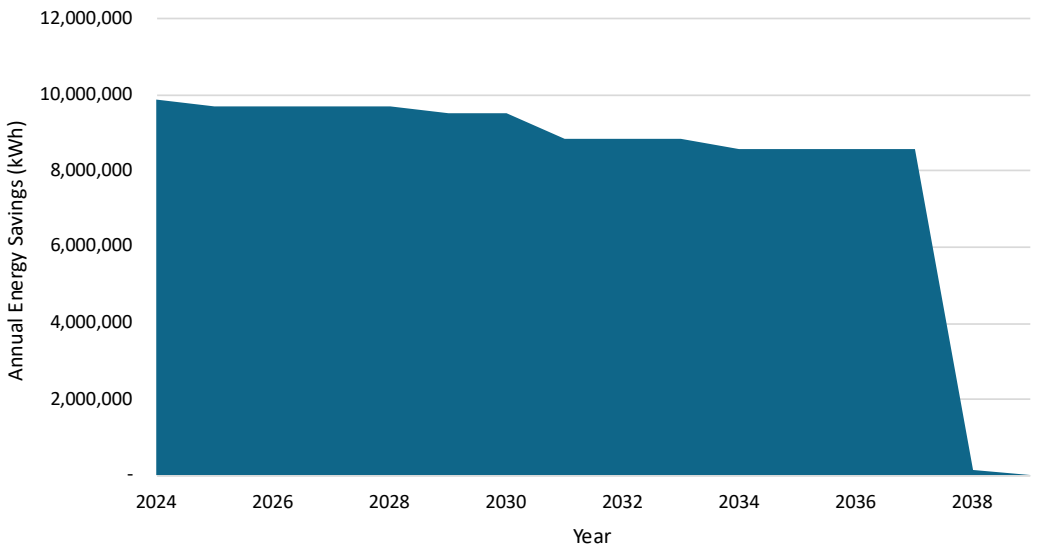


Table 4-12 below and Appendix A reports the total net persisting savings for all years of the 2021-2024 CDM framework SBP. Over the total framework, the SBP contributed 33,630 MWh of net energy savings persisting through 2026 and 8,822 kW of net summer peak demand savings persisting through 2026. PY2024 had the second highest savings of any year, only topped by 11,884 MWh and 3,464 kW net 2026 savings achieved in PY2021.

Table 4-12: 2021-204 CDM Framework SBP Total Net Persisting Savings in 2026

Program Year	Net 2026 Energy (MWh)	Net 2026 Demand (kW)
2021	11,884	3,464
2022	5,009	1,237
2023	7,039	1,850
2024	9,699	2,272
Total	33,630	8,822

5 Cost-Effectiveness

Cost Effectiveness (CE) tests for the SBP were conducted using IESO's CE Tool V9.1. Table 5-1 presents the CE results. The PY2024 SBP achieved a Program Administrator Cost (PAC) ratio of 0.91, slightly under the 1.00 target threshold (designed to determine if a program proves cost-effective).

Table 5-1: SBP Cost-Effectiveness Results

PAC Test	Result
PAC Costs ($)	$7,011,926
PAC Benefits ($)	$6,367,306
PAC Net Benefits ($)	-$644,619
PAC Net Benefit (Ratio)	0.91
Levelized Unit Energy Cost (LUEC)	**Result**
$/kWh	$0.07
$/kW	$315.61

Table 5-2 below shows the PAC ratio and LUEC metrics for all four years of the 2021-2024 CDM Framework. It also shows the total framework CE results where the LUEC values are weighted by each program year's contribution to total benefits. PY2021 achieved the highest PAC ratio during the framework at 1.47. PY2024 was the only program year that did not achieve a PAC ratio greater than 1.00.

Table 5-2: 2021-2024 CDM Framework SBP CE results

Program Year	PAC Net Benefit Ratio	LUEC $/kWh	LUEC $/kW
2021	1.47	$0.04	$134.38
2022	1.18	$0.05	$208.45
2023	1.26	$0.07	$206.66
2024	0.91	$0.07	$315.61
2021-2024	1.16	$0.06	$218.66

Table 5-3 below presents the PY2024 SBP CE results by measure grouping. Consistent with all years of the 2021-2024 CDM framework, Type B T8 LEDs contributed the majority of program PAC net benefits, $464k at a PAC ratio of 1.12. Highbay LEDs were the second largest contributor to net benefits at $230k with a PAC ratio of 1.95. These measure groups

contributed 61% and 7% of the net energy savings respectively in PY2024. Screw-in LEDs was the measure group with the highest PAC ratio of 2.49. Conversely, the two measure groups that negatively impacted the SBP's net benefits the most in PY2024—the LED Troffer and Linear LED—produced PAC net benefits of -$514k and -$88k, respectively. These two measures also produced low PAC ratios of 0.66 and 0.68, respectively. These two measure groups contributed 18% of total SBP net-verified energy and demand savings, but they accounted for 29% of total project costs.

Table 5-3: PY2024 SBP CE Results by Measure Group

Measure Group	Total PAC Benefits ($ nominal)	PAC Costs ($nominal)	PAC Net Benefits	PAC Ratio
T8	$4,178,490	$3,714,974	$463,516	1.12
LED Troffer	$1,016,283	$1,529,906	$(513,623)	0.66
Highbay LED	$471,022	$241,343	$229,679	1.95
Screw-In LED	$243,296	$97,803	$145,493	2.49
Linear LED	$188,852	$276,522	$(87,670)	0.68
Smart Thermostat	$145,984	$100,445	$45,539	1.45
Refrigeration	$122,674	$124,701	$(2,026)	0.98
Lighting Controls	$704	$1,337	$(633)	0.53

The increased installation of LED troffers in PY2024 was a primary driver of the decreased cost effectiveness compared to previous years of the framework. LED troffers have consistently achieved a PAC ratio below 1.0. The 0.66 ratio in PY2024 is lower than the PAC ratio of 0.78 from PY2023 indicating increased equipment costs year over year. However, LED troffers experienced a large increase in participation in PY2024 contributing 15% of program net savings and accounting for 25% of program measure costs compared to 7% of net program savings and 12% of program measure costs in PY2023. The average incentive paid per net verified first year energy savings for LED troffers was $1.04/kWh compared to an overall program average incentive of $0.63/kWh. The increased installation of these measures led to an overall decrease in PAC net benefits attributable to LED troffers of negative $514k in PY2024 compared to negative $96k in PY2023. LED troffers contributed 4% of program net savings in PY2022 and less than 1% of net savings in PY2021. Another driver of decreased CE in PY2024 is the decreasing implementation of screw-in LEDs, which consistently offer among the highest PAC ratios due to their low implementation cost. Screw-in LEDs contributed 23% of program net savings in PY2021, 16% in PY2022, 11% in

PY2023. In PY2024 Screw-in LEDs contributed only 7% of program net savings and 2% of program measure costs. The decreased implementation of Screw-in LEDs is due to proliferation of baseline Screw-in LEDs and the phase out of these measures from the SBP, not just a reflection of changes in customer choices. Similarly, these screw-in LED measures were already phased out of IESO's Retrofit Program and are considered baseline equipment due to the widespread adoption of these LED lamps among consumers. In PY2024, non-Lighting measures positively contributed to measure level CE results with a combined refrigeration and smart thermostat PAC ratio of 1.19. This is greater than the 1.04 measure level PAC ratio achieved by lighting measures. Measure level CE results do not include administrative and program overhead fees which is why the program level CE results are lower than measure level CE results.

6 Process Evaluation Results

The evaluation team performed a process evaluation to better understand SBP's design and delivery. The effort included interviews with the IESO program and delivery vendor staff as well as surveys with assessors, installers, and participants to gather primary data to support the evaluation. The following discussion presents counts rather than percentages if a question received fewer than 20 respondents. In such cases, results should be considered directional, given the small number of respondents.

6.1 IESO Staff and Delivery Vendor Perspectives

6.1.1 Key Findings

Key findings from IESO staff and delivery vendor staff IDIs include the following:

- Both IESO program staff and delivery vendors thought SBP did well in 2024 in terms of achieving its goals and objectives and in meeting their expectations. IESO staff indicated that SBP saw a 50% increase in project volumes in 2024 compared to the previous year.
- SBP raised its lighting project incentive cap from $2,000 to $3,000 in November 2023 and IESO staff indicated that this change likely contributed significantly to the 50% increase in completed projects in 2024 compared to 2023.
- Many projects reached the lighting incentive cap and, according to the delivery vendors, most of those customers reduced the project scope rather than paying out of pocket.
- Delivery vendors were responsible for lead generation and found that canvassing was the most effective way to engage customers.
- Almost all interviewees considered the lack of field staff, particularly assessors, to be a major challenge in 2024, as was the case in earlier years. Offering longer term contracts was recommended as one way to address the shortage as was networking to find qualified personnel.
- A lack of marketing was another key program barrier according to the delivery vendors who noted that increasing program awareness and trust in its legitimacy was critical to the program's success.
- Suggestions for additional lighting equipment and services included more fixtures, recessed downlights, outdoor lighting, signage, and covering the cost of lift rentals.
- Suggestions for additional non-lighting equipment and services to consider included exhaust fans, air curtains, lighting controls, occupancy sensors, rooftop unit (RTU) tune-ups or upgrades, heat pumps, refrigerators, and covering the cost of C-wires.
- Program opportunities exist in addressing key barriers identified by interviewees, especially those related to assessor workforce shortages and performing additional marketing to raise awareness and affirm the program's legitimacy.

- Other recommended opportunities include additional assessor and installer training associated with non-lighting equipment and services; ensuring that the program continues to emphasize the customer's experience and satisfaction, including making sure they know who to contact when issues arise; considering cost share models; conducting a gap analysis of equipment and incentives offered; reviewing cost caps frequently; and identifying any opportunities that may exist to develop partnerships with LDCs as part of the new framework in 2025.

6.1.2 Design and Delivery

IESO staff indicated that the overall goal of SBP in 2024 was to capitalize on as much savings as possible through enrolling as many eligible projects as possible. IESO staff stressed that it was a critical year since the framework was ending. They noted that another key goal in 2024 was to provide a seamless transition for program delivery vendors and customers to the new electricity demand side management (eDSM) framework that began at the start of 2025. The program built on the momentum gained in 2023 after a transition to a new delivery vendor in 2022. IESO staff indicated that SBP saw a 50% increase in project volumes in 2024 compared to the previous year, which they attributed largely to cost cap increases and given that both program delivery vendors were fully ramped up in 2024.

SBP raised its lighting project incentive cap from $2,000 to $3,000 in November 2023 and saw positive impacts on projects size and volume from that increase in 2024. IESO staff and delivery vendors indicated that many projects reached the lighting incentive cap, particularly in northern Ontario. They indicated that most customers who reached the lighting incentive cap reduced the scope of their projects rather than paying out of pocket, and that non-lighting projects rarely reached the incentive cap. Some customers also learned about the top-up incentive through their program delivery vendor, assessors, or word-of-mouth and took advantage of the opportunity.[7] IESO staff indicated that minor changes were made to measures, such as night curtains being split into two measures.

IESO staff reported that the program generally met expectations and that IESO staff worked with delivery vendors to address issues as they arose. Delivery vendors generally concurred and appreciated the collaborative relationship with the IESO.

6.1.3 Customer Engagement

Delivery vendors were responsible for lead generation. Delivery vendors used multiple tactics to generate leads but found that canvassing was the most effective way to engage customers. One delivery vendor noted that having assessors canvass while contractors are installing lighting for projects in the neighborhood was particularly effective. The same

[7] The top-up offering provided an additional $1,000 to previous SBP participants to complete additional work through the program.

delivery vendor said that they also e-mailed business improvement areas and chambers of commerce to ask if they knew of businesses who might be interested; this allowed assessors to conduct multiple visits at a time when visiting a given area.

IESO is responsible for general marketing for the Save on Energy brand in support of the programs, and it takes a digital-first approach (i.e., it leans into digital-based tactics and channels to promote the program, generate awareness, and provide deeper education). IESO marketing runs social media campaigns on major platforms, utilizes search engine marketing, and administers the Save on Energy website. In 2024, IESO marketing made updates to the Save on Energy website, such as posting new video testimonials highlighting completed SBP projects. IESO also engages in traditional marketing, including billboards for SBP, publishing a small business monthly ad in local newspapers, and printing ads in trade ally magazines.

IESO staff see additional room for improving the website to increase its effectiveness at engaging customers and increasing their awareness of and trust in the program. Delivery vendors noted that some small businesses are still skeptical of the program and believe it sounds too good to be true; they recommended that more marketing would help raise program awareness.

An IESO staff member indicated that a common challenge is customer understanding of measure eligibility and/or what work is being completed (e.g., some customers think they may be receiving a new refrigerator when in fact the program is instead providing a coil cleaning and/or motor replacement for the refrigerator). This IESO staff member recommended addressing this with clearer communications from the assessors and installers as well as with increased program marketing overall. Similarly, another IESO staff member indicated that deeper education around the measures and services offered would help make customers aware of the offerings and associated benefits.

Delivery vendors reported that, occasionally, customers ask why some measures or services qualify, and others do not (e.g., they ask why motors qualify but not the entire refrigerator). IESO staff indicated that engaging customers on non-lighting measures can be challenging given that assessors need access to back rooms and kitchens, which is not always permitted or possible on the first visit.

6.1.4 Assessor and Installer Engagement

Three of the IESO staff members and the delivery vendors interviewed considered the lack of field staff to be a major challenge in 2024; this is similar to the feedback from the evaluations in prior years. The shortage appears to affect all regions: in the northern part of the province there are long drive times which make it difficult to schedule audits since it may not be worthwhile to travel for a single audit; however, delivery vendor staff indicated that it

has also been difficult to retain assessors in other regions as well given the challenging nature of the work (e.g., it can be difficult for inexperienced assessors to effectively sell the program's benefits to busy customers). IESO staff noted that assessor turnover can be hard on the delivery vendors since it takes time to on board new staff. One delivery vendor reported that they have begun to address this challenge by identifying and hiring staff with related industry experience.

The delivery vendors provide training for the assessors, including training on identifying measure types, the steps required to conduct lighting and non-lighting assessments, how to sell the program, and how to generate work orders. The assessors also learn to address the program's photo verification requirements. Delivery vendors noted that their assessor training process also requires new assessors to shadow experienced assessors during field visits for a period of time.

An IESO staff member reported that the addition of non-lighting measures in recent years has posed technical challenges for some of the assessors and installers. They noted that some may hesitate to promote measures that they are less familiar and perceive as "riskier" to install; for example, any problems with motor replacements are likely to come back to the installer and it becomes a process to rectify the issue. This may suggest additional opportunities exist to provide training to assessors and installers on non-lighting measures.

6.1.5 Barriers and Opportunities

The lack of consistent field staff was the most frequently mentioned program barrier. Program opportunities lie in addressing barriers identified by interviewees, especially those related to assessor workforce shortages and retention issues. Two IESO staff members believed offering longer term contracts to the delivery vendors may help them offer longer term contracts to field staff. One delivery vendor found it useful to recruit staff from similar programs that were no longer running. Networking and keeping current on the status of similar programs may provide opportunities to hire staff with fieldwork and sales experience.

Both delivery vendors said that it is critical to increase the Save on Energy marketing efforts to ensure that customers are aware of the program and are receptive to delivery vendor and assessor outreach attempts.

One IESO staff member indicated that reviewing cost caps for delivered measures would be a worthwhile exercise going forward. IESO staff members also suggested that there is an opportunity to better inform customers about who to reach out to if an issue emerges with an installed measure and what the resulting procedure would be. This same IESO staff member indicated that the program could do more to ensure the assessors and installers are escalating issues to the senior delivery vendor staff when necessary. Another IESO staff

member indicated that introducing the cost share model to help with cost gaps is something that is under review.

One IESO staff member indicated that it has been a few years since the measure offerings were significantly refreshed and stressed the need to increase the available offerings beyond lighting. They indicated that the IESO is in the process of completing a comprehensive gap analysis and offering review. One delivery vendor said they believe that the non-lighting incentives are very low compared to the current cost of the equipment and services provided, and because of this, it is hard to find contractors to install them. Another delivery vendor indicated that some of the measures offered are no longer of interest to many customers given the availability of newer technologies (e.g., fixtures are of more interest to customers now that they have dropped in price compared to lamps).

IESO staff members and delivery vendors suggested several lighting and non-lighting measures that SBP could consider. Suggestions included more fixtures, recessed downlights, outdoor lighting and signage, lighting controls, occupancy sensors, and covering the cost of lift rentals. Non-lighting measure suggestions include exhaust fans, air curtains, rooftop unit (RTU) tune-ups or upgrades, heat pumps, and refrigerators. IESO staff noted that some of these measures would require a co-pay from customers and that others may be limited by cost-effectiveness concerns or a lack of alignment with program goals. They noted that IESO would also need to align any new offerings with what is offered by other Save on Energy programs. One delivery vendor mentioned that the program could be more flexible in terms of what lighting is eligible for replacement.

One delivery vendor emphasized the importance of informing customers upfront that thermostats require a C-wire, and that they would be responsible for the associated cost. Both delivery vendors recommended that the program consider covering the cost of C-wires since they have encountered customers who did not have them and thus were not able to have smart thermostats installed. Relatedly, one IESO staff member noted that the assessor's ability to confirm the eligibility of certain measures can present challenges for installer; for example, assessors sometimes recommend smart thermostats to customers, but then the contractor finds that it is not possible given C-wire challenges. This may present an opportunity to increase assessor training in support of this measure.

One IESO staff member indicated that while objectives related to savings and cost-effectiveness are important, it is equally important for the program to continue to place emphasis on the customer and their experience to ensure satisfaction remains high. Finally, one IESO staff member suggested that LDC partnerships may present future opportunities, especially on the regional level given the increased responsibilities of LDC under the new framework.

6.2 Assessor and Installer Perspectives

The following subsections highlight responses from the assessor and installer survey. Appendix F.1 provides additional results.

6.2.1 Key Findings

Key findings from assessors' and installers' responses included the following:

- Respondents indicated that customers most commonly enrolled in the program through program delivery vendor staff generating leads (five respondents), respondents making cold calls to potential customers (three respondents), or respondents marketing the program during audits or other in-person contact (three respondents).
- Respondents most often reported customers' lack of awareness of the program as a barrier to participation (nine respondents).
- On average, respondents assigned an overall program satisfaction rating of 4.2 on a scale from one to five, where one indicated "not satisfied at all" and five indicated "extremely satisfied." Respondents were most satisfied with their interactions with program representatives from the delivery vendor (average 4.6 rating) and least satisfied with program marketing and outreach (average 3.0 rating).
- Most respondents (eight respondents) indicated that their customers were interested in the non-lighting energy-efficient equipment offered by SBP.
- Recommendations for improving the process customers went through to receive the top-up incentive were varied and included recommendations such as increasing the top-up amount (two respondents) and compensating assessors for top-up visits (one respondent).
- The most common program improvement recommendation was for the IESO to increase or improve the marketing and outreach efforts to raise awareness of the program to customers (four respondents).
- Respondents recommended the program consider expanding the program offering to include additional lighting measures in general (6 respondents) and exterior lighting (four respondents).

6.2.2 Customer Participation and Experience

Respondents most often reported that their customers participated in SBP due to program delivery vendors generating leads (five respondents). Table F-5 in Appendix F.1 summarizes typical ways that customers came to participate in the program.

When respondents were asked which barriers prevented customers from program participation, nine out of thirteen respondents reported that customers were unaware of the program. The second most common barrier was that some customers did not think the

upgrades were worth the trouble of participating (three respondents). The most common suggestion for overcoming these barriers was increased program advertising (eleven respondents). Table F-6 and Table F-7 in Appendix F.1 provide full lists of participation barriers and suggestions for overcoming them.

Assessors and installers were asked if participants were typically able to install all equipment models that were of interest to them through the program. Five of thirteen respondents indicated that participants were not able to do so. All five respondents reported that participants were most interested in but not able to install other types of lighting. Table F-8 in Appendix F.1 contains a full list of equipment types that assessors and installers reported participants were interested in but not able to install through the program.

6.2.3 Program Satisfaction

Respondents provided feedback on their satisfaction levels with various program aspects, rating each aspect on a scale from one to five, where one indicates "not satisfied at all satisfied" and five indicates "completely satisfied." As shown in Table F-9 in Appendix F.1, respondents were very satisfied with the program overall, assigning it an average satisfaction rating of 4.2. When rating specific program aspects, respondents assigned the highest average satisfaction ratings to their interactions with the delivery vendor (4.6), the value that the program provides to customers (4.4), and the program website (4.4). On average, respondents assigned the lowest satisfaction rating to program marketing and outreach (3.0).

6.2.4 Project Cost Caps

Respondents were asked what percent of their customers who reached the program incentive cap(s) had to reduce the size, scope, or equipment efficiency of their energy-efficient equipment upgrades as a result of reaching the incentive cap(s). They were also asked on average, by what percentage the incentive cap reduced the scope of their customers' projects. As shown in Table F-11, five out of ten respondents reported that 50% or less of their lighting customers reduced their project scope due to reaching the incentive cap and Table F-11 shows that six out of eight respondents reported that their lighting project reduced in scope by 50% or less. As shown in Table F-12, seven out of thirteen respondents reported that 0% to 50% of their customers' non-lighting projects reached the $2,500 non-lighting incentive cap. Table F-13 shows that three out of six respondents reported that 50% or less of their non-lighting customers reduced their project scope due to reaching the incentive cap

6.2.5 Non-Lighting Equipment

Respondents were asked to rate how interested their customers were to learn that SBP now offers energy-efficient non-lighting equipment upgrades. Using a scale of one to five, where one indicates "not at all interested" and five indicates "extremely interested," respondents reported an average rating of 3.9, indicating moderate interest. The full distribution of respondents' ratings can be found in Figure F-1 in Appendix F.1. Four respondents shared their perspective on why customers were not as interested in non-lighting measures. Responses included that they did not need to install non-lighting equipment, the risk of product loss during equipment downtime, and a desire for full equipment replacements (not only the motor). The complete list of possible reasons for lack of interest in non-lighting equipment can be found in Table F-14 in Appendix F.1.

Ten respondents shared their perspective on what the program could do to help increase the uptake of non-lighting equipment. Assessors and installers provided a variety of ideas, including that the program provide an incentive for thermostat wires, improve marketing, and expand product offerings. Table F-15 in Appendix F.1 contains a full list of suggestions to increase uptake of non-lighting upgrades.

6.2.6 Top-Up Incentives

Assessors and installers were asked how their clients first become aware of the top-up incentive opportunity through the Save on Energy Small Business Program. Five out of thirteen respondents reported that they informed the client about the top-up incentive opportunity. Figure F-2 in Appendix F.1 displays all the ways customers became aware of the top-up incentive through the program as reported by assessors and installers. As shown in Table F-16 in Appendix F.1, respondents felt that the process for receiving the top-up incentive could be improved by increasing the amount of the top-up (two respondents).

6.2.7 Training and Education

When asked what form of training or education respondents received in 2024 related to the program, over one-half (seven respondents) reported receiving training and education through one-on-one, in-person instruction from the program delivery vendor. Other training sources included a webinar or other online instruction (three respondents) and responses to questions (two respondents). Table F-17 in Appendix F.1 provides a full list of training and education types.

When asked which additional training or education topics would be helpful in supporting their future work, respondents most often suggested marketing and outreach techniques to better promote the program to customers (seven respondents). Table F-18 in Appendix F.1 provides a full list of recommended training and education topics.

6.2.8 Program Improvement Recommendations

Respondents were asked to recommend areas for program improvements. The top recommendation was for IESO to increase or improve marketing and outreach efforts to raise awareness of the program to customers (four respondents) followed by expanding product offerings (three respondents). Table F-19 in Appendix 1 provides a full list of program improvement suggestions. Respondents were also asked to recommend additional lighting or non-lighting equipment for future inclusion in the program. The most frequently recommended types of equipment were additional lighting measures in general (6 respondents) and exterior lighting (four respondents). Table F-20 in Appendix F.1 provides a full list of recommended lighting or non-lighting equipment.

6.3 Participant Perspectives

The following subsections highlight feedback received from the participant survey, with additional results provided in Appendix F.3.

6.3.1 Key Findings

Key findings from participants' responses included the following:

- Nearly one-fifth (19%) of participants reported learning about the program through a Save on Energy representative.
- Only about one-third (35%) of participants who only installed lighting measures were aware that the program also offered non-lighting equipment upgrades.
- Respondents who had suggestions for improving the site assessment most often mentioned reducing the time required to complete the assessment (18%) and spending additional time completing the initial site assessment (15%).
- Respondents who had suggestions for improving the site installation visits by providing greater flexibility in scheduling (26%) and shortening the time it takes to complete the assessment (20%).
- Participants consider the representatives who perform the initial site visit and installation visits to be "very trustworthy" or "extremely trustworthy," (86% and 83%, respectively).
- Respondents who reduced the size, scope, or equipment efficiency of either their lighting or non-lighting projects as a result of reaching the incentive cap(s) said they would have installed additional lighting (45%), HVAC equipment (14%), appliances (7%), or thermostats (4%).
- The 5% of respondents who received a top-up incentive became aware of the opportunity from door-to-door outreach (five respondents), Save on Energy marketing campaigns (three respondents), and a Save on Energy representative contacting them via email or telephone (two respondents).

- HVAC (38%) and a larger variety of lighting options (13%) were mentioned most frequently by those who provided recommendations on additional equipment to include in the program.
- Respondents with suggestions on how to improve the program most frequently cited improving communications with participants at every stage of the project (30%), improving marketing and promotion (19%), and expanding the program offerings (18%).

