



2021-2024 CDM Framework Foodservice Distributor Discount Program PY 2022 Evaluation Results

Submitted to IESO

in partnership with NMR Group

Date: 09.12.2023

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Acknowledgements

The evaluation team would like to thank Alice Herrera, Cass Heide, and Gavin Zheng at the Independent Electricity System Operator (IESO) for their assistance in coordinating this evaluation effort. With their support and guidance, the evaluation team completed their activities as efficiently and successfully as possible.

The evaluation team would also like to thank all of the IESO program staff, program delivery vendors, and contractors that the team interviewed or surveyed. Their insights have been invaluable in the evaluation team's efforts to improve the Conservation Programs.

Acronyms and Abbreviations

CE	Cost-effectiveness
EM&V	Evaluation, measurement, and verification
EUL	Effective useful life
FR	Free-Ridership
GHG	Greenhouse gas
GW or GWh	Measurement of demand (GW) or energy (GWh) equivalent to 1,000,000 W or Whr
IDI	In-depth interview
IESO	Independent Electricity System Operator
IF	Interim framework
kW or kWh	Measurement of demand (kW) or energy (kWh) equivalent to 1,000 W or Whr
LUCE	Levelized Unit Energy Cost, typically \$ per kW or \$ per kWh
MAL	The IESO Prescriptive Measures and Assumptions List ("MAL") presents program deemed energy and demand savings using prescriptive input assumptions.
MW or MWh	Measurement of demand (MW) or energy (MWh) equivalent to 1,000,000 W or Whr
NTG	Net-to-gross
PY	Program year
SO	Spillover
TRM	Technical Reference Manual

1. Executive Summary

This evaluation report covers impact and process evaluation activities, cost-effectiveness assessment, and findings for the PY2022 2021-2024 CDM Framework (CDM Framework) Foodservice Distributor Discount (midstream) Program (FDDP). The evaluation of the PY2020-2021 Interim Framework FDDP began in 2022, but was placed on hold due to limited program participation and low survey response rates. This evaluation cycle incorporates results collected during the previous evaluation cycle, along with new data collected from PY2022 participants.

1.1. Program Description

The FDDP helps commercial businesses that purchase foodservice equipment to manage their energy use through installations of high-efficiency equipment, with the FDDP providing discounts to commercial businesses that purchase eligible foodservice equipment from participating distributors/dealers. The following eligible electric equipment qualifies participants for incentives:

- ENERGY STAR commercial refrigerators
- ENERGY STAR commercial freezers
- ENERGY STAR commercial ice machines

In conjunction with these electric equipment incentives (though outside of this evaluation's scope), Enbridge's Midstream Program provides participant incentives for eligible natural gas foodservice equipment.

1.2. Evaluation and Objectives

The FDDP evaluation sought to achieve the following objectives:

- Conduct desk reviews of the participant tracking dataset to assess savings using the Measures and Assumptions List (MAL) and program-savings assumption data.
- Verify the FDDP's gross energy and summer peak demand savings on a province-wide level. Assess free-ridership and participant spillover to determine an appropriate net-to-gross (NTG) ratio.
- Research specific interest areas to help the IESO improve the FDDP and prepare for future program design and evaluations.
- Perform a cost-effectiveness assessment and a greenhouse gas reduction estimate for the FDDP.
- Conduct a process evaluation by addressing research questions identified with the IESO.
- Deliver annual reports, memos, and impact results templates, along with a final report that meets the IESO's requirements and deadlines.
- Provide thoughtful recommendations regarding program improvements based on feedback obtained through the evaluation.

1.3. Summary of Results

1.3.1. Impact Evaluation

During PY2022, the 2021-2024 CDM Framework FDDP completed 1,897 projects. The impact evaluation results show that the 2021-2024 CDM Framework FDDP achieved energy and summer peak demand realization rates of 85.97% and 86.55%, respectively. Table 1 presents energy impact results for the FDDP evaluation period; and Table 2 presents demand results.

Table 1: PY2022 2021-2024 CDM Framework FDDP Energy Impact Results

Reported Savings (MWh)	Realization Rate	Gross Verified Savings (MWh)	Net-to-Gross Ratio	Net Verified Savings (MWh)	Net Verified Savings at 2026 (MWh)
947.69	85.97%	814.76	51.66%	420.90	420.90

Table 2: PY2022 2021-2024 CDM Framework FDDP Demand Impact Results

Reported Savings (kW)	Realization Rate	Gross Verified Savings (kW)	Net-to-Gross Ratio	Net Verified Savings (kW)	Net Verified Savings at 2026 (kW)
111.82	86.55%	96.78	51.66%	50.00	50.00

The cost-effectiveness evaluation shows a Program Administrator Cost (PAC) Test net benefit ratio of 0.65, meaning that the program provided benefits at less than their respective costs. Table 3 shows these cost-effectiveness results and FDDP levelized unit energy cost (LUEC) metrics. FDDP achieved savings at a LUEC of \$0.07 per net verified kWh saved and \$610.46 per net verified summer peak kW saved.

Table 3: FDDP Cost-Effectiveness Results

Program Administrator Cost Test	Total
PAC Costs (\$)	\$270,080.00
PAC Benefits (\$)	\$175,734
PAC Net Benefits (\$)	-\$94,346
PAC Net Benefit (Ratio)	0.65
Levelized Unit Energy Cost (LUEC)	Result
\$/kWh	\$0.07
\$/kW	\$610.46

1.3.2. Process Evaluation

The evaluation team performed a process evaluation to better understand FDDP program design and delivery. The team collected primary data to support this evaluation through interviews with program delivery staff as well as surveys with participating distributors. The executive summary summarizes key insights from the process evaluation, and [Section 7](#) presents these insights in greater detail.

Please note that the process evaluation for FDDP is representative of both IF and 2021-2024 CDM Framework projects, and as such, the following process evaluation results are identical across both the IF and 2021-2024 CDM Framework FDDP reports.

Program outreach and marketing. To enroll distributors in the program, the program delivery vendor used a top-down approach, leveraging its existing relationships with manufacturers to secure introductions with distributor owners and managers. In turn, the program delivery vendor used the acceptance of the leadership of each distributor to secure buy-in from staff. Nearly all responding participating distributors (seven of nine) marketed the program to trade allies and/or end users through in-store flyers, banners, and/or displays, and two each advertised through a store website, e-mail, or social media. One respondent did not market the program at all.

Incentive passthrough. The seven responding participating distributors who reported passing through at least some percentage of their incentives to contractors and/or end users identified whether passing on incentives to contractors or end users increased their sales. Three respondents said they did not know, one respondent said it increased sales by 70%, one said it increased sales by 10%, and two did not think it increased sales at all.

Participating distributor satisfaction. Nearly all (eight out of nine) responding participating distributors were somewhat satisfied or completely satisfied with the program overall. Interactions with the program delivery vendor was the program aspect that participating distributors were most satisfied

with and the incentive amount was the program aspect that participating distributors were least satisfied with.

Participation barriers. Participating distributors most commonly cited distributors thinking the incentives not worth the trouble of participation (six out of nine) followed by distributors not knowing about the program (four out of nine) as common barriers that prevented more distributors from participating in FDDP.

Program improvement suggestions. Opportunities to expand the program mentioned by the program delivery vendor included adding additional measures (e.g., dishwashers, electric versions of some existing natural gas products), offering combined gas and electric incentives for certain measures (e.g., combination ovens), and extending the program to offer similar measures to other business types (e.g., laundromats).

1.4. Key Findings and Recommendations

This section includes a subset of the most important evaluation key findings and recommendations. [Section 8](#) presents all the key findings and recommendations.

Finding 1. The program effectively leveraged existing resources and built new relationships to help it quickly ramp up. The program delivery vendor reported that the program achieved a great deal during its first two years, meeting its targets and ramping up as quickly as possible, despite challenges posed by the COVID-19 pandemic. To aid in launching the FDDP, the program delivery vendor reported leveraging contacts and program processes from an existing and similar midstream foodservice program offered by Enbridge Gas. The program delivery vendor reported applying onboarding processes similar to those of Enbridge, such as ensuring all types of distributor staff (e.g., sales, finance, accounting) knew of FDDP to prevent confusion during program delivery.

- **Recommendation 1.** Any future program iterations are encouraged to consider collaboration opportunities with existing, similar programs already in market (or soon to be in market) to help build relationships across organizations, leverage existing resources and processes, and potentially offer a wider range of equipment types to interested end users.

Finding 2. The COVID-19 pandemic significantly impacted the program, likely limiting savings opportunities and program reach. The program delivery vendor explained that the COVID-19 pandemic created several challenges to FDDP's implementation, including disruptions to supply chains (with lengthy lead times of up to a year), staff turnover at distributors (and related operational issues), barriers to QA/QC activities, and uncertainty in forecasting program results. All responding distributors reported that their companies experienced delays or shortages in the supply chain and increased measure costs due to COVID-19 challenges. Almost all responding distributors reported decreased sales and revenue due to COVID-19 challenges.

- **Recommendation 2.** If reintroducing the program, perform a market characterization to ensure existing market conditions are well understood, including issues that may remain regarding supply chain delays, equipment shortages, or increased measure costs.

Finding 3. Additional program promotion opportunities exist. Most distributors (seven of nine) marketed the program through in-store flyers, banners, and/or displays. Less commonly, distributors advertised the program through a store website, e-mail, or social media, and one distributor did not market the program at all. Most distributors (eight of nine) informed their customers of FDDP with some regularity (sometimes, frequently, or always), but one distributor rarely informed customers of the program. One distributor recommended providing brochures to distributors, identifying all products with related incentive amounts. The program delivery vendor reported supplying distributors with a program manual, training, and marketing materials designed to make it easier for them to support the program and to encourage contractors and end-use customers to purchase equipment offered through the program.

- **Recommendation 3a.** Consider promoting any future iterations of the program at multiple points along the supply chain, such as continued in-store promotions at participating distributors, direct promotions to end-use customers at foodservice facilities, or promotions at industry association events and trade shows.
- **Recommendation 3b.** Diversify the overall marketing approach, ensuring a balanced mix of in-person, print, and digital marketing, to boost overall program awareness in any future iterations of the program. In addition to in-person activities noted in **Recommendation 3a**, further building out digital marketing activities (e.g., banner ads, video testimonials, newsletters) and developing additional print pieces (e.g., brochures) is recommended.

Finding 4. Most distributors passed through little if any of the incentive to contractors, but many passed through part of the incentive to end users. Four out of nine responding distributors estimated they passed through 0% of incentives to contractors. Two distributors reported passing through 30% to 50% of the incentive to contractors, with an average incentive passthrough of 13%. Seven distributors passed through 5% to 100% of the incentive to end users, with an average incentive passthrough of 46%. Of seven distributors who reported passing through at least some percentage of their incentives to contractors and/or end users, two thought the passthrough increased their sales, and two thought it did not affect their sales. Five of these seven distributors said they would pass along the same portion of incentives in the future.

- **Recommendation 4.** Future program iterations are encouraged to reintroduce the requirement that a portion of each incentive should pass through to contractors and/or end users. Doing so may help generate additional interest in and sales of program-incentivized equipment, as this could raise the program's visibility among contractors and end users. Increasing the incentivizes in tandem with this requirement may encourage distributors' additional support of program participation (see **Finding 5** related to incentive increases).

Finding 5. Many distributors doubted that incentives were worth the trouble of participation. The program delivery vendor explained that some distributors expressed reluctance to sign up for the program for two main reasons: a negative prior experience with a different energy-efficiency program; or dissatisfaction with the program requirement that they pass through the incentive to the end user. To address these participation barriers, the program delivery vendor reported explaining the FDDP benefits to distributors and the IESO removing the passthrough requirement. One of the most common participation barriers reported by distributors was that the incentives were not worth the trouble of participating (six out of nine). To address this barrier, distributors recommended expanding the incentives (three distributors).

