



Business Incentive Program Process Evaluation

Submitted to Efficiency Maine Trust

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1 Executive Summary

Efficiency Maine Trust (Efficiency Maine) retained Nexant to evaluate the commercial, demand-side management (DSM) programs available through its FY 2014 and FY 2015 Business Incentive Programs (BIP) umbrella. This report summarizes the process evaluation findings of the FY 2014 and FY 2015 program cycle activities (July 1, 2013 – June 30, 2015). For this evaluation, Nexant combined thirteen evaluated program categories into four discrete strata (Table 1-1), grouped by similar program characteristics and end-uses when possible. Process evaluation results are presented throughout this report for each discrete stratum.

Table 1-1: Included BIP Strata Assignment within 2014-2015 Evaluation

Nexant Stratum	Business Incentive Program
Custom	Custom compressed air Custom heating, ventilation, and air conditioning (HVAC) Custom lighting Custom miscellaneous
Ductless heat pumps	Prescriptive ductless heat pump (DHP)
Prescriptive lighting	Prescriptive lighting new construction Prescriptive lighting Retrofit
Prescriptive non-lighting	Prescriptive agriculture Prescriptive compressed air Prescriptive HVAC Prescriptive refrigeration Prescriptive VFD

Nexant is conducting an impact evaluation for BIP and results will be finalized in 2017.

Beginning in FY 2017, the Business Incentive Program will be known as the Commercial and Industrial Prescriptive program.

1.1 The Business Incentive Program

Efficiency Maine’s BIP provides education, technical assistance, quality control, and financial incentives to encourage a wide range of energy-efficiency projects in commercial and industrial buildings throughout Maine. Projects that qualify for more than \$10,000 of incentives require pre-approval. The program offers both prescriptive incentives and custom incentives.

Prescriptive incentives are available for projects that save electricity through lighting, HVAC, VFDs, refrigeration, compressed air, and agricultural equipment upgrades. Incentives are also

available for DHP's, based on the building's heating system (electric, natural gas, oil, or propane). Approximately 95% of program-sponsored projects are prescriptive measures with the remaining projects being custom projects.

Custom incentives are available for projects that are expected to result in cost effective energy savings, but are not eligible for prescriptive incentives. Costs and savings associated with custom projects vary and the project must result in annual energy savings of 35,000 kWh or more. Custom incentives for retrofit projects are capped at 50% of the total cost of the efficiency project, including labor, and capped at \$0.28 per first year of kWh saved.

A network of Qualified Partner (QP) trade allies supports the program, identifying and installing eligible measures and supporting participating customers. Efficiency Maine has focused on expanding and improving the QP network by providing easier access to information and program tools through a dedicated website and through outreach efforts conducted largely through the program's implementation contractor, GDS Associates (GDS). The program provides periodic training for the QP network to increase their understanding of the benefits of energy efficiency, how to use and maintain emerging high-efficiency technology, best practices in energy efficient design, and resources available from Efficiency Maine. GDS supports the QP network by providing program support, managing the application and incentive payment process, and ensuring that QPs have the tools they need to successfully promote the program.

1.2 Evaluation Goals and Activities

The primary goals and objectives of the process evaluation and impact evaluation of BIP for FY 2014 and FY 2015 included:

- Verify and adjust the gross electric energy and demand (summer peak and winter peak) savings of the projects.
- Compare the adjusted gross savings with the claimed savings.
- Identify opportunities to improve the effectiveness and efficiency of the current program operations.
- Analyze the cost-effectiveness of the program and measures based on the Total Resource Cost Test (TRC) and the Program Administrator Cost Test (PAC).

To achieve these goals, Nexant completed a process evaluation and is working on an impact evaluation. The evaluation team performed a process evaluation of each stratum of programs, focusing on program design, implementation, delivery, and market feedback. The programs were evaluated through interviews with pertinent program delivery staff and participants.

The process evaluation tells the customers' experience with the program and its energy savings benefits. These outcomes can inform program planning, existing program implementation, or efforts to redesign a program. Process evaluation activities also inform the calculation of Net-to-Gross (NTG) ratios. For the process evaluation activities, Nexant interviewed participants and qualified partners (QP's) of BIP. We also interviewed program staff internal to Efficiency Maine.

Nexant conducted surveys with 115 total program participants (75 via telephone and 40 during the on-site inspections conducted as part of the impact evaluation activities). In addition, we interviewed key program staff internal to the Business Incentive Program at Efficiency Maine.

1.3 Process Evaluation Results

The FY 2014 and FY 2015 program offer was relatively straightforward and it was simple for end-use customers to participate. As the program has matured, increasing numbers of QPs are participating, with a corresponding increase in both numbers of projects and associated energy savings.

As part of the FY 2014 and FY 2015 program, Efficiency Maine connected QPs to opportunities to promote energy efficiency to their customers, empowering them to identify those opportunities, but still allowing customers to work with contractors they were comfortable with. Efficiency Maine provided accountability through basic program training, licensing reviews, and quality assurance through project inspections.

The measures supported by the program were expected to be cost-effective and tailored to the needs of Maine businesses. The program had an extensive list of mature measures that provided substantial opportunities for customer engagement.