6.3.2 Program Awareness

Participants learned about the program primarily through the Save On Energy representative who spoke with them at their business (19%), through a colleague or competitor (13%), or prior Save On Energy program participation (12%). Figure F-13 in Appendix F.3 provides a full list of the ways that participants heard about the program.

Among participants who only installed lighting equipment (89% of all survey respondents), over one-half (58%) were not aware of non-lighting options, while over one-third (35%) were aware, and the remainder did not know if they were aware or declined to respond (7%). This suggests an opportunity exists to expand the program's marketing and awareness efforts to customers regarding equipment upgrades beyond lighting.

These same respondents, who were aware of non-lighting offerings but did not install any (35% or 104 respondents), were asked why they decided not to install other upgrades in addition to lighting. Over one-third (36%) stated they did not need to install additional equipment, and one-fifth (20%) said the program did not offer equipment of interest to them. Such equipment of interest included HVAC systems (38% or six respondents), thermostats (25% or four respondents), and appliances (19% or three respondents). Other equipment of interest included heat pumps, on-demand water heaters, and door weatherstripping (one response each). Figure F-14 in Appendix F.3 provides a full list of reasons for not installing non-lighting upgrades.

6.3.3 Site Visit Improvement Suggestions

Over two-thirds of respondents (67%) had no suggestions for improving initial site assessment visits, indicating that Save On Energy representatives who performed the initial site assessment visits met the majority of customer needs. Nearly one-third of respondents (32%) offered suggestions to improve the initial site assessments. Respondents most often mentioned reducing the time required to complete the assessment (18%) and spending additional time completing the initial site assessment (15%). Other common suggestions include improving communication between the assessor and installer and more flexibility in scheduling the assessment (14% each). Figure F-15 in Appendix 1 provides a full list of the suggested improvements.

Three-fourths of respondents (61%) did not offer suggestions for improving installation site visits, indicating that Save On Energy representatives performing installation site visits met the majority of customers' needs. The nearly one-third of respondents (30%) offering suggestions for improving installation visits most often mentioned providing greater flexibility when scheduling visits (26%), reducing the time required to complete visits (20%), and improving the professionalism of Save on Energy representatives performing the installation visit (18%). Appendix 1 provides a full list of these improvement suggestions.

6.3.4 Program Partner Trustworthiness

Participants were asked to rate the trustworthiness of the program partners on a scale of one to five, where one indicates "not trustworthy at all" and five indicates "extremely trustworthy." Over four-fifths of participants (86% and 83%, respectively) stated that the representative who performed the initial site visit and the representative who performed the installation site assessment were very or extremely trustworthy.

Of those providing a rating for the outreach staff who contacted them via door-to-door outreach, nearly two-thirds (64%) said they were very or extremely trustworthy. One-fourth (25%) indicated "Not Applicable" when asked to rate the trustworthiness of the door-to-door outreach staff, likely indicating that they were not approached in this way. Figure F-17 in Appendix F.3 shows a scale of trustworthiness of program partners as well as suggestions on how program partner trustworthiness could be improved.

6.3.5 Project Cost Cap

Close to one-half (49%) of respondents reached the $3,000 lighting incentive cap and almost one-tenth (8%) of respondents reached the $2,500 non-lighting incentive cap. Nearly one-half (47%) of the respondents who reached the lighting incentive cap reported having to reduce the size, scope, or equipment efficiency of their lighting project due to reaching the caps.[8] Similarly, two-thirds (67%) of the respondents who reached the non-lighting cap had to reduce the size, scope, or equipment efficiency of the equipment project due to reaching the cap. These respondents were asked which energy-efficient equipment upgrades would have interested them if there had not been a cap. Nearly one-half (45%) said they would have installed additional lighting. Other commonly mentioned upgrades included HVAC equipment (14%), appliances (7%), and thermostats (4%). Figure F-18 in Appendix F.3 provides a full list of these upgrades.

[8] SBP raised its lighting project cost cap from $2,000 to $3,000 in November 2023.

6.3.6 Top-Up Incentive

Of the 5% of respondents who received a top-up incentive, almost one-third of respondents (five respondents) were informed about it by a Save on Energy representative conducting door-to-door outreach. When asked about how to improve the process for receiving the top-up incentive, respondents mentioned shortening the time between the assessment and the installation (three respondents) and increasing the amount of the top-up incentive (two respondents). Figure F-19 in Appendix F.3 shows how respondents who received a top-up incentive first became aware of it.

6.3.7 Recommended Equipment and Services

Over one-third (40%) of surveyed participants provided additional equipment or service recommendations to consider for inclusion in the program in future years. HVAC (38%) and a larger variety of lighting options (13%) were mentioned most frequently. Appendix F.3 provides a full list of these additional equipment recommendations.

6.3.8 Program Improvement Recommendations

One-fifth (20%) of respondents provided suggestions about how to improve SBP. The most frequently cited suggestions included improving communications with participants at every stage of the project (30%), improving marketing and promotion (19%), and expanding the program offerings (18%). Table F-30 in Appendix F.3 provides a full list of overall program recommendations.

7 Other Energy-Efficiency Benefits

7.1 Avoided Greenhouse Gas Emissions

Using the IESO CE Tool V9.1, the evaluation team calculated avoided first year GHG emissions, along with the measures' lifetime savings for PY2024. Table 7-1 shows the results of these avoided GHG emissions calculations. Avoided GHG emissions from lighting measures' electricity savings were reduced by the increase in GHG consumption resulting from the gas-heating penalty, reducing 1,250 tonnes of CO_2 equivalent (CO_2e) in the first year. PY2024 SBP projects are expected to achieve a total of 15,375 tonnes of CO_2e reduced throughout the EUL of installed measures.

Table 7-1: PY2024 SBP Avoided GHG Emissions in Tonnes of CO2e

Electric First Year GHG Avoided (tonnes of CO_2e)	Gas* First Year GHG Avoided (tonnes of CO_2e)	Total First Year GHG Avoided (tonnes of CO_2e)	Electric Lifetime GHG Avoided (tonnes of CO_2e)	Gas* Lifetime GHG Avoided (tonnes of CO_2e)	Total Lifetime GHG Avoided (tonnes of CO_2e)
1,916	(666)	1,250	25,288	(9,913)	15,375

*Interactive gas heating penalty and gas heating savings from HVAC measures

7.2 Non-Energy Benefits

This subsection discusses the SBP's Non-Energy Benefits (NEBs) in PY2024 as well as the SBP's aggregated NEBs for PY2021 through PY2024. Appendix I provides additional details regarding the NEB methodology and results. The evaluation team used Phase II study NEBs values within the PY2024 Cost-Effectiveness calculator per the IESO's request, with the PY2024 NEBs and the aggregated PY2021 through PY2024 NEBs presented for informational purposes and to assist in future research. In future evaluation years, this will allow the team to collect additional NEB data.

7.2.1 Key Findings

Key NEB analysis findings include the following:

- Using the *hybrid minimum approach*, PY2024 NEBs values were $0.04/kWh for reduced building and equipment operations and maintenance (O&M), $0.01/kWh for thermal comfort, $0.003/kWh for improved indoor air quality, and $0.001/kWh for reduced spoilage.
- Using the *hybrid minimum approach*, aggregated PY2021, PY2022, PY2023, and PY2024 NEBs values were $0.08/kWh for reduced building and equipment operations and maintenance (O&M) (compare with $0.08 in the Phase II study); the aggregated PY2022, PY2023, and PY2024 NEBs values were $0.02/kWh for thermal

comfort (compare with $0.05 in the Phase II study), $0.01/kWh for improved indoor air quality (compare with $0.07 in the Phase II study), and $0.001/kWh for reduced spoilage (compare with $0.02 in the Phase II study).

7.2.2 Quantified NEBs Values

The PY2024 SBP participant survey included 99 participants who experienced at least one non-energy benefit from measures installed through the program. The aggregated PY2021 through PY2024 SBP participant surveys included 271 participants who experienced at least one non-energy benefit from measures installed through the program. While Phase II and PY2021 SBP participant evaluation surveys only asked about one NEB (reduced building equipment O&M), the PY2022, PY2023, and PY 2024 participant evaluation surveys asked about participants' experiences with four NEBs, given the expansion of equipment offered through the program:

- Reduced building and equipment O&M: Reduced labour or other costs associated with reduced O&M to maintain building systems.
- Thermal comfort: Improvements in a building's ability to maintain a comfortable temperature.
- Improved indoor air quality: Reduction in air pollutants within the indoor environment.
- Reduced spoilage: Reduced spoilage time for perishable products due to improved refrigeration or ventilation.

The majority of PY2024 participants (80%) experienced NEBs from reduced building and equipment O&M, with 22% experiencing NEBs from improved thermal comfort, 6% experiencing NEBs from improved indoor air quality, and 3% experiencing NEBs from reduced spoilage, as shown in Figure 7-1.

Similarly, the majority of PY2021 through PY2024 participants (85%) experienced NEBs from reduced building and equipment O&M. More than one-fifth of PY2022 through PY2024 participants (22%) experienced NEBs from improved thermal comfort, with 4% experiencing NEBs from improved indoor air quality, and 3% experiencing NEBs from reduced spoilage, also shown in Figure 7-1.

Figure 7-1: Participant Observation of NEBs, Phase II, PY2021, PY2022, PY2023, & PY2024, and Combined PY2021-PY2024

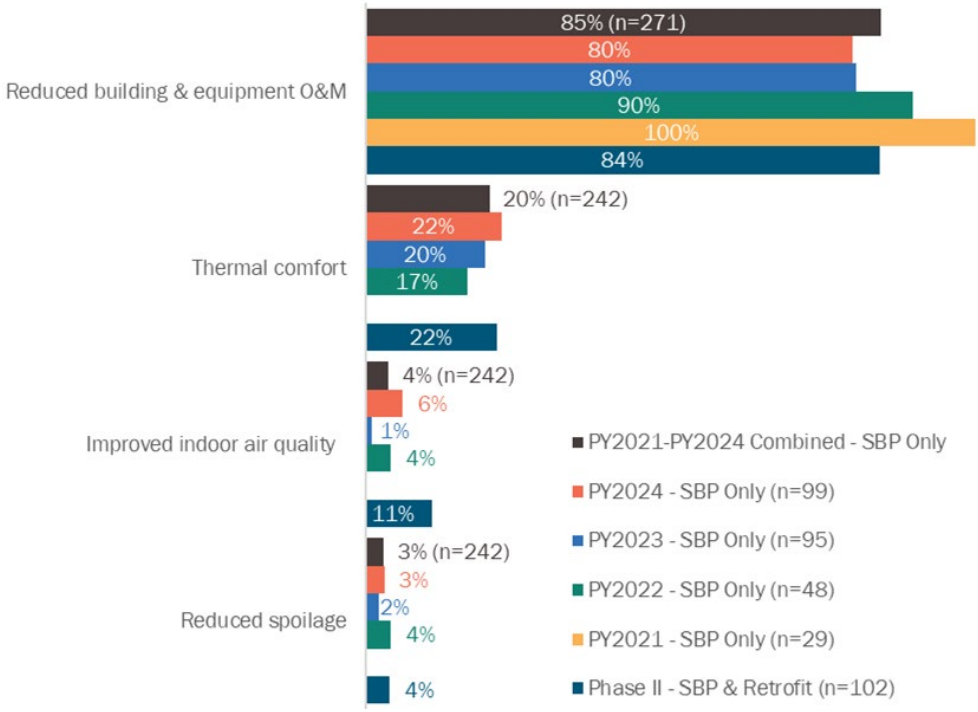


Table 7-2 presents quantified NEB values for Phase II, PY2021, PY2022, PY2023, and PY2024, based on the hybrid, minimum ($/kWh) valuation, an approach recommended in the Phase II study.[9] Please note that quantified NEBs from the Phase II study combined participants from the Small Business Lighting and Retrofit programs, yet PY2021, PY2022, PY2023, PY2024 results only included SBP participants. PY2024 SBP respondents primarily valued reduced building and equipment O&M NEB ($0.04/kWh), followed by thermal comfort ($0.01/kWh), reduced spoilage ($0.003/kWh), and improved indoor air quality ($0.001/kWh).

[9] Dunsky. (July 2021). *Non-Energy Benefits: Phase II; Quantified Benefits and Qualitative Insights*. https://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Non-Energy-Benefits-Study-Phase-II.ashx

Table 7-2: Quantified NEBs ($/kWh), Phase II, PY2021-P1, PY2022, PY2023, PY2024

NEB	PY2024 (SBP Only)	PY2023 (SBP Only)	PY2022 (SBP Only)	PY2021 (SBP Only)	Phase II (Retrofit & SBP)
Reduced building and equipment O&M	$0.04	$0.13	$0.08	$0.13	$0.08
Thermal comfort	$0.01	$0.01	$0.04	-	$0.05
Improved indoor air quality	$0.003	$0.00	$0.02	-	$0.007
Reduced spoilage	$0.001	$0.0005	$0.0004	-	$0.0002

Table 7-3 presents combined NEB values for PY2021 through PY2024, based on the hybrid, minimum ($/kWh) valuation, as well as relative precision values at both 90% confidence and 85% confidence. The NEBs associated with reduced building and equipment O&M and thermal comfort achieved met or exceeded 90% confidence at 10% relative precision or 85% confidence at 15% relative precision. Improved indoor air quality and reduced spoilage did not achieve either 90% confidence at 10% relative precision or 85% confidence at 15% relative precision given the small number of respondents associated with these NEBs.

Table 7-3: Quantified NEBs ($/kWh) and Relative Precision, Combined PY2021-PY2024

NEB	PY2021-PY2024 (SBP Only)	Relative Precision at 90% Confidence	Relative Precision at 85% Confidence
Reduced building and equipment O&M	$0.08	5.4%	4.8%
Thermal comfort	$0.02	11.8%	10.3%
Improved indoor air quality	$0.01	33.2%	29.1%
Reduced spoilage	$0.00	32.0%	28.0%

PY2021 through PY2024 SBP respondents primarily valued reduced building and equipment O&M NEB ($0.08/kWh), followed by thermal comfort ($0.02/kWh), reduced spoilage ($0.01/kWh), and improved indoor air quality ($0.001/kWh).

The NEBs experienced by participants correspond to the NEBs that SBP assessors and installers reported that their customers might have experienced due to their SBP participation. Ten of thirteen respondents believed their customers experienced reduced time and costs for buildings and equipment O&M, four mentioned reduced food spoilage, and four mentioned improved thermal comfort. Installers and assessors perceived improved comfort and increased safety to be the most important NEBs to their customers. Table I-2 in

Appendix I provides a comprehensive list of NEBs suspected by SBP assessors and installers, and Figure I-1 ranks them by importance.

Previous studies found that program participants placed significant value on NEBs. In many cases, the NEBs' value exceeded the value of participants' energy savings. This also occurred in PY2024, with most respondents reporting NEBs having an equal or higher value on an annual basis than savings on electricity bills.

Furthermore, when asked if they would be willing to pay for a certain benefit independently from energy savings, nearly three-fifths (58%) were prepared to pay an equal or higher value per year than their electricity bill or savings. This highlights that factors beyond energy savings may motivate energy-efficiency participation or contribute to customers' positive experiences with the programs.

7.3 Job Impacts

This section outlines the jobs impact analysis results. Appendix G provides details regarding the jobs impact analysis methodology, and additional results can be found in Appendix H.

7.3.1 Key Findings

Key findings from the PY2024 Jobs Impacts approach include the following:

- The analysis used an input-output (IO) model which estimates that SBP will create 123 total jobs in Canada, 112 of which will be in Ontario.
- $1M of program investment resulted in the creation of 18 jobs, compared to 21 jobs per $1M in PY2023 SBP.

7.3.2 Input Values

The model was used to estimate the impacts of three economic shocks:

- Demand shock, representing demand for energy-efficient products and services from the program.
- Business reinvestment shock, representing increased business reinvestment due to bill savings (net of project funding).
- Household expenditure shock, representing decreases in household spending on goods and services due to increases in residential electric bills required to fund the SBP.

Table 7-4 displays input values for demand shock, representing products and services related to SBP. Each measure installed through the program was categorized according to the StatCan IO Supply and Use Product Classifications (SUPCs).

Table 7-4: Summary of Input Values for Demand Shock

Category Description	Non-Labour	Labour	Total Demand Shock
	($ Thousands)		
Lighting Fixtures	2,817	2,498	5,316
Electric Light Bulbs and Tubes	638	566	1,204
Heating and cooling equipment (except household refrigerators and freezers)	85	46	130
Switchgear, switchboards, relays and industrial control apparatus	71	39	109
Subtotal	3,611	3,149	6,760
Office Administrative Services	-	-	799
Total			7,559

Using the IO Model, the team modelled business reinvestment shock, which represented the amount that businesses would reinvest and thus inject back into the economy. This amount was split over various industries to properly model demand shock. Business reinvestment shock totaled $10.8 million over 20 different industries. Appendix H provides more details on business reinvestment shock, along with reinvestment values by industry. The third model input is the household expenditure shock,[10] which represents the incremental increase in residential sector electricity bills from funding the program. This assumed that the IESO programs are funded by all customers in proportion to overall electricity consumption, resulting in a 35% residential funding portion of the $7.0M program budget or approximately $2.5M.

7.3.3 Model Results

StatCan IO model impacts were generated separately for each shock and added together to calculate overall program job impacts. For SBP, this meant that three different sets of job impacts were combined into overall job impacts. shows total estimated job impacts by type, combining impacts from the demand, business reinvestment, and household expenditure shocks.

[10] The model was run with a normalized value of $1 million in extra household expenditures, and job results can be scaled by the actual demand shock.

The majority of total job impacts (112 out of 123 estimated total jobs) occurred in Ontario, with 68 of 69 direct jobs across Canada created in Ontario. A slightly smaller proportion of indirect and induced jobs also occurred in Ontario, with 21 out of 26 indirect jobs and 24 of 29 induced jobs estimated to be created within the province. Full-time employee (FTE) estimates were slightly lower than the total jobs, with a total of 95 FTEs (of all types) created in Ontario and 104 FTEs added nationwide. Almost all direct FTEs (60 of 61) were added in Ontario, with this number representing approximately 63% of total FTEs added in Ontario and 58% of all FTEs created across Canada. In 2024, each $1M of program spending resulted in the creation of 17.6 total jobs.

Table 7-5: Total Job Impacts by Type

Job Impact Type	Ontario FTE *(in person-years)*	Canada FTE *(in person-years)*	Ontario Total Jobs *(in person-years)*	Canada Total Jobs *(in person-years)*	Total Jobs per $1M Investment (in person-years)
Direct	60	61	68	69	9.9
Indirect	18	22	21	26	3.7
Induced	18	22	24	29	4.1
Total[1]	95	104	112	123	17.6

[1] Columns may not add to totals due to rounding. Real values have been rounded to the nearest whole number, and the whole numbers do not sum exactly to the whole number total in every column.

Table 7-7 presents the jobs impacts realized over the 2021-2024 framework. Like with the individual years, impacts do not exist in perpetuity and are presented in person-years. Over the course of the four-year framework, the SBP created 392 total jobs, 350 of which were in Ontario. The program was responsible for the creation of 23.0 jobs per $1M of investment.

Table 7-6: PY2021-PY2024 Framework Total Job Impacts by Type

Job Impact Type	Ontario FTE *(in person-years)*	Canada FTE *(in person-years)*	Ontario Total Jobs *(in person-years)*	Canada Total Jobs *(in person-years)*	Total Jobs per $1M Investment (in person-years)
Direct	177	185	202	209	12.3
Indirect	60	73	71	89	5.2
Induced	58	72	78	94	5.5
Total[1]	295	330	350	392	23.0

[1] Columns may not add to totals due to rounding. Real values have been rounded to the nearest whole number, and the whole numbers do not sum exactly to the whole number total in every column.

Table 7-8 contains the individual jobs per $1M investment estimates for each year within the framework. There was a general decline in the jobs created per $1M of investment over the four years of the CDM framework. The reasons behind the declines from one year to the next are varied but were usually due to decreases in the reinvestment shock. As customers pay a larger portion of their income into the program, there's less for households or businesses to spend on other goods and services. This in turn results in less money being reinjected into the economy, which leads to lower rates of job creation per $1M of investment. In essence, the program became less efficient at creating jobs throughout the course of the four-year framework.

Table 7-7: 2021-2024 Jobs per $1M Investment

Job Impact Type	2021	2022	2023	2024
Direct	16.2	13.5	11.4	9.9
Indirect	7.3	6.6	4.9	3.7
Induced	7.4	7.2	5.0	4.1
Total	30.9	27.8	21.2	17.6

Appendix H provides a more detailed write up of the model impacts, including a breakout of impacts by industry, impacts from first year savings, and verbatim comments from program contractors.

8 Key Findings and Recommendations

IESO Responses to PY2024 EM&V Key Findings and Recommendations can be found in Appendix B.

Finding 1. SBP Cost-Effectiveness did not achieve a Program Administrator Cost (PAC) ratio above 1.0 in PY2024. The increased installation of LED troffers in PY2024 was a primary driver of the decreased cost effectiveness compared to previous years of the framework. LED troffers in the SBP have consistently achieved a PAC ratio below 1.0. The 0.66 ratio in PY2024 is lower than the PAC ratio of 0.78 from PY2023 indicating increased equipment costs year over year. Additionally, LED troffers experienced a large increase in participation in PY2024, contributing 15% of program net savings while accounting for 25% of program measure costs, compared to only 7% of net program savings and 12% of program measure costs in PY2023. LED troffers contributed 4% of program net savings in PY2022 and less than 1% of net savings in PY2021. This led to an overall decrease in program PAC net benefits attributable to LED troffers of negative $514k in PY2024 compared to negative $96k in PY2023. Similarly, Linear LED fixtures achieved a PAC ratio of 0.68 in PY2024, although they only accounted for 3% of program savings so they had a lower impact on overall program CE. T8 LED lamps are often a viable retrofit alternative option instead of integrated LED troffer and LED linear fixtures, achieving similar per fixture energy and demand savings at a much lower cost to the program. In PY2024 T8 LED tubes achieved a positive CE with a PAC ratio of 1.12. The average incentive paid per net verified first year energy savings was $0.62 for T8 LED tubes compared to $1.04 for LED troffers and $1.02 for Linear LED fixtures.

- **Recommendation 1.** When a participant has options to install either integrated LED troffers/LED Linear fixtures or lower cost T8 LED tubes, consider cost-sharing requirements if the participant decides to implement the high-cost integrated LED fixture option. Cost-sharing requirements would decrease the program incentive payments for these measures and improve PAC CE.

Finding 2. Awareness of and interest in SBP's non-lighting equipment offerings continued to be relatively low among participants, although implementation of these measures did increase in PY2024. Non-Lighting measures contributed 8% of PY2024 net-verified energy savings. This is a notable increase compared to only 2% of savings in PY2023, 4% in PY2022, and 0% in PY2021. However, one SBP delivery region, which accounts for a significant portion of all projects and energy savings in PY2024, did not install any non-lighting measure during the program year. The delivery vendor for this region noted that the amount of travel required coupled with related program cost caps are key barriers to completing assessments and installations in this region. Only about one-third (35%) of participants who installed lighting-only equipment knew that the program offered other non-lighting equipment upgrades. When asked why they decided not to install non-

lighting upgrades, over one-third (36%) of participants stated they did not need to install additional equipment and one-fifth (20%) said the program did not offer equipment of interest to them. Such equipment of interest included HVAC systems, thermostats (some respondents were unaware that thermostats are already included in the program, and others indicated they were unable to install thermostats through the program), appliances, heat pumps, on-demand water heaters, and door weatherstripping.

Assessors and installers indicated that their customers had a moderate interest in the program's non-lighting offerings (average rating of 3.9 using a scale of one to five, where one indicates "not at all interested" and five indicates "extremely interested"). Four assessors and installers shared their perspectives on why some customers were not as interested in non-lighting measures, which included customers not needing to install non-lighting equipment, customer concerns about the risk of product loss during equipment downtime, and a desire among customers for full equipment replacements (e.g., full refrigerator replacements rather than motor-only replacements). Assessors and installers shared suggestions for increasing uptake of non-lighting equipment, which included providing an incentive for thermostat wires, improving marketing, and expanding product offerings.

An IESO staff member reported that some assessors and installers may hesitate to promote measures that they are less familiar with and perceive as "riskier" to install. Relevant recommendations from IESO staff and delivery vendors include additional assessor and installer training associated with non-lighting equipment and services; ensuring that the program continues to emphasize the customer's experience and satisfaction; considering cost share models; conducting a gap analysis of equipment and incentives offered; and reviewing cost caps frequently.

- **Recommendation 2a.** Identify opportunities to minimize the risks and costs associated with non-lighting equipment and services to customers and program delivery vendors (e.g., considering cost share models, conducting a gap analysis of equipment and incentives offered, and reviewing cost caps frequently). Work with the regional service providers to identify solutions for overcoming barriers to implementing non-lighting measures in the region with zero participation in PY2024 and assess whether additional resources or education are needed in that region. Investigate what strategies in other regions led to the successful increase in non-lighting measure implementation.
- **Recommendation 2b.** Ensure that the program continues to emphasize the customer's experience and satisfaction. For non-lighting equipment specifically, consider devoting more focus to ensuring customers understand what equipment will be installed, ensuring customers know who to reach out to if an issue emerges and what the resulting procedure is, and ensuring the assessors and installers are escalating issues to the senior delivery vendor staff when necessary).

- **Recommendation 2c**. Consider refreshing the non-lighting options to better align with customer interest where feasible and cost-effective. Refer to Progress Update 1 in the Progress Updates on Previous Recommendations section for non-lighting equipment and service recommendations.