- **Recommendation 5.** Consider increasing incentive amounts for eligible equipment in future iterations of the program in any future iterations of the program (see **Finding 4** related to incentive increases and passthrough requirements as well).

Finding 6. Opportunities remain to influence distributor stocking and sales practices. When asked how their company's *stocking practices* changed since program participation, six distributors reported their stocking practices did not change. The remaining three distributors reported that their company began stocking larger volumes of program-eligible equipment, and two of these distributors noted their company began stocking a larger variety of program-eligible equipment. Similarly, distributors asked how their company's *sales practices* changed since program participation, five distributors reported that their company began recommending program-eligible equipment more frequently, and three distributors reporting that their company began promoting and advertising program-eligible equipment. Two distributors reported their sales practices did not change since program participation.

- **Recommendation 6.** Future program iterations should consider additional ways to induce increased stocking and sales practices. This may include offering bonuses at different points in the year (quarterly, yearly) or instituting requirements associated with increased stocking or sales of program-eligible equipment to remain on the participating distributor list.

2. Introduction

2.1. Program Description

The FDDP's design helps commercial businesses that purchase foodservice equipment manage their energy use through the installation of high-efficiency equipment. The FDDP provides discounts to commercial businesses that purchase eligible foodservice equipment from participating distributors/dealers. The following eligible electric equipment qualifies for participant incentives:

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2.2. Evaluation Objectives

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- Research specific interest areas to help the IESO improve the FDDP and prepare for future program design and evaluations.
- Perform a cost-effectiveness assessment and a greenhouse gas reduction estimate for the FDDP.
- Conduct a process evaluation by addressing research questions identified with the IESO.
- Deliver annual reports, memos, and impact results templates, along with a final report that meets the IESO's requirements and deadlines.
- Provide thoughtful recommendations regarding program improvements based on feedback obtained through the evaluation.

2.3. Additional Evaluation Background

In spring 2022, the evaluation team administered a self-report survey with participating FDDP distributors. The survey included questions regarding free-ridership (FR) and spillover (SO) to support the evaluation team's NTG assessment as well as program process questions that supported the process evaluation. Initially, the survey was administered as a web-only survey. After a slow response,

the team initiated phone-based outreach. The team reached out to all contacts listed in the sample by web and phone, sending weekly e-mail reminders and leaving voice messages for nonrespondents. Initially, the team reached out to the primary contacts listed in the sample. If the primary contact, however, proved nonresponsive after multiple outreach attempts, the team contacted any additional contacts that distributors included in the sample to request their survey participation.

As part of the 2022 survey, the evaluation team achieved eight survey completes from a sample of 32 unique participating distributors, for a 25% response rate. All respondents provided valuable feedback regarding the process evaluation. Only one respondent, however, provided data suitable to assess NTG, with the remaining respondents declining to provide the necessary feedback to FR and SO questions.

While the survey assured the distributors that all responses were confidential and would be anonymized, some distributors may have chosen not to answer FR and SO questions due to concerns about sharing information. Additionally, prior to this survey effort, Enbridge Gas performed a similar survey with the same group of participating distributors, which likely affected distributors' likelihood to respond to the IESO's evaluation survey. Given the limited survey response in 2022, the IESO and EM&V team agreed to delay the reporting process and the NTG estimation.

In spring 2023, the EM&V team reopened the survey with participating distributors to collect additional responses. This effort sought to generate sufficient feedback to estimate the FDDP's NTG. The 2023 survey achieved four additional completes, but respondents only chose to answer the process-related survey questions. Given that the survey response to the NTG questions was not sufficiently significant to estimate results, the EM&V team explored other options for estimating the FDDP's NTG, the team ultimately decided to utilize results from similar foodservice NTG studies to service as a proxy estimate for the FDDP NTG. See [Section 4.2](#) for additional information on the NTG results.

3. Evaluation Methodology

This section summarizes the impact, process, and cost-effectiveness methodologies. Appendix A provides additional methodology details.

3.1. Impact Evaluation Methodology

For the FDDP, projects fall into three possible measure tracks: refrigerators, freezers, or ice makers. The evaluation team assessed each measure's savings using applicable MAL and ENERGY STAR specifications to ensure eligibility and proper savings allocation. No sampling proved necessary as this addressed the census of measures. Table 4 shows the number of participating measures.

Table 4: PY2022 FDDP Participation

Measure Track	Participation
Refrigerators	1308
Freezers	644
Ice Makers	146
Total	2098

The evaluation team used the measure savings assessment results to calculate realization rates for each measure and, hence, the program realization rate. Appendix A provides a detailed description of the impact evaluation methodology.

The evaluation team did not calculate interactive energy changes for the FDDP. Though non-lighting equipment improvements can create interactive effects, the resulting savings levels often prove minimal in comparison to the effort required to estimate their impacts. Consequently, they make for a poor use of evaluation funding.

3.1.1. Net Savings Methodology

To calculate net verified savings, the evaluation team calculated the portion of gross verified savings attributable to the program. The team determined net verified savings by multiplying gross verified savings by the NTG ratio, as shown in [Equation 1](#).

Equation 1: Net Verified Savings

$$Savings_{net} = Savings_{verified} \times NTG$$

Where:

Savings_{net} = Net verified savings impact (kW or kWh)

Savings_{verified} = Verified savings (kW or kWh)

NTG = Net-to-gross

To estimate the program's direct influence in generating net verified energy savings, the evaluation team first attempted to calculate FR and SO values through implementing an attribution survey of participating distributors.

As defined in [Equation 2](#), the team based the NTG ratio on measurement of FR and SO values.

Equation 2: NTG Ratio

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

To inform the free-ridership estimate, the distributor survey asked respondents to estimate the percentage of program-incentivized energy-efficient kitchen equipment they thought would have been sold at the same efficiency level had no incentives been available from the program.

To inform the spillover estimate, the distributor survey asked respondents to rate the program's influence on sales associated with various energy-efficient kitchen equipment that would have been eligible for a program incentive but did not receive one. From there, the evaluation team would have leveraged these responses to calculate distributor-level FR and SO, and then would have combined these distributor-level values (weighted by relative program savings) to estimate FR and SO for the entire program at the province-wide level.

Unfortunately, responses to the distributor survey did not prove sufficiently significant to estimate FR and SO values. Given this, the EM&V team explored other options to estimate FR, SO, and NTG for FDDP, ultimately utilizing results from similar foodservice NTG studies to serve as a proxy estimate for the FDDP's NTG. Section 3 provides additional background on this process, and Section 4.2 provides additional information on FR, SO, and NTG results.

3.2. Process Evaluation Methodology

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

Table 5 presents the survey methodology, the total population invited to participate in the surveys or interviews, the total number of completed surveys or interviews, the response rate, and the sampling error at the 90% confidence level for each respondent type. [Appendix B](#) provides additional detail regarding the process evaluation methodology.

Table 5: Process Evaluation Primary Data Sources

Respondent Type	Methodology	Population	Completes	Response Rate	90% CI Error Margin
Program Delivery Vendor Staff	Phone IDs	1	1	100%	0%
Participating Distributors	Web & Phone Survey	56*	9	16%	N/A**

*The total population of unique participating companies equals 56. For the distributor survey, however, the survey team reached out to multiple contacts associated with a unique participating company if the primary contact was not responsive to initial survey outreach attempts and if additional contact information was available.

**The table does not display the error margin if the respondent count fell below 30, unless achieving a census.

3.3. Cost-Effectiveness Evaluation Methodology

The evaluation team completed the cost-effectiveness analysis in accordance with the IESO’s requirements, as set forth in the *IESO Cost-Effectiveness Guide for Energy Efficiency* and using the IESO’s Cost-Effectiveness Tool, version 9.1. Energy and demand savings results from the impact evaluation served as inputs into the IESO Cost-Effectiveness Tool, as were administrative costs and incentive information supplied from the IESO.

To determine measure incremental costs and effective useful life (EUL), the evaluation team analyzed three different Technical Reference Manuals (TRM): New York State TRM, California TRM, and Michigan TRM.

In addition to the three TRMs, the DEER 2014 and ENERGY STAR Workbooks provided valuable information on measure EUL and incremental cost. Final measure-level incremental cost inputs for cost-effectiveness (CE) analysis were determined by averaging the available measure incremental cost, grouped by measure type (i.e., refrigerator, freezer, or ice maker) and unit size.

4. Impact Evaluation Results

The following subsections outline the impact evaluation results. Section 3.1 and the Appendix A provide additional details regarding the impact methodology.

4.1. Energy and Demand Savings Results

Table 6 and Table 7 present first-year net verified impact results for the FDDP.

Table 6: PY2022 2021-2024 CDM Framework FDDP Energy Impact Results

Reported Savings (MWh)	Realization Rate	Gross Verified Savings (MWh)	Net-to-Gross Ratio	Net Verified Savings (MWh)
947.69	85.97%	814.76	51.66%	420.90

Table 7: PY2022 2021-2024 CDM Framework FDDP Demand Impact Results

Reported Savings (kW)	Realization Rate	Gross Verified Savings (kW)	Net-to-Gross Ratio	Net Verified Savings (kW)
111.82	86.55%	96.78	51.66%	50.00

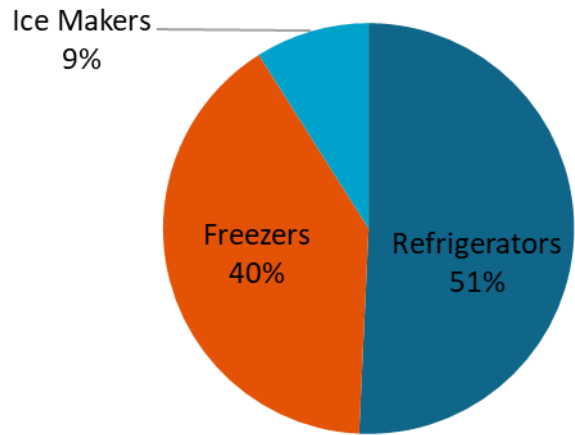
Each measure produces its own reported and verified energy and demand savings per unit, meaning each measure achieves its own realization rate. Consequently, the program realization rate is dependent on the measure mix of equipment reported for that program year.

Section 4.1.2 and Appendix A provide additional details on calculating measure realization rates.

4.1.1. Impact Evaluation Findings

Figure 1 shows that refrigerator measures contributed 51% of total program net verified energy savings, followed by freezers at 40% and ice makers at only 9%, contributing the lowest percentage of program savings.

Figure 1: Net Verified Energy Savings by Measure Category



The FDDP achieved 4,975 MWh of lifetime net verified energy savings, based on installed measures and their respective EULs. Until the 2026 framework accounting year, the evaluation team expects 100% of net verified energy savings will persist. Table 8 summarizes FDDP measures’ EULs.

Table 8: FDDP Measure Effective Useful Life

Measure	EUL (Years)
ENERGY STAR Commercial Freezer - Glass Door 15 - 50 cf	12
ENERGY STAR Commercial Freezer - Solid Door 15 - 50 cf	12
ENERGY STAR Commercial Freezer - Solid Door 50 cf	12
ENERGY STAR Commercial Ice Machine	10
ENERGY STAR Commercial Refrigerator - Glass Door 15 - 50 cf	12
ENERGY STAR Commercial Refrigerator - Glass Door 50 cf	12
ENERGY STAR Commercial Refrigerator - Solid Door 15 - 50 cf	12
ENERGY STAR Commercial Refrigerator - Solid Door 50 cf	12

Figure 2

Figure 2 shows that 62% of equipment sold through FDDP were refrigerators, followed by freezers at 31% and ice makers at 7%. Table 9 shows the average net verified energy and demand savings per quantity installed for each measure track.