Participants were generally very satisfied with the program components with the highest satisfaction regarding equipment performance and contractor expertise. The amount of time to receive the incentive received the lowest satisfaction ratings, although 73% of respondents were still highly satisfied with this component.

When asked about ways to improve the program, improved communication, reinstating incentives, and increased incentives received the most mentions. Primary motivations for participation centered on reducing energy usage, energy costs, and maintenance costs.

Primary motivations for being a QP in the program included access to incentives and growing business opportunities, followed by meeting the demands of customers and being directed to enroll. Overall, QP satisfaction with the program was also high, with the majority of QP respondents (76%) expressing appreciation for the program and noted that their expectations were met. When asked about suggestions for improvement for the program, the most common suggestions included comments about streamlining program applications, uploads, and paperwork, as well as reinstating the program or establishing mechanisms to avoid future program shut-downs. Twenty-one respondents did mention the program measure suspension and limited incentive dollars as cause for concern with the program.

A major development in BIP in 2015 involved the oversubscription of electric incentives driven by tremendous demand for LED equipment. The measure suspension that resulted from this oversubscription emerged as the primary lesson learned for all involved in BIP. Program staff is encouraged by the level of interest in the market but disappointed that the funds for most electric-efficiency measures remained suspended even as programs for FY 2016 launched in

July 2015. Program staff saw opportunity to improve tracking and visibility and ultimately allow the program to be more effective and nimble in response to changes in market conditions.

Lastly, program staff is concerned about the level of engagement they will see from QPs and customers, once incentives are available again: they are hoping that QPs will stay engaged and customers will have confidence that project incentives will be available.

1.4 Findings and Recommendations

The findings from the process evaluation activities provide Efficiency Maine feedback from participants regarding their experience with the program and its energy savings benefits. Process evaluation activities also inform the calculation of Net-to-Gross (NTG) ratios. The NTG ratio adjusts the gross savings to reflect the energy efficiency savings that are attributed to, and are the direct result, the energy efficiency program and actions. Nexant calculated NTG ratios for each measure stratum through the use of self-report survey responses of free-ridership (what action the customer would have done in absence of the program) and spillover (participant's energy efficiency actions that occurred outside of the program). Table 1-2 outlines the NTG values for each measure stratum and BIP.

Table 1-2: BIP Net-to-Gross Estimates

Measure Stratum	Number of Respondents	Estimated Freeridership	Estimated Participant Spillover	NTG Ratio
Custom	19	0.25	0.02	0.77
Ductless heat pumps	29	0.33	0.02	0.69
Prescriptive lighting	46	0.26	0.02	0.76
Prescriptive non-lighting	21	0.52	0.02	0.49
BIP Program				0.72

The process evaluation activities found that program participants and QPs are generally very satisfied with the program components and processes, with the suspension of measure incentives as the main area of concern. A few recommendations based on the findings from process evaluation include:

- Based on our review of the accessibility and transparency of information available in effRT, Nexant recommends updating the tracking process in effRT to improve the audit trail for enrollments where the QP is a distributor. In addition, Nexant recommends reviewing the application process to ensure concise alignment between the application process, the party completing the application, and the measure being implemented. Consistent business rules around the use of these fields in effRT would allow easier visibility into which installation contractors are performing rebated projects and would increase the transparency and evaluability of the projects.

- Also during our review of the application processes, it was noted that contractors are able to work with a distributor QP and leverage program discounts without the enrollment processing responsibilities in effRT that come with being a QP. This process could result in data gaps and it is recommended that Efficiency Maine consider requiring that all installation contractors are registered QP's.
- Based on feedback from the key users of effRT, Nexant recommends adding features that would make effRT easier to use and provide more timely information. As an example, it was noted that there are ongoing issues with inaccuracies in submitted name and address fields entered by the QP's and that there currently is no way to verify that these fields are accurate. These inaccuracies can result in customers not receiving their incentive check. The addition of a verification step for customer name and mailing address could help reduce some of these errors.

In addition, Nexant suggests that a research question be explored in future studies regarding the measure suspension that occurred in FY 2015. More specifically, follow-up on the projects that were submitted but declined due to the suspension to see if customers did eventually move forward with the projects.

Nexant also observed that the assumed costs for lighting measures (Appendix E of the TRM) varied in accuracy. A comparison of the deemed costs with the invoiced costs for all lighting measures resulted in realization rates as low as 57% and as high as 1,003%. When Nexant analyzed the realization rates across the whole program and weighted them by incentive dollars contributed to the program, the overestimations and the underestimations averaged out to a realization rate of 113%. This rate meant that, in general, the costs in the TRM are understated, causing slightly overstated TRC ratios. Nexant only completed this analysis for the prescriptive lighting stratum, but recommends that, in future program years, Efficiency Maine more thoroughly research the assumed costs associated with all TRM measures for accuracy of the TRC ratios. Further explanation of Nexant's analysis can be found in Section 3.2.

2 Methodology

Efficiency Maine's Business Incentive Program (BIP) provides education, technical assistance, quality control, and financial incentives to encourage a wide range of energy-efficiency projects in commercial and industrial buildings throughout Maine. The program offers both prescriptive incentives and custom incentives for energy-efficient upgrades to lighting; heating, ventilation, and air conditioning (HVAC); variable frequency drives (VFD); refrigeration; compressed air; and agricultural systems.