Finding 3. Errors in the SBP eligible measures list led to inaccurate reported savings. For ECM measures, there is a mismatch in the savings in the eligible measures list (which matches the program reported savings) and what the reported savings should be as established by the SBP Measures and Assumptions List (MAL). The error results in reported savings being lower than they should be (as established in the MAL and aligning with verified savings results) for the ECM for evaporator fan (Cooler) of two motor sizes and ECM for evaporator fan (Freezer) for all motor sizes. Another observation is the 8' length T8 LED tube replacement offered in the program is listed as a type A (tube re-lamp). However, program data and field verification show these measures are type B lamp retrofits. Type A LED lamps are ballast driven and directly replace fluorescent lamps with no electrical work required. Type B LED lamps require rewiring of the fixture to supply the lamp with line voltage without the ballast. Additionally, the evaluator encountered situations where the installed light fixtures were of higher wattage than the maximum allowed as established by the SBP Eligible Measures List.

- **Recommendation 3a.** Update the SBP Eligible Measures List to ensure that it aligns with the measure savings as established by the SBP Measures and Assumptions List.
- **Recommendation 3b.** Update the SBP Eligible Measures List to align with the type of retrofit that is actually offered and installed in the field by service providers.
- **Recommendation 3c.** Require implementers to include model numbers on project invoices. These can be used to verify measure eligibility.

Finding 4. The level of project documentation available was not of consistent quality across all SBP delivery regions. One region typically lacked clear and comprehensive photographs of baseline and retrofit equipment. Additionally, this region included the two projects with highest reported energy savings in the PY2024 sample – both of which had significantly lower verified savings than reported. The main reason for the low realization rate of both projects was due to lower verified annual operating hours than reported values. These projects had lighting measures installed in multiple unique spaces within the facility. Even though some of these spaces had low annual operating hours, the operating hours from the highest usage areas were applied to all measures in the project. The verified savings of these two projects showed substantial variance from the reported values and the rest of the PY2024 lighting sample.

- **Recommendation 4a.** Require an extra level of project review for projects over a savings threshold, such as 25,000 kWh. For these large projects, IESO staff should

reach out directly to program participants to verify measure baselines and annual operating hours.

- **Recommendation 4b.** Consider allowing for the collection of operating hours by each space with unique operating hours instead of applying one schedule to all fixtures and spaces in a facility.
- **Recommendation 4c.** Specify what information should be captured in pre-retrofit and post-retrofit pictures taken by SBP assessors/installers. All pre and post retrofit equipment should be clearly photographed showing the wattage and/or model number with accurate labeling of the equipment type, location within the facility, and condition of the equipment.

Finding 5. The process associated with offering the top-up incentive is working well but some improvement opportunities remain. Of those who received a top-up incentive, most learned about this opportunity from a Save on Energy representative conducting door-to-door outreach. Program participants suggested shortening the time from the assessment to the installation and increasing the amount of the top-up incentive cap. Assessors and installers agreed that increasing the incentive cap would encourage many customers to complete even more work. Assessors and installers also mentioned that compensating assessors for top-up visits, improving assessor access to customer top-up incentive amounts without having to contact the program, and improving e-mail communications to better advertise the opportunity to eligible customers would improve the top-up incentive process.

- **Recommendation 5.** Consider opportunities to improve the top-up incentive process. This includes working with service providers to evaluate if process changes to shorten the time between the initial assessment and the equipment installation are possible and encouraging them to directly advertise the top-up opportunity to all previous SBP participants in their service territories who are eligible. The IESO can work with Service Providers on improving the process to communicate available top up amounts to SBP assessors and outreach staff. If SBP incentive caps are increased in the future, service providers should re-engage top-up eligible participants to see if they are interested in installing more eligible equipment.

9 Progress Updates on Previous Recommendations

This section provides progress updates on common process evaluation research topics. These topics have typically been included as Key Findings and Recommendations in previous years' evaluation reports. Because these topics may be of continued interest to monitor, they are included here for additional consideration.

Process Progress Update 1. **Expanding the scope of equipment offerings remained a common improvement suggestion.** Assessors and installers reported somewhat lower satisfaction levels with the number and types of equipment incentivized (a rating of 3.2 on a scale of one to five, where, where one indicates "not satisfied at all" and five indicates "extremely satisfied"). Assessors and installers frequently recommended additional lighting measures in general, exterior lighting, appliance lighting, EV charging, heat pumps, a wider variety of lighting controls, expanding motor coverage, replacement strip curtains, a thermostat wires incentive, offering full equipment replacements (e.g., a refrigerator rather than only a motor replacement), and considering lifts/scaffolding costs in incentives. Participants most frequently recommended HVAC (38%), a larger variety of lighting options (13%), refrigeration (10%), air sealing and insulation (10%), windows and doors (10%), exterior lighting (10%), and heat pumps (10%). Other participant recommendations included more thermostats, solar PV, and appliances. IESO staff and delivery vendor suggestions for additional lighting equipment and services included more fixtures, recessed downlights, outdoor lighting, signage, and covering the cost of lift rentals. Their suggestions for non-lighting equipment and services to consider included exhaust fans, air curtains, a wider variety of lighting controls, occupancy sensors, rooftop unit (RTU) tune-ups or upgrades, heat pumps, refrigerators, and covering the cost of C-wires.

- Improvement Opportunity 1. Explore the feasibility of including more lighting and non-lighting products that align with program goals and cost-effectiveness targets.

Process Progress Update 2. **Continued opportunities exist to expand program marketing and outreach.** In 2024, IESO increased its marketing of SBP through the Save on Energy brand through leaning in to digital-based tactics and channels to promote the program, generate awareness, and provide deeper education. Activities included social media campaigns on major platforms and utilizing search engine marketing. It also continued to administer the Save on Energy website, making updates in 2024, such as posting new video testimonials highlighting completed SBP projects. IESO also undertook some traditional marketing, including billboards for SBP, publishing a small business monthly ad in local newspapers, and printing ads in trade ally magazines. IESO staff see additional room for improving its marketing by increasing its effectiveness at engaging customers and increasing their awareness of and trust in the program. A need for additional marketing was a key program barrier according to the delivery vendors who noted that increasing program awareness and trust in its legitimacy was critical to the program's success. According to assessors and installers, the most common barrier preventing more

customers from participating was lack of customer awareness (nine respondents). Assessors and installers recommended overcoming these barriers through increased program marketing and outreach (eleven respondents). When asked for suggestions on how to improve the program, close to one-fifth (19%) of participants recommended improving marketing and promotion.

- Improvement Opportunity 2. Consider further increasing the variety and frequency of marketing efforts across different mediums (such as through newsletters, social media, paid digital advertisements, or, when possible, mass media tactics [e.g., radio, TV, billboards]). Additionally, further leverage relationships with other relevant organizations, such as chambers of commerce or trade groups associated with small businesses, or through developing partnerships with local distribution companies (LDCS), where feasible.

Process Progress Update 3. **Participant perspectives on the site visit process remained generally positive, but opportunities for improvements persist.** Most participants offered no suggestions for improving the initial site assessment (67%) or installer visits (61%), suggesting the program generally met customers' needs. Those offering suggestions for improving site assessments or installer visits most commonly cited reducing the time required to complete the visits, spending additional time completing the initial site assessment, improving communication between the assessor and installer, providing more flexibility and communication in scheduling visits, and improving Save On Energy representatives' professionalism. When asked for other program improvement recommendations, over one-fourth (30%) of participants suggested improving communications at every stage of the project.

- Improvement Opportunity 3a. Ensure that an appropriate amount of time is invested when completing the assessment and installation visits. Identify areas where additional program support or resources could allow assessors and installers to complete the task more promptly or more thoroughly (e.g., provide assessors and installers with expected timeframes in which to complete visits, expected timeframes in which certain tasks should be completed it, and/or provide small incentives if visits are completed within the recommended timeframe).
- Improvement Opportunity 3b. Improve flexibility and communications regarding visit scheduling (e.g., providing customers with options when scheduling the visit, sending reminder e-mails and/or text messages confirming appointments and providing accurate arrival windows).
- Improvement Opportunity 3c. Provide additional training to assessors and installers to ensure their professionalism during assessment and installation visits (e.g., ensure they share their contact information or business cards and they remain responsive to questions or concerns raised during the visit).
- Improvement Opportunity 3d. Improve communication at every project stage (e.g., during the initial assessment, clearly communicate equipment for which customers

will qualify and explain why, clearly identify work completed before leaving the installation site visit, and follow up with customers after visits if questions arise).

Process Progress Update 4. **Assessor workforce shortages likely continued to serve as a participation impediment, especially in more remote areas of the province.** Three of the IESO staff members and the delivery vendors interviewed considered the lack of field staff (particularly assessors) to be a major challenge in 2024; this is similar to the feedback from the evaluations in prior years. The shortage appears to affect all regions: in the northern part of the province there are long drive times which make it difficult to schedule audits since it may not be worthwhile to travel for a single audit; however, delivery vendor staff indicated that it has also been difficult to retain assessors in other regions as well given the challenging nature of the work (e.g., it can be difficult for inexperienced assessors to effectively sell the program's benefits to busy customers). IESO staff noted that assessor turnover can be challenging for the delivery vendors since it takes time to on board new staff. One delivery vendor reported that they have begun to address this challenge by identifying and hiring staff with related industry experience. Two IESO staff members believed offering longer term contracts may attract more field staff; one IESO staff member suggested that eighteen or even twelve-month contracts would be more favorable than the current six-month terms. One delivery vendor found it useful to recruit staff from similar programs that were no longer running.

- Improvement Opportunity 4. Identify opportunities to address workforce shortages to ensure the availability of a robust pool of assessors to support SBP. This may include incentivizing assessors willing to travel to Northern areas of the province; allowing installers to perform assessments *and* installations in the North to minimize workforce needs; allowing for virtual assessments, depending on the customer's location; or partnering with colleges/universities.

Process Progress Update 5**. Most participants continued to find program partners trustworthy, though improvement opportunities remain.** Participants were asked to rate the trustworthiness of various program partners on a scale of one to five, where one indicates "not trustworthy at all" and five indicates "extremely trustworthy." Over four-fifths of participants (86% and 83%, respectively) stated that the representative who performed the initial site assessment and the representative who performed the installation site visit were either very or extremely trustworthy.

Of those providing a rating for the representative who contacted them via door-to-door outreach, nearly two-thirds (64%) said they were very or extremely trustworthy. Suggestions for improving program partner trustworthiness included improving the professionalism of contractors (two respondents), following through with all aspects of work order (two respondents), and providing more program materials when conducting door-to-door outreach to increase the legitimacy of the program (two respondents).

- Improvement Opportunity 5. Coordinate with program delivery vendors to ensure program assessors and installers have the training and support needed to minimize issues related to professionalism, follow-through, and having program promotional materials at hand. This may involve conducting closer oversight and guidance related to assessor and installer communications with customers to ensure their professionalism, providing additional training to contractors about the importance of following through on all aspects of work order, and providing assessors with adequate promotional materials to have on hand when conducting door-to-door outreach.
- Refer to Process Progress Update 2 regarding recommended activities to support the program's legitimacy as well as Process Progress Update 3 regarding site-visit improvement opportunities.

Process Progress Update 6. **Increases in the lighting project cost cap continued to help customers complete more of the work of interest to them, though monitoring the cost caps is recommended.** SBP raised its lighting project incentive cap from $2,000 to $3,000 in November 2023 and IESO staff indicated that this change likely contributed significantly to the significant increases in completed projects in 2024 compared to 2023. According to delivery vendors, many projects reached the lighting incentive cap and most of those customers opted to reduce the project scope rather than pay out of pocket. Close to one-half (49%) of surveyed participants reached the $3,000 lighting incentive cap. Of those that reached the lighting cap, one-half (47%) had to reduce the size, scope, or equipment efficiency of the project as a result of reaching the cap. In contrast, only about one-tenth (8%) of participants reached the $2,500 non-lighting incentive cap, but of those, two-thirds (67%) had to reduce the size, scope, or equipment efficiency of the project. When asked which upgrades would interest them in the absence of project cost caps, participants most frequently mentioned additional lighting (45%), HVAC equipment (14%), and appliances (7%).

- Improvement Opportunity 6a. Continue monitoring the lighting project cost cap to ensure it meets the needs of most participants.
- Improvement Opportunity 6b. Regardless of whether project cost caps are reached, ensure the program informs customers of all options and relevant information (e.g., co-pay opportunities, payback period calculations associated with additional equipment purchases).

Appendix A Energy and Peak Demand Savings

Evaluated Year	Verified Year	Net Energy Savings (kWh) Persisting in 2026	Net Peak Demand Savings (kW) Persisting in 2026
PY2021	PY2021	11,592,016	3307.6
PY 2021 Total		**11,592,016**	**3307.6**
PY2022	PY2022	4,956,115	1223.6
PY2022	PY2021	291,797	156.6
PY 2022 Total		**5,247,912**	**1380.2**
PY2023	PY2023	6,952,510	1827.3
PY2023	PY2022	52,959	13.1
PY2023	PY2021	0	0.0
PY 2023 Total		**7,005,469**	**1840.5**
PY2024	PY2024	9,698,518	2271.2
PY2024	PY2023	86,251	22.6
PY2024	PY2022	0	0.0
PY2024	PY2021	0	0.0
PY 2024 Total		**9,784,769**	**2293.8**
TOTAL		**33,630,167**	**8822.0**

Appendix B PY2024 EM&V Key Findings and Recommendations with IESO Response

No.	KEY FINDINGS	2024 EM&V RECOMMENDATIONS	IMPACT	IESO RESPONSE
1.	SBP Cost-Effectiveness did not achieve a Program Administrator Cost (PAC) ratio above 1.0 in PY2024. The increased installation of LED troffers in PY2024 was a primary driver of the decreased cost effectiveness compared to previous years of the framework due to the high incentive cost of the measure. In PY2024 LED troffers experienced a large increase in participation compared to previous years of the SBP, bringing down the overall program PAC cost effectiveness results. T8 LED lamps are often a viable retrofit alternative option instead of integrated LED troffer and LED linear fixtures, achieving similar per fixture energy and demand savings at a much lower cost to the program.	When a participant has options to install either integrated LED troffers/LED Linear fixtures or lower cost T8 LED tubes, consider cost-sharing requirements if the participant decides to implement the high-cost integrated LED fixture option. Cost-sharing requirements would decrease the program incentive payments for these measures and improve PAC CE.	High	The IESO is exploring opportunities to improve cost effectiveness, including cost-sharing mechanisms for higher-cost measures as well as introducing less expensive measures as alternative options. The program will continue to encourage the installation of T8 LED tubes over costlier measure types.

No.	KEY FINDINGS	2024 EM&V RECOMMENDATIONS	IMPACT	IESO RESPONSE
2.	Awareness of and interest in SBP's non-lighting equipment offerings continued to be relatively low among participants, although implementation of these measures did increase in PY2024. One SBP delivery region did not install any non-lighting measures during the program year. The delivery vendor for this region noted that the amount of travel required coupled with related program cost caps are key barriers to completing assessments and installations in this region. Only about one-third (35%) of participants who installed lighting-only equipment were aware that the program offered non-lighting equipment upgrades.	Recommendation 2a. Identify opportunities to minimize the risks and costs associated with non-lighting equipment and services to customers and program delivery vendors. Work with the regional service providers to identify solutions for overcoming barriers to implementing non-lighting measures in the region with zero participation in PY2024 and assess whether additional resources or education are needed in that region. Recommendation 2b. For non-lighting equipment specifically, consider devoting more focus to ensuring customers understand what equipment will be installed, ensuring customers know who to reach out to if an issue emerges and what the resulting procedure is, and ensuring the assessors and installers are escalating issues to the senior delivery vendor staff when necessary. Recommendation 2c. Consider refreshing the non-lighting options to better align with customer interest where feasible and cost-effective.	Medium	The program is planning a comprehensive review of the program's eligible measures, including a refresh of the measures offered, and has also planned a review of non-lighting measures that are riskier to install to determine if additional safeguards can be built into requirements. The program will also plan to compile and incorporate lessons learned on successful practices that can be shared across all delivery regions. The program is also currently identifying solutions for regions where there is little to no non-lighting measure implementation in partnership with the SBP delivery vendor. The program will work with vendors on promotion strategies for non-lighting measures, including leveraging additional opportunities through Save on Energy's capability building resources where available. A refresh of the program's warranty and troubleshooting process is also planned.
3.	Errors in the SBP eligible measures list led to inaccurate reported savings. The error results in reported savings being lower than they should be for the ECM for evaporator fan (Cooler) of two motor sizes and ECM for evaporator fan (Freezer) for all motor sizes. Another observation is the 8' length T8 LED tube replacement offered in the program is listed as a type A (tube re-lamp). However, program data and field verification show these measures are type B lamp retrofits. Additionally, the evaluator encountered situations where the installed light fixtures were of higher wattage than the maximum allowed as established by the SBP Eligible Measures List.	Recommendation 3a. Update the SBP Eligible Measures List to ensure that it aligns with the measure savings as established by the SBP Measures and Assumptions List. Recommendation 3b. Update the SBP Eligible Measures List to align with the type of retrofit that is actually offered and installed in the field by service providers. Recommendation 3c. Require implementers to include model numbers on project invoices. These can be used to verify measure eligibility.	High	The SBP Eligible Measures List was updated with values confirmed to align with the SBP Measures and Assumptions List as of January 2025. The program will also review the Eligible Measures List for each measure's retrofit type for accuracy, and make corrections as required. The program will work with vendors on identifying and implementing solutions to improve accuracy and traceability of installed measures within the program's documentation and reporting.

No.	KEY FINDINGS	2024 EM&V RECOMMENDATIONS	IMPACT	IESO RESPONSE
4.	The level of project documentation available was not of consistent quality across all SBP delivery regions. One region typically lacked clear and comprehensive photographs of baseline and retrofit equipment. Additionally, this region included the two projects with highest reported energy savings in the PY2024 sample – both of which had significantly lower verified savings than reported. These projects had lighting measures installed in multiple unique spaces within the facility. Even though some of these spaces had low annual operating hours, the operating hours from the highest usage areas were applied to all measures in the project.	Recommendation 4a. Require an extra level of project review for projects over a savings threshold, such as 25,000 kWh. For these large projects, IESO staff should reach out directly to program participants to verify measure baselines and annual operating hours. Recommendation 4b. Consider allowing for the collection of operating hours by each space with unique operating hours instead of applying one schedule to all fixtures and spaces in a facility. Recommendation 4c. Specify what information should be captured in pre-retrofit and post-retrofit pictures taken by SBP assessors/installers.	Medium	In collaboration with the SBP delivery vendors, the program will seek to improve the processes to verify the accuracy of information based on what is reasonable to administratively implement. The program will first conduct a review of the current process to verify a facility's operating hours. While it may not be feasible to implement a zone-by-zone approach on operating hours using the program's existing data collection software, alternative solutions, such as using a blended operating hour which incorporates multiple schedules, will be explored, especially in situations where a facility's savings values are higher. The program will work the SBP delivery vendors to retrain contractors and assessors on expectations for photographs and assessment documentation, especially where there has been high staff turnover in a particular region.
5.	The process associated with offering the top-up incentive is working well but some improvement opportunities remain. Of those who received a top-up incentive, most learned about this opportunity from a Save on Energy representative conducting door-to-door outreach. Program participants suggested shortening the time from the assessment to the installation and increasing the amount of the top-up incentive cap. Assessors and installers agreed that increasing the incentive cap would encourage many customers to complete even more work and also mentioned that compensating assessors for top-up visits, improving assessor access to customer top-up incentive amounts without having to contact the program, and improving e-mail communications to better advertise the opportunity to eligible customers would improve the top-up incentive process.	Consider opportunities to improve the top-up incentive process. This includes working with service providers to evaluate if process changes to shorten the time between the initial assessment and the equipment installation are possible and encouraging them to directly advertise the top-up opportunity to all previous SBP participants in their service territories who are eligible. The IESO can work with Service Providers on improving the process to communicate available top up amounts to SBP assessors and outreach staff. If SBP incentive caps are increased in the future, service providers should re-engage top-up eligible participants to see if they are interested in installing more eligible equipment.	Low	Where top-up opportunities still exist, the IESO will work with the program's delivery vendors to identify solutions to improve visibility of top-up amounts for assessors, strategize on how to better leverage existing initial assessments to avoid additional assessments for top-ups, and identify opportunities for streamlined communications.

Appendix C Impact Evaluation Methodology

This section describes in greater detail the specific tasks necessary and methodologies that will be used for the SBP impact evaluation, which will include the following:

- Program database assessment
- Population sampling
- Data collection and analysis
- Establish gross and net verified savings

C.1 Program Database Assessment

The SBP database assigns a unique number to each project. These unique project numbers and the project completion date will be used to determine new projects that need to be included in the PY2024 evaluation.

C.2 Population Sampling

An important part of the evaluation planning process is the sample design for net-to-gross (NTG) and impact evaluation activities. Statistical sampling serves as the basis of the evaluation's ability to say something meaningful within a specified level of certainty and precision about a population of interest. Resource Innovations will use statistical sampling of the program population to estimate impacts and collect data about customer perceptions, attitudes, and characteristics. Sampling will consider predefined levels of confidence (90%) and precision (10%), population size, effect size, analysis methods, and any stratification that may be of interest. The ideal magnitude of sample sizes varies as a function of the following:

- The Population of Interest: This could differ between the impact and process evaluations. For example, the population of interest for impact evaluations of verified and net impacts generally includes savings and/or measures, whereas the population of interest for process evaluations tends to be the participant or trade ally. Therefore, samples are typically drawn to fulfill the greatest rigour requirement—generally impact evaluation.
- The Objective of Sampling: Sampling is designed to ensure the sample will be representative of the population, but producing a sample that measures overall energy use with 90%/10% confidence/precision is very different than measuring a change in energy use with 90%/10% confidence/precision. Properly detecting changes in energy use often requires larger sample sizes, especially if the changes that must be detected are relatively small. The evaluation team's approach exceeded the industry-accepted target 90% confidence level ± 10% precision (90% ± 10%) for program level energy savings.
- Inherent Variability in the Data: The more volatility in the population, the larger the sample size must be to meet precision requirements. The coefficient of variance (CV)

was initially set at 0.5 to establish a target sample size of 67 projects to achieve 90% confidence level ± 10% precision for program level savings.

Resource Innovations sampled 124 SBP projects for the PY2024 evaluation to target 90% confidence level ± 10% precision at the lighting and non-lighting track level. The lighting sample achieved 90% confidence level ± 10% precision results while the non-lighting sample CV was greater than 0.5 for the energy and demand realization rates which resulted in 85% confidence level ± 15% precision results. At the 90% confidence level, the PY2024 sample achieved better than 10% precision at the program level across the province of Ontario for both energy and demand savings.

Table C-1: PY2024 SBP Sampling Overview

Program	Target Sample Size	Evaluated Applications	Lighting Sample Size	Non-Lighting Sample Size
SBP	124	124	68	56

C.3 Data Collection and Analysis

The Level 1 audit of the SBP projects began with a review of the measure codes, quantities, and reported savings from the SBP database and all available project documentation, including applications, invoices, work orders, and site photos. Level 2 audits included an on-site review and verification of installed equipment for a limited number of sampled projects. Reviewing the project data and documentation in advance of on-site visits and desk reviews ensured time spent on-site or during the phone interview focused on collecting and/or verifying the most important project specifications. Key parameters to be investigated included baseline and retrofit equipment information, operating hours, lighting controls, and HVAC equipment information.

Discrepancies between reported fixture wattages and operating hours remained the main cause for energy realization rate deviation away from 100% for lighting projects. To verify actual energy and summer peak demand savings, analysis staff recorded lamp wattages and ballast factors of retrofitted equipment. Normal, seasonal, and holiday operating hours were also confirmed with the participants.

Following completion of data collection and project analyses, a program-level verified energy and summer peak demand savings was calculated by applying sample level adjustment factors (energy and demand realization rates and NTG ratios) to the overall program population.

C.4 Establish the Verified Savings

Data collected due to Level 1 and Level 2 audit activities allowed energy and summer peak demand savings to be calculated for each sampled project–termed gross verified savings. The ratio of gross verified savings to the reported savings provided the project realization rate, and the ratio of the summation of all project gross verified and reported savings provided the program-level realization rate. Equation C-1 presents the basic formula for calculating the realization rate.

Equation C-1: Realization Rate

$$Program\ Realization\ Rate = \frac{\sum_1^n Gross\ Verified\ savings}{\sum_1^n Reported\ Savings}$$

Where:

n	= Total number of projects evaluated
Gross Verified Savings	= Sample savings (kWh or kW) verified through evaluation
Reported Savings	= Sample savings (kWh or kW) reported by the IESO

For calculation of verified summer peak demand savings, the Resource Innovations team used the methodology and peak definitions outlined in the EM&V Protocols to calculate verified demand savings (winter and summer) by reviewing average demand reduction across all peak hours. Specifically for lighting measures, the Resource Innovations team verified actual lighting operating hours with the participant, including the impact of daily, weekly, seasonal, and holiday schedule variations. Verified summer peak demand savings were then calculated as the average demand savings that occurred during the pre-defined summer peak demand period. For example, if the verified lighting schedule did not overlap with the pre-defined peak period, the verified summer peak demand savings for all lighting measures on that schedule would be zero. If the verified lighting schedule overlapped with 50% of the pre-defined peak period, the verified summer peak demand savings for the lighting measures on that schedule would equal 50% of verified demand savings for those measures.

The SBP incentivizes implementation of equipment with an efficiency level that exceeds local building and energy requirements. However, the energy consumption of equipment in an enclosed space cannot be viewed in isolation. Building systems interact with one another, and a change in one system can affect the energy consumption of another. This interaction was important to consider when calculating the benefits of the SBP as it adopted a comprehensive view of grid-level energy changes rather than limiting the analysis to the energy change directly related to the modified equipment. The EM&V Protocols state that interactive energy changes should be quantified and accounted for whenever possible. Based on this guidance, interactive effects were calculated for all energy-efficient lighting measures installed through the program to capture changes in operations of HVAC equipment due to lower heat loss from energy-efficient lighting equipment.