Figure 2: FDDP Equipment Quantity by Measure Category

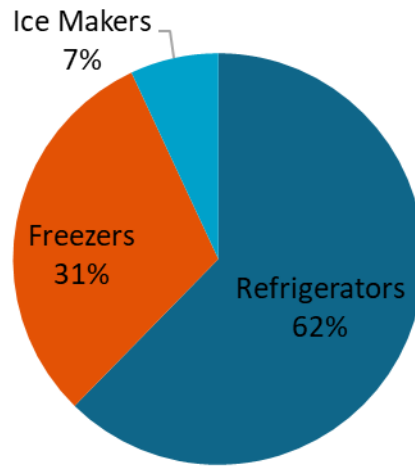


Table 9: Average per-unit Net Verified Energy and Demand Savings by Measure Track

Measure Track	Net Verified Energy Savings per Unit (kWh)	Net Verified Demand Savings per Unit (kW)
Refrigerators	163.27	0.02
Freezers	263.29	0.03
Ice Makers	258.82	0.03
Total	200.62	0.02

Freezers achieved the highest net verified per-unit energy and demand savings of any measure track followed closely by ice makers. Refrigerators achieved the lowest per-unit energy and demand savings of the three measure tracks but due to constituting 62% of equipment sales, the refrigerator measure track contributes 51% of the net verified program savings.

4.1.2. Realization Rates

Table 10 and Table 11 present the average reported and gross verified first-year energy and summer peak demand savings by measure track. The program-level energy realization rate is 85.97% but the measure track realization rates range from 79% to 100%. The program-level demand realization rate is 86.55% but the measure track realization rates range from 80% to 98%.

All measures except for the Ice Makers relied on either the IESO MAL or ENERGY STAR directory for the reported energy and summer peak demand savings. To ensure consistency in verified savings assumptions sources for all measures, the IESO and evaluation team agreed to use the ENERGY STAR prescribed savings.

Table 10: Average Reported and Verified Gross Energy Savings by Measure Track

Measure Track	Reported Energy Savings (kWh/unit)	Verified Energy Savings (kWh/unit)	Energy Realization Rate
Refrigerators	398	316	79.39%
Freezers	549	510	92.75%
Ice Makers	501	501	100.00%
Total	452	388	85.97%

Table 11: Average Reported and Verified Gross Demand Savings by Measure Track

Measure Track	Reported Demand Savings (kW/unit)	Verified Demand Savings (kW/unit)	Demand Realization Rate
Refrigerators	0.047	0.038	80.10%
Freezers	0.065	0.061	93.59%
Ice Makers	0.061	0.060	98.11%
Total	0.053	0.046	86.55%

4.2. Net-to-Gross Evaluation

In PY2021, the evaluation team fielded the participating distributor survey to 32 participating distributors and received one complete response to the NTG question battery. In PY2022, the team attempted to bolster these results by fielding the survey again to the 22 PY2021 participating distributors that yet to respond and to five new PY2022 participating distributors. The second fielding, however, did not result in additional NTG responses. [Section 9](#) and [Appendix B](#) provide additional detail regarding the participating distributor survey methodology.

The evaluation team then conducted jurisdictional research to identify NTG values for other midstream, upstream, and/or commercial foodservice programs. Through this research, the team identified two

studies with enough programmatic similarities to allow the team to develop a proxy NTG value for the IESO.^{1,2}

Table 12 presents the FDDP NTG evaluation results. The program received a weighted NTG ratio of 51.1%, with the low NTG ratio resulting from a relatively high 50% FR value. These results generally align with other midstream program evaluation results.

Table 12: FDDP Net-to-Gross Results

Source	Evaluation Year(s)	Participants	Distributors	Savings Weighted Free-Ridership	Savings Weighted Spillover – Energy	Savings Weighted Net-to-Gross
DTE Electric Company's PY2018 Evaluation Report	PY2018	18	-	53%	-	47.0%
CT C1902a Midstream C&I HVAC, Water Heating, & Foodservice NTG Review	PY2019 & PY2020	16	3	47%	-	56.3%
IESO FDDP NTG	PY2020-PY2022	34	3	50.0%	-	51.1%

¹ Navigant Consulting, (2019). *DTE Electric Company's PY 2018 Evaluation Report*.

<https://dsmevaluations.esource.com/content/dte-electric-companys-py-2018-evaluation-report>

² NMR Group and DVN, (2022). *C1902a Connecticut Midstream C&I HVAC & Water Heating and Foodservice Net-to-Gross Review*.

<https://energizect.com/sites/default/files/documents/C1902A%20CT%20Midstream%20HVAC%20Water%20Heating%20Foodservice%20NTG%20Report%20-%20Final%2020220601.pdf>

5. Cost-Effectiveness Results

The evaluation team conducted a CE evaluation for the 2021-2024 CDM Framework FDDP using IESO’s CE Tool V9.1. As shown in Table 13, the FDDP achieved a PAC ratio of less than 1.0, meaning program benefits were less than their respective costs.

Table 13: FDDP Cost-Effectiveness Results

Program Administrator Cost (PAC) Test	PY2022
PAC Costs (\$)	\$270,080
PAC Benefits (\$)	\$175,734
PAC Net Benefits (\$)	-\$94,346
PAC Net Benefit (Ratio)	0.65
LUEC	Result
\$/kWh	\$0.07
\$/kW	\$610.46

6. Other Energy-Efficiency Benefits

6.1. Greenhouse Gas Benefits

The evaluation team used the IESO CE Tool V9.1 to calculate avoided greenhouse gas (GHG) emissions for the first-year and lifetime savings of measures in the 2021-2024 CDM Framework FDDP. Table 14 provides results of avoided GHG emissions calculations. The FDDP projects are expected to achieve a total of 94.57 Tonnes of avoided first year GHG emissions and 981.93 Tonnes of avoided GHG throughout the EUL of the installed measures. All GHG emissions shown are in Tonnes of CO₂ equivalent, unless otherwise noted.

Table 14: PY2022 2021-2024 CDM Framework FDDP Avoided Greenhouse Gas Emissions

First Year GHG Avoided (tonnes CO ₂ equivalent)	Lifetime GHG Avoided (tonnes CO ₂ equivalent)
94.57	981.93

7. Process Evaluation

The evaluation team performed a process evaluation to better understand the FDDP's design and delivery. This included an interview of delivery vendor staff and participating distributor surveys, which the team utilized to gather primary data to support this evaluation. In the following sections, if fewer than 20 respondents answer a question, counts are shown rather than percentages. These results should be considered as directional, given the small number of respondents.

Please note that the process evaluation for FDDP is representative of both IF and 2021-2024 CDM Framework projects, and as such, the following process evaluation results are identical across both the IF and 2021-2024 CDM Framework FDDP reports.

7.1. Program Delivery Vendor Staff Perspectives

The following subsections highlight feedback received from an interview with program delivery vendor staff.

7.1.1. Key Findings

Key findings drawn from the program delivery vendor staff in-depth interview include the following:

- The program largely succeeded during the first two years, achieving its targets and building relationships with distributors.
- The program delivery vendor worked to overcome several barriers associated with the COVID-19 pandemic (e.g., supply chain issues, turnover, other staffing issues, barriers to QA/QC activities, and additional uncertainty in forecasting program results).
- The program delivery vendor drew upon processes and tools developed for the Enbridge Gas midstream foodservice program to quickly ramp up the FDDP.
- Additionally, the program delivery vendor found adequate program resources available, but noted that potential exists to do more, if additional resources become available.
- Finally, the program delivery vendor identified opportunities to expand the program (e.g., adding measures, extending the program to other business types that purchase similar equipment).

7.1.2. Design and Delivery

Program delivery largely succeeded during the first two operation years. Despite having but a brief window to enroll participating distributors at the end of 2020 for the program's kickoff in 2021, the program delivery vendor reported they leveraged contacts and

processes developed for the Enbridge Gas midstream foodservice program in an effort to launch the IESO's program quickly.

For example, as many distributors served both gas and electric customers, trainings that distributors received for the Enbridge program were largely applicable to IESO's electric offerings. Similarly, the program tracking system set up for the natural gas measures proved sufficiently straightforward for the program delivery vendor to set up analogous systems for electric measures.

The program delivery vendor reported that, while resources available to the program were adequate, potential exists in the market to scale the program up if more resources were to be provided in future similar program offerings.

7.1.3. Outreach and Marketing

To enroll distributors in the program, the program delivery vendor used a top-down approach, leveraging its existing relationships with manufacturers to secure introductions with distributor owners and managers. In turn, the program delivery vendor used the acceptance of the leadership of each distributor to secure buy-in from staff.

The program delivery vendor also successfully applied the onboarding processes used for the Enbridge program, such as ensuring all staff types (e.g., sales, finance, accounting) knew of the program to prevent confusion during program delivery. Additionally, the program delivery vendor supplied distributors with a program manual, training, and marketing materials to make it easier for distributors to support the program and to encourage contractors and end-use customers to purchase equipment offered through the program.

7.1.4. Barriers and Opportunities

The program delivery vendor noted two challenges with enrolling distributors in the program. First, some distributors proved reluctant to sign up due to negative experiences with a different energy-efficiency program. The program delivery vendor reported working with these distributors to explain how FDDP differed and to convince them that they would have a better experience.

Second, in the program's early days, the program delivery vendor encountered resistance from distributors regarding the program's requirement that they pass the incentive through to the end user, citing time and work required for them to drive the program and report results. When the IESO removed the pass-through requirement, some distributors returned to the program and/or became willing to participate.

The program also faced some data-related challenges. Distributors were tasked with reporting certain sales data, allowing the program to track sales impacts of efficient equipment. Distributor data systems, however, did not often align with the program's reporting needs. For example, ENERGY STAR equipment was not necessarily flagged and searchable, or difficulties arose in differentiating base case and efficient sales. The program delivery vendor worked with distributors to set up and improve the alignment of their tracking systems.

The COVID-19 pandemic created several challenges for program implementation. First, disruptions to supply chains made it difficult to supply program measures, with lead times ranging from 16 weeks up to an entire year. Not only did the lead time pose a challenge for the end customer, but, combined with relatively short-term contracts, under which distributors operated in the program, that lead time meant distributors had to order equipment without knowing whether it would arrive during the contract period.

As the equipment was new to the distributor in many cases, this introduced an element of risk. Program delivery vendor staff recommending finding ways to assure distributors that the program or programs like it, would be renewed from year to year would create greater certainty for distributors in taking such risks.

Uncertainty related to the pandemic created additional program challenges, such as turnover and other staffing issues, barriers to QA/QC activities, and additional uncertainty in forecasting program results. The program delivery vendor reported focusing on communication as a primary means to manage these challenges.

For example, remaining in regular contact with participating distributors helped to keep track of changes in distributor contacts and to educate new staff as they came on board. Account managers could gain access to customer sites to perform QA/QC activities through leveraging relationships. Additionally, the program delivery vendor reported using virtual tools or photos in some instances.

Opportunities to expand the program mentioned by the program delivery vendor included adding additional measures (e.g., dishwashers, electric versions of some existing natural gas products), offering combined gas and electric incentives for certain measures (e.g., combination ovens), and extending the program to offer similar measures to other business types (e.g., laundromats).

7.2. Participating Distributor Perspectives

The following subsections highlight responses to the participating distributor survey. [Appendix C](#) offers additional results.