Nexant completed a process evaluation and is working on an impact evaluation. The evaluation team performed a process evaluation of each stratum of programs, focusing on program design and theory, implementation and delivery, and market feedback. The programs were evaluated through interviews with pertinent program delivery staff and participants.

For the process evaluation activities, Nexant interviewed participants and qualified partners (QP's) of BIP. We also interviewed program staff internal to Efficiency Maine.

For the impact evaluation, Nexant will evaluate the net and gross energy impacts through a combination of engineering analyses and on-site inspections of completed projects. Because it is not cost-effective to complete analysis and site inspection on a census of the implemented projects, the evaluation team will verify energy savings for a representative sample of projects to draw statistically measurable results.

2.1 Program Participation

Efficiency Maine's BIP provides education, technical assistance, quality control, and financial incentives to encourage a wide range of energy-efficiency projects in commercial and industrial buildings throughout Maine. Projects that qualify for more than \$10,000 of incentives require pre-approval. The program offers both prescriptive incentives and custom incentives.

Prescriptive incentives are available for projects that save electricity through lighting, DHPs, HVAC, VFDs, refrigeration, compressed air, and agricultural equipment upgrades. Approximately 95% of program-sponsored projects are prescriptive.

Custom incentives are available for projects that are expected to result in cost effective energy savings, but that are not eligible for prescriptive incentives. Costs and savings associated with custom projects vary by application and the project must result in annual energy savings of 35,000 kWh or more. Custom incentives for retrofit projects are capped at 50% of the total cost of the efficiency project including labor, and capped at \$0.28 per first year of kWh saved.

Participation in the FY 2014 and FY 2015 BIP totaled 8,004 unique enrollments savings almost 100 GWh. Table 2-1 and Table 2-2 summarize the 2014 and 2015 BIP enrollments by measure and strata. Figure 2-1 presents the reported energy savings shares by strata.

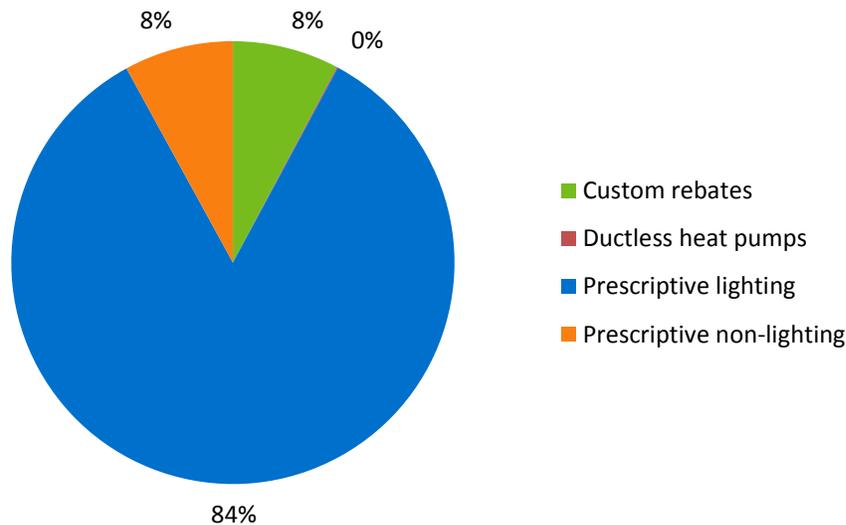
Table 2-1: FY 2014 – FY 2015 BIP Enrollments by Program

Program	Number of Enrollments
Custom Compressed Air	10
Custom HVAC	5
Custom Lighting	29
Custom Misc	15
Custom VFD	3
Prescriptive Agriculture	14
Prescriptive Compressed Air	75
Prescriptive Ductless Heat Pump – Retrofit	486
Prescriptive HVAC	167
Prescriptive Lighting New Construction	649
Prescriptive Lighting Retrofit	6,418
Prescriptive Refrigeration	90
Prescriptive VFD	43

Table 2-2: FY 2014 – FY 2015 BIP Enrollments by Stratum

Stratum	Number of Enrollments
Custom rebates	62
Ductless heat pumps	486
Prescriptive lighting	7,067
Prescriptive non-lighting	389
Total	8,004

Figure 2-1: FY 2014 – FY 2015 BIP Reported Energy Shares by Strata



2.2 Process Evaluation

Process evaluation tells the customers experience with the program and its energy savings benefits. The goal of the process evaluation is to perform a systematic assessment of the BIP by generating feedback that achieves the following outcomes:

- Document program operations
- Assess program awareness and satisfaction
- Recommend improvements to increase the program’s efficiency and effectiveness

These outcomes can inform program planning, existing program implementation, or efforts to modify a program.

The process evaluation component was informed by four data sources: program materials, in-depth interviews, and surveys with participants, and interviews with QPs.

2.2.1 Program Materials Review

The first step of the process evaluation included a detailed review of program documents, including any program guidelines provided to QPs, application materials, program databases, changes in rules or eligibility since 2011, process flow charts, logic models, and any existing summary reports. This review of program documentation began with information reviewed to inform the work plan, and continued as the project progressed to ensure that the evaluation team had a full understanding of how the program operates.