C.5 Lifetime Savings

When performing the impact evaluation, it was important to consider the total amount of savings over the lifetime of retrofitted equipment. This consideration was necessary given that energy savings, demand savings, avoided energy costs, and other benefits continued to accrue each year the equipment was in service. The method of calculating lifetime energy savings of a measure level is presented in Equation C-2.

Equation C-2: Lifetime Energy Savings

$$Lifetime\ Energy\ Savings = EUL \times Annual\ Energy\ Savings$$

Where:
EUL =Estimated useful life of the retrofitted equipment

Appendix D Detailed Net-to-Gross Methodology

This appendix provides detail on the sampling plans for collecting NTG data, the instruments used to assess FR and SO, the implementation of the data collection, and the analysis methods.

An effective questionnaire was developed to assess FR and SO. The approach has been used successfully in many previous evaluations. The NTG ratio presented in Equation D-1is defined as follows:

Equation D-3: NTG Ratio

$$NTG = 100\% - FR + SO$$

Where FR is free-ridership and SO is spillover.

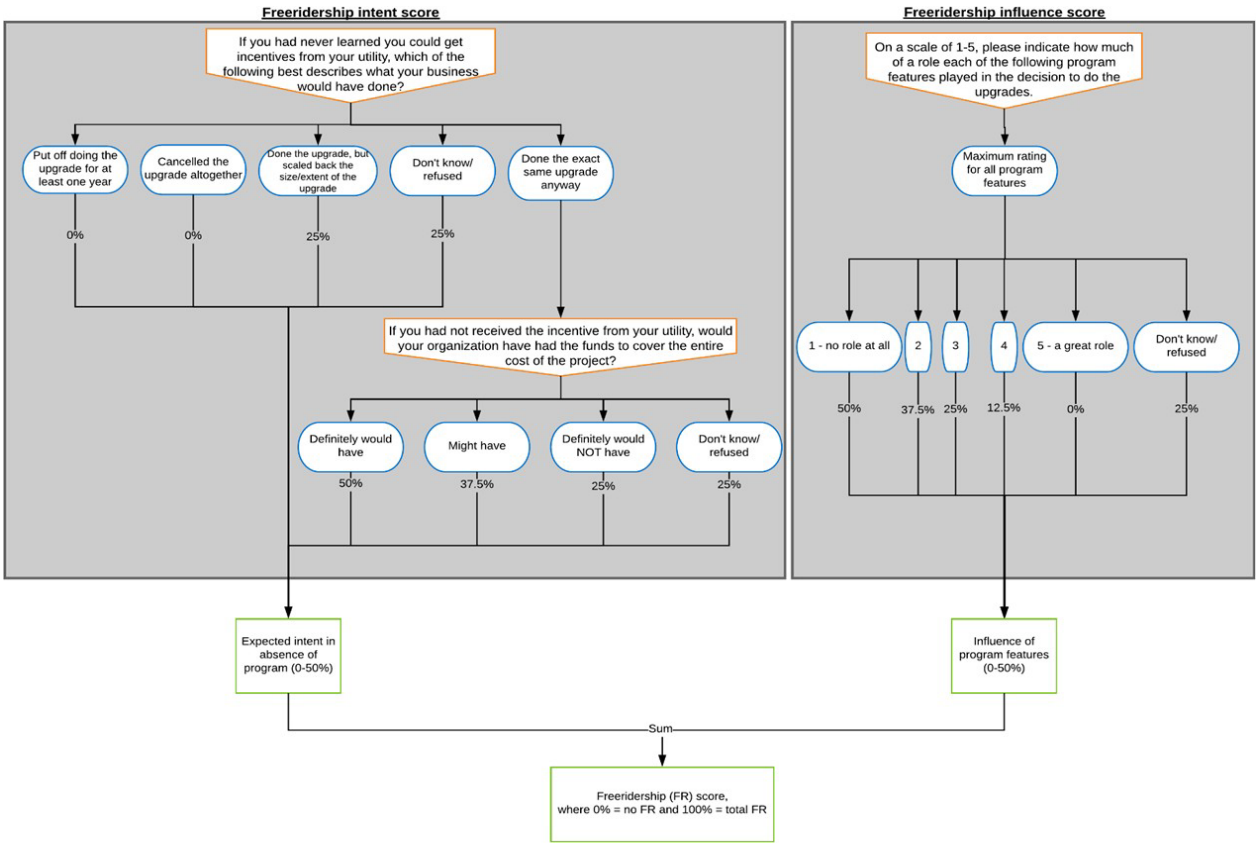
D.1 Free-Ridership Methodology

The survey addressed the attribution of savings for each sampled project or type of equipment through two main components:

- Intention of the expected behaviour in the program's absence.
- Influence of various program features, such as the incentive, program marketing, and outreach, and any technical assistance received.

Each component produced scores ranging from 0 to 50. The two components were summed to produce a total FR score ranging from 0 (not a free-rider) to 100 (complete free-rider). The total score was interpreted as a percentage (0% to 100%) to calculate the mean FR level for a given program. Figure D-1 illustrates the FR methodology.

Figure D-1: Free-Ridership Methodology



Intention Component

The FR score's intention component asked participants how the evaluated project would have differed in the program's absence. The two key questions determined the intention score as follows:

Question 1: If you had never learned you could get incentives/upgrades at no cost through the program, which of the following best describes what your business would have done? Your business would have...

1 - Put off doing the upgrade for at least one year.
2 - Cancelled the upgrade altogether.
3 - Done the upgrade but scaled back the size or extent of the upgrade.
4 - Done the exact same upgrade anyway Ask Question 2
98 - Don't know
99 - Refused

[ASK ONLY IF RESPONSE TO QUESTION 1=4: Done the exact same upgrade anyway]
Question 2: If you had not received the incentive/upgrades at no cost from the program, would you say your organization definitely would have, might have, or definitely would not have had the funds to cover the entire cost of the project?

1 - Definitely would have
2 - Might have
3 - Definitely would NOT have
98 - Don't know
99 – Refused

Table D-2 indicates the possible intention scores a respondent could have received, depending on their responses to these two questions.

Table D-2: Key to Free-Ridership Intention Score

Question 1 Response	Question 2 Response	Intention Score (%)
1 or 2	Not asked	0 (no FR for intention score)
3, 98 (Don't Know), or 99 (Refused)	Not asked	25
4	3, 98 (Don't Know), or 99 (Refused)	25
4	2	37.5
4	1	50 (high FR for intention score)

If a respondent provided an answer of one or two (would postpone or cancel the upgrade), the respondent would receive an FR intention score of 0% (on a scale from 0% to 50%, where 0% is associated with no FR and 50% is associated with high FR). If a respondent answered three (would have done the project but scaled back the size or extent) or stated they did not know or refused the question, the respondent would receive an FR intention score of 25% (associated with moderate FR). If the respondent answered four (would have done the exact same project anyway), they were asked the second question before an FR intention score could be assigned.

The second question asked participants who stated they would have done the exact same project, regardless of whether their organization would have had the funds available to cover the entire project cost. If the respondent answered one (definitely would have had the funds), the respondent received a score of 50% (associated with high FR). If the respondent answered two (might have had the funds), they received a slightly lower FR score of 37.5%. If the respondent answered three (definitely would not have had the funds) or did not know or refused the question, the respondent received an FR intention score of 25% (associated with moderate FR).

The bullet points below display the same FR intention scoring approach in list form. As mentioned above, the evaluation team calculated an intention score for each respondent, ranging from 0% to 50%, based on the respondent's report of how the project would have changed had there been no program:

- Project postponement or cancellation = 0%
- Reduction in size or scope or use of less energy-efficient equipment = 25%
- Respondent does not know what they would have done in the absence of the program = 25%
- No change and respondent states the firm would not have made funds available = 25%
- No change, but respondent is not sure whether firm would have made funds available = 37.5%
- No change and respondent confirms firm would have made funds available = 50%

Influence Component

The influence component of the FR score asks each respondent to rate how much of a role various potential program-related influence factors had on their decision to do the upgrade(s) in question. Influence was reported using a scale from one to five, where one indicated it was "not at all influential" and five indicated it was "extremely influential." The potential influence includes the following:

- Availability of the incentives or the no-cost upgrades
- The information or recommendations provided by the IESO staff (if applicable)
- The results of any audits or technical studies that were done (if applicable)
- The information or recommendations provided by contractors, vendors, or suppliers associated with the program
- Marketing materials or information provided by the program
- Previous experience with any energy-saving program
- Others (identified by the respondent)

Table D-3 indicates the possible influence scores a respondent could receive, depending on how they rated the influence factors above. For each respondent, the program influence was equal to the maximum influence rating a respondent reported across the various influence factors. For example, suppose the respondent provided a score of 5 (extremely influential) to at least one of the influence factors. The program is considered to have been extremely influential in their decision to do the upgrade, and the influence component of FR is set to 0% (not a free rider).

Table D-3: Key to Free-Ridership Influence Score

Maximum Influence Rating	Influence Score (%)
5 - program factor(s) highly influential	0
4	12.5
3	25
2	37.5
1 - program factor(s) not influential	50
98 – Don't know	25
99 - Refused	25

The following bullet points display the same FR Influence scoring approach in a list form. As mentioned above, a program influence score was calculated for each project, also ranging from 0% to 50%, based on the highest influence rating given among the potential influence factors:

- Maximum rating of 1 (no influence factor was influential in the decision to do the project) = 50%
- Maximum rating of 2 = 37.5%
- Maximum rating of 3 = 25%
- Maximum rating of 4 = 12.5%
- Maximum rating of 5 (at least one influence factor was extremely influential) = 0%
- Respondent does not know how much influence any factor had = 25%

The intention and program influence scores were summed for each respondent to generate an FR score ranging from 0 to 100. The scores were interpreted as a percentage of FR: a score of 0 indicated 0% FR (i.e., the participant was not at all a free rider), a score of 100 indicated 100% FR (i.e., the participant was a complete free rider), and a score between 0 and 100 indicates the participant was a partial free rider.

D.2 Spillover Methodology

To assess SO, respondents were asked about installing energy-efficient equipment or services that were done without a program incentive following their participation in the program. The equipment-specific details assessed were as follows:

- ENERGY STAR Appliance: type and quantity
- Fan: type, size, quantity
- HVAC: air conditioner replacement, above code minimum: tonnage and quantity
- Lighting: type, quantity, wattage, hours of operation, location, and fixture length

- Lighting—controls: type of control, type and quantity of lights connected to control, hours of operation, and percentage of time that the timer turns off lights
- Motor/Pump Upgrade: type, end-use, horsepower, and efficiency quantity
- Motor/Pump Drive Improvement (VSD and Sync Belt): type, end-use, horsepower, and quantity
- Others (identified by the respondent): description of the upgrade, size, quantity, hours of operation

For each equipment type, the respondent reported installing without a program incentive.

The survey instrument asked about the extent of influence that earlier involvement in the program had on the decision to carry out the upgrades. Influence was reported using a scale from one to five, where one indicated it was "not at all influential" and five indicated means it was “extremely influential.” Suppose the influence score is between 3 and 5 for a particular equipment type. In that case, the survey instrument solicits details about the upgrades to estimate the quantity of energy savings that the upgrade produced.

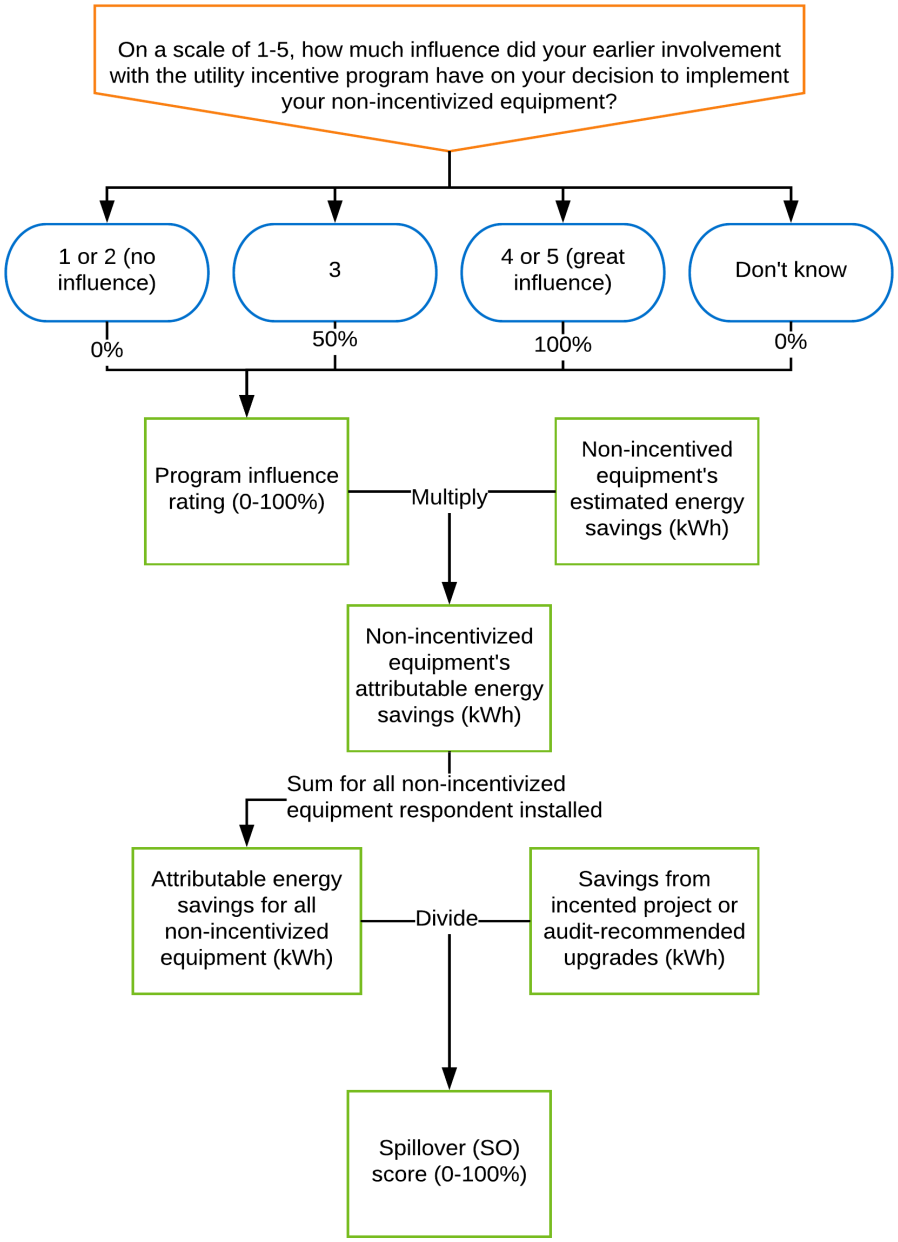
For each upgrade, the program influence rating was converted to an influence score ranging from 0% to 100%, as follows:

- Maximum rating of 1 or 2 (not at all influential) = 0%
- Maximum rating of 3 = 50%
- Maximum rating of 4 or 5 (extremely influential) = 100%
- Respondent does not know how much influence any factor had = 0%

The following procedure was used to calculate an SO percentage for each respondent:

- Multiplying the estimated energy savings for each upgrade by the influence percentage to calculate the upgrade’s program-attributable energy savings.
- Summing program-attributable energy savings from all identified upgrades for each respondent to calculate the respondent’s total SO savings.
- Dividing each respondent’s total SO savings by the savings from the incented project.

Figure D-1 Spillover Methodology



D.3 Identification of Project or Upgrade for NTG Assessment

Participants were asked to consider all their completed projects in 2024 through the particular program in question. This approach allowed for the respondent's NTG value across all the projects they completed in 2024 to be applied rather than just one.

D.4 Other Survey Questions

In addition to the questions addressing FR and SO, the survey included the following topics to provide additional context:

- Whether the respondent was the person primarily involved in decisions about upgrading equipment at their company. Suppose the respondent was not the appropriate contact. In that case, the interviewer asked that they be transferred to or be provided contact information for the appropriate person (in the case of a phone survey). In the case of a web survey, the weblink would be forwarded to the appropriate contact.
- Whether the respondent had primary or shared responsibility for the budget or expenditure decisions for the program-incentivized work completed at their company.
- The respondent's work title.
- When the respondent first learned about the program incentives relative to the upgrade in question (e.g., before planning, after planning but before implementation, after implementation began but before project completion, or after project completion).
- When the respondent submitted their application to the program, and their reasons for submitting it after the work was started or completed, if applicable.
- How the respondent learned about the program.

Responses to these questions were not included in the algorithms for calculating FR or SO, but they provided additional context. The first question ensured that the appropriate person responded to the survey. The other questions provided feedback about responsibility for budget and expenditure decisions, the respondent's job title, application submission process details, and how and when program influence occurred.

D.5 Net-to-Gross Survey Implementation

The survey was implemented over the web and by phone. The survey lab was instructed to avoid collecting duplicate responses by no longer calling on respondents if they responded to the web survey or deactivating the respondent's survey weblink if they responded to the phone survey.

For each phone survey, the survey lab called participants in a randomized order. After reaching the identified contact for a given participant, the interviewer explained the survey's purpose and identified the IESO as the sponsor. The interviewer asked if the contact was involved in decisions about upgrading equipment at that organization. If the contact was not involved in decisions about upgrading equipment, the interviewer asked to be transferred

to or to receive the contact information for the appropriate decision-maker. The interviewer then attempted to reach the identified decision-maker to complete the survey.

It was assumed that all contacts who responded to the web version of the survey were the appropriate contacts to answer the questions. The introductory text in the survey asked the respondent to forward the survey web link to the appropriate contact to complete the survey if they were not the appropriate contact to do so.

Appendix E Detailed Process Evaluation Methodology

This appendix provides additional detail about the process evaluation methodology. A summary of the methodology was provided in Section 3.2.

E.1 Research Question Development

Table E-1 provides a list of key research questions and data sources used to investigate each research question. Research questions were developed at the beginning of the PY2024 evaluation period, between September 2024 and October 2024. They were written in consultation with IESO program staff and IESO EM&V staff and were finalized after reviewing the timing of related survey instruments to ensure respondent fatigue would be minimized. After the research questions were finalized, they were adapted for inclusion in the interview guides and survey instruments, which were, in turn, reviewed and approved by the IESO EM&V and program staff (refer to Appendix E.2 for more information on the interview and survey methodology).

Table E-4: SBP Process Evaluation Research Objectives and Data Sources

Research Questions	Document & Program Records Review	IESO & Delivery Vendor Staff Interviews	Participant Surveys	Assessor & Installer Surveys
Is sufficient data being captured to effectively verify recommendations and savings?	✓	✓		
What are the goals and objectives of the program, and how well is the program doing in terms of meeting them?		✓		
What program processes are followed by the IESO and program vendors?		✓		
What strategies implemented by IESO were effective in terms of driving participation, increasing program awareness, and avoiding free ridership?		✓	✓	✓
What program marketing and outreach occurred in support of the program? How did participants become aware of the program? What specific marketing or outreach activities show the most opportunity? What marketing and outreach techniques would be most helpful for increasing uptake of non-lighting measures? How could awareness of non-lighting measures be improved?		✓	✓	✓

Research Questions	Document & Program Records Review	IESO & Delivery Vendor Staff Interviews	Participant Surveys	Assessor & Installer Surveys
What were the experiences of assessors and installers in participating in the program?				✓
What are the program's strengths, barriers, and areas of improvement?		✓	✓	✓
Do the current range of program equipment/services meet customer needs? Were participants able to install all equipment models of interest to them? What suggestions exist for additional equipment/services? Are there specific equipment types that are needed by sector? Is there any sector that makes sense to target? And what offerings would be needed to do so?		✓	✓	✓
Were the program's project incentive caps (for both Lighting and Non-lighting) reached? If one or more of the incentive caps were reached, did this lead to reductions in the scope of the project?	✓	✓	✓	✓
For participants who reached the cost cap, what additional measures would have been of interest? What is the magnitude of additional cost?			✓	✓
For participants who express that they are not interested/ moderately interested in non-lighting measures, what is the reason? Was the equipment of interest not available? If so, what types/ models of equipment could be added?			✓	✓
Do participants trust the program assessors and installers, or are there concerns with their legitimacy? If participants were contacted via door to door outreach, did they trust that outreach staff, or did they have concerns with their legitimacy? If there are concerns with legitimacy, what could be done to increase trustworthiness?			✓	
How was the participant experience in applying for top-up incentives? How did they become aware of the top-up opportunity?		✓	✓	✓

E.2 In-Depth Interview and Survey Methodology

The process evaluation collected primary data from key program actors, including the IESO program staff, program delivery vendor staff, assessors, installers, and participants (Table E-2). Data were collected using web surveys or telephone-based IDIs, depending on the form most suitable for a particular respondent group. These data, when collected and synthesized, provided a comprehensive understanding of the program.

All process evaluation data collection activities were carried out or managed by the evaluators. All survey instruments, interview guides, and sample files were developed by the

evaluators for interviews and surveys. The IESO EM&V staff approved the survey instruments and interview guides. The data used to develop the sample files were retained from program records, supplied either by the IESO EM&V staff or the program delivery vendor.

Table E-5: Process Evaluation Primary Data Sources

Respondent Type	Methodology	Population	Completes: Web	Completes: Phone	Completes: Total	Response Rate	90% CI Error Margin
IESO Program Staff	Phone IDI	3	-	3	3	100%	0%
Program Delivery Vendor Staff	Phone IDI	2	-	2	2	100%	0%
SBP Assessors and Installers	Web Survey	53	13	-	13	25%	N/A*
SBP Participants	Web and Phone Survey	2,196	320	17	337[11]	15%	4.1%

*Error margin not displayed if the respondent count falls below 30, unless census is achieved.

E.3 IESO Program Staff and Program Delivery Vendor Staff Interviews

Three IDIs were completed with three members of the IESO program staff, and two IDIs were completed with two members of the program delivery vendor staff (as shown in Table E-3). The purpose of the interviews was to better understand the perspectives of the IESO program staff and program delivery vendor staff related to program design and delivery.

Interview topics addressed program roles and responsibilities, program design and delivery, marketing and outreach, market actor engagement, program strengths and weaknesses, market impact, and suggestions for improvements.

The appropriate staff to interview were identified in consultation with the IESO's EM&V staff. Telephone IDIs were conducted with IESO program staff and program delivery vendor staff using in-house staff (rather than through a survey lab). The interviews were completed between April 8 and May 14, 2025. Each interview took approximately one hour to complete.

[11] The NTG evaluation included more respondents (n=347) than the process evaluation (n=337), as 10 respondents did not fully answer the process evaluation survey questions.

Table E-6: IESO Program Staff and Program Delivery Vendor Staff IDI Disposition

Disposition Report	IESO Program Staff	Program Delivery Vendor Staff	Total
Completes	3	2	5
Total Invited to Participate	3	2	5

E.4 SBP Assessor and Installer Survey

A total of 13 assessors and installers were surveyed from a sample of 53 unique assessors and installers (as shown in Table E-4). The purpose of the survey was to better understand the SBP assessor and installers' perspectives related to program delivery.

Survey topics addressed the following: respondent roles in the program; firmographics; primary participation pathways; barriers to participation; customer interest in non-lighting upgrades; impacts of the incentive cap; the top-up incentive; training and education; satisfaction with various program aspects; suggestions for improvements, including additional equipment or services to consider as well as the program overall; NEBs; and job impacts.

The sample was developed from program records provided by program delivery vendor staff. A census-based approach was employed to reach the largest number of respondents possible, given the small number of unique contacts.

The survey was delivered over the web by the NMR staff using Qualtrics survey software. Survey implementation was conducted between March 6 and April 4, 2025. The survey took an average of 23 minutes to complete after removing outliers.[12] Up to three weekly email reminders were sent to non-responsive contacts throughout web survey fielding.

[12] The survey was designed to allow a respondent to complete it at a later time if they preferred. The average survey time was calculated with this in mind and assumed that any survey taking 40 minutes or more to complete was likely completed by a respondent who took a break before completing the survey.

Table E-7: Assessor and Installer Survey Disposition

Disposition Report	Total
Completes	13
Emails bounced	7
Unsubscribed	-
Partial Complete	2
Screened Out	-
No Response	38
Total Invited to Participate	53

E.5 SBP Participant Survey

A total of 337 participants were surveyed from a sample of 2,196 unique contacts (as shown in Table E-5). The purpose of the survey was to better understand the SBP participant perspectives related to program experience.

Survey topics addressed the following: firmographics; FR and SO; program awareness; customer interest in non-lighting upgrades; non-lighting upgrades; participation barriers; improvement suggestions for the initial and installation site visits; trustworthiness of staff; impacts of the incentive cap; the top up incentive opportunity; suggestions for improvements, including additional equipment or services to consider as well as the program overall; NEBs; and job impacts. The sample was developed from program records provided by the IESO EM&V staff.

The survey was delivered over the phone and on the web in partnership with the Resource Innovations survey lab, using Qualtrics survey software. Survey implementation was conducted between two waves between October 30 and December 10, 2024, and February 11 and March 19, 2025. The survey took an average of 14 minutes to complete after removing outliers.[13] Weekly e-mail reminders were sent to non-responsive contacts throughout the web survey fielding.

[13] Note that the survey was designed to allow the respondent to come back to it at a later time to complete it if they preferred. The average survey time was calculated with this in mind, assuming any survey that took 40 minutes or more to complete was likely completed by a respondent who took a break before completing the survey.