7.2.1. *Key Findings*

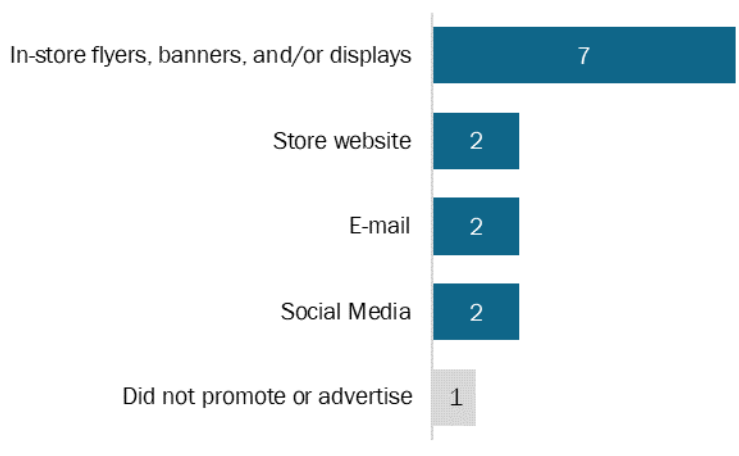
Key findings drawn from participating distributors' responses include the following:

- Most respondents' companies marketed the program through in-store flyers, banners, and/or displays.
- Almost one-half of respondents said 0% of the incentives passed through to contractors, while most respondents passed through some percentage of the incentive to customers.
- The most commonly mentioned participation barriers included distributors thinking the incentives not worth the trouble of participating, and distributors not knowing about the program.
- The most commonly mentioned reasons preventing customers from purchasing energy-efficient kitchen equipment that could have qualified for FDDP related to equipment availability and supply chain issues.
- Nearly all respondents were somewhat or completely satisfied with the program overall.
- Most respondents informed their customers of FDDP with some regularity (sometimes, frequently, or always). Only one respondent rarely informed their customers of the program.
- Most respondents attended training sessions led by the program delivery vendor, and all who attended were completely satisfied with their instructors. Three respondents had not attended trainings led by the program delivery vendor.
- All respondents said their company experienced delays or shortages in the supply chain as well as increased measure costs due to COVID-19 related challenges; almost all reported a decrease in sales and revenue.

7.2.2. *Outreach and Marketing*

Nearly all (seven of nine respondents) marketed the program through in-store flyers, banners, and/or displays, and two each advertised through a store website, e-mail, or social media, as shown in [Figure 3](#). One respondent did not market the program at all.

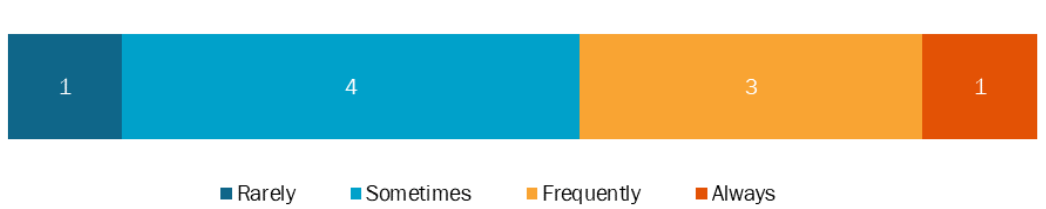
Figure 3: Distributor Program Marketing Methods
(Open-ended and multiple responses allowed; n=9)*



*Responses, shown as counts due to small sample sizes, do not sum to 9 due to multiple responses.

As shown in [Figure 4](#), most respondents informed their customers of FDDP (four respondents selected sometimes, three selected frequently, and one selected always), while only one respondent reported rarely informing their customers.

Figure 4: Frequency with which Distributors Informed Customers of Program (n=9)*

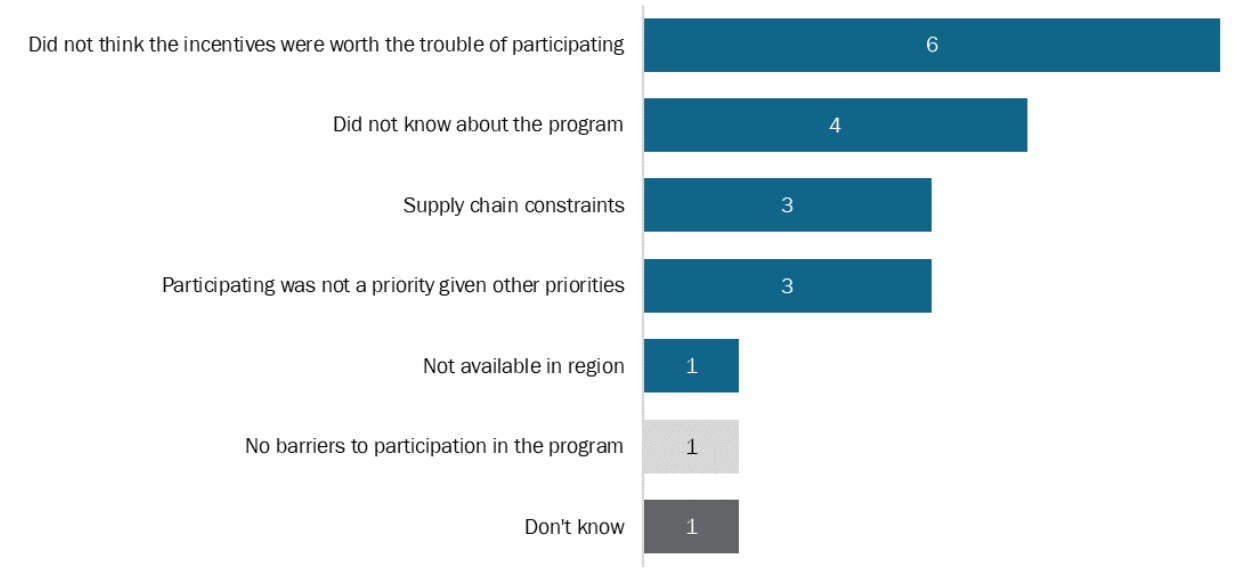


*Responses shown as counts due to small sample size.

7.2.3. Participation Barriers

As shown in [Figure 5](#), when asked to identify barriers that prevented more distributors from participating in FDDP, respondents most commonly cited distributors thinking the incentives not worth the trouble of participation (six out of nine) followed by distributors not knowing about the program (four out of nine).

Figure 5: Distributor Barriers to Participation
(Open-ended and multiple responses allowed; n=9)*

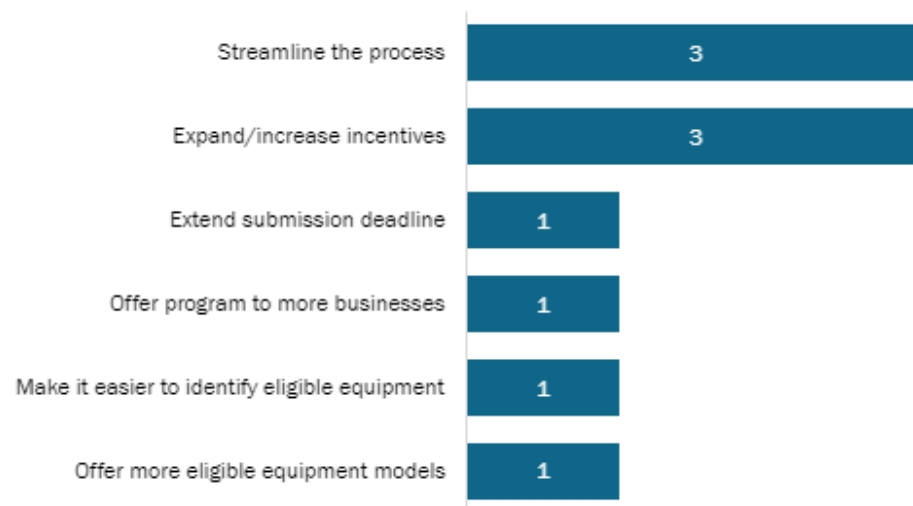


*Responses are shown as counts due to small sample sizes and not sum to 9 due to multiple responses.

When asked to propose strategies for ways to address barriers to distributor participation barriers, as shown in Figure 6, respondents most commonly cited streamlining the process and expanding incentives (three out of six respondents each). Regarding streamlining the process, two distributors reported that it could be difficult and time consuming to enter the required program information, especially if requesting many incentives at once. To address this, one distributor recommended developing an online form through which to submit data.

Figure 6: Suggestions to Address Barriers to Distributor Participation

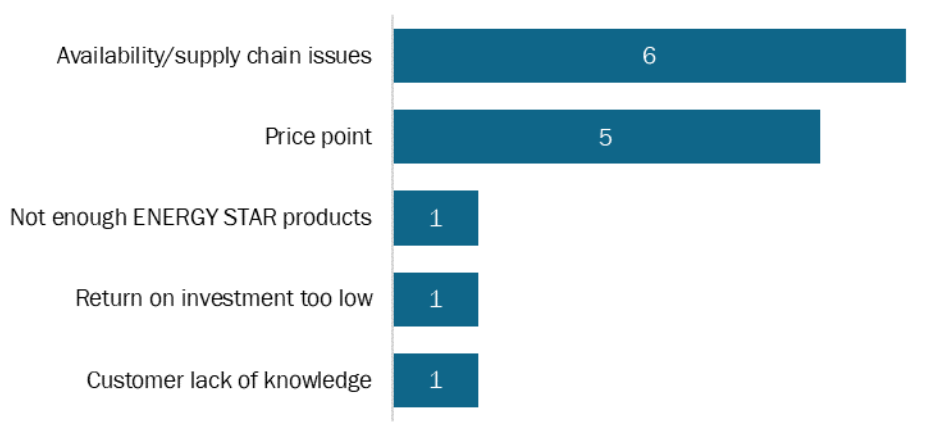
(Open-ended and multiple responses allowed; n=6)*



*Responses are shown as counts due to small sample sizes and not sum to 9 due to multiple responses.

When asked to identify barriers that they thought prevented more customers from purchasing energy-efficient kitchen equipment that could have qualified for FDDP, the most common responses, as shown in [Figure 7](#), related to equipment availability and supply chain issues (six out of nine) and qualifying equipment having too high of a price point (five respondents).

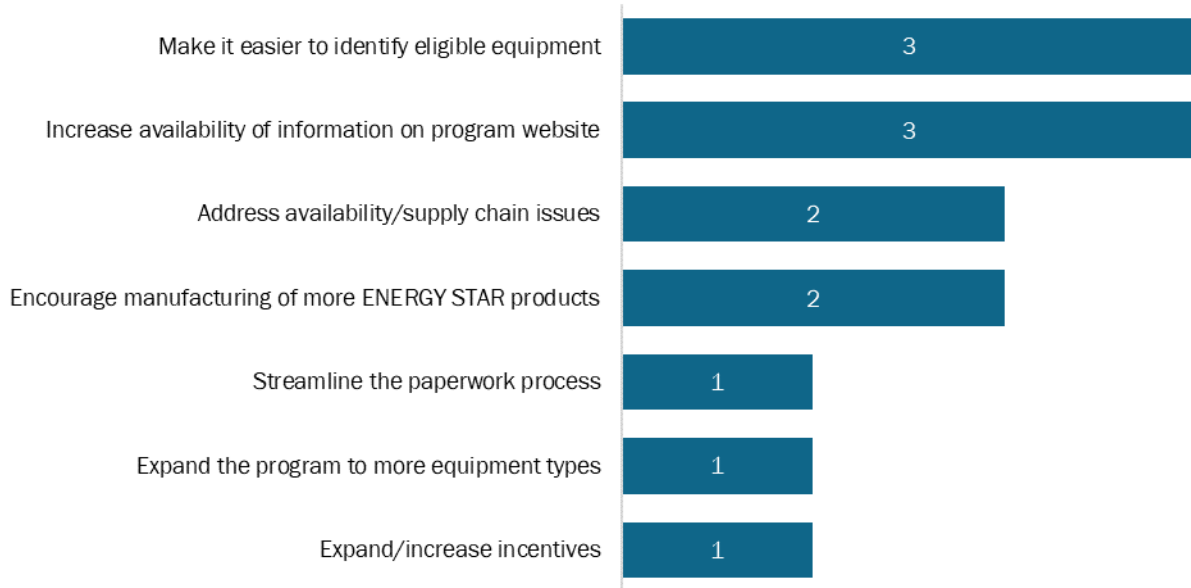
Figure 7: Customer Barriers to Efficient Equipment Purchasing
(Open-ended and multiple responses allowed; n=9)*



*Responses are shown as counts due to small sample sizes and not sum to 9 due to multiple responses.

When asked to propose strategies for addressing barriers to customers purchasing energy-efficient kitchen equipment, as shown in [Figure 8](#), responses most commonly included making it easier to identify eligible equipment and increasing the availability of information on the program website (mentioned by three respondents each).