2.2.2 In-Depth Interviews

Nexant conducted in-depth interviews with program and implementation staff, using interview guides that explored key marketing, application processing, inspection, and trade ally support

activities deployed to support the program and that asked questions about recent or proposed changes to the program, the rationale behind those changes and expectations for the future.

Example interview topics included:

- Primary role and responsibility of each contact.
- The marketing and outreach efforts that promote the program.
- The application process for a typical project. How this varies for custom projects.
- After application, any other major steps required for the customer to receive the incentive.
- The primary barriers to participation for customers, and how this might vary by measure type.
- The relationship and interactions between Efficiency Maine and GDS with Qualified Partners and/or other trade allies involved in the program.
- Interactions with participants and why Efficiency Maine and/or GDS are typically pulled in.
- Evidence that incentive levels might be too low or too high. The process for assessing incentive levels.
- Business Incentive program's strengths.
- Future or emerging challenges for the program.
- Any changes under consideration for the program and the expected/desired effect of these changes.

2.2.3 Participant Survey

Nexant conducted a telephone survey of program participants to explore participant experience and satisfaction with program processes, services received from qualified partners, and performance of measures installed; motivations (including corporate policies and energy savings goals); and expectations for future upgrades. The participant survey included separate modules to inform both the process evaluation and net savings analysis.

Example survey questions included:

- How did you hear about the program?
- Who completed the application materials? Did a contractor help you?
- How did you find your contractor?
- Were there any challenges in completing your project? If yes, describe.
- Why did your organization decide to move forward with this project?
- What measures were installed?
- What, if any, projects do you expect might be completed in the next two years?

- Did you interact with program representatives (other than your contractor?) If so, about what?
- How satisfied are you with the measures installed?
- How satisfied are you with your contractor?
- Would you have installed similar efficiency measures absent the program incentives?
- How influential were the various program services in encouraging you to complete your project when you did?
- Do you believe the incentives for participating in the program are appropriate?
- What, if any, changes would you like to see made to the program in the future? What effect would these changes have?
- Firmographics: number of employees, industry type, number of locations in Maine

2.2.4 Qualified Partners Survey

Nexant conducted a survey of active and enrolled QPs, including QP's of different company sizes and from various locations across Efficiency Maine's service territory (see Section 3.5.1 for interviewed QP firm demographics). This survey focused on understanding how QPs promote the program; the benefits to enrolling as a QP; utility of the QP website and project portal; the volume of potential projects that drop out of the process and the reasons for those drop outs; and any suggestions they have to make the program more efficient or effective.

Example interview topics included:

- Motivation for enrolling as a QP and the extent to which expectations have been met.
- Outreach and marketing efforts QPs use to promote the program specifically.
- QP assessment of customer interest in energy efficiency. The extent to which different benefits are key motivators for their customers.
- Best features of the program and opportunities for improvement.
- Typical interactions with Efficiency Maine and GDS, the extent to which questions and issues are resolved quickly.
- Typical qualified project: size, measures, customer type?
- Assessment of incentive levels and measures mix.
- Ideas for promoting projects other than lighting or to expand into emerging/advanced lighting solutions.
- The frequency with which potential participants drop out and their reasons.
- Expectations for the future: their work, the role of energy efficiency, program changes expected or hoped for, looming challenges.

2.2.5 Net-to-Gross Methodology

Net savings are the savings directly attributable to a program and account for the actions that the participant would have taken in absence of the program (freeridership) and the actions taken

by a participant outside of the program incentive (spillover). A program net-to-gross ratio (NTG) equals the net program energy impact divided by the gross program energy impact. Nexant will derive net savings by adjusting the realized gross energy-savings estimates determined during the impact evaluation to account for freeridership and spillover. Nexant utilizes an approach for NTG methodology based on guidance from relevant industry documents:

- EPA’s Energy Efficiency Program Impact Evaluation Guide (the EPA Guide).¹
- The National Renewable Energy Laboratory Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific (the “NREL Guide”). Chapter 23—Estimating Net Savings: Common Practices.²
- Energy Trust of Oregon Free Ridership Methodology, Phil Degens and Sarah Castor, June 4, 2008.

The general principles outlined in these publications have formed the foundation for determining freeridership and spillover for many years and are widely accepted by the evaluation industry.

The preferred definition of the NTG ratio is shown in Equation 1:

Equation 1: Net-to-Gross Calculation

$$NTG = 1 - Freeridership + Spillover$$

Freeridership refers to a participant who, on some level, would have acquired the energy-efficient equipment or taken action to reduce their energy use in the program’s absence. The effect of freeriders reduces the gross savings attributable to the program.

Spillover refers to actions taken outside the program that reduce energy use, which are attributable to program participation. The evaluation team added spillover energy savings attributable to the program in the net savings estimate.