Table E-8: SBP Participant Survey Disposition

Disposition Report	Web	Phone	Total
Completes	320	17	337
Emails bounced	166	-	166
Unsubscribed	29	-	29
Partial Complete	25	0	25
Screened Out	40	0	40
Callback	-	22	22
Refusal	-	6	6
No Eligible Respondent	-	3	3
Non-working #	-	2	2
Voicemail/Left Message	-	41	41
Agreed to Complete Online	-	10	10
Wrong Number	-	3	3
Other	-	17	17
Already completed survey	-	5	5
No Response		55	
Total Invited to Participate	2,196	87	2,196

Appendix F Additional Net-to-Gross and Process Evaluation Results

This appendix provides additional results in support of the NTG and process evaluations.

F.1 Additional Assessor and Installer Process Results

This section provides additional detail regarding the process evaluation results collected as part of the SBP assessor and installer survey.

Firmographics and Program Experience

Responding assessors and installers were asked various questions to better understand their roles in SBP. Most respondents (eleven out of thirteen) reported being hired by the program delivery vendor. Seven of the thirteen respondents were lighting installation contractors and six were program assessors.

Respondents were asked to report the business category that best represented their company. Most respondents (four out of seven) who provided their business category reported working in electric power engineering construction (as shown in Table F-1).

Table F-9: Respondents' Business Category*
(Open-ended and multiple responses allowed; n=7)

Business Category	Respondents
Electric power engineering construction	4
Repair and maintenance	3
Electrical contractor	2
Communication engineering construction	1
Non-residential building construction	1
Residential building construction	1
Don't know/refused	1

* Does not sum to 7 due to multiple response. Excludes respondents working for the program delivery vendor as assessors.

Respondents were asked various questions about their business characteristics. Four respondents worked at a company that had been in business for twenty years or less and two had been in business for over 20 years. Three respondents worked at companies with 1 to 10 full-time employees and three respondents worked at companies with 11 to 20

employees. Five respondents worked at companies with at least one part-time employee (as shown in Table F-2).

Table F-10: Business Characteristics (n=7)

Number of Years in Business	Respondents
1 to 10	1
11 to 20	3
21+	2
Don't know/refused	1
Number of Full Time Employees	**Respondents**
1 to 10	3
11 to 20	3
Don't know/refused	1
Number of Part Time Employees	**Respondents**
1 to 2	4
3 to 4	1
Don't know/refused	2

*Excludes respondents who work for a program delivery vendor as an assessor.

Respondents were asked if they performed assessments and/or installations for similar versions of the program offered under previous Save On Energy Frameworks. Ten respondents reported performing work through the Small Business Lighting Program (SBL) and five respondent reported performing work through the Refrigeration Efficiency Program (as shown in Table F-3).

Table F-11: Previous Program Experience (n=13)

Performed Assessments/Installations Under Previous SaveOnEnergy Frameworks	Respondents
Save on Energy SBL Program	10
Save on Energy Refrigeration Efficiency Program	5
Did not complete assessments and/or installations for similar versions of SBP under previous SoE Frameworks	3

*Does not sum to 13 due to multiple response.

Six respondents completed assessments, and six respondents completed installation projects through SBP in 2024. Two respondents reported completing 1 to 50 projects and two respondents reported completing 51 to 300 projects. Four respondents reported completing 301 to 500 assessments (as shown in Table F-4).

Table F-12: Projects Completed in 2024 (n=12)

Number of Projects Completed in 2024	Assessments (n=6)	Installation Projects (n=6)
1 to 50	-	2
51 to 300	1	1
301 to 500	4	2
501 to 1000	1	1

Respondents were asked how many staff from their company provided services or support for SBP in 2024. Responses ranged from three to eight staff, with an average of six staff. Installers were asked to estimate the percentage of their company's total 2024 sales represented by work performed for SBP. Responses from seven respondents ranged from 3% to 90%, with an average of 37%. Installers were also asked what percentage of their invoiced project costs were for labour; responses ranged from 30% to 50% with an average of 38%.

Customer Participation and Experience

Table F-5 includes a list of the most common ways that customers came to participate in the program, as reported by the responding assessors and installers. Section 6.2.2 includes an additional discussion around these participation pathways.

Table F-13: Primary Way Customers Came to Participate (n=13)

Primary Way	Respondents
Staff from the program delivery vendor(s) generated leads and provided them to you	5
You made cold calls to potential customers	3
You marketed the program during audits or other in-person customer contacts	3
You described the program and qualifying equipment during client calls	2

Table F-6 presents a list of barriers preventing customers from participating in the program, as reported by the responding assessors and installers. Table F-7 includes a list of suggestions to overcome these barriers. Section 6.2.2 includes an additional discussion around participation barriers.

Table F-14: Barriers to Customer Participation*
(Open-ended and multiple responses allowed; n=13)

Customer Barriers	Respondents
They did not know about the program	9

Customer Barriers	Respondents
They did not think the upgrades were worth the trouble of participating	3
Skepticism	2
The program did not offer the desired equipment	1
Getting efficiency upgrades was not a priority given other priorities	1
There are no barriers to participation	1

*Does not sum to 13 due to multiple response.

**Table F-15: Suggestions to Overcome Participation Barriers*
(Open-ended and multiple responses allowed; n=12)**

Suggestions to Overcome Barriers	Respondents
Advertise the program more	11
Offer a wider variety of measures	2
Offer loans for installations beyond cost cap	1
Increase project caps	1

*Does not sum to 12 due to multiple response.

Respondents were asked if participants were typically able to install all equipment models that were of interest to them through the program. More than one-half indicated they were able to do so (seven respondents) while the rest indicated that they were not able to do so (five respondents). The five respondents who indicated participants were not able to install all the measures that interested them were asked which equipment types or models their customers were not able to install through the program. As shown in Table F-8, all five respondents reported that they would have installed other types of lighting. Section 6.2.2 includes an additional discussion around the equipment customers were interested in but unable to install through the program.

Table F-16: Equipment Upgrades Not Able to be Installed* (n=5)

Equipment Upgrades Not Able to be Installed	Respondents
Other types of lighting	5
Exterior lighting	1
Motors	1
Refrigerator seals	1
Thermostats	1

*Does not sum to 5 due to multiple response.

Program Satisfaction

Table F-9 includes feedback regarding program satisfaction, as reported by responding assessors and installers. Respondents provided feedback on their satisfaction levels with various program aspects, rating each aspect on a scale from one to five, where one indicates "not satisfied at all satisfied" and five indicates "completely satisfied." Respondents were very satisfied with the program overall, assigning it an average satisfaction rating of 4.6. Section 6.2.3 includes an additional discussion regarding this topic.

Table F-17: Satisfaction with Program Aspects (n=13)

Program Aspect	Average Satisfaction Rating
Interactions with Save on Energy representatives from the program delivery vendor	4.6
Value the equipment covered by the program provides to customers	4.4
Program website	4.4
Program training and education	4.2
Application process and forms	4.1
Worksheets and materials	3.9
Interactions with Save on Energy representatives from the IESO	3.7
Types of incentivized equipment offered through the program	3.2
Marketing and outreach for the program	3
The program overall	**4.2**

Project Cost Caps

Table F-10 shows that eight out of thirteen respondents reported that more than 50% of their customers' lighting projects reached the $3,000 lighting incentive cap.

Table F-18: Lighting Projects that Reached the Incentive Cap (n=13)

Percent of Lighting Projects that Reached the Incentive Cap	Respondents
0%	-
1 to 25%	-
26% to 50%	2
51 to 75%	3
76 to 100%	5
Don't know/refused	3

Table F-11 shows that five out of ten respondents reported that 50% or less of their lighting customers reduced their project scope due to reaching the incentive cap. Most commonly, customers indicated reducing the scope of their project by 11% to 25% (three respondents).

Table F-19: Impact of Incentive Cap on Lighting Project Scope

Percent of Lighting Projects that Reduced Scope (n=10)	Respondents
0%	-
1 to 25%	1
26% to 50%	4
51 to 75%	2
76 to 100%	1
Don't know/refused	2
Reduction in Project Scope (n=8)	**Respondents**
Reduced by 1% to 10% on average	1
Reduced by 11% to 25% on average	3
Reduced by 26% to 50% on average	2
Reduced by 76% or more on average	1
Don't know/refused	1

*Does not sum to 11 due to multiple response.

Table F-12 shows that seven out of thirteen respondents reported that 0% to 50% of their customers' non-lighting projects reached the $2,500 non-lighting incentive cap.

Table F-20: Non-Lighting Projects that Reached the Incentive Cap (n=13)

Percent of Non-Lighting Projects that Reached the Incentive Cap	Respondents
0%	3
1 to 25%	4
26% to 50%	0
51 to 75%	2
76 to 100%	0
Don't know/refused	4

Table F-13 shows that three out of six respondents reported that 26% to 50% of their non-lighting customers reduced their project scope due to reaching the incentive cap. Three out of four respondents estimated that the incentive cap reduced the scope of their customers' projects by 1% to 25%. Section 6.2.4 includes an additional discussion regarding this topic.

Table F-21: Impact of Incentive Cap on Non-Lighting Project Scope

Percent of Non-lighting Projects that Reduced Scope (n=6)	Respondents
0%	-

Percent of Non-lighting Projects that Reduced Scope (n=6)	Respondents
1 to 25%	-
26% to 50%	3
51 to 75%	1
76 to 100%	-
Don't know/refused	2
Reduction in Project Scope (n=4)	**Respondents**
Reduced by 1% to 10% on average	2
Reduced by 11% to 25% on average	1
Reduced by 26% to 50% on average	1

*Does not sum to 11 due to multiple response.

Non-Lighting Equipment

Respondents were asked to rate how interested their customers were to learn that SBP now offers energy-efficient equipment upgrades other than lighting. On a scale of one to five, where one indicates "not at all interested" and five indicates "extremely interested," most respondents were very interested (5 respondents) or extremely interested (3 respondents). Figure F-1 displays the distribution of respondents' ratings of customer interest in SBP equipment upgrades other than lighting. Section 6.2.5 includes an additional discussion regarding this topic.

Figure F-2: Customer Interest in Non-Lighting Equipment Upgrades (n=13)

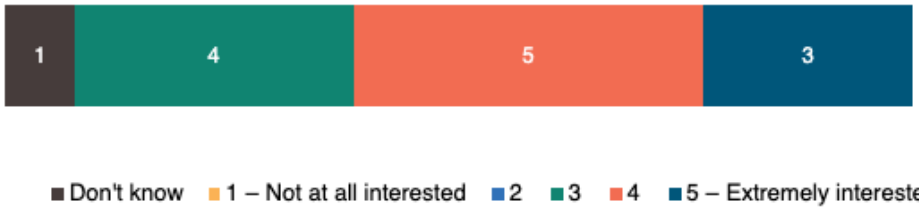


Table F-14 presents a list of reasons why customers were not very interested to learn about the non-lighting energy-efficient equipment upgrades offered through the program as reported by the responding assessors and installers.

Table F-22: Factors Influencing Customer Disinterest in Non-Lighting Equipment Upgrades* (Open-ended and multiple responses allowed; n=4)

Influential Factors	Respondents
Did not need to install non-lighting equipment	1
Risk of product loss during equipment downtime	1
Customers want full replacements, not motor replacements	1

Influential Factors	Respondents
Limitations associated with thermostat feasibility	1
Limited understanding of non-lighting offerings	1
Don't know/refused	1

*Does not sum to 4 due to multiple response.

Table F-15 lists the suggestions assessor and installer had to increase uptake of non-lighting equipment upgrades.

Table F-23: Suggestions to Increase Uptake of Non-Lighting Equipment Upgrades* (Open-ended and multiple responses allowed; n=10)

Suggestions to Increase Uptake	Respondents
Include thermostat wires incentive	2
Offer appliance lighting	1
Better explain the program in marketing materials	1
Offer full equipment replacements, not motor replacements	1
Ensure contractor availability	1
Expand assessor training	1
Expand motor coverage	1
Expand eligible products	1
Include replacement strip curtains in program offerings	1
Make it easier to receive an assessment for non-lighting	1
Make it easier to upload documents/images	1
Provide examples of program benefits	1

*Does not sum to 10 due to multiple response.

Top-up Incentive

Figure F-2 displays the ways customers came to participate in the top-up incentive through SBP as reported by assessors and installers. Section 6.2.6 includes an additional discussion regarding this topic.

Figure F-3: Primary Way Customers Became Aware of the Top-up Incentive (n=13)

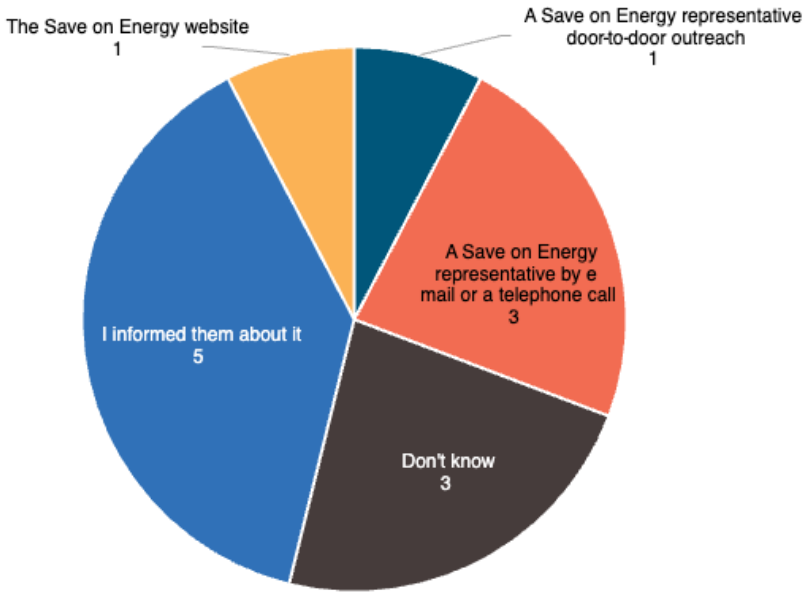


Table F-16 includes feedback regarding recommendations to improve the process that customers went through to receive the top-up incentive through SBP as reported by responding assessors and installers.

Table F-24: Recommendations to Improve Receiving Top-up Incentive
(Open-ended and multiple responses allowed; n=6)*

Suggestions for Improvement	Respondents
Increase the top-up amount	2
Compensate assessors for top-up visits	1
Improve assessor access to customer top up amounts	1
Improve email communication	1
Don't know/refused	5

*Does not sum to 6 due to multiple response.

Training and Education

Table F-17 lists types of training or education that responding assessors and installers received related to the program in 2024 and Table F-18 includes a list of additional training or education topics that assessors and installers indicated would help to support their work in the future. Section 6.2.7 includes an additional discussion around these training topics.

Table F-25: Type of Training and Education Received*
(Open-ended and multiple responses allowed; n=13)

Type of Training	Respondents
One-on-one in-person instruction from program delivery vendor	7
Webinar or other online instruction	3
Responses to questions	2
No training	4

*Does not sum to 13 due to multiple response.

Table F-26: Recommended Training and Education Topics*
(Open-ended and multiple responses allowed; n=13)

Additional Training Content	Respondents
Marketing and outreach techniques to better promote the program to customers	7
The offerings associated with the program	3
The program rules	1
Installation procedures and practices	1
Application process training or support	1
Better communication around program changes	1
No additional training or education is needed	3
Don't know/refused	1

*Does not sum to 13 due to multiple responses.

Program Improvement Recommendations

Table F-19 includes feedback regarding recommendations to improve the program, as reported by responding assessors and installers. Section 6.2.8 includes an additional discussion around these recommendations.

Table F-27: Recommendations to Improve Program*
(Open-ended and multiple responses allowed; n=11)

Program Improvement Suggestion	Respondents
Marketing and outreach techniques to better promote the program to customers	4
Expand product offerings	3
Allow assessors to choose their projects	1
Consider lifts/scaffolding costs in incentive	1
Increase the size of the incentive	1
Minimize and simplify the required paperwork	1

Program Improvement Suggestion	Respondents
More grants for larger consumption situations	1
Provide discounts on work beyond the cost cap	1
Reduce installation cost for contractors	1
Special consideration for larger consumption clients	1

*Does not sum to 11 due to multiple responses.

Table F-20 includes feedback regarding lighting or non-lighting equipment recommendations to consider including in the program in the future, as reported by responding assessors and installers. Section 6.2.8 includes an additional discussion around these recommendations.

Table F-28: Lighting or Non-Lighting Equipment Recommendations for Future Program Years* (Open-ended and multiple responses allowed; n=11)

Equipment or Model Recommendations	Respondents
Additional lighting measures	6
Exterior lighting	4
EV charging	1
Heat pumps	1
Lighting controls	1
Motors	1
Replacement strip curtains	1
Thermostats	1

*Does not sum to 11 due to multiple response.

F.2 Additional Participant Net-to-Gross Results

This section includes detailed FR and SO results associated with the NTGR for SBP Participants.

Free-Ridership

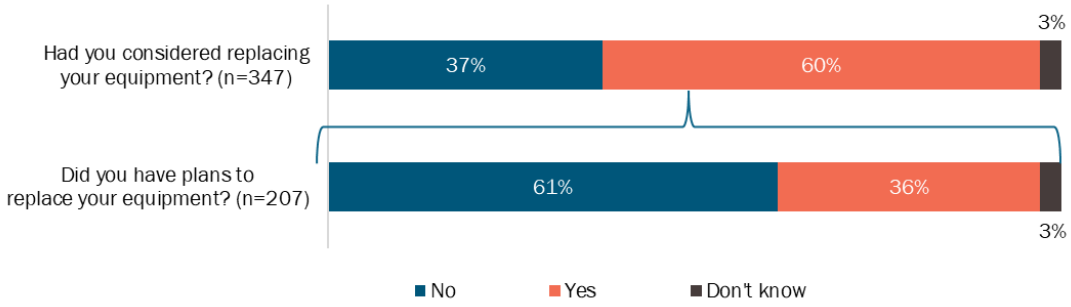
The extent of FR within the program was assessed by surveying SBP participants, seeking to understand their experiences and plans before learning about the program, what they would have done in the program's absence, and how influential the program was on their decisions to implement the energy-efficient upgrades.

Program Awareness and Timing of Program Participation

Participants were first asked whether they had considered replacing their equipment before learning they could receive energy-efficiency incentives through SBP. Three-fifths (60%) of respondents had considered replacing their equipment before learning about the program.

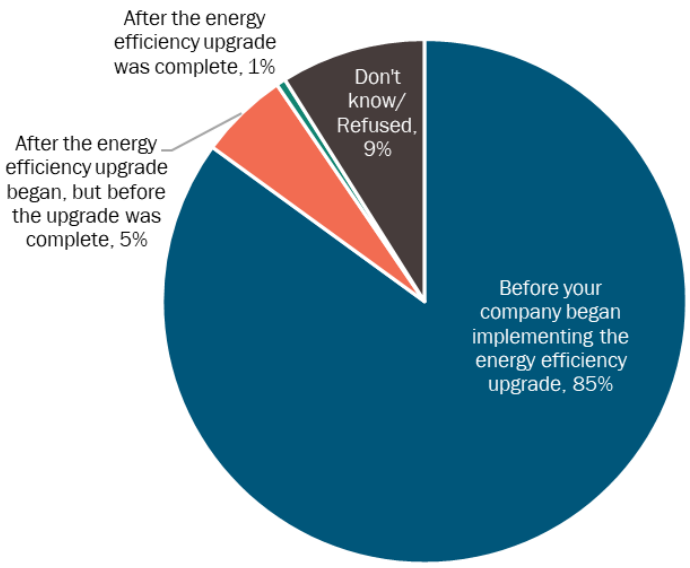
Of those stating that they considered replacing their equipment, over one-third (36%) already had plans to install new equipment before learning about the program, indicating potential FR (shown in Figure F-3). However, three-fifths (61%) of respondents who considered new equipment did not plan for installations prior to learning about the program, indicating the program strongly influenced their decision to begin the project. While responses to these questions were not included in the estimation of the FR score, they provide additional context for understanding the participants' decision-making processes.

Figure F-4: Actions Taken Prior to Learning about the Program



Next, participants were asked about the timing of their participation in the program in relation to the start of their energy-efficient upgrade project (Figure F-4). Over four-fifths of respondents (85%) stated they submitted their application before their company began implementing the upgrade, which suggests most participants were engaged by the program as intended. Less than one-tenth (5%) of respondents stated that they initiated their participation after the upgrade began but before completion. Few respondents (1%) stated they became a participant after their upgrade was complete. Nearly one-tenth of respondents (9%) could not recall when they submitted their application.

Figure F-5: Timing of Program Participation (n=347)



When asked why they initiated their participation after the upgrade began, respondents who indicated doing so most commonly said they needed to complete work for an unplanned replacement for recently failed existing equipment (43%), needed more time to submit the application (19%), or had time or resource constraints at their organization (14%) (Table F-21).

Table F-29: Reasons for Beginning Installations Before Applying
(Open-ended and multiple responses allowed; n=21)

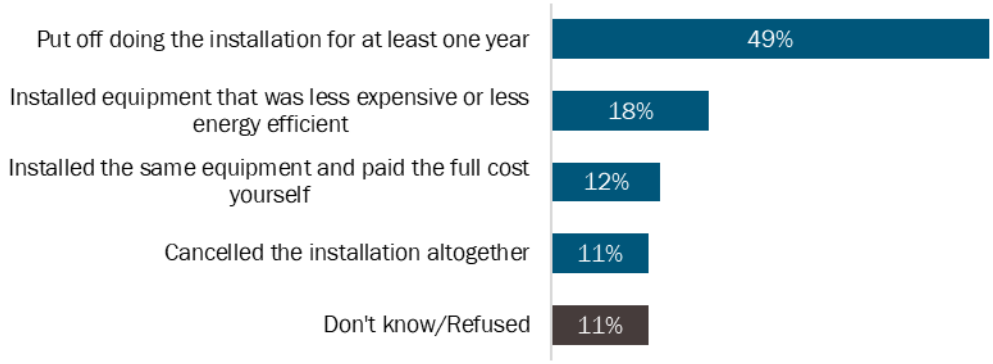
Other Influential Factors	Respondents
Needed to complete work for an unplanned replacement for recently failed existing equipment	43%
Time needed to submit application through the program application system	19%
Time or resource constraints at your company	14%
Needed to stick to an internal schedule to complete upgrade	5%
Was not aware of the program prior to starting the installation	5%
Don't know/Refused	14%

Actions in the Absence of the Program

Participants who stated that they had planned equipment upgrades before applying to SBP were then asked what their company would have done in the absence of the program's free audit and equipment installation (Figure F-5). Overall, their responses suggest low levels of FR, as nearly three-fifths (60%) of respondents would have put off the upgrades for at least a

year (49%) or cancelled the installation altogether (11%). Close to one-fifth (18%) would have installed less-expensive or less-efficient equipment without the program's support. More than one-tenth (12%) would have installed the same equipment and paid the full cost themselves, indicating a high FR level for these respondents. Responses from this participant intent question were factored into the FR analysis.

Figure F-6: Actions in Absence of Program (n=74)



Respondents who indicated they would have installed less-expensive or less-energy-efficient equipment were asked to describe how much they would have reduced their project's size, scope, or efficiency. Four respondents stated they would have reduced the size, scope, or efficiency by a large amount. Seven respondents reported they would have reduced it by a moderate amount. The remaining two respondents were unsure. These results indicate the program helped some customers increase their project's size and/or scope to a degree beyond that achieved independently. This question was not used to calculate the FR score, but it provides additional context around participant intentions.

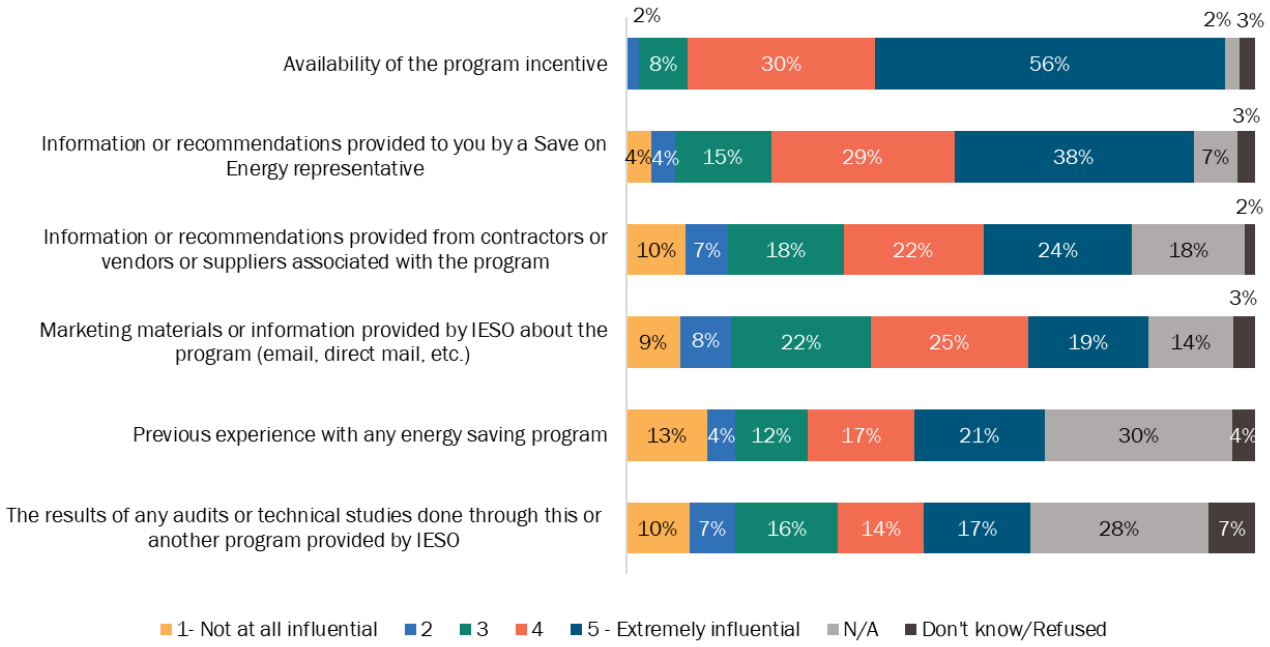
Eight of the nine respondents who stated they would have installed the same equipment in the program's absence further confirmed that they would have paid for it themselves, indicating a high FR level for these respondents. One respondent was unsure. It should be noted that while these responses were used to estimate FR, the participants' scores constituted a small percentage of the total number of survey respondents and did not have a notable impact on the program's overall FR level.