Figure 8: Suggestions to Increase Foodservice Equipment Purchasing
(Open-ended and multiple responses allowed; n=9)*



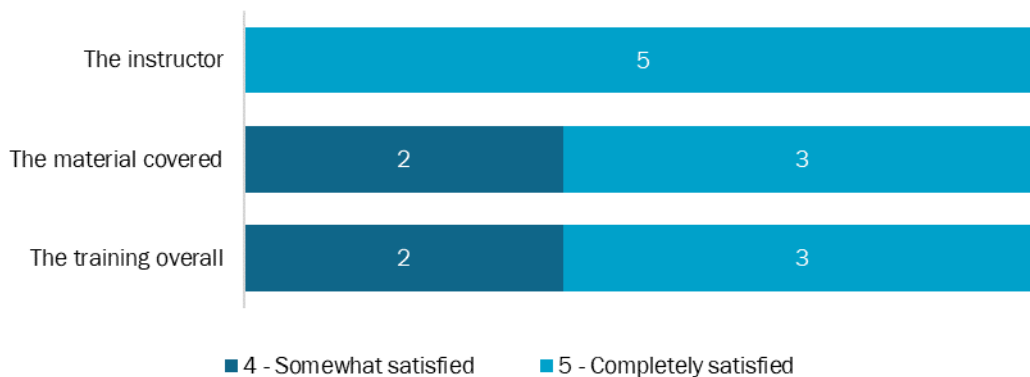
*Responses are shown as counts due to small sample sizes and not sum to 9 due to multiple responses.

7.2.4. Program Trainings

When asked if respondents attended training sessions led by the program delivery vendor, over one-half (five out of nine) stated they had attended trainings, as shown in [Figure 9](#). Three respondents reported not attending trainings, and one did not know whether they attended trainings.

When those attended trainings were asked to rank their satisfaction with different training aspects, all five respondents reported they were completely satisfied with the instructor, three out of five were completely satisfied with the material covered and the overall training, and two stated they were somewhat satisfied with the material covered and the overall training.

Figure 9: Satisfaction with Program Trainings (n=5)*



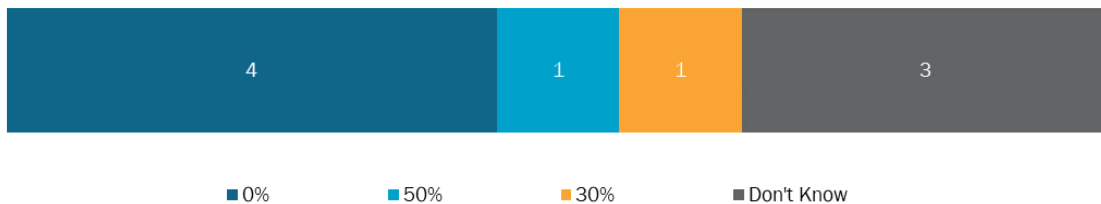
* Responses shown as counts due to small sample size.

When asked to provide feedback on what they thought should have been included in the trainings attended, one respondent suggested the training be more hands-on, three respondents said they had no feedback to offer, and four preferred not to answer. One respondent who reported not having additional feedback did say, “The program is pretty self-explanatory, and my rep is available to me for any questions I may have at any time. He is extremely proficient at helping me with any issues I may have.”

7.2.5. Incentive Passthrough

Respondents estimated the incentive percentage that they received through the program and passed through to contractors that they worked with, as shown in [Figure 10](#). Over two-fifths (four out of nine) estimated that 0% of the incentives passed through to contractors. The average incentive pass-through to contractors was 13%.

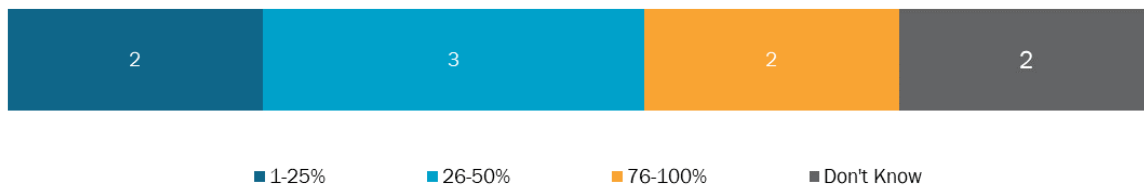
Figure 10: Percentage of Incentives Passed Through to Contractors (n=9)*



* Responses shown as counts due to small sample size.

Similarly, respondents estimated the incentive percentage that they received through the program that was passed through to end users, as shown in [Figure 11](#). Only one respondent of nine estimated that 100% of the incentives passed on to customers. The average incentive pass-through to end users was 46%.

Figure 11: Percentage of Incentives Passed Through to End Users (n=9)*



* Responses shown as counts due to small sample size.

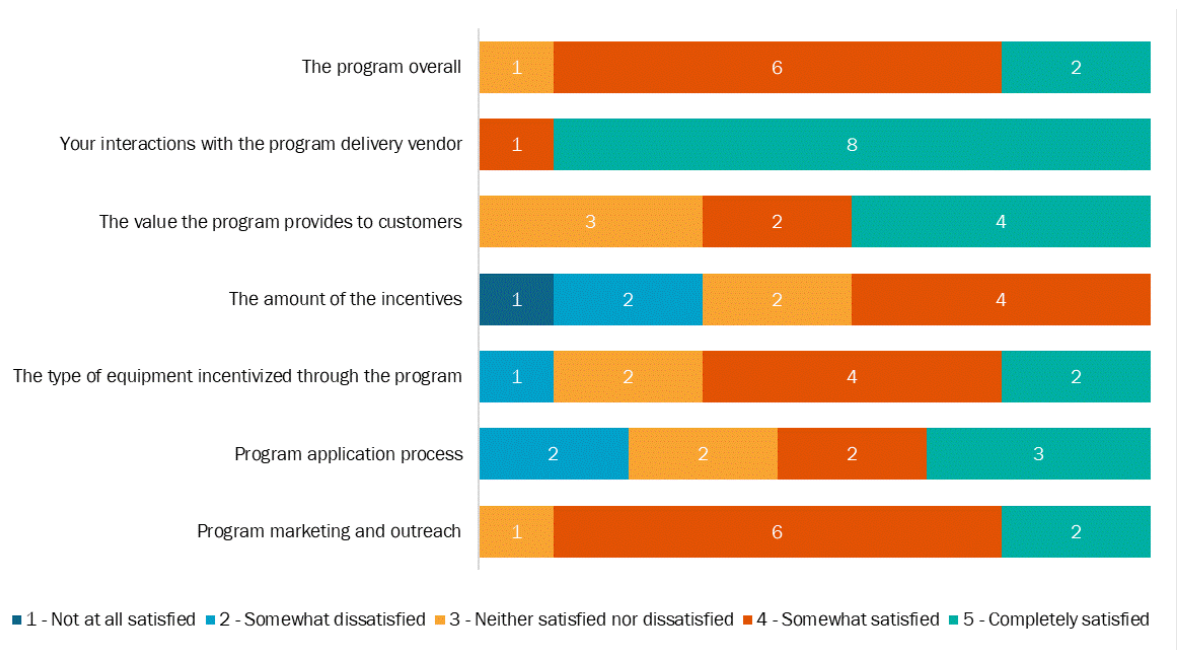
The survey asked the seven respondents who reported passing through at least some percentage of their incentives to contractors and/or end users whether passing on incentives to contractors or end users increased their sales. Three respondents said they did not know, one respondent said it increased sales by 70%, one said it increased sales by 10%, and two respondents did not think it increased sales at all.

The survey asked the same seven respondents if they would pass the same portion of the program incentive along to the contractors and/or end-users that they work with in the future. Five respondents said that they would pass along the same incentive portions to contractors and/or end-users in the future, and two said that they did not know what they would do.

7.2.6. Distributor Satisfaction

The survey asked respondents to rank their satisfaction with various FDDP aspects on a scale of one to five, where one indicates “not satisfied at all” and five indicates “completely satisfied.” As shown in [Figure 12](#), nearly all (eight out of nine) were somewhat satisfied or completely satisfied with the program overall. The program aspect respondents were most satisfied with were their interactions with the program delivery vendor, with all nine respondents indicating they were somewhat or completely satisfied. The program aspect respondents were least satisfied with was the incentive amount, with only four of nine respondents indicating they were somewhat or completely satisfied.

Figure 12: Satisfaction with Various Program Aspects (n=9)*

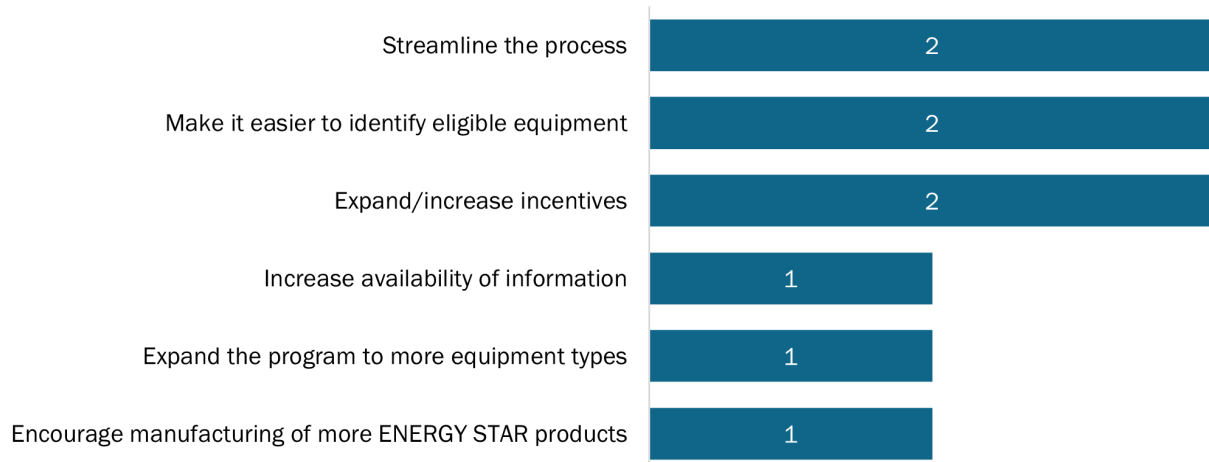


*Responses shown as counts due to small sample size.

7.2.7. Recommendations for Program Improvements

When asked for suggestions to improve FDDP, as shown in [Figure 13](#), three respondents each suggested streamlining the program process, making it easier to identify program-eligible equipment, and expanding or increasing incentives.

Figure 13: Program Improvement Suggestions
 (Open-ended and multiple responses allowed; n=6)*

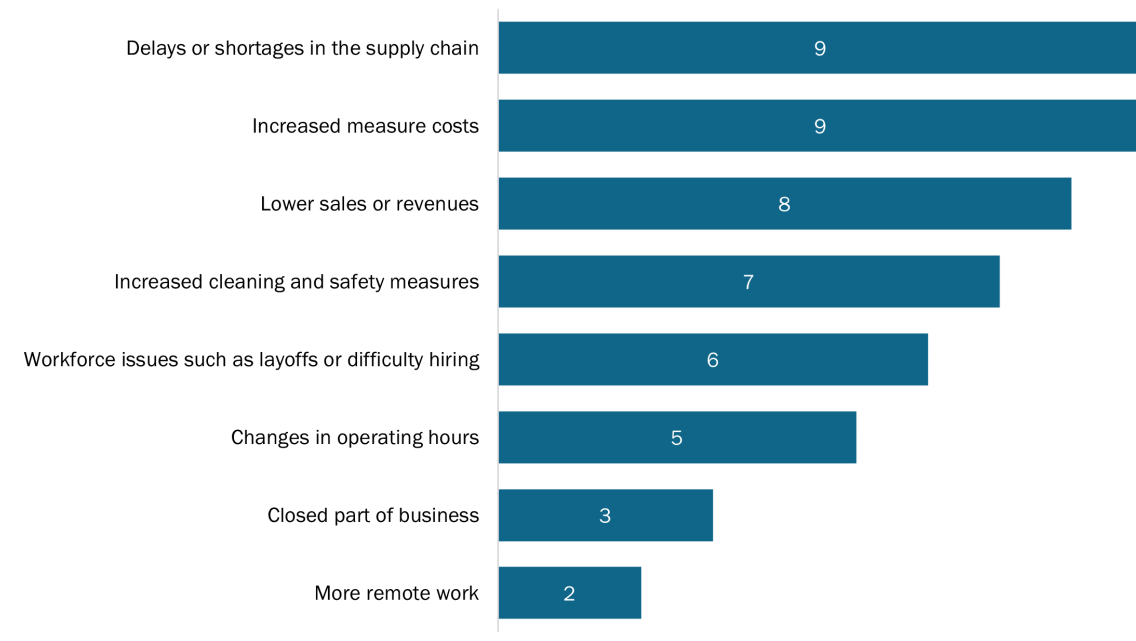


*Responses are shown as counts due to small sample sizes and not sum to 6 due to multiple responses.