2.2.5.1 Approach to Estimating Participant Freeridership

For the estimation of freeridership, Nexant followed an industry-standard approach where the overall freeridership score was derived from two independently calculated elements, each of which is worth half of the total score: a stated intention score and an influence score. Program participants are surveyed and the responses are rated on a scale of zero to one and result in a participant being considered a full freerider (1), partial freerider (spectrum between 0 and 1), or non-freerider (0). There is an inherent risk of “self-report bias” in the self-report survey approach commonly used for estimating freeridership because the respondents are asked to describe hypothetical actions of what they would have done in the absence of the utility program. To address and mitigate the effects of self-report bias, Nexant uses an industry-standard, two-step survey approach to estimate freeridership levels for each participant surveyed:

¹ http://energy.gov/sites/prod/files/2013/11/f5/emv_ee_program_impact_guide.pdf, Chapter 5.

² <http://www.nrel.gov/docs/fy14osti/62678.pdf>.

1. **Assess intention.** These questions ask respondents about the likelihood of carrying out the energy-efficiency measure without the program’s support; this is also known as counterfactual information (scored between 0 and 0.5).

2. **Assess influence.** These questions gather information regarding the rationale behind taking the energy-efficiency action to determine the program’s direct influence (scored between 0 and 0.5).

Participant-level freeridership is calculated as the sum of the *intention* and *influence* components, resulting in a value between 0 and 1.0:

$$\text{Freeridership} = \text{Intention} + \text{Influence}$$

The influence and intention scores have an equal contribution to the total freeridership score. The participant-level freeridership scores are used to calculate a savings-weighted average freeridership score for each measure stratum. The following subsections describe each component in greater detail, including the scoring algorithm and example survey questions.

Intention

To assess a participant’s attitude or behavior, best-practice surveys ask a series of questions to refine what the participant’s actions would have been in the absence of the program; this forms the basis for the intention score. Nexant carefully designed the survey questions to reduce concerns related to self-report surveys, such as reporting biased answers that are viewed as more socially desirable, or confusion of survey respondents regarding hypothetical alternative situations. The questions thus explore what the participant would have done in the absence of the program, and clarify responses. If the participant states that he or she would have done the project anyway but with a reduced scope, the questions explore how much the scope would have been reduced, and if the participant would have had the funds to implement the project without an incentive.

The following questions were asked of the BIP surveyed participants in order to assess intention (*Note that “FR-Int Q” indicates the freeridership (FR) intention-related (Int) question number*):

FR-Int Q1) If you had never learned that you could get incentives to offset the cost of your project, which of the following best describes what your business would have done? Your business ...

[SINGLE RESPONSE]

- a) Would have put off doing the project/upgrade for at least one year or cancelled it altogether
- b) Would have done the project, but scaled back size or efficiency level
- c) Would have done the exact same upgrade anyway
- d) We would have done something else. If so, what? [OPEN-ENDED RESPONSE]
- e) Don't know

[ASK IF FR-Q29= “DONE THE PROJECT BUT SCALED BACK”]

FR-Int Q1.1) By how much would you have reduced the size, scope or efficiency?
[SINGLE RESPONSE]

- a) A small amount
- b) A moderate amount
- c) A large amount
- d) Don't know

[ASK IF FR-Q1= "DONE THE EXACT SAME UPGRADE ANYWAY"]

FR-Int Q1.2) If your organization had not received the incentive, would it have had the funds (internal or other) to cover the entire cost of the project?

[SINGLE RESPONSE]

- a) Definitely would have
- b) Maybe
- c) Definitely would NOT have
- d) Don't know

Intention scores will range from 0 (not a freerider) to 0.50 (full freerider). If the survey respondent answers "don't know" to a question, they are given a 0.25 score because the likelihood of him or her being a freerider is equivalent to the likelihood of not being a freerider, in the absence of other information. Intention scoring guidelines are summarized in Table 2-3 Table 2-3: Freeridership Intention . As described, the scores of the primary intention responses "b" and "c" are qualified by follow-up questions used to refine true customer intention.

Table 2-3: Freeridership Intention Scoring Guidelines

Response	Intention Component of Freeridership Score
FR-Int Q1 a) Would have put off doing the project/upgrade for at least one year or cancelled it altogether	0
FR-Int Q1 b) Would have done the project, but scaled back size or efficiency level- Q1.1: a) A small amount	0.375
FR-Int Q1 b) Would have done the project, but scaled back size or efficiency level- Q1.1: b) A moderate amount	0.25
FR-Int Q1 b) Would have done the project, but scaled back size or efficiency level- Q1.1:c) A large amount	0.125
FR-Int Q1 b) Would have done the project, but scaled back size or efficiency level- Q1.1: d) Don't know	0.25
FR-Int Q1 c) Would have done the exact same upgrade anyway Q1.2: a) Definitely would have (had funds to cover entire cost)	0.50
FR-Int Q1 c) Would have done the exact same upgrade anyway Q1.2: b) Maybe (had funds to cover entire cost)	0.375
FR-Int Q1 c) Would have done the exact same upgrade anyway Q1.2:c) Definitely would NOT have (had funds to cover entire cost)	0.25
FR-Int Q1 c) Would have done the exact same upgrade anyway Q1.2:d) Don't know (had funds to cover entire cost)	0.375
FR-Int Q1 d) We would have done something else. If so, what?	Based on response
FR-Int Q e) Don't know what would have done in absence of program	0.25

Influence

The influence score summarizes how important a participant views various program aspects in relation to their decision to participate. The survey proposes a variety of program aspects to the participant and asks the participant to score how much that aspect influenced their business's decision to participate. The score for the most important aspect is the influence score.