Influence of Program Features on Participation

Participants were asked how influential various program features were on their decision to install energy-efficient equipment (Figure F-6). They rated each feature's influence on a scale from one to five, where one indicated "no influence at all," and five indicated "it was extremely influential." The highest-rated responses were the availability of incentives (86% with a rating of 4 or 5) and information or recommendations provided by an IESO

representative (67% with a rating of 4 or 5). Respondents rated their previous experience with energy-saving programs and audit or technical study results completed through SBP or other programs as the least influential element (38% and 31% with a rating of 4 or 5, respectively). This suggests an opportunity to further cross-promote SBP through other programs and to assess the program's effectiveness in providing technical information to customers. This question, which focuses on the program's influence, was used along with the prior questions about customer intentions to estimate the FR score.

Figure F-7: Influence of Program Features on Participation (n=347)*
(Rating on a scale from 1 to 5)



*May not sum to 100% due to rounding.

When participants were asked whether other factors greatly influenced their organization to install energy-efficient lighting, respondents' answers varied widely (Table F-22). The most common factors identified were saving energy/money on electricity bills (59%), and improving their lighting (15%), and upgrading their equipment (15%).

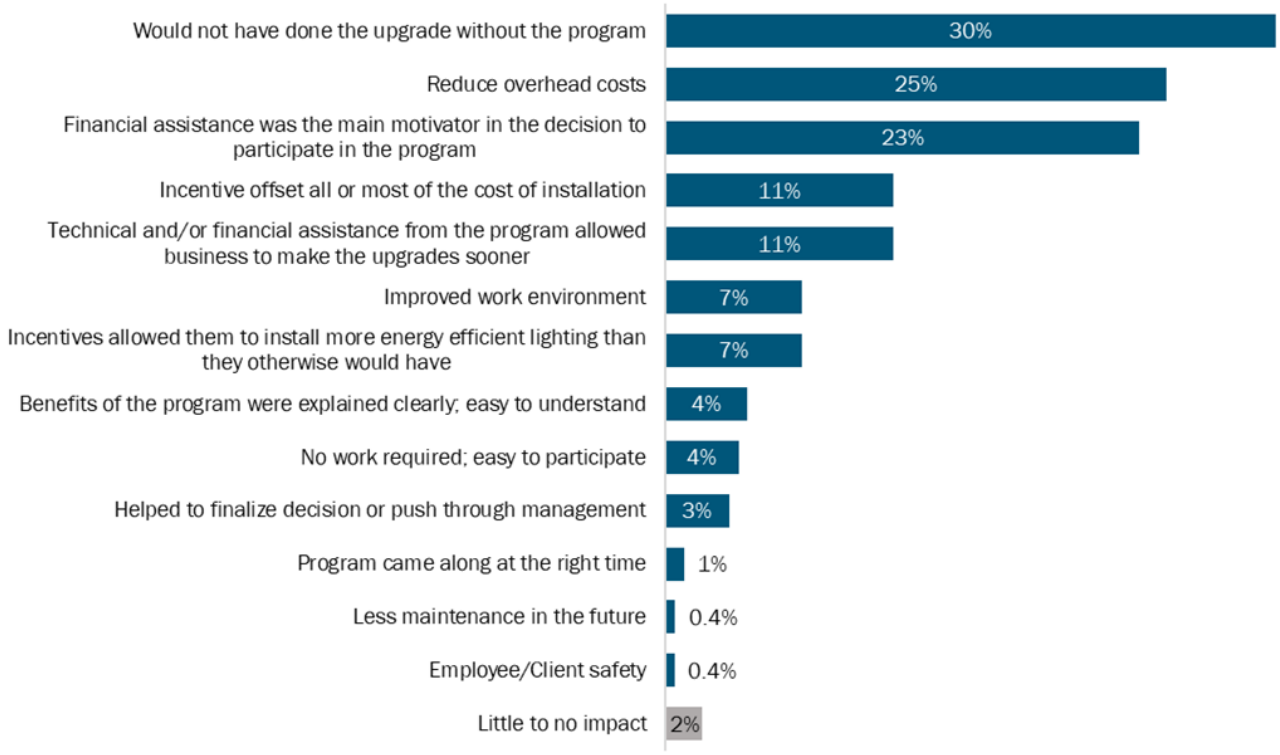
Table F-30: Other Influential Factors on Upgrade Decision (Open-ended and multiple responses allowed; n=84)*

Other Influential Factors	Respondents
Cost/Energy savings	59%
Improved lighting (brighter lighting, more lighting, newer lighting)	15%
Equipment upgrades were needed	15%
No cost to participate	14%
Referral from a friend or colleague	13%
Environmental goals or concerns	9%
Speed at which upgrade could be completed	9%
Was already in the process of upgrading or renovating building	1%
To reduce maintenance costs	1%

*Does not sum to 100% due to multiple responses.

Participants were then asked to explain (in their own words) what impact, if any, the financial support or technical assistance they received from the program had on their decisions to install the program-incentivized equipment at the time that they did (Figure F-7). Of those responding, the most common response was that they would not have done the upgrade without the program (30%). Other frequent responses included reducing overhead costs (25%), that the financial assistance was their main motivator to participate (23%), and that the incentive offset all or most of the cost of installation (11%).

Figure F-8: Program Impact on Decision to Install Equipment
(Open-ended and multiple responses allowed; n=224)*



*Does not sum to 100% due to multiple responses.

In summary, the FR results among the SBP participants indicated low FR levels (6.7% FR score). In combination with the other responses shown in this section, this FR score demonstrates the program mostly reached participants who would not have implemented equipment upgrades without the program.

Spillover

To estimate SO, participants were asked if they installed any energy-efficient equipment for which they *did not* receive an incentive following their participation in SBP. Over one-tenth (13%) of respondents reported installing this additional equipment.

Table F-23 displays the types of non-incentivized equipment installed by companies after their SBP project was completed. Some survey respondents installed multiple equipment types. Non-incentivized lighting was the most common equipment installed (68%), followed by ENERGY STAR® Appliances (14%).

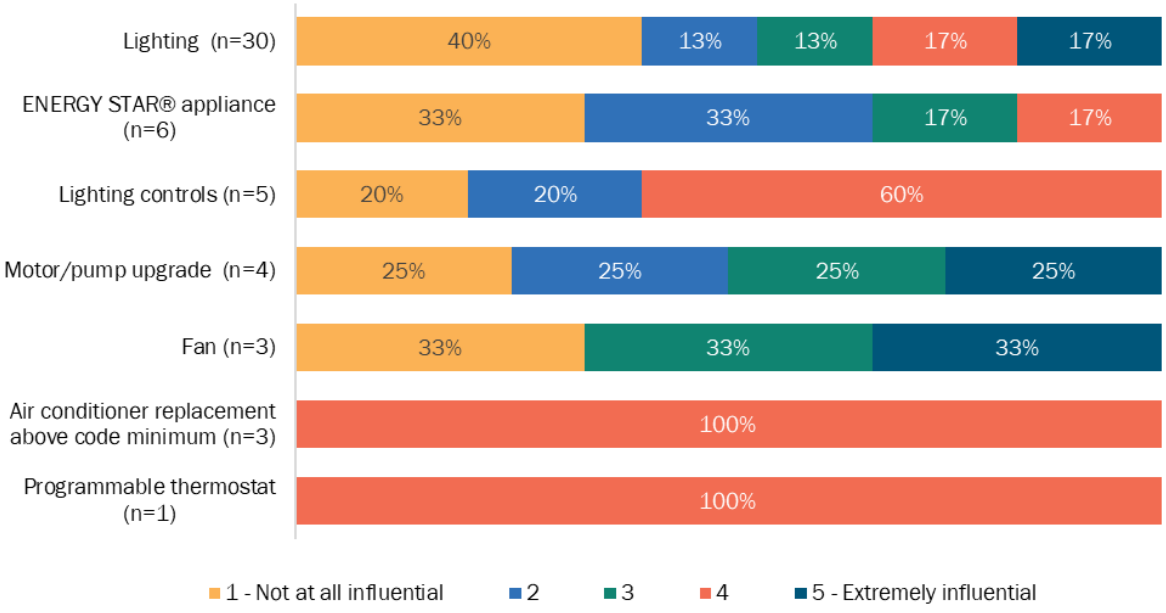
Table F-31: Types of Upgrades Installed after Program Participation (Multiple responses allowed; n=44)*

Type of Upgrades Installed	Respondents
Lighting	68%
ENERGY STAR® Appliance	14%
Lighting Controls	11%
Motor/Pump Upgrade	9%
Fan	7%
Air conditioner replacement, above code minimum	7%
Programmable thermostats	2%

* Does not sum to 100% due to multiple responses.

Respondents were asked what influence level their SBP participation had on their decisions to install this additional energy-efficient equipment. Participants rated the program's influence on a scale from one to five, where one indicates "the program had no influence at all" and five indicates "the program was extremely influential." The number of survey respondents influenced by the program (a rating of 3 or higher) is shown in Figure F-8 for each equipment type.

Figure F-9: Program Influence on Equipment Installed Outside the Program (Multiple responses allowed; n=52) (Rating on a scale from 1 to 5)



Participants who indicated they installed the program-influenced, non-incentivized equipment were asked a series of follow-up questions (e.g., capacity, efficiency, annual hours of operation). These detailed questions are displayed in Table F-24 through Table

F-27 and were used within the NTG algorithm to attribute SO savings to each equipment installation.

Table F-32: Spillover Measures–ENERGY STAR Appliances

ENERGY STAR Appliance	Number of Respondents	Number of Appliances
Refrigerator	2	2

Table F-33: Spillover Measures–Fans

Equipment Type	Number of Respondents	Number Installed	Number of Fans
Fan	2	3	1 – 1.99 feet (1), 2 – 3.99 feet (2)
Air	3	4	Less than 5.4 Tons (65,000 Btuh) (2), 11.41 – 20.00 Tons (137,100 – 240,000 Btuh) (2)

Table F-34: Spillover Measures–Lighting & Lighting Controls

Lighting or Lighting Control Type	Number of Respondents	Number of Bulbs/Lamps	Number of Fixtures	Fixture Location	Control Type
LED exterior	6	45	-	Pole mount (1), Against building (16), Under canopy (28)	-
Linear florescent	8	-	125		-
Lighting controls	3	-	-	-	Timer (2), Occupancy sensor (1)

Table F-35: Spillover Measures–Motor/Pump Upgrade

Equipment Type	Number of Respondents	Number Installed	End Use	Efficiency	Horsepower
Motor/Pump Upgrade	2	3	HVAC Fan (1), HVAC water pump (2)	Standard HVAC Fan (1), Premium HVAC water pump (2)	**9.1 - 15.0**

F.3 Additional Participant Process Results

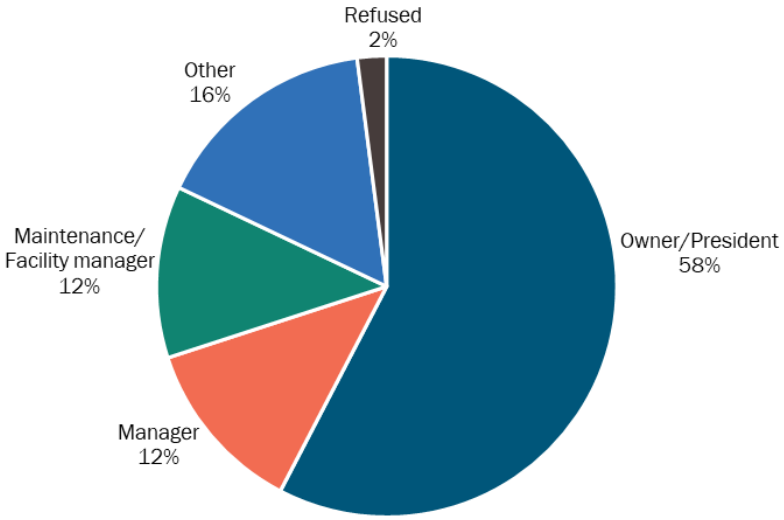
Firmographics

Participants were asked various questions to collect information on their organization, including facility ownership status, and responsibilities in relation to the program. Details on participants' companies (e.g., primary activities, floor space, and employee headcount) were also gathered during the survey.

Roles and Ownership Status

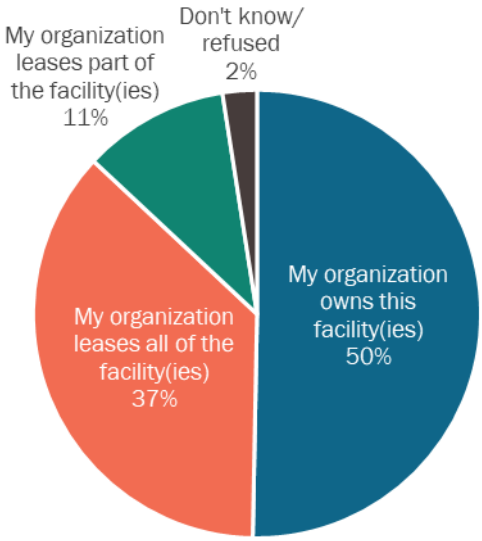
About three-fifths of survey respondents (58%) were owners or presidents of their companies, while one-fifth (22%) were managers (Figure F-9). Three-fifths (60%) were the primary employees responsible for the budget or expenditure decisions associated with the SBP upgrades, and more than one-third (33%) shared the responsibility.

Figure F-1: Role of Respondent
(Open-ended and multiple responses allowed; n=337)



One-half (50%) of participating companies owned the property where the program upgrades were conducted, and close to two-fifths (37%) rented the property (Figure F-10). One-tenth (11%) owned and rented their properties. Most (91%) were responsible for paying their electric utility bills.

Figure F-2: Ownership Status
(Open-end and multiple responses allowed; n=322)



Primary Activity at Facility

The program mainly served facilities in the retail and wholesale sectors (25%) (Table F-28). The following are other common sectors: non-profits (16%), healthcare services (9%), and manufacturing (8%).

Table F-1: Primary Activity at Facility
(Open-ended and multiple responses allowed; n=317)*

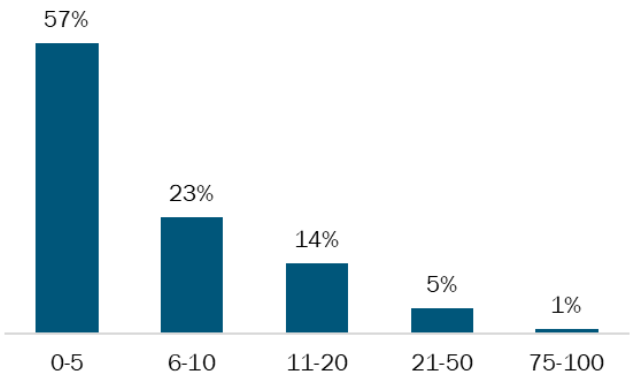
Primary Business Categories	Respondents
Retail and wholesale	25%
Non-profit	16%
Healthcare services	9%
Manufacturing	8%
Arts, entertainment, recreation, advertising, and travel	7%
Lodging and food service	5%
Repair, maintenance, and operations	5%
Other services	5%
Finance, insurance, real estate, and property management	4%
Educational services	3%
Government services	3%
Construction	3%
Agriculture, forestry, husbandry, mining, and extraction	2%
Transportation and warehousing	2%
Scientific, technical, and information services	1%
Other	1%
Utilities	0.3%
Refused	0.3%

* Does not sum to 100% due to multiple responses.

Number of Employees

Participants were asked how many employees work at their company (Figure F-11). Almost three-fifths (57%) stated they had fewer than six employees.

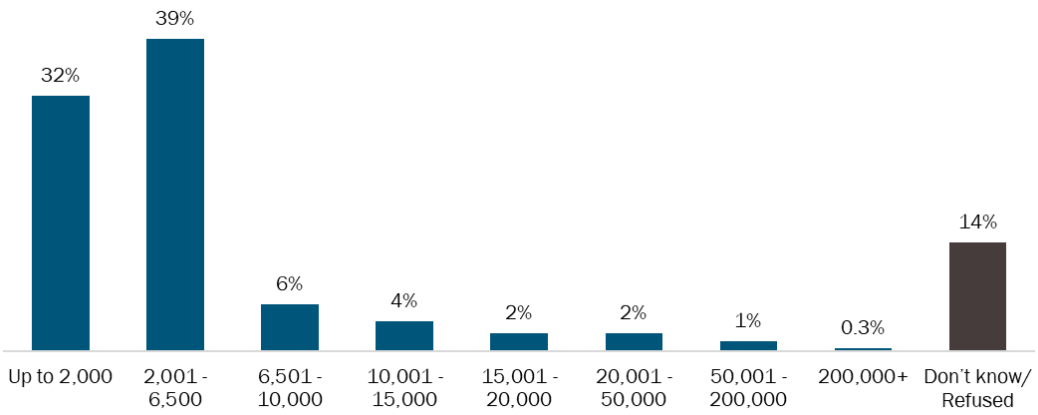
Figure F-3: Number of Employees (n=323)



Facility Size

Participants were asked to provide the square footage of the project facilities. If multiple facilities received SBP upgrades, participants were asked to provide the total square footage for all their facilities (Figure F-12). Nearly three-fourths (71%) of respondents stated the total square footage of their facilities was under 6,501 square feet.

Figure F-4: Total Square Footage for All Buildings (n=323)*



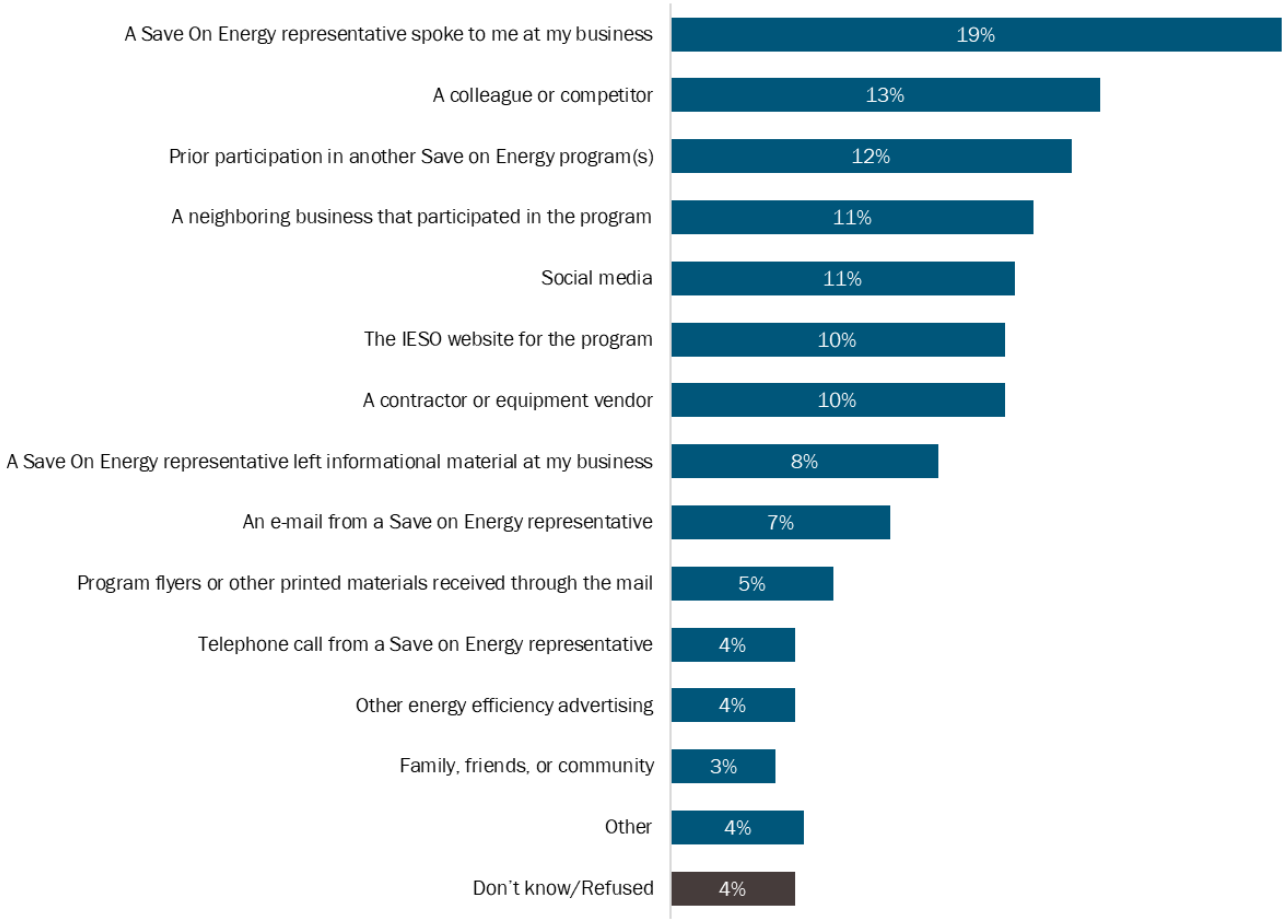
* Does not sum to 100% due to rounding.

Program Awareness

How Participants Heard About the Program

Figure F-13 includes a list of ways participants heard about the program. Participants most often heard about the program from their Save On Energy representative who spoke to them at their business (19%). Section 6.3.2 includes additional discussion about program awareness.

Figure F-5: Sources of Program Awareness
(Open-ended and multiple responses allowed; n=337)*



* Does not sum to 100% due to multiple responses.

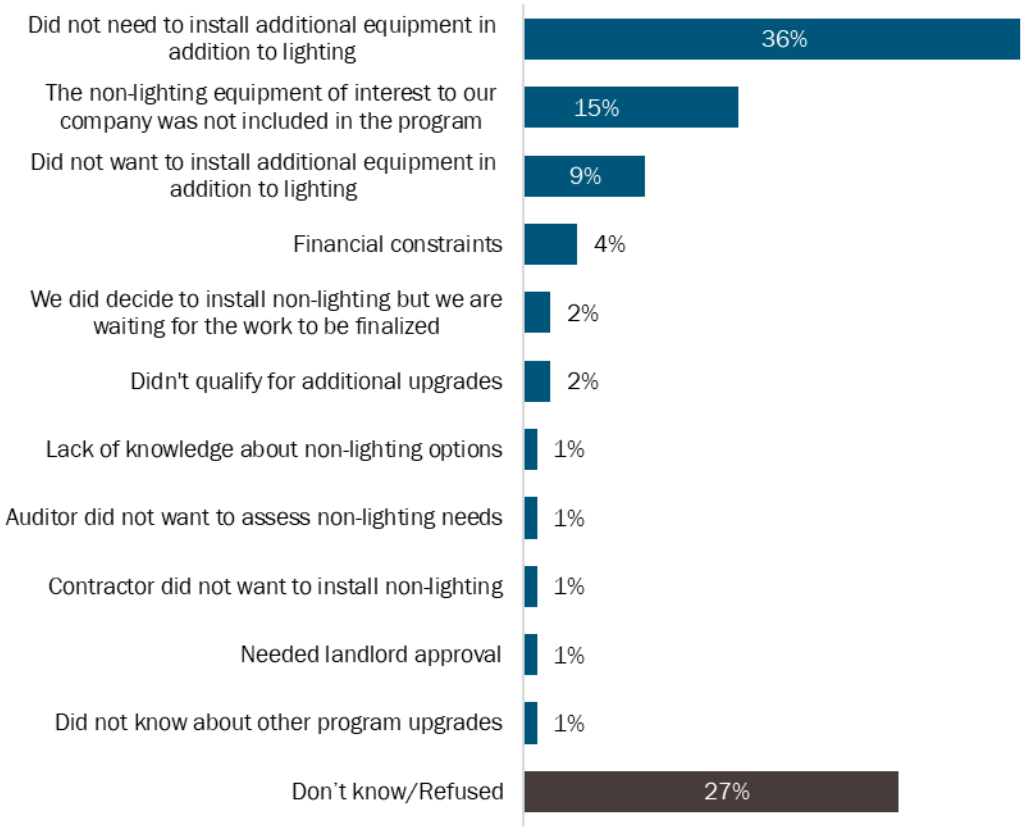
Participant Awareness of Non-Lighting Equipment

Participants who only installed lighting equipment (89% of all survey respondents) indicated whether they knew the program offered other energy-efficiency equipment upgrades in addition to lighting. Over one-third (35%) were aware of the non-lighting options. Section 6.3.2 includes an additional discussion about these results.

Participant Reasons for Not Installing Non-Lighting Equipment

Participants who were aware of non-lighting offerings but did not install any (35%), were asked why they decided not to install other upgrades in addition to lighting. Figure F-14 includes a list of participants' reasons for not installing other non-lighting equipment. Section 6.3.2 includes an additional discussion regarding these reasons. Over one-third (36%) stated they did not need to install additional equipment. Table F-29 lists the equipment that would have been of interest to these customers.