7.2.8. COVID-19 and Health and Safety

As shown in [Figure 14](#), the survey asked respondents to share ways in which the COVID-19 crisis impacted their company and its operations. All respondents identified delays or shortages in the supply chain as well as increased measure costs due to COVID-19-related challenges, and almost all (eight) reported decreases in sales and revenue. In regard to company operations, five respondents noted changes in operating hours, three mentioned closing part of the business altogether, and two respondents identified an increase in remote work.

Figure 14: COVID-19 Impacts
 (Open-ended and multiple responses allowed; n=9)*



*Responses are shown as counts due to small sample sizes and not sum to 9 due to multiple responses.

8. Key Findings and Recommendations

Finding 1. The program effectively leveraged existing resources and built new relationships to help it quickly ramp up. The program delivery vendor reported that the program achieved a great deal during its first two years, meeting its targets and ramping up as quickly as possible, despite challenges posed by the COVID-19 pandemic. To aid in launching the FDDP, the program delivery vendor reported leveraging contacts and program processes from an existing and similar midstream foodservice program offered by Enbridge Gas. The program delivery vendor reported applying onboarding processes similar to those of Enbridge, such as ensuring all types of distributor staff (e.g., sales, finance, accounting) knew of FDDP to prevent confusion during program delivery.

- **Recommendation 1.** Any future program iterations are encouraged to consider collaboration opportunities with existing, similar programs already in market (or soon to be in market) to help build relationships across organizations, leverage existing resources and processes, and potentially offer a wider range of equipment types to interested end users.

Finding 2. The COVID-19 pandemic significantly impacted the program, likely limiting savings opportunities and program reach. The program delivery vendor explained that the COVID-19 pandemic created several challenges to FDDP's implementation, including disruptions to supply chains (with lengthy lead times of up to a year), staff turnover at distributors (and related operational issues), barriers to QA/QC activities, and uncertainty in forecasting program results. All responding distributors reported that their companies experienced delays or shortages in the supply chain and increased measure costs due to COVID-19 challenges. Almost all responding distributors reported decreased sales and revenue due to COVID-19 challenges.

- **Recommendation 2.** If reintroducing the program, perform a market characterization to ensure existing market conditions are well understood, including issues that may remain regarding supply chain delays, equipment shortages, or increased measure costs.

Finding 3. Additional program promotion opportunities exist. Most distributors (seven of nine) marketed the program through in-store flyers, banners, and/or displays. Less commonly, distributors advertised the program through a store website, e-mail, or social media, and one distributor did not market the program at all. Most distributors (eight of nine) informed their customers of FDDP with some regularity (sometimes, frequently, or always), but one distributor rarely informed customers of the program. One distributor recommended providing brochures to distributors, identifying all products with related incentive amounts. The program delivery vendor reported supplying distributors with a program manual, training, and marketing materials designed to make it easier for them to

support the program and to encourage contractors and end-use customers to purchase equipment offered through the program.

- **Recommendation 3a.** Consider promoting any future iterations of the program at multiple points along the supply chain, such as continued in-store promotions at participating distributors, direct promotions to end-use customers at foodservice facilities, or promotions at industry association events and trade shows.
- **Recommendation 3b.** Diversify the overall marketing approach, ensuring a balanced mix of in-person, print, and digital marketing, to boost overall program awareness in any future iterations of the program. In addition to in-person activities noted in **Recommendation 3a**, further building out digital marketing activities (e.g., banner ads, video testimonials, newsletters) and developing additional print pieces (e.g., brochures) is recommended.

Finding 4. Most distributors passed through little if any of the incentive to contractors, but many passed through part of the incentive to end users. Four out of nine responding distributors estimated they passed through 0% of incentives to contractors. Two distributors reported passing through 30% to 50% of the incentive to contractors, with an average incentive passthrough of 13%. Seven distributors passed through 5% to 100% of the incentive to end users, with an average incentive passthrough of 46%. Of seven distributors who reported passing through at least some percentage of their incentives to contractors and/or end users, two thought the passthrough increased their sales, and two thought it did not affect their sales. Five of these seven distributors said they would pass along the same portion of incentives in the future.

- **Recommendation 4.** Future program iterations are encouraged to reintroduce the requirement that a portion of each incentive should pass through to contractors and/or end users. Doing so may help generate additional interest in and sales of program-incentivized equipment, as this could raise the program's visibility among contractors and end users. Increasing the incentivizes in tandem with this requirement may encourage distributors' additional support of program participation (see **Finding 5** related to incentive increases).

Finding 5. Many distributors doubted that incentives were worth the trouble of participation. The program delivery vendor explained that some distributors expressed reluctance to sign up for the program for two main reasons: a negative prior experience with a different energy-efficiency program; or dissatisfaction with the program requirement that they pass through the incentive to the end user. To address these participation barriers, the program delivery vendor reported explaining the FDDP benefits to distributors and the IESO removing the passthrough requirement. One of the most common participation barriers reported by distributors was that the incentives were not worth the trouble of participating (six out of nine). To address this barrier, distributors recommended expanding the incentives (three distributors).

- **Recommendation 5.** Consider increasing incentive amounts for eligible equipment in future iterations of the program in any future iterations of the program (see **Finding 4** related to incentive increases and passthrough requirements as well).

Finding 6. Opportunities remain to influence distributor stocking and sales practices.

When asked how their company's *stocking practices* changed since program participation, six distributors reported their stocking practices did not change. The remaining three distributors reported that their company began stocking larger volumes of program-eligible equipment, and two of these distributors noted their company began stocking a larger variety of program-eligible equipment. Similarly, distributors asked how their company's *sales practices* changed since program participation, five distributors reported that their company began recommending program-eligible equipment more frequently, and three distributors reporting that their company began promoting and advertising program-eligible equipment. Two distributors reported their sales practices did not change since program participation.

- **Recommendation 6.** Future program iterations should consider additional ways to induce increased stocking and sales practices. This may include offering bonuses at different points in the year (quarterly, yearly) or instituting requirements associated with increased stocking or sales of program-eligible equipment to remain on the participating distributor list.

Finding 7. Though progress occurred in improving program data sharing and data tracking systems, further improvements could simplify the process and better highlight the program's influence.

The program faced some initial data-related challenges. Distributors were tasked with reporting certain sales data to enable the program to track impacts on efficient equipment sales, but program delivery vendors reported that distributor data systems often did not align with the program's reporting needs. For example, ENERGY STAR equipment was not necessarily flagged and searchable, or difficulties arose in differentiating base case and efficient sales. The program delivery vendor worked with distributors to set up and improve the alignment of their tracking systems. Two distributors reported that it could be difficult and time consuming to enter required program information, especially when facing many incentive requests at once. One recommended developing an online form through which to submit the data.

- **Recommendation 7a.** Future program iterations are encouraged to consult with distributors as early in the process as possible, clearly defining certain data sharing requirements and mitigating any challenges associated with data sharing as early as possible.
- **Recommendation 7b.** Where possible, consider ways to simplify the data entry requirements for future iterations of the program (e.g., developing an online form to submit data rather than Excel-based systems, allowing for bulk entries of multiple incentives of the same equipment type).

- **Recommendation 7c.** Future iterations of the program are encouraged to revisit the possibility of requiring more detailed stocking and sales data of distributors. These more detailed data (e.g., stocking and sales trends over time for individual equipment types and/or models with differing efficiency levels) could better help the program understand the overall state of the market and better demonstrate the program's influence on the stocking and sales of program-eligible equipment.

Finding 8. Providing contractor and end user contact information would benefit future evaluations. While the program evaluators could access participating distributor contact information, they could not access related contractor and/or end user contact information. The evaluation team understands that the program was not required to share contact information for contractors and/or end users who purchased program-eligible equipment from distributors. It would, however, benefit future evaluations if contractor and/or end user contact information was provided, as surveying or interviewing these contacts would provide a clearer picture of supply chain dynamics and energy-efficient equipment purchasing decisions.

- **Recommendation 8.** Future program iterations are encouraged to require providing contractor and end user contact information in addition to participating distributor contact information.

Finding 9. Opportunities exist to expand the program to include additional equipment types and models. Program delivery vendors and participating distributors commonly recommended offering additional equipment through the program. Program delivery vendors recommended expanding the program's equipment offerings to include dishwashers, electric versions of some existing natural gas products offered through the Enbridge program, and offering combined gas and electric incentives for certain measures (e.g., combination ovens). Only four of nine responding distributors reported they were somewhat satisfied with equipment incentivized through the program, with none mentioning that they were completely satisfied. One responding distributor recommended including more eligible models for all program-eligible equipment types.

- **Recommendation 9a.** Where it proves cost-effective, consider expanding program-eligible equipment types (e.g., dishwashers, electric versions of gas equipment already incentivized through Enbridge's existing program, and combined incentives for equipment such as combination ovens that run on both electric and gas).
- **Recommendation 9b.** Ensure that a large enough number of eligible models of each type of program-eligible equipment are available for distributors and others in the supply chain if the program is re-introduced in the future.

Finding 10. Distributors reported high satisfaction levels with vendor-led program delivery trainings. The program delivery vendor reported that trainings provided to FDDP participating distributors were leveraged from existing trainings developed for the similar

Enbridge Gas foodservice program. Over one-half of responding distributors (five out of nine) stated that they attended trainings led by the program delivery vendor. Three distributors reported not attending trainings, and one did not know whether they attended trainings. Of the five distributors who stated they had attended delivery vendor-led trainings, all were completely satisfied with the instructor, and either somewhat satisfied (two respondents) or completely satisfied (three respondents) with the material covered and the training overall. When asked for feedback on elements they thought should have been included in the trainings, one respondent suggested offering more hands-on training.

- **Recommendation 10a.** If offering the program in the future, consider building off existing training resources and processes as these were well-received by participating distributors.
- **Recommendation 10b.** Consider requiring all participating distributors attend program trainings if offering the program in the future to ensure all distributors know of program rules, requirements, and their related responsibilities.

Finding 11. Opportunities exist to improve program documentation and design. The evaluation team found that inconsistent and undocumented sources were used to determine reported energy and demand savings for FDDP measures. For the reported energy savings, about half of the measure's savings values matched the August 2020 ENERGY STAR's most-efficient list, but different values from the 2019 and 2020 MAL were instead used for other FDDP measures. The reported demand savings follow a similar pattern, however there are some measures where the evaluation team was unable to determine the source of the reported energy and/or demand savings values.

- **Recommendation 11.** When developing new program offerings, ensure consistent sources and savings calculation methodologies are used across the program offerings. Consider whether the source or calculation methodologies for savings values of already existing measures are still the most appropriate source for new measures. If using a new source or calculation methodology for new measures, consider updating existing measures in the portfolio at the same time as appropriate. Ensure that the sources and savings calculation methodologies are well documented and supported.