The following questions were asked of the BIP surveyed participants in order to assess intention (*Note that "FR-Inf Q" indicates the freeridership (FR) influence-related (Inf) question number*):

FR-Inf Q1) I'm going to read a list of services or factors that might have influenced your business to do this project. For each one, please indicate how much of a role it played in the decision to do the project. Please answer with a number from 1 to 5, where 1 means it played no role at all and 5 means it played a great role...

Services	Record Rating: 1-5	98/DK
The incentive your organization received.		
The support you received from your contractor.		
Help you received with the application or program paperwork.		
Knowing that Efficiency Maine was supporting the project.		

Services	Record Rating: 1-5	98/DK
Information provided about the program on the Efficiency Maine website		

Influence scores will range from 0 (not a freerider) to 0.50 (full freerider). If the survey respondent does not answer FR-Inf Q1, he or she will be given a 0.25 score because the likelihood of he or she being a freerider is equivalent to the likelihood of not being a freerider in the absence of other information. Influence scoring guidelines are summarized in Table 2-4.

Table 2-4: Freeridership Influence Scoring Guidelines

Response	Influence Component of Freeridership Score
1 (Not at all important)	0.5
2	0.375
3	0.25
4	0.125
5 (Very important)	0
No response	0.25

As noted above, each element (stated intention and program influence) produces a range of freeridership values from 0 to 0.5 and when added together, produce a total freeridership score ranging from 0 (not a freerider) to 1.00 (full freerider).

2.2.5.2 Approach to Estimating Participant Spillover

Participant spillover questions seek to understand if the customer invested in additional energy-efficiency measures for which they did not receive any Efficiency Maine incentives. The participant survey also asked for additional metrics that would enable Nexant to estimate savings that are attributable to these measures. Participant spillover savings were included based on: 1) survey responses indicating the installation of additional measures, and 2) the ability to quantify those savings.

The steps Nexant took to determine total program spillover were:

- 1) Calculate total spillover savings for each participant as the sum of quantifiable measure savings, multiplied by the number of units, as shown in Equation 2.

Equation 2: Measure Spillover

$$= \text{Quantifiable Measure Savings} \times \text{Number of Units}$$

- 2) Total the savings associated with each program participant to calculate the overall participant spillover savings, as shown in Equation 3.

Equation 3: Participant Spillover

$$= \sum Total Survey Sample Spillover kWh Savings$$

- 3) Multiply the mean participant spillover savings for the sample by the total number of participants to estimate total participant spillover savings for the program, as shown in Equation 4.

Equation 4: Spillover kWh Savings Extrapolated to the Participant Population

$$= \frac{\sum Survey Sample Spillover kWh Savings}{Sample Size (n)} \times Program Participant Population$$

- 4) Divide the total participant spillover savings by the total program savings to yield a participant spillover percentage for inclusion in calculating the NTG ratio, as shown in Equation 5.

Equation 5: Spillover Percentage Estimate

$$= \frac{\sum Spillover kWh savings extrapolated to the participant population}{Evaluated program population kWh Savings}$$

2.2.5.3 Net-to-Gross Error Estimation

An inherent risk, or uncertainty, accompanies sampling: the projects selected in the process evaluation sample may not be representative of the program population as a whole with respect to the parameters of interest. As the proportion of sampled projects increases, the amount of sampling uncertainty in the findings decreases. The amount of variability in the sample also affects the amount of uncertainty introduced by sampling. A small sample drawn from a homogeneous population will provide a more reliable estimate of the true population characteristics than a small sample drawn from a heterogeneous population. Variability is expressed using an error ratio for programs that use ratio estimation.

Equation 6 provides the formula for estimating error ratio.

Equation 6: Error Ratio

$$Error Ratio = \frac{\sum_{i=1}^N \sigma_i}{\sum_{i=1}^N \mu_i}$$

Equation 7 shows the formula used to calculate the required sample size, based on the desired level of confidence and precision. The error ratio term is in the numerator, so the required sample size will increase as the level of variability increases.

Equation 7: Required Sample Size

$$n_0 = \left(\frac{z * Error Ratio}{D} \right)^2$$

Where:

$n_0 =$	The required sample size before adjusting for the size of the population
$Z =$	A constant, based on the desired level of confidence (equal to 1.645 for 90% confidence two-tailed test)
<i>Error Ratio</i>	= Measure of variability (analogous to the coefficient of variation in mean-per-unit estimation)
$D =$	Desired relative precision

The sample size formula shown in Equation 7 assumes that the population of the program is infinite and that the sample being drawn is reasonably large.

Relative precision related to the net-to-gross calculation is calculated as the margin of error over the point estimate mean NTG value of each measure category, as outlined in Equation 8 through Equation 10.

Equation 8: Standard Error of the Mean

$$= \frac{\text{Standard Deviation of the Sample}}{\sqrt{(\text{Sample Size})}}$$

Equation 9: Margin of Error

$$= z - \text{value at 90\% confidence}^3 \times \text{Standard Error of the Mean}$$

Equation 10: Relative Precision

$$= \frac{\text{Margin of Error}}{\text{Sample Mean}}$$

2.3 Sampling

The sample frame for the evaluation included projects completed between July 1, 2013 and June 30, 2015. The evaluation leveraged two separate samples of program participants. The following section outlines the sample approach for the process evaluation activities and discusses the presentation of uncertainty in the findings.