Figure F-6: Reasons for Not Installing Non-Lighting Equipment (Open-ended allowed; n=103)*



* Does not sum to 100% due to rounding.

Table F-2: Non-Lighting Equipment of Interest not Included in the Program (Open-ended and multiple responses allowed; n=16)*

Equipment	Respondents
HVAC System	6
Thermostat**	4
Appliances	3
Heat Pumps	1
On-demand water heaters	1
Door weatherstripping	1
Other	2

* Does not sum to 100% due to multiple responses.
** Two respondents indicated they would like thermostats to be included in the program (which likely indicates that these respondents were not made aware that thermostats are already available through the program) and two

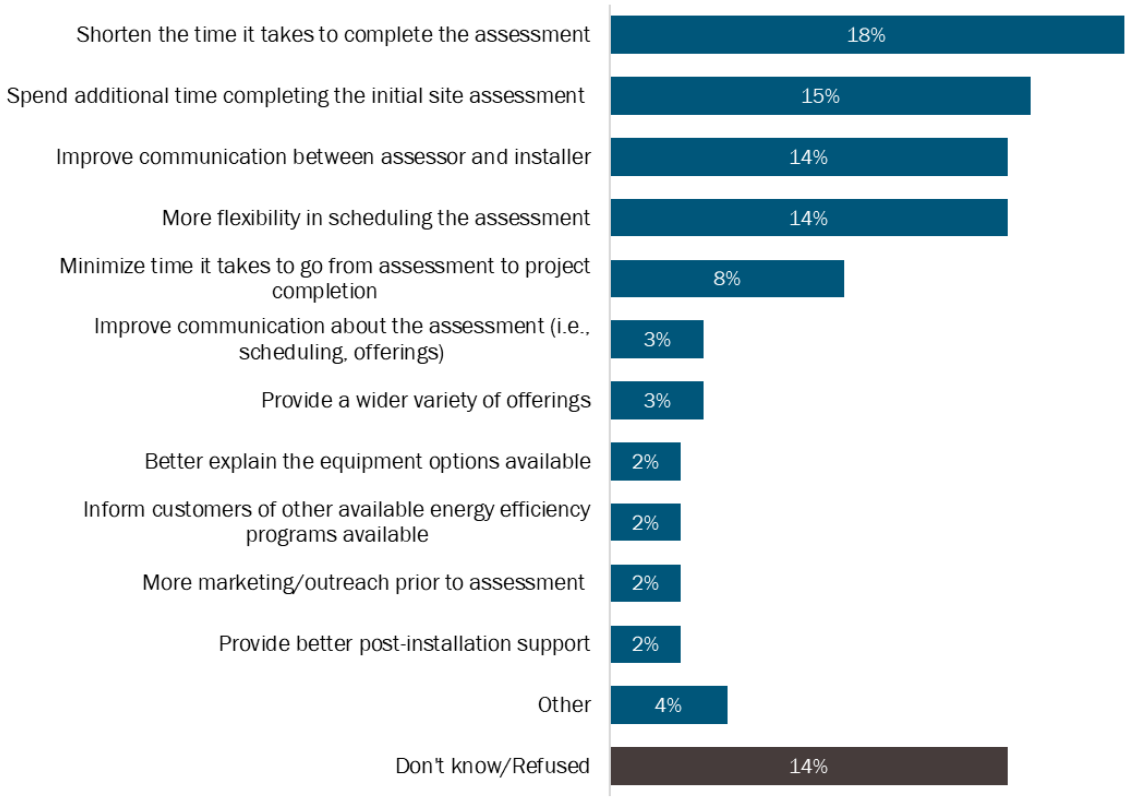
respondents indicated that they were not able to install/replace thermostats through the program.

Site Visits Improvement Suggestions

Initial Site Assessment Visits

Figure F-15 includes a list of initial site visit improvement suggestions, as reported by participants. The most frequently mentioned suggestion was to shorten the time required to complete the assessment (18%). Section 6.3.3 includes an additional discussion around these improvement suggestions.

Figure F-7: Suggestions to Improve the Initial Site Assessment Visit (Open-end and multiple responses allowed; n=122)*

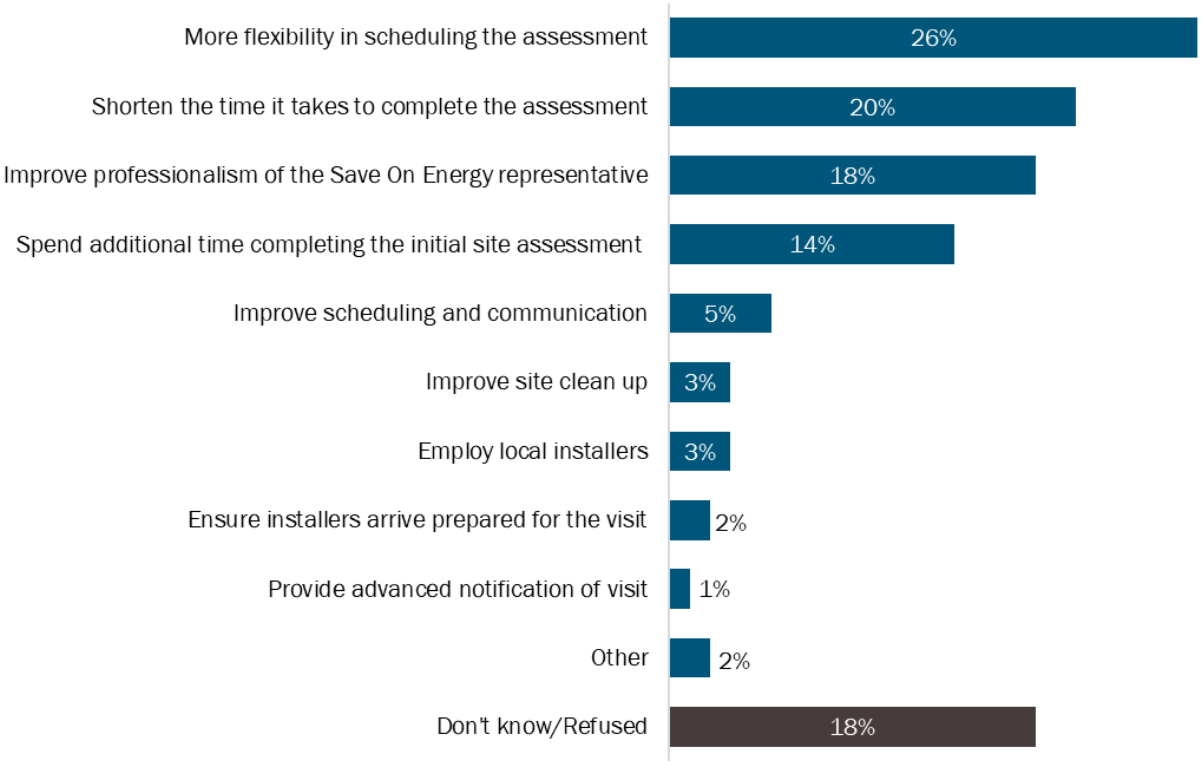


* Does not sum to 100% due to multiple responses.

Installation Visits

Figure F-16 includes a list of installation site visit improvement suggestions, as reported by participants. The most common suggestion was to provide more flexibility in scheduling visits (26%). Section 6.3.3 includes additional discussion around these improvement suggestions.

Figure F-8: Suggestions to Improve the Installation Site Visit
(Open-ended and multiple responses allowed; n=100)*

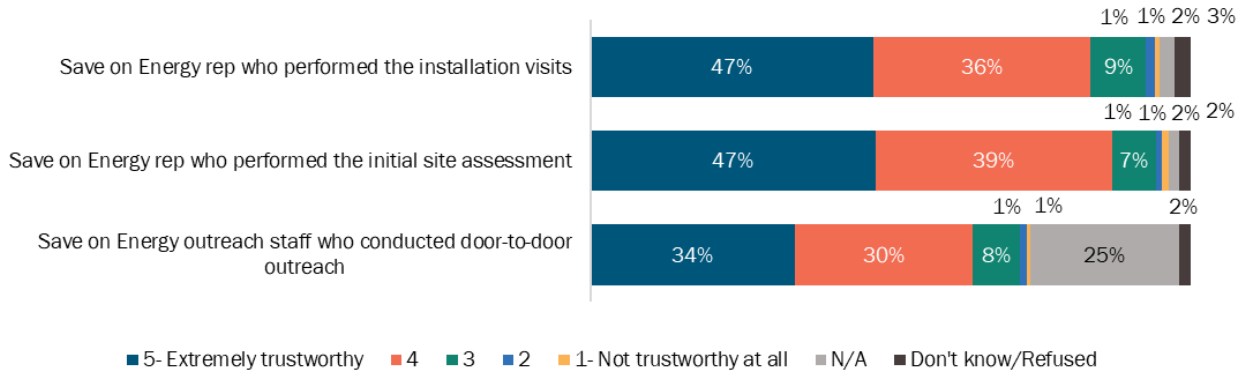


* Does not sum to 100% due to multiple responses.

Program Partner Trustworthiness

Figure F-17 shows the trustworthiness of the Save On Energy representatives who performed the initial site assessment, the installation site visit, and the door-to-door outreach on a scale from one to five, where one indicates "not trustworthy at all" and five indicates "extremely trustworthy." Section 6.3.4 provides an additional discussion regarding these results.

Figure F-9: Trustworthiness of Program Partners (n=337)*
(Rating on a scale from 1 to 5)



* Does not sum to 100% due to rounding.

Respondents who rated the trustworthiness of the representative as a 1 or 2 were asked how this could be improved. Participants who found the *representative who performed the installation visits* untrustworthy (n=8) most often suggested improving the professionalism of contractors to improve their trustworthiness (two respondents).

Participants who found the *representative who performed initial site assessments* to be untrustworthy (n=7) most often suggested that contractors follow through with all aspects of work orders as a way to improve their trustworthiness of the representative (two respondents).

Participants who did not find the *outreach staff* to be trustworthy (n=6) most often suggested that the representative provide more program materials to increase the legitimacy of the program and improve their trustworthiness (two respondents).

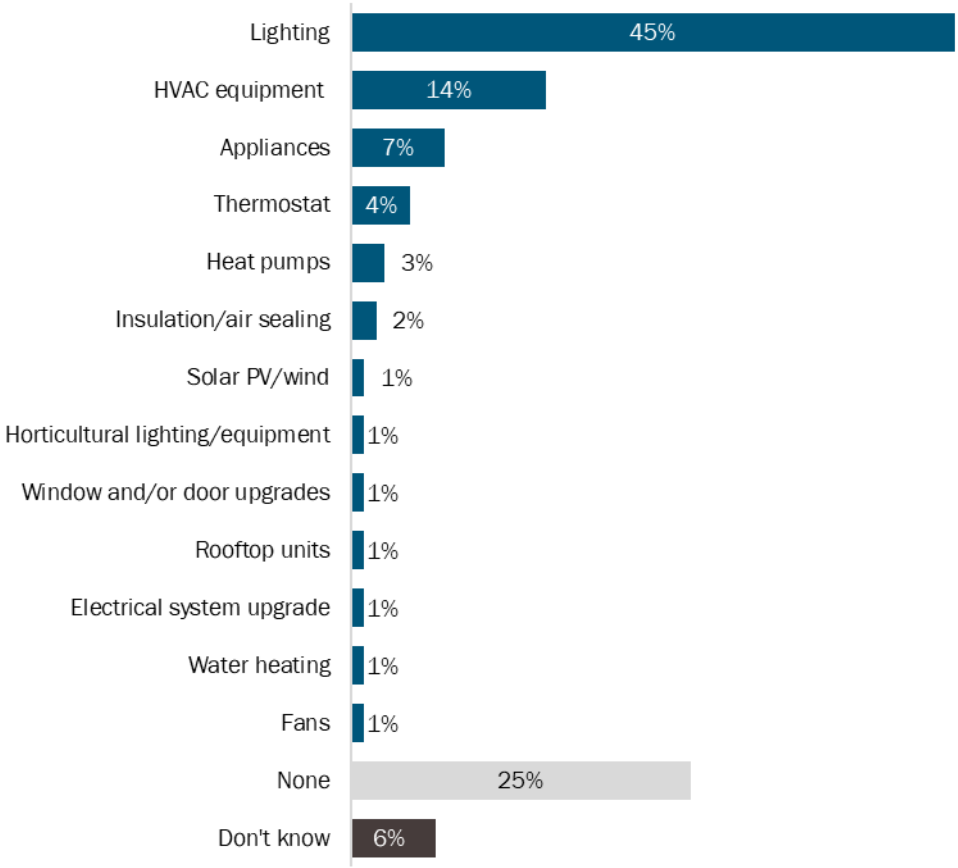
Project Cost Caps

Close to one-half (49%) of respondents reached the $3,000 lighting incentive cap. Of those that reached the lighting cap, one-half (47%) had to reduce the size, scope, or equipment efficiency of the equipment project. Almost one-tenth (8%) of respondents reached the $2,500 non-lighting incentive cap. Of those that reached the non-lighting cap, two-thirds (67%) had to reduce the size, scope, or equipment efficiency of the equipment project as a result of reaching the cap.

Figure F-18 identifies the additional energy-efficient equipment upgrades that would have been of interest to the respondents had they not reached the cap(s). Most often,

respondents were interested in additional lighting (45%), HVAC equipment (14%), and appliances (7%). Section 5 provides an additional discussion on these results.

Figure F-10: Additional Energy-Efficient Upgrades of Interest if No Incentive Cap (Open-ended and multiple responses allowed; n=159)*

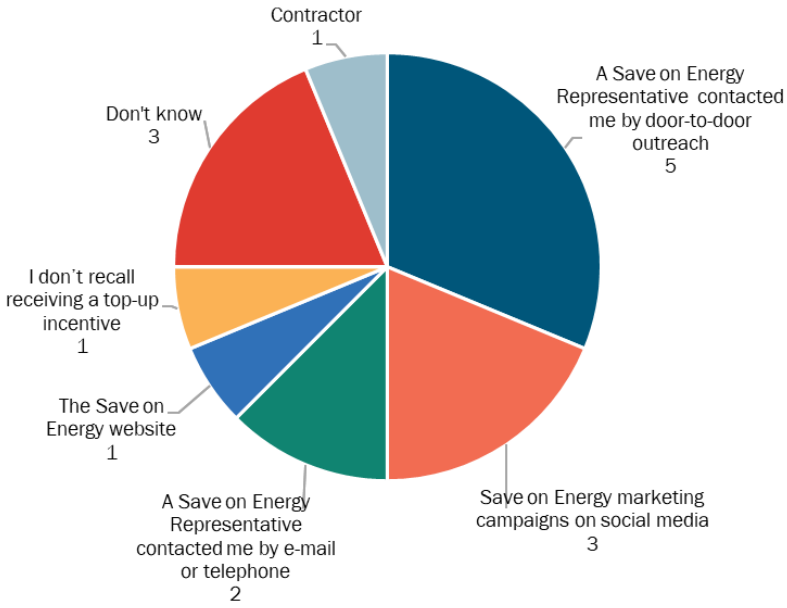


* Does not sum to 100% due to multiple response.

Top-Up Incentive

Figure F-19 shows how the 5% of respondents who received a top-up incentive first became aware of the opportunity to receive it. Almost one-third of these respondents (five respondents) were informed about the top-up incentive by door-to-door outreach conducted by a Save on Energy representative. When asked about how to improve the process for receiving the top-up incentive, those respondents mentioned shortening the timeline (three respondents) and increasing the amount of the top-up incentive (two respondents). Section 6.3.6 provides an additional discussion on these results.

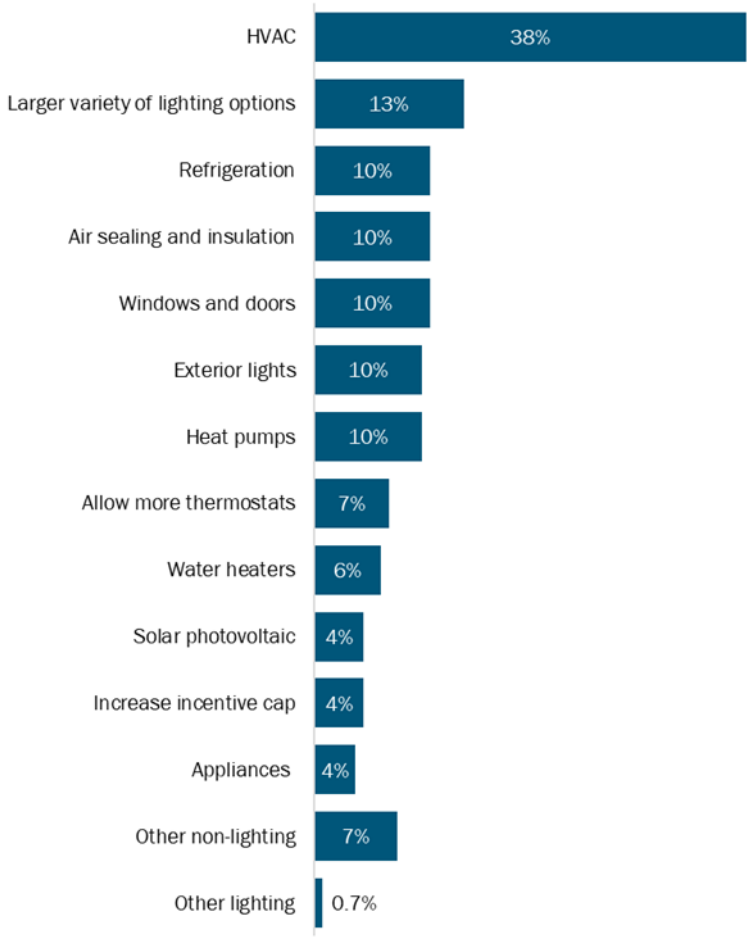
Figure F-11: Sources of Top-Up Incentive Awareness
(Open-ended and multiple responses allowed; n=16)



Recommended Equipment and Services

Figure F-20 includes a full list of recommended additional equipment or services for inclusion in the program during future years, as reported by participants. Respondents most often suggested including HVAC equipment in the future (38%). Section 6.3.5 includes an additional discussion around these equipment recommendations.

Figure F-12: Additional Equipment Recommendations (Open-ended and multiple responses allowed; n=136)*



* Does not sum to 100% due to multiple responses.

Program Improvement Recommendations

Table F-30 includes a full list of additional program improvement recommendations provided by participants. Respondents most often recommended improving communication with participant for scheduling, work performed, qualified equipment installation/upgrades, follow ups (30%). Section 6.3.8 includes an additional discussion around these overall recommendations.

Table F-3: Recommendations for Program Improvement (Open-ended and multiple responses allowed; n=67)*

Recommendations	Respondents
Improve communication with participant for scheduling, work performed, qualified equipment installation/upgrades, follow ups	30%
Improve marketing and promotion	19%
Expand program offerings	18%
Increase the amount of the incentive	15%
Increase response times from Save On Energy representatives	7%
Improve vetting of contractors and installers	7%
Ensure installers arrive prepared for the visit	6%
Ensure all eligible equipment upgrades are identified during assessment, not just lighting	3%
Improve the professionalism of the installer	3%
Offer option for business to purchase new lighting at a reduced cost in addition to program	1%
Reduce electricity rates for participants	1%

* Does not sum to 100% due to multiple responses.

Appendix G Job Impacts Methodology

This appendix provides a detailed breakdown of the Jobs Impact Evaluation methodology.

G.1 Developed Specific Research Questions

The first step in modeling the job impacts from the SBP was to determine which specific research questions (RQs) the model would answer. In a scenario without the existence of the SBP, customers receive electricity from the IESO and pay for it via the monthly billing process. Implementing the SBP introduces a set of economic supply and demand shocks to different sectors of the economy. The four research questions below address these shocks:

1. What are the job impacts from new demand for energy-efficient measures and related program delivery services? Funds collected for the SBP generate demand for efficient equipment and appliances. They also generate demand for services related to program delivery, such as general overhead for program implementation and staffing. This demand creates jobs among firms that supply these products and services. Third-party implementers collect funds from the IESO to cover a portion of the project cost, while the participant covers the remainder of the costs.
2. What are the job impacts from business reinvestments? Once energy-efficient equipment is installed, the customers realize annual energy savings for the useful life of the measures. Businesses can choose to use this money to pay off debt, disburse it to shareholders as dividends, or reinvest it in the business. This additional money and the decision to save or spend has implications for additional job creation. For instance, additional business spending on goods and services generates demand that can create jobs in other sectors of the economy.
3. What are the job impacts from funding the energy-efficiency program? The IESO energy-efficiency programs are funded via volumetric bill charges for all customers—both residential and non-residential. This additional charge can reduce the money that households have for savings and for spending on other goods and services, which results in a negative impact on jobs in the Canadian economy.
4. What are the job impacts from reduced electricity production? The energy-efficient measures will allow businesses to receive the same benefit while using less electricity. The program as a whole will reduce the demand for electricity in the commercial sector. This reduced demand could have upstream impacts on the utility industry (for example, generation) and related industries, such as companies in the generator fuel supply chain.

G.2 Developed Model Inputs

The second step in modelling job impacts was gathering the data required for the StatCan IO model to answer each research question. Model input data included dollar values of the

exogenous shocks from program implementation. Data sources for each research question included the following:

1) Demand for energy-efficient measures and related program delivery services: The StatCan IO Model divides the Canadian economy into 240 industry classifications and 500 SUPCs. Each measure installed as part of the program was classified into one of the SUPCs. The dollar value for each product-related demand shock was calculated using the project cost and measure savings data from the impact evaluation. Services that were part of the implementation process were also classified into SUPCs. These services were entirely program administrative services, the value of which was obtained from program budget actuals.
   It was necessary to specify the amount of each demand shock attributed to labour versus non-labour. For the product categories, we used a representative sample of invoices to estimate the average labour versus non-labour cost proportions. For the service categories, the IO model contained underlying estimates that defined the portion of labour versus overhead (non-labour).
2) Business energy bill savings: This value was calculated for the model as the net present value (NPV) of the discounted future stream of energy bill savings by participants. It was calculated by multiplying net energy savings (in kWh) in each future year by that future year's retail rate ($/kWh). This calculation was performed for each future year through the end of the measure's expected useful life (EUL). Savings beyond the EUL were assumed to be zero. Project-level net energy savings were obtained using results from the impact evaluation and already accounted for other calculation parameters (i.e., discount rate, measure EULs, and retail rate forecast).
3) Customers' intentions: whether to reinvest, save, or distribute to owners/shareholders the money saved on energy bills were obtained via a short section on the participant surveys, as follows:

   J1. *How do you anticipate your company will spend the money it saves on its electricity bill from the energy-efficient equipment upgrades?*

   1. *Pay as dividends to shareholders or otherwise distribute to owners*
   2. *Retain as savings*
   3. *Reinvest in the company (labour/additional hiring, materials, equipment, reduce losses, etc.)*
   4. *Split – Reinvest and pay as dividends/retain as savings*
   5. *96. Other, please specify:*
   6. *98. Don't know*
   7. *99. Refused*

   J2. Do you anticipate the distribution of these electricity bill savings to be treated differently than any other earnings?

   8. *Yes – More distributed to shareholders/owners*
   9. *Yes – More to savings*

10. *Yes – More to reinvestment*
11. *No*
12. *98. Don't know*
13. *99. Refused*

J3. Approximately what would be the split between distribution, retention, and reinvestment of money saved on electricity bills? [ALLOW MULTIPLE RESPONSE OPTION]

14. *Percent distribute [NUMERIC RESPONSE BETWEEN 0 AND 100]*
15. *Percent save/retain earnings [NUMERIC RESPONSE BETWEEN 0 AND 100]*
16. *Percent reinvest [NUMERIC RESPONSE BETWEEN 0 AND 100]*

For estimating job impacts, the key input value was the amount of bill savings that businesses would reinvest as opposed to paying down debt or redistributing to shareholders.

4) SBP funding: IESO energy-efficiency programs were funded by a volumetric charge on electricity bills, and residential customers accounted for 35% of consumption, while non-residential customers accounted for 65% in 2024. The overall program budget was distributed between these two customer classes by these percentages and used as input values for the analysis.
5) Reduced electricity production: The NPV of retail savings (estimated as part of RQ2) was also the input for examining the potential impact of producing less electricity.

G.3 Run Model and Interpret Results

Determining total job impacts from the SBP required considering possible impacts from each of the four shocks represented by the research questions. Addressing the four research questions above required three runs of the StatCan IO model, as certain shock components could be consolidated and others could be addressed without full runs of the model. The following three shocks were modelled:

1) Demand shock, as outlined in RQ1, representing the impact of demand for energy-efficient products and services due to the SBP.
2) Business Reinvestment shock, representing the net amount of additional spending that the commercial sector would undertake, as described in RQ2. This was estimated by taking the NPV of energy bill savings and subtracting the number of project costs covered by participants.
3) Household Expenditure shock, representing the portion of household funds captured by increased bill charges (thus acting as a negative shock on the economy [RQ3]). This was estimated by taking the portion of program funding paid for by increases to residential electricity bills.

The model output generated three types of job impact estimates.

Direct Impacts

Jobs created during the initial round of spending from the exogenous shocks. For the demand shock for energy-efficient products and services, direct impacts would be derived by first adding employees to install measures and handle administrative duties. For the business reinvestment shock, direct impacts could be internal jobs created by businesses that reinvest savings back into the company, or by jobs that businesses created in buying additional goods and services with energy bill savings.

Indirect Impacts

Job impacts due to inter-industry purchases as firms respond to the new demands of the directly affected industries. These include jobs created up supply chains due to the demand created by the energy-efficiency program, such as the manufacturing of goods or the supply of inputs.

Induced Impacts

Job impacts due to changes in the production of goods and services in response to consumer expenditures induced by households' incomes (i.e., wages) generated by the production of the direct and indirect requirements.