Appendix A: Detailed Impact Evaluation Methodology

A.1 Impact Sampling

For the FDDP, projects fell into one of three possible tracks: refrigerators, freezers, or ice makers. Each measure's savings were assessed using the applicable MAL and ENERGY STAR specifications to ensure eligibility and proper savings allocation. The evaluation team assessed the census; therefore, no sampling was necessary. Within the three measure tracks, eight different measures were offered.

A.2 Project Counts

Table 15 shows the number of participating measures from the evaluation period, broken into measure tracks.

Table 15: PY2022 2021-2024 CDM Framework FDDP Participation by Measure Track

Project Track	Participation
Refrigerators	1,308
Freezers	644
Ice Makers	146
Total	2,098

Table 16 shows a more granular breakdown of measure counts for each available measure category.

Table 16: PY2022 2021-2024 CDM Framework FDDP Participation for by Measure

Measure	Count
ENERGY STAR Commercial Freezer—Glass Door 15 - 50 cf	103
ENERGY STAR Commercial Freezer—Solid Door 15 - 50 cf	534
ENERGY STAR Commercial Freezer—Solid Door 50 cf	7
ENERGY STAR Commercial Ice Machine	146
ENERGY STAR Commercial Refrigerator—Glass Door 15 - 50 cf	371
ENERGY STAR Commercial Refrigerator—Glass Door 50 cf	11

Measure	Count
ENERGY STAR Commercial Refrigerator - Solid Door 15 - 50 cf	861
ENERGY STAR Commercial Refrigerator - Solid Door 50 cf	65
Total	2,098

A.3 Reported Savings

Gross reported savings for energy and summer peak demand savings were obtained from program data. These data reflected equipment purchased through the midstream program. This data were provided to the evaluation team, which performed data validation and analysis on the program dataset. Table 17 shows verified per-unit savings for energy and summer peak demand.

Table 17: Reported Per Unit Savings by Measure

Measure	Energy (kWh)	Demand (kW)
ENERGY STAR Commercial Freezer - Glass Door 15 - 50 cf	876	0.104
ENERGY STAR Commercial Freezer - Solid Door 15 - 50 cf	436	0.052
ENERGY STAR Commercial Freezer - Solid Door 50 cf	4402	0.522
ENERGY STAR Commercial Ice Machine	501	0.061
ENERGY STAR Commercial Refrigerator - Glass Door 15 - 50 cf	425	0.050
ENERGY STAR Commercial Refrigerator - Glass Door 50 cf	1876	0.223
ENERGY STAR Commercial Refrigerator - Solid Door 15 - 50 cf	256	0.030
ENERGY STAR Commercial Refrigerator - Solid Door 50 cf	1876	0.223

A.4 Verified Savings

The evaluation team calculated verified energy and demand savings for the entire program population. Evaluated per-unit savings were established from ENERGY STAR’s May 2019 and August 2020 most-efficient list. To calculate verified summer peak demand savings, the IESO End Use Load Profile of PSP-Business-Commercial-Refrigeration was used to calculate summer peak demand savings based on measure verified energy savings. This approach was determined more accurate than using ENERGY STAR per-unit demand savings as calculated demands savings based on the IESO load profile accounts for the IESO definitions of the peak demand period.

Table 18: Verified Per Unit Savings by Measure

Measure	Energy (kWh)	Demand (kW)
ENERGY STAR Commercial Freezer - Glass Door 15 - 50 cf	876	0.104
ENERGY STAR Commercial Freezer - Solid Door 15 - 50 cf	436	0.052
ENERGY STAR Commercial Freezer - Solid Door 50 cf	739	0.088
ENERGY STAR Commercial Ice Machine	501	0.059
ENERGY STAR Commercial Refrigerator - Glass Door 15 - 50 cf	425	0.050
ENERGY STAR Commercial Refrigerator - Glass Door 50 cf	597	0.071
ENERGY STAR Commercial Refrigerator - Solid Door 15 - 50 cf	256	0.030
ENERGY STAR Commercial Refrigerator - Solid Door 50 cf	442	0.052

A.5 Lifetime Savings

In addition to calculating FDDP first-year energy and demand savings, the evaluation team considered lifetime savings due to the benefits accruing over the EUL. Equation 3 shows the method for calculating lifetime energy savings.

Equation 3 : Lifetime Energy Savings

$$\text{Lifetime Energy Savings} = \text{EUL} \times \text{Annual Energy Savings}$$

The evaluators determined the EUL for freezers and refrigerators as 12 years and the EUL for ice machines as 10 years.

Appendix B: Detailed Process Evaluation Methodology

This appendix provides additional detail about the process evaluation methodology. Section 7 summarizes the methodology.

A.1 Research Question Development

Table 19 lists key research questions and the data sources used to investigate these. The research questions were developed at the beginning of the PY2022 evaluation period, in January and February 2023, and they were written in consultation with IESO program staff and EM&V staff. They were finalized after reviewing the timing of related survey instruments to ensure minimal respondent fatigue. After finalizing the research questions, the evaluation team adapted them for inclusion in the interview guides and survey instruments which were, in turn, reviewed and approved by IESO EM&V and program staff (refer to [Appendix B.2](#) for more information on the interview and survey methodology).

Table 19: FDDP Process Evaluation Research Questions and Data Sources

Research Questions	Program Delivery Vendor Staff Interviews	Distributor Survey
What if any promotional and marketing activities were undertaken by the distributor? By the program delivery vendor?	✓	✓
What percentage of the incentives were passed through to contractors? To end users?	✓	✓
Was the incentive passthrough amount appropriate/ effective at influencing sales?	✓	✓
Were there participation barriers for distributors? How could these be mitigated?	✓	✓
How satisfied were distributors with trainings provided by the program delivery vendor?		✓
Have stocking and/or sales practices changed for distributors as a result of participating in the FDDP?		✓
How has COVID 19 affected distributor operations?		✓

A.2 In-Depth Interview and Survey Methodology

The process evaluation collected primary data from key program actors, including program delivery vendor staff and participating distributors, as shown in [Table 20](#). Data were collected using different methods, including web surveys, telephone surveys, or telephone-based IDIs, depending on the most

suitable method 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, who also developed all survey instruments, interview guides, and sample files for interviews and surveys. 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 IESO EM&V staff or the program delivery vendor.

Table 20: Process Evaluation Primary Data Sources

Respondent Type	Methodology	Population	Completes	Response Rate	90% CI Error Margin
Program Delivery Vendor Staff	Phone IDIs	1	1	100%	0%
Participating Distributors	Web & Phone Survey	56*	9	16%	N/A**

*The total population of unique participating companies equals 56. However, for purposes of the distributor survey, the survey team reached out to multiple contacts associated with a unique participating company if the primary contact proved nonresponsive to initial survey outreach attempts and if additional contact information was available.

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

Program Delivery Vendor Staff Interviews

One IDI, completed with a program delivery vendor staff member, as shown in [Table 21](#), sought to better understand the program delivery vendor staff perspectives related to program design and delivery.

The interview topics covered included program roles and responsibilities, program design and delivery, distributor engagement, market impact, program strengths and weaknesses, and suggestions for improvements.

Appropriate staff for interviews were identified in consultation with IESO EM&V staff. Telephone IDIs were conducted with program delivery vendor staff using in-house staff (rather than a survey lab). The interview was completed on February 24, 2023, and took approximately one hour to complete.

Table 21: Program Delivery Vendor Staff IDI Disposition

Disposition Report	Total
Completes	1
No Response	0

Disposition Report	Total
Unsubscribed	0
Partial Complete	0
Bad Contact Info (No Replacement Found)	0
Total Invited to Participate	1

Participating Distributor Survey

The participating distributor survey sought to better understand the participating distributors’ perspectives related to program experience. Thirteen distributors completed the survey from a sample of 167 unique contacts, as shown in [Table 22](#).

The survey topics included FR and SO, customer awareness and promotion, incentive passthroughs, barriers to distributor participation, barriers to customer purchases, training and education, satisfaction, program improvement recommendations, stocking and sales, firmographics, and impacts of the COVID-19 pandemic.

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

The survey was delivered over the phone and web, in partnership with the Resource Innovations survey lab and using Qualtrics survey software. NMR staff worked closely with the survey lab to test survey programming and perform quality checks on data collected.

The survey was implemented twice, between April 4 and May 8, 2023, as well as during the previous year between April 4 and May 5, 2022. It took an average of 10 minutes to complete after removing outliers.³ Weekly email reminders were sent to nonresponsive contacts throughout fielding the web survey.

³ The survey was designed to allow respondents to return to complete it at a later time, if they preferred. The average survey time was calculated with this in mind, and it assumed that 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 22: Participating Distributor Survey Disposition

Disposition Report	Web	Phone
Completes	5	4
Emails bounced	5	-
Partial Complete	15	-
Busy	-	2
Callback	-	1
Soft Refusal	-	1
No Eligible Respondent	-	3
Voicemail	-	15
Agreed to Complete Online	-	1
Wrong Number	-	3
No Response	31	2
Total Invited to Participate	56	32

Appendix C: Additional Process Evaluation Results

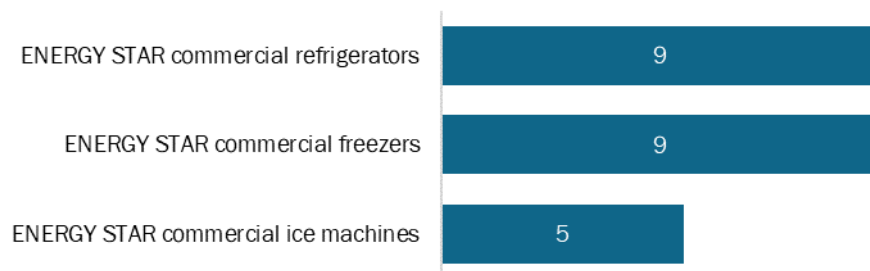
This appendix provides additional detail regarding the process evaluation results collected as part of the participating distributor survey. [Section 7.2](#) provides further information.

A.1 Participating Distributor Profile

As shown in [Figure 15](#), when asked to identify energy-efficient kitchen equipment types for which their company received incentives through FDDP, all nine respondents reported incentives for refrigerators and freezers. Five of nine respondents installed ice machines.

Figure 15: Equipment Receiving FDDP Incentives

(Open-ended and multiple responses allowed; n=9)*

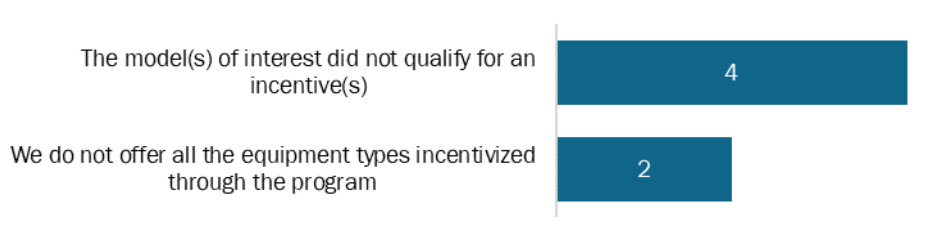


* Responses shown as counts due to small sample size and do not sum to 9 due to multiple responses.

The four respondents who did not install all three types of equipment offered through FDDP were asked to state their reasons for not receiving incentives for all equipment types. As shown in [Figure 16](#), all four respondents stated that equipment models of interest to them did not qualify for incentives. Additionally, two respondents explained that they did not offer all equipment types incentivized through the program.