2.3.1 Process Evaluation Sample Approach

Nexant's sample approach for the process evaluation comprised of two main components, the participant sample and the QP sample.

2.3.1.1 Participant Survey

BIP's impact evaluation included on-site visits with a subsample of participants in early summer 2015. While on-site, the evaluation engineer asked participants questions concerning their intentions toward energy efficiency and the influence that various program components had on participation (freeridership) and whether or not participants have implemented any energy

³ $Z=1.645$

efficiency measures, influenced by the program, for which they have not received an incentive (spillover).

In addition, Nexant fielded process evaluation questions through a phone survey of program participants, stratified to obtain completes in each of four primary project types where completes were not reached during the on-site surveys. Table 2-5 outlines the target sample size, the number of the total surveys completed via both telephone survey and while on-site.

Table 2-5: Total Participant Survey Target and Completes

Measure Category	Target Sample Size*	Completed Telephone Surveys	Completed On-Site Visits**	Total Achieved Sample Size
Custom rebates (CR)	15	12	7	19
Prescriptive lighting (PL)	35	28	18	46
Prescriptive non-lighting (PNL)	20	17	4	21
Ductless heat pump (DHP)	20	18	11	29
BIP total	90	75	40	115

*Includes both those participants surveyed via telephone and those interviewed during the on-site evaluation activities

** On-sites only asked about freeridership and spillover.

Telephone calls occurred between September 15, 2015, and September 18, 2015, and lasted approximately 15 minutes. Table 2-6 outlines the disposition of the participant phone surveys, indicating that percent of participants who were called and the number of completes by project type. The survey instrument is included as an appendix.

Table 2-6: Telephone Participant Survey Disposition

Disposition	Phone Count	Phone Percent
Incompletes		
No response	383	32.1%
Refused	24	2.0%
List errors (wrong number)	32	2.7%
Completes		
Custom rebates (CR)	12	1.0%
Prescriptive lighting (PL)	28	2.3%
Prescriptive non-lighting (PNL)	17	1.4%
Ductless heat pump (DHP)	18	1.5%
Total completes	75	6.3%
Total sample frame	1,192	100%

2.3.1.2 Qualified Partners

The sampling approach for the interviews with QPs was developed to provide the evaluation team with responses from QP's with a range of experiences. Using project estimates by QP, Nexant analyzed the distribution of QP projects by type and by volume. To ensure that we

interviewed QPs with sufficient program experience to have meaningful feedback, respondents in the low-participation group were limited. The sampling plan allowed Nexant to interview QPs with a range of experiences, but did not provide enough sample points to test for statistically significant differences among contractors with different volumes of projects. For the FY 2014 and FY 2015 program years, a QP could submit eligible projects on behalf of a smaller contractor or installer that did not have QP credentials. Thus, distributors or other large-scale suppliers may have had more projects assigned to them than their firm actually installed.

The “Estimated Count of QPs” column in Table 2-7 is based on the distinct number of QPs associated with FY 2014 and FY 2015 enrollments in BIP in effRT. To be included in the sample frame, a QP also needed to be listed on the program manager’s master list of QPs or in the “Attended QP Training” report in effRT, and have a contact name and phone number. These filters account for the drop from 483 to 323 shown in Table 2-7.

Table 2-7: QPs: Project Volume and Proposed Sample

2014 and 2015		Estimated Count of QPs	Unique Count in Sample	Sample
Single project	Lighting	108	32	19
	Non-lighting	80	45	16
2–10 projects		203	159	34
11–100 projects		75	71	15
More than 100 projects		17	16	7
Total		483	323	91

Nexant fielded the QP survey in January and February 2016. Phone calls lasted approximately 15 minutes and included a mix of open- and closed-ended questions designed to understand QP’s experience with the program, including how QPs promote the program, the benefits to being a QP, the utility of the QP website, the volume of projects that drop out and reasons for drop-out, and suggestions to improve the program. QPs were expected to express opinions about the 2015 measure suspension; several questions were included to enable feedback and focused responses. Table 2-8 shows the disposition of the sample frame across completed and incomplete surveys. QPs were generally responsive and all quotas were filled in total. The survey instrument is included as an appendix.

Table 2-8: Survey Disposition

Disposition	Count	Percent
Incompletes		
Left message	117	36.2%
Not attempted	47	14.6%
Knowledgeable person unavailable; call back if needed	44	13.6%
Refused	9	2.8%
Bad contact information	7	2.2%
No answer	7	2.2%
Out of business	1	0.3%
Total incompletes	232	71.8%
Completes		
Single project		
Lighting	19	5.9%
Non-lighting	16	5.0%
2–10 projects	34	10.5%
11–100 projects	15	4.6%
More than 100 projects	7	2.2%
Total completes	91	28.2 %
Total sample frame	323	100%

3 Process Evaluation Findings

Process evaluation tells the customers experience with the program and its energy savings benefits. The goal the process evaluation is to perform a systematic assessment of BIP by generating feedback that achieves the following outcomes:

- Document program operations
- Assess program awareness and satisfaction
- Recommend improvements to increase the program’s efficiency and effectiveness

These outcomes can inform program planning, existing program implementation, or efforts to modify a program.