The IO model provides estimates for each type of job impact in the unit of *person-years* or a job for one person for one year. It further distinguishes between two types of job impacts:

1) Total number of jobs: This covers employee jobs and self-employed jobs (including persons working in a family business without pay). The total number of jobs includes full-time, part-time, temporary, and self-employed jobs. It does not consider the number of hours worked per employee.
2) Full-time Equivalent (FTE) number of jobs: This only includes employee jobs that are converted to full-time equivalence, based on overall average full-time hours worked in either the business or government sectors.

Model run results were presented in terms of the job impact types (direct, indirect, and induced) and on the type of job (total jobs vs. FTEs). These results—along with model input shock values—are presented and discussed at a higher level in Section 7.3 and in more detail in Appendix H.

Appendix H Detailed Job Impacts Inputs and Results

This section presents the detailed results of the job impact analysis, as summarized in Section 7.3. Table H-1 presents the total jobs impacts by type. As the fourth and fifth columns indicate, the analysis estimated that the SBP would create 123 total jobs in Canada, with 112 jobs created in Ontario. Of the 123 estimated total jobs, 69 are direct jobs, 26 are indirect jobs, and another 29 are induced. In terms of FTEs, the numbers are slightly lower, with 95 FTEs created in Ontario and 104 FTEs created nationwide. Of these 104 FTEs, direct jobs account for 61 FTEs, 22 FTEs are indirect jobs and 22 FTEs are induced jobs. In total, the SBP created 17.6 jobs per million dollars of investment (i.e. program budget).

Table H-4: Total Job Impacts by Type

Job Impact Type	FTE *(in person-years)*	FTE *(in person-years)*	Total Jobs *(in person-years)*	Total Jobs *(in person-years)*	Total Jobs per $1M Investment *(in person-years)*
	Ontario	Total	Ontario	Total	
Direct	60	61	68	69	9.9
Indirect	18	22	21	26	3.7
Induced	18	22	24	29	4.1
Total[1]	95	104	112	123	17.6

Section H.1 details the values of inputs used in the model runs. Section H.2 presents the analysis results, including the details of job impacts and assumptions.

H.1 Model Inputs

The model was used to estimate the impacts of three economic shocks:

- The demand shock, representing demand for energy-efficient products and services from SBP.
- The business reinvestment shock, representing increased business reinvestment due to bill savings (and net of project funding).
- The household expenditure shock, representing decreases in household spending on goods and services due to increases in the residential portion of program funding.

Table H-2 displays input values for the demand shock representing products and services related to SBP. Each measure installed as part of the program was categorized according to the StatCan IO Supply and Use Product Classifications (SUPCs).

The first four rows of Table H-2 contain the categories corresponding to products, which were the measures installed in businesses. The last row contains the costs allocated to services. Lighting fixtures had the highest total cost of the four product categories and

accounted for $5.3 million of the overall program cost. Electric light bulbs and tubes contained the second highest total cost, at $1.2 million total costs. The final two product categories (Heating & cooling equipment and Switchgear, switchboards and industrial control apparatus) accounted for $0.13M and $0.11M of the total project costs, respectively. The similarities of the two most prevalent product categories reflect the relatively narrow range of measures typically installed as a part of SBP, compared to other programs such as Commercial Retrofit. Each measure's cost was divided into labour and non-labour, as the IO Model required this distinction to determine direct versus indirect impacts. Program implementers were asked to estimate the approximate split between labour and non-labour costs. Program implementers stated that, on average, 47% of a project's cost is spent on labour. This estimate was used as the labour portion for the model input.

The single service category in the table, Office Administrative Services, included general overhead and administrative services associated with program delivery. The labour and non-labour amounts are not specified for this category, as the IO Model has built-in assumptions for this category.

Table H-5: Summary of Input Values for Demand Shock

Category Description	Non-Labour	Labour	Total Demand Shock
	($ Thousands)		
Lighting Fixtures	2,817	2,498	5,316
Electric Light Bulbs and Tubes	638	566	1,204
Heating and cooling equipment (except household refrigerators and freezers)	85	46	130
Switchgear, switchboards, relays and industrial control apparatus	71	39	109
Subtotal	3,611	3,149	6,760
Office Administrative Services	-	-	799
Total			7,559

The second shock modelled by the IO Model was the business reinvestment shock. This shock represented the amount that businesses would reinvest and thus inject back into the economy. The net amount that businesses have available to either reinvest, pay off debt, or distribute to owners/shareholders ($14.7 million) was the net of electricity bill savings (NPV = $15.3 million), and the portion of project costs not covered by incentives ($0.5 million). The portion of this $14.7 million that was to be reinvested was estimated using the surveys administered to participants as part of the SBP Process Evaluation. The surveys included several questions about what businesses would do with the money they saved on their electricity bills and the type of business. Overall, respondents indicated that 73% of bill savings would be reinvested ($10.8 million). The remaining savings would either be used to pay off debt or disbursed to owners/shareholders.

To properly model the effects of the business reinvestment shock, the IO Model required the reinvestment estimates by industry. Each industrial category has a production function in the model, and these functions were adjusted to account for the reinvestment shock. presents the input values for the business reinvestment shock by industry. The total business expenditure shock would be $10.8 million over 17 industries, as shown in Table H-3.

Table H-6: Summary of Input Values for Business Reinvestment Shock

Category Description	Business Reinvestment Shock *($ Thousands)*
Accommodation and food services	569
Arts, entertainment and recreation	346
Chemical, soap, plastic, rubber, and non-metallic minerals	173
Crop and animal production	173
Educational services	520
Finance, insurance, real estate, rental and leasing and holding companies	346
Health care and social assistance	520
Non-profit institutions serving households	1,518
Other	2,177
Other municipal government services	346
Other services (except public administration)	783
Professional, scientific and technical services	173
Repair construction	90
Repair, maintenance and operating and office supplies	520
Retail trade	2,170
Transportation margins	173
Wholesale trade	173
Total	10,772

The third model input is the household expenditure shock.[14] This shock represents the incremental increase in electricity bills to the residential sector from funding the program. The assumption is that the IESO programs are funded by all customers in proportion to the overall consumption of electricity. Thus, the residential funding portion was 35% of the $7.0M program budget or $2.5M.

H.2 Results

The StatCan IO Model generated results based on the input values detailed in Sections 7.3.2 and H.1. Table H-4 shows the results of the model run for the demand shock for

[14] The model ran with a normalized value of $1 million in extra household expenditures, and job results can be scaled by actual demand shock.

products and services. This shock accounts for over 55% of PY2024 job impacts. As the two right columns show, the model estimated that the demand shock will result in the creation of 71 total jobs (measured in person-years) in Canada, of which 66 will be in Ontario. Of the 71 jobs, 43 were direct, 11 indirect and 17 induced. In terms of FTEs the numbers are slightly lower; 55 FTEs were estimated to be created in Ontario and 59 in total across Canada. Of those 59 FTEs, 37 were direct, 9 indirect and 13 induced. Direct jobs impacts were realized exclusively in Ontario, as shown in the table. As we move to indirect and induced jobs, impacts are dispersed outside of the province.

Table H-7: Job Impacts from Demand Shock

Job Impact Type	FTE (in person-years) Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total
Direct	37	37	43	43
Indirect	7	9	9	11
Induced	11	13	14	17
Total	55	59	66	71

Table H-5 shows the results of the model run for the business reinvestment shock. Job impacts generated by business investment were equal to 29 direct total FTEs and 33 direct total jobs. Overall, business investments were responsible for 55 FTEs and 66 total jobs across Canada.

Table H-8: Job Impacts from Business Reinvestment Shock

Job Impact Type	FTE (in person-years) Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total
Direct	27	29	31	33
Indirect	13	16	15	19
Induced	8	11	11	14
Total	48	55	57	66

The third shock was the reduction in household spending from the increase in electricity bills to fund the program. Table H-6 presents the job impacts from the model run. It represents the number of jobs attributed to reduced household spending; this amount could have been spent in other sectors of the economy but was instead spent on funding the SBP. The model estimated a reduction of 10 FTEs and 13 total jobs across Canada due to the decreased household spending.

Table H-9: Job Impacts Decrease from Residential Funding Shock*

Job Impact Type	FTE *(in person-years)* Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total
Direct	4	5	6	7
Indirect	2	3	3	4
Induced	1	2	2	2
Total	8	10	11	13

* The residential funding shock job impacts are presented as absolute values, but these represent a decrease in job impacts.

The non-residential sector also contributes to program funding. The StatCan IO Model does not adjust production functions for all industries experiencing marginally higher electricity price changes, so this portion of the shock would be modeled by assuming that surplus would be reduced by the extra amount spent on electricity. The model captures energy bill increases from program funding as an impact on direct GDP (value-added) and not as a reduction in employment. The GDP impact is equivalent to the profit loss resulting from the increase in electricity bills from program funding.

The economic impact of the reduction of electricity production as a result of the increase in energy efficiency was another potential economic shock. Technically speaking, it can be estimated using StatCan Input-Output multipliers without running the model. However, the IO model is linear, and not well suited to model small decreases in electricity production. Total electricity demand has been increasing over time and is projected to continue increasing[15]. The relatively small decrease in overall consumption attributed to SBP savings may work to slow the rate of consumption growth over time but would likely not result in actual job losses in the utility industry or upstream suppliers. The linearity of the IO model means that it will provide estimates regardless of the size of the impact. Given the nature of electricity production, it is reasonable to conclude that the linear IO multiplier is not appropriate for estimating job impacts. This analysis assumes that job losses from decreased electricity production are negligible. Table H-7 shows the total estimated job impacts by type, calculated by combining the jobs estimated in Table H-4, Table H-5 , and Table H-6 . Overall, the program was estimated to create 123 total jobs across Canada, 112 of which were added in Ontario. Of the 69 estimated total direct jobs, 68 were in Ontario. Slightly smaller amounts of the indirect and induced jobs were also in Ontario; 21 of 26 indirect jobs and 24 of 29 induced jobs were estimated to be created within the province. The FTE estimates were slightly lower overall than the total jobs, with a total of 95 FTEs (of all types) created in Ontario and 104 FTEs added nationwide. Almost all direct FTEs (60 of 61) were added in Ontario, with this number representing approximately 63% of the total FTEs added in Ontario and 57% of all FTEs created across Canada. In 2024, each $1M of program spend resulted in the creation of 17.6 total jobs compared to 21.2 jobs per $1M

[15] Annual Planning Outlook–A View of Ontario's Electricity System Needs; 2024. IESO.

for the PY2023 SBP. The decrease of 3.6 jobs per $1M observed in SBP is potentially due to an increase in the ratio of the cost required to run the program that is funded by households to the normalized bundle used to represent average household purchases. In PY2023, the ratio of the amount spent by household to fund the program to the normalized bundle was 1.2; in PY2024, the ratio was 2.5. That means that customers were paying about 52% less in PY2023 to fund the program compared to PY2024. Higher household costs reduce the amount of available income for households to spend on other goods and services, which leads to a larger decrease in job impacts than in the previous year. This leads to smaller economic reinvestment shocks, thus leading to the observed decrease in job creation per $1M in program spend.

Table H-10: Total Job Impacts by Type

Job Impact Type	FTE *(in person-years)* Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total	Total Jobs per $1M Investment *(in person-years)*
Direct	60	61	68	69	9.9
Indirect	18	22	21	26	3.7
Induced	18	22	24	29	4.1
Total[1]	95	104	112	123	17.6

To provide a sense of any trends in the program's effectiveness in catalyzing job creation, Table H-8 shows the jobs per $1M of investment over the course of the four-year CDM framework. Generally, the amounts of jobs created per $1M of investment decreased from year to year. While the reasons for these declines are varied, they typically were related to households and businesses spending a larger relative proportion to fund the same level of program activities each year. This increase resulted in smaller amounts of money that could be reinvested into the economy. The decrease in the relative pool of money available for reinjection into the economy may have been minimal to an individual customer or business, but in the aggregate, it resulted in fewer jobs being created for the same amount of investment.

Table H-11: 2021-2024 Jobs per $1M Investment

Job Impact Type	2021	2022	2023	2024
Direct	16.2	13.5	11.4	9.9
Indirect	7.3	6.6	4.9	3.7
Induced	7.4	7.2	5.0	4.1
Total	30.9	27.8	21.2	17.6

The model does not provide year-by-year results for job impacts, but we are able to make some estimates about the temporal nature of the impacts. Table H-9 shows the total jobs created due to program activities and energy savings in the first year versus from after the first year. The table assumes that "first year activities" are the initial demand shock for EE products and services, the program funding shock, and the first year energy savings (resulting in bill savings and reinvestment). Job impacts after the first year are due to energy savings over the course of the measures' EULs. Job impacts from first year activities make up roughly 62% of the total, with 76 out of the total of 123 person-years. Five of these person-years come from first year energy savings, while the demand for equipment and services are responsible for the other 71 person-years. The remaining 47 total job-years are due to energy savings after the first year—and the reinvestment generated by the bill savings.

Table H-12: Job Impacts from First Year Shocks

Job Impact Type	Total Jobs *(in person-years)*		
	From First Year Activities	From Bill Savings After First Year	Total
Direct	46	23	69
Indirect	12	13	26
Induced	18	11	29
Total*	76	47	123

* Columns may not add to totals due to rounding. Real values are rounded to the nearest whole number and the whole numbers do not sum exactly to the whole number total in every column.

Table H-10 shows the job impacts in more detail, with jobs added by type and industry category. Industries are sorted from top to bottom by those with the most impacts to the least, with industries that showed no impacts not included in the table. The table shows that the industry with the largest job impacts was Administrative and support, waste management and remediation services, which added 46.4 jobs. This category is large and non-specific and reflects the need to hire individuals to fill a large range of roles based on program need (e.g. office administration, call centre operations, program management, etc.). Retail trade and Non-residential business construction were the industries with the next most added jobs, gaining 12.4 and 11.5 jobs respectively.

Table H-13: Job Impacts by Industry

Output Industry Category	FTE *(in person-years)* Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total
Administrative and support, waste management and remediation services	39.3	39.7	45.8	46.4
Retail trade	8.6	9.2	11.5	12.4
Non-residential building construction	10.2	10.2	11.5	11.5

Output Industry Category	FTE *(in person-years)* Ontario	FTE *(in person-years)* Total	Total Jobs *(in person-years)* Ontario	Total Jobs *(in person-years)* Total
Professional, scientific and technical services	5.5	6.7	6.8	8.3
Manufacturing	5.0	7.8	5.2	8.1
Wholesale trade	6.1	7.1	6.4	7.5
Finance, insurance, real estate, rental and leasing and holding companies	3.6	4.2	4.4	5.1
Residential building construction	3.5	3.5	4.6	4.6
Transportation and warehousing	2.6	3.2	3.1	3.8
Engineering construction	2.7	2.7	2.6	2.6
Accommodation and food services	1.1	1.5	1.8	2.4
Information and cultural industries	1.2	1.5	1.3	1.7
Other services (except public administration)	0.8	1.0	1.1	1.4
Repair construction	0.9	1.0	1.1	1.2
Government education services	1.0	1.0	1.2	1.2
Health care and social assistance	0.7	0.7	1.0	1.2
Other federal government services	0.5	0.5	0.6	0.6
Arts, entertainment and recreation	0.2	0.3	0.4	0.5
Educational services	0.2	0.2	0.5	0.5
Other municipal government services	0.4	0.5	0.5	0.5
Non-profit institutions serving households	0.2	0.3	0.3	0.4
Crop and animal production	0.1	0.2	0.2	0.3
Utilities	0.2	0.3	0.2	0.3
Government health services	0.2	0.3	0.2	0.3
Mining, quarrying, and oil and gas extraction	0.1	0.3	0.1	0.3
Other provincial and territorial government services	0.1	0.1	0.1	0.1
Forestry and logging	0.0	0.1	0.0	0.1
Total*	95	104	112	123

* Columns may not add to totals due to rounding. Real values are rounded to the nearest whole number and the whole numbers do not sum exactly to the whole number total in every column. Values presented in this table are rounded to the nearest 0.1 to better show the distribution of small jobs impacts.

The SBP Assessors and Installer survey responses support the model results showing positive job impacts. The survey instrument contained questions for contractors and applicant representatives related to SBP impacts on their firms and employment levels. Answers to two specific questions proved to be informative in understanding the nature of

the impacts on respondents, which would be considered direct impacts. These two questions are listed below, including relevant illustrative verbatim responses.

1. Did the 2024 program help or hinder the growth of your business in any way? If so, please explain how:

The program helped the growth of my business in the following ways:

- "Helped by increasing overall revenue and exposure to new customers."
- "Helped me generate more income so I can hire more employees."
- "Keeping my guys busy."
- "When the program amount for lighting raised to 3,000.00 more customers started to participate I the program and I believe more customers will participate if the program has more coverage."
- "The program when operating properly provided me enough business to keep an electrician focused on these tasks alone."

The program hindered the growth of my business in the following ways:

- "Very low margins and all risk of changes, cancellations, and assessor errors are borne by the contractor."
- "Paper work takes too much time and margins are too small."

2. Did the 2024 program have an impact on the number of people you hired in the last year? Yes, the program impacted the number of people hired in the last year in the following ways:

<u>Positive</u> Impacts:

- "Yes we brought on additional staff to help implement the program."
- "I hired 2 extra people to keep up with the work orders coming in."

<u>Negative Impacts:</u>

- "I was almost able to keep a guy busy year round on this program until assessors were quitting and a lack of work orders occurred."

Respondents indicated that the program generally resulted in slight increases in staffing overall, although the exact number of increased staff was generally not provided. Participants additionally stated that the program afforded increased revenue streams and profit margins for installers and allowed for the hiring of more employees for the sole purpose of supporting the program. One respondent provided the exact number of staffing increases due to the program, stating that they hired two additional staff members to help with the volume of work orders. Two respondents indicated decreases in staffing due to the SBP or that the program had a negative effect on business opportunities. Both respondents

indicated that the primary pain point was overall revenue margins, which were viewed as being too small. An additional respondent stated that they would have been able to have an additional employee dedicated to the program, but that a decline in work orders and available assessors led to this employee not being retained. In general, responses reveal the potential for beneficial impacts the program can have on firms. Should there be a desire to increase program effectiveness, opportunities exist to examine whether adjustments can be made to address the concerns brought up by respondents this year.

Input-Output models are informative for understanding the potential magnitudes and dynamics of economic shocks created by policies and programs. While useful, the StatCan IO Model is a simplified representation of the Canadian economy and thus has limitations. The model is based on the assumption of fixed technological coefficients. It does not consider economies of scale, constraint capabilities, technological change, externalities, or price changes.

This makes analyses less accurate for long-term and large impacts, where firms would adjust their production technology and the IO technological coefficients would become outdated. Assuming that firms adjust their production technology over time to become more efficient implies that the impact of a change in the final demand will tend to be overestimated. For household consumption, the model is based on the assumptions of constant consumption behaviour and fixed expenditure shares relative to incomes.

Appendix I Detailed Non-Energy Benefits Methodology and Additional Results

This appendix provides additional details about the NEBs methodology as well as additional NEB results. A summary of the methodology was provided in Section 3.3 and results were provided in Section 7.2.

I.1 Methodology

Participant Survey

The four previous studies, the *PY2023, PY2022,* and *PY2021 SBP Evaluation Reports* and the *Non-Energy Benefits Study: Phase II* assessed the NEBs from energy-efficiency projects funded by the IESO over the 2017-2023 period.[16] The PY2024 evaluation applied the same methodology as the previous studies to assess NEBs, using two different types of questions to determine the value of NEBs that program participants realized by installing program measures:

- 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 asked participants to assign the dollar value that 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 using both techniques. The data collected from these questions were then used to quantify the NEBs.

NEBs Quantification

For each individual NEB, the total value across all participants was divided by the total gross savings values across all participants. This was completed using both Relative Scaling and Willingness to Pay NEB values. Two hybrid approaches were then calculated to be more representative of the sample:

- Hybrid relative scaling priority, in which the evaluation team gave priority to the relative-scaling response value. In this approach, the team only considered the willingness to pay if the participant did not answer the relative scaling question.

[16] Dunsky. (July 2021). *Non-Energy Benefits: Phase II; Quantified Benefits and Qualitative Insights*. https://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation-reports/Non-Energy-Benefits-Study-Phase-II.ashx

- Hybrid minimum approach, in which the team considered the lowest non-null response between the relative scaling and the willingness-to-pay questions.

As a final step, the evaluation team calculated the average value ($/kWh) for each NEB, weighted by energy savings across all participants.

Table I-1 presents the average NEB values based on two different calculation approaches:

- Average (per participant): A $/kWh value was calculated for each individual participant, then all values were averaged.
- Average (overall): An overall average value where total NEB benefits ($s) were summed across all survey participants who reported experiencing a NEB and then divided by the total energy savings (kWh) across all survey participants who reported experiencing a NEB.

All recommended values in the Phase II study were based on the hybrid minimum approach. Additional detail on the methodology and NEBs quantification can be found in the Phase II study.

Table I-14: Quantified NEBs by Participant and by Savings, Phase II, PY2021, PY2022, PY2023, & PY2024

NEB Test	PY2024 (SBP only)	PY2024 (SBP only)	PY2023 (SBP only)	PY2023 (SBP only)	PY2022 (SBP only)	PY2022 (SBP only)	PY2021 (SBP only)	PY2021 (SBP only)	Phase II (SBP & Retrofit)	Phase II (SBP & Retrofit)
Hybrid (min approach) (Avg $/kWh)	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall
Reduced building & equipment O&M	0.16	0.04	0.43	0.13	0.11	0.08	0.32	0.13	0.12	0.08
Thermal comfort	0.04	0.01	0.04	0.01	0.07	0.04			0.63	0.05
Improved indoor air quality	0.03	0.003	0.00	0.00	0.004	0.02			0.09	0.007
Reduced spoilage	0.003	0.001	0.0004	0.0005	0.001	0.0004			0.01	0.0002
Hybrid (RS-priority) (Avg $/kWh)	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall	Per Participant	Overall
Reduced building & equipment O&M	0.20	0.06	0.52	0.17	0.26	0.20	0.46	0.21	0.72	0.17
Thermal comfort	0.08	0.02	0.07	0.02	0.10	0.06			0.65	0.09
Improved indoor air quality	0.03	0.003	0.00	0.00	0.004	0.02			0.10	0.02
Reduced spoilage	0.01	0.001	0.001	0.002	0.001	0.001			0.01	0.0003

I.2 Assessor and Installer Non-Energy Benefits Results

As part of the assessor and installer survey, respondents were asked to indicate NEBs that they believed their customers may have experienced due to their SBP participation (Table I-2). Ten respondents believed their customers experienced reduced building and equipment O&M, four mentioned reduced food spoilage, and four mentioned improved thermal comfort. Three of thirteen respondents did not believe their customers experienced any NEBs.

Table I-15: Assessor and Installer Reported NEBs*
(Open-ended and multiple responses allowed; n=13)

NEB	Respondents
Reduced time and costs for buildings and equipment operations and maintenance	10
Reduced food spoilage	4
Improved thermal comfort	4
Improved visibility	3
Increased safety	1
Improved comfort	1
None	3

*Does not sum to 13 due to multiple response.

Respondents were asked to rank the NEBs they selected from most to least important to their customers. Figure I-1 shows that assessors and installers perceived improved comfort as the most important NEB to their customers, followed by increased safety, improved visibility, reduced O&M, improved thermal comfort, and reduced food spoilage.

Figure I-13: NEBs Ranked by Perceived Importance

Appendix J SBP Building Types

Table J-16: 2024 SBP Reported Building Types

Building Type Reported in SBP Database	Building Type for Analysis
Agricultural - Cattle Farm	Agricultural
Agricultural - Dairy Farm	Agricultural
Agricultural - Other	Agricultural
Agricultural - Poultry Farm	Agricultural
Commercial - Entertainment/Sport	Commercial (Other)
Commercial - Food Retail	Commercial (Retail)
Commercial - Hotel	Commercial (Other)
Commercial - Large Office	Commercial (Office)
Commercial - Large Retail	Commercial (Retail)
Commercial - Motel	Commercial (Other)
Commercial - Other	Commercial (Other)
Commercial - Restaurant	Commercial (Restaurant)
Commercial - Small Office	Commercial (Office)
Commercial - Small Retail	Commercial (Retail)
Commercial - Warehouse/Wholesale	Commercial (Warehouse/Wholesale)
Government/Public - Administrative Buildings	Government/Public Institution
Government/Public - Culture and Tourism	Government/Public Institution
Government/Public - Emergency Services	Government/Public Institution
Government/Public - Hospital	Government/Public Institution
Government/Public - Long Term Care Facility	Government/Public Institution
Government/Public - Other	Government/Public Institution
Government/Public - Parks and Recreation	Government/Public Institution
Government/Public - Place of Worship	Government/Public Institution
Government/Public - Public Works	Government/Public Institution
Government/Public - School (K-12)	Government/Public Institution
Industrial - Manufacturing	Industrial/Manufacturing
Industrial/Manufacturing - Food and Beverage	Industrial/Manufacturing
Industrial/Manufacturing - Iron/Steel	Industrial/Manufacturing
Industrial/Manufacturing - Manufacturing	Industrial/Manufacturing
Industrial/Manufacturing - Other	Industrial/Manufacturing
Industrial/Manufacturing-Other	Industrial/Manufacturing
Multi-Residential - Condominium	Multi-Residential

Building Type Reported in SBP Database	Building Type for Analysis
Multi-Residential - Other	Multi-Residential
Multi-Residential - Rental Apartment	Multi-Residential
Place of Worship	Government/Public Institution
Warehouse/Wholesale	Commercial (Warehouse/Wholesale)