Figure 16: Reasons for Not Receiving All Available Incentives

(Open-ended and multiple responses allowed; n=4)*



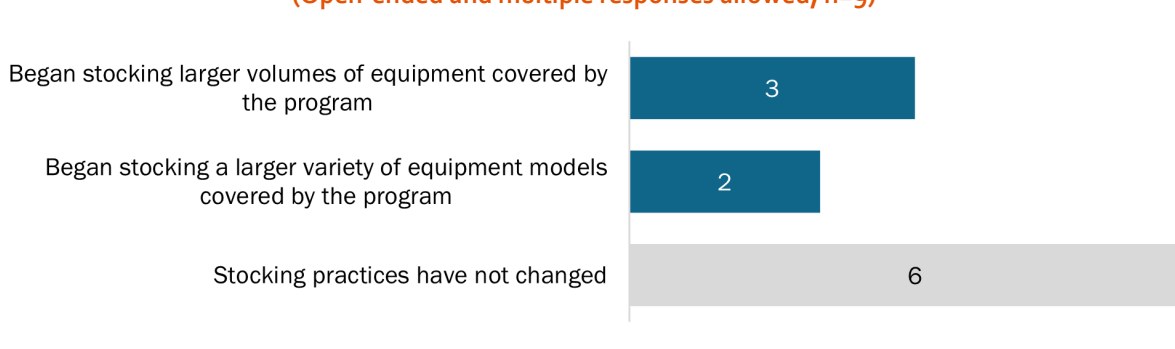
* Responses shown as counts due to small sample size. Does not sum to 4 due to multiple responses.

A.2 Stocking Practices

When asked how stocking practices changed for their company since program participation, as shown in [Figure 17](#), six respondents reported that their stocking practices did not change. The remaining three respondents reported that their company began stocking larger volumes of program-eligible, energy-efficient foodservice equipment, and two of these same respondents noted that their company began stocking a larger variety of program-eligible energy-efficient foodservice equipment models.

Figure 17: Respondent's Change in Stocking Practices Since Program Participation

(Open-ended and multiple responses allowed; n=9)*



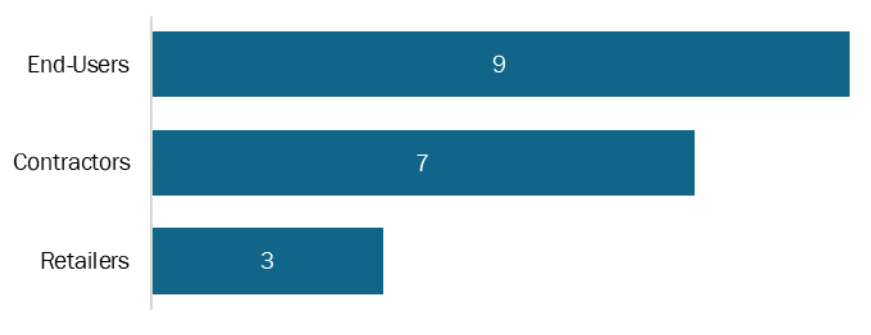
* Responses shown as counts due to small sample size. Does not sum to 9 due to multiple responses.

A.3 Sales Practices

As shown in [Figure 18](#), all responding distributors sold to end users (nine respondents), most sold to contractors (seven respondents), and a few sold to retailers (three respondents).

Figure 18: Customers that Distributors Sell Equipment to

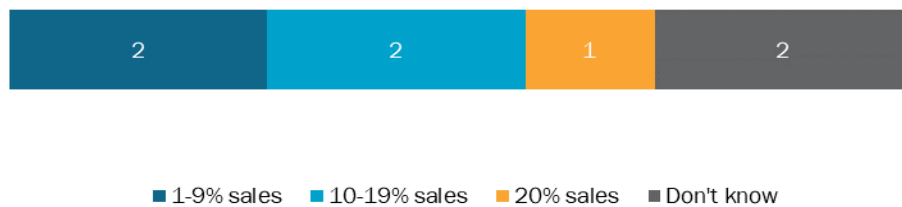
(Open-ended and multiple responses allowed; n=9)*



* Responses shown as counts due to small sample size. Does not sum to 9 due to multiple responses.

The seven respondents indicating that their company sold to contractors were asked to identify the percentage of company sales to contractors. As shown in [Figure 19](#), all estimates fell between 2% and 20%, other than two respondents, who said they did not know. The average percentage of contractors' sales was 10.4%.

Figure 19: Percent of Sales to Contractors (n=7)

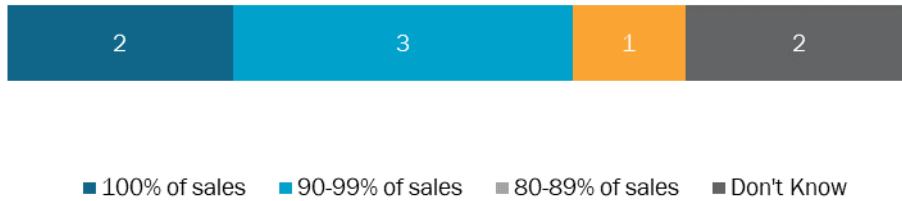


* Responses shown as counts due to small sample size.

The three respondents indicating that their company sold to retailers were asked to identify the percentage of these sales. Only two respondents provided estimates, with one reporting 2% of sales to retailers and the other reporting 5% of sales to retailers.

Similarly, the nine respondents indicating that their company sold to end users were asked what percentage of their sales were directly to end users, shown in [Figure 20](#). Estimates fell between 80% and 100%. The average percentage of sales to end users was 91.4%.

Figure 20: Reported Percent of Sales Attributed to End-Users (n=9)

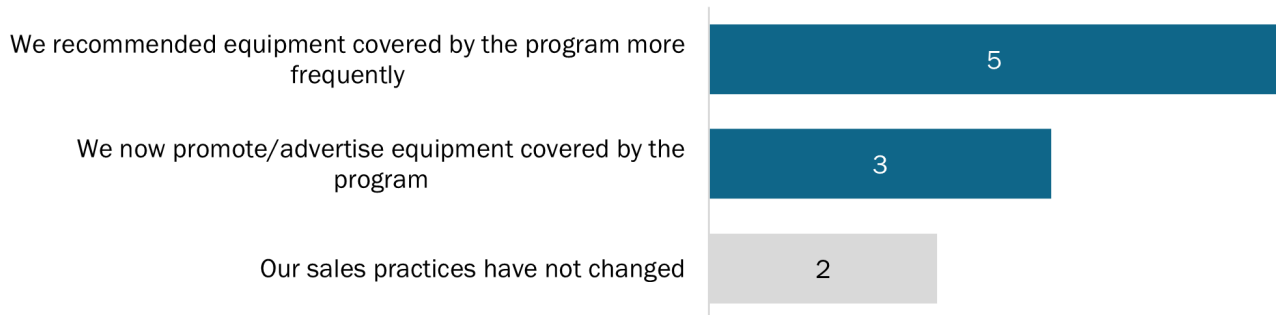


* Responses shown as counts due to small sample size.

Respondents were asked how their company's sales practices changed since participating in the program, as shown in [Figure 21](#). Five respondents reported that their company now recommends program-eligible equipment more frequently, and three respondents reported that their company has started promoting and advertising program-eligible equipment. Two respondents reported their sales practices did not change since participating in the program.

Figure 21: Post Program Participation Change in Sales Practices

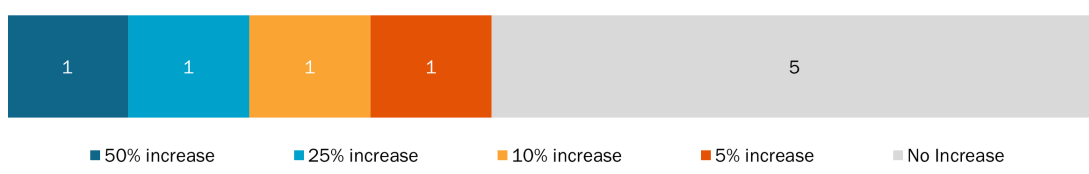
(Open-ended and multiple responses allowed; n=9)*



*Responses shown as counts due to small sample size. Does not sum to 9 due to multiple responses.

Respondents who reported that their company received incentives for ENERGY STAR commercial refrigerators were asked if sales volumes increased for that equipment following participation in the program, as shown in [Figure 22](#). Over one-half (five respondents) reported that their company observed no increase in sales volume for ENERGY STAR commercial refrigerators. Four respondents reported varying levels of increased sales for this equipment, with answers ranging between 0% and 50%, with an average rating of 10%.

Figure 22: Increases to ENERGY STAR Commercial Refrigerator Sales (n=9)*



* Responses shown as counts due to small sample size.

Respondents reporting that their company received incentives for ENERGY STAR commercial freezers were asked if sales volumes increased for that equipment following their program participation, as shown in [Figure 23](#). Over three-fifths (six respondents) reported their company observed no increase in sales volumes for ENERGY STAR commercial freezers. Three respondents reported varying levels of increased sales volumes for this equipment, with answers ranging between 0% and 50%, with an average rating of 7.2%.

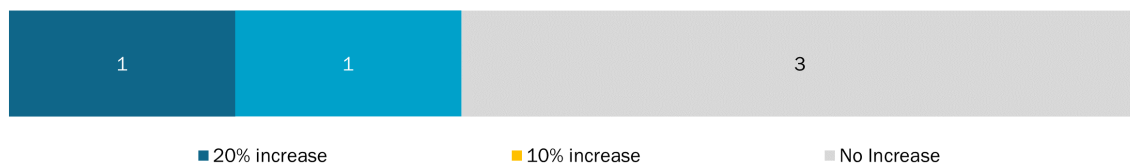
Figure 23: Increases to ENERGY STAR Commercial Freezers Sales (n=9)*



* Responses shown as counts due to small sample size.

Respondents reporting that their company received incentives for ENERGY STAR commercial ice machines were asked if sales volumes increased for that equipment following their program participation, as shown in [Figure 24](#). Over three-fifths (three respondents) reported their company observed no increase in sales volume for ENERGY STAR commercial ice machines. Two respondents reported varying levels of increased sales volumes for this equipment, with answers ranging between 0% and 20%, with an average rating of 6%.

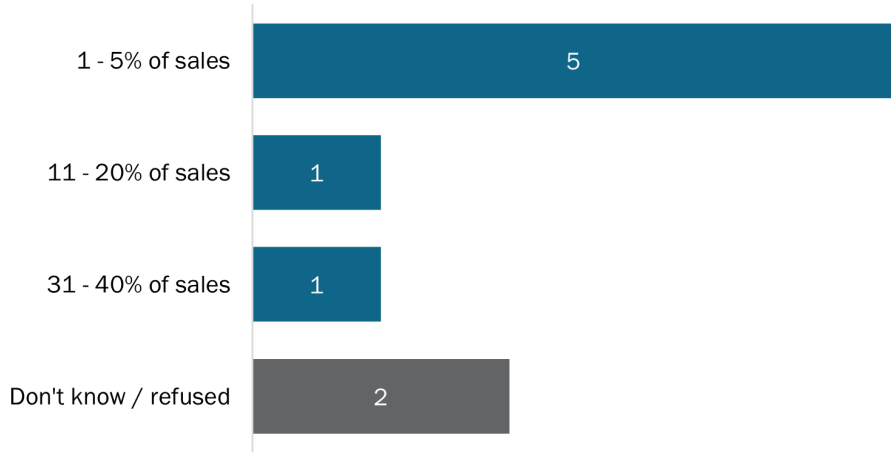
Figure 24: Increases to ENERGY STAR Commercial Ice Machines Sales (n=5)*



* Responses shown as counts due to small sample size.

All nine respondents were asked to estimate the percentage of their company's total sales as represented by equipment that received incentives through the program, as shown in [Figure 25](#). Responses ranged between 2% and 40% of total sales, with an average rating of 11.4%.

Figure 25: 2021 Total Sales Attributed to FDDP Incentivized Equipment (n=9)*



* Responses shown as counts due to small sample size.

Respondents were asked to estimate the percentage of their company's total sales that were accounted for by each type of program-incentivized equipment that they sold, regardless of whether the equipment received program incentives. Only one respondent answered this question, estimating 30% of their company's total sales were represented by ENERGY STAR commercial refrigerators, 30% by ENERGY STAR commercial freezers, and 40% by other equipment. This respondent noted that though 30% of ENERGY STAR commercial refrigerators and the 30% of ENERGY STAR commercial freezers represented a portion of their company's total sales, only 10% of each equipment type received program incentives.