As part of the process evaluation for BIP, Nexant interviewed participating customers, QP’s and program staff. The findings from these surveys and interviews are discussed in the following sections. The survey instruments are included as appendices.

3.1 Net Savings Estimates

Questions asked during the phone surveys and onsite visits were used to determine the basis of customer decisions to participate, and to collect data needed to determine net savings for Efficiency Maine’s BIP. The survey questions also collected information on participant spillover. Net savings—the savings directly attributable to the program—will be derived by adjusting the realized gross energy-savings estimates from the impact evaluation activities to account for freeridership and spillover.

3.1.1 Participant Freeridership

As outlined in Section 2.2.5.1, the overall freeridership score was derived from two independently calculated elements, each of which is worth half of the total score: a stated intent/project change score and an influence score. Each element (stated intention and program influence) produced a range of freeridership values from 0 to 0.5 and were added together to produce a total freeridership score ranging from 0 (not a freerider) to 1.0 (full freerider). Table 3-1 presents the scores of each component by measure category.

Table 3-1: Participant Freeridership Estimate

Measure Category	Number of Respondents	Intention Score	Influence Score	Estimated Freeridership (Intention Score + Influence)
Custom rebates	19	0.22	0.03	0.25
Ductless heat pumps	29	0.23	0.09	0.33
Prescriptive lighting	46	0.19	0.06	0.26
Prescriptive non-lighting	21	0.42	0.10	0.52

3.1.2 Participant Spillover

Participant spillover questions seek to understand if the customer invested in additional energy efficiency measures for which they did not receive any Efficiency Maine incentives. The survey also asks for additional metrics that would enable Nexant to estimate attributable savings. Participant spillover savings were included based on: 1) survey responses indicating the installation of additional measures, and 2) the ability to quantify those savings. Forty-two respondents reported that they purchased additional energy using equipment for which they did not receive a rebate. Of these forty-two, twenty-one respondents provided enough information to allow Nexant to quantify the energy savings associated with their purchase. Table 3-2 presents the associated spillover energy savings and the participant spillover percentage that is included in the net-to-gross calculation.

Table 3-2: Total reported projects and Quantifiable Spillover Savings

Spillover	Project Count	Associated Savings	Evaluated Program Population kWh	% Spillover
Quantifiable spillover savings	21	83,376 kWh	5,228,148 kWh	1.6%

3.1.3 Net-to-Gross Estimates

Using the values for freeridership and spillover presented in the section above, the evaluation team calculated NTG values by measure category, as outlined in Table 3-3. Estimated precision is also presented.

Table 3-3: BIP Net-to-Gross Estimates

Measure Category	Number of Respondents	Estimated Freeridership	Estimated Participant Spillover	NTG Ratio	Margin of Error	Relative Precision
Custom rebates	19	0.25	0.02	0.77	±0.08	17.3%
Ductless heat pumps	29	0.33	0.02	0.69	±0.07	10.7%
Prescriptive lighting	46	0.26	0.02	0.76	±0.06	8.2%
Prescriptive non-lighting	21	0.52	0.02	0.49	±0.07	14.8%
BIP Program				0.72		6.0%

Nexant found the program-level NTG ratio to be 72% with ±6% precision at the 90% confidence level. The NTG ratio of 72% indicated that Efficiency Maine's BIP substantially influenced participants' decisions to make energy efficient upgrades.

Table 3-4 compares the freeridership value from this evaluation to values reported in the FY2011 evaluation¹.

Table 3-4: BIP FY14-FY15 Freeridership Comparison to FY 2011 Evaluation

Measure Category	FY14-FY15 Estimated Freeridership	FY11 Estimated Freeridership
Custom rebates	0.25	0.39
Ductless heat pumps	0.33	N/A
Prescriptive lighting	0.26	0.28
Prescriptive non-lighting	0.52	0.50

3.2 Measure Costs Research

Throughout the evaluation work, the deemed costs associated with LED wall-packs seemed high, at \$213/fixture. Market research found costs for LED wall-packs to range from \$70 to \$175. Similarly, Nexant noted the deemed cost of an LED flood light to be \$250, while market research found costs to range from \$50 to \$200. Because of this, Nexant launched a stratum-wide realization-rate analysis of the deemed-measure costs, expecting to find the costs of LEDs consistently overstated. Nexant pulled a sample of 61 enrollments, and compared the deemed-measure costs to the invoices uploaded for the project. The results of this analysis are presented in Table 3-5, ordered by each measure's share of incentive dollars contributed to the program. Interestingly, although Nexant expected to find LED costs to be *overstated* based on the LED wall-packs observation, the opposite was actually true, even for the LED wall-packs once labor costs were included.

¹ <http://www.energymaine.com/docs/EMT-Business-Program-Report-FY2011-FINAL.pdf>

Table 3-5: Prescriptive Lighting Measure Cost Analysis

Measure	Deemed Incremental Cost	Total Reported Costs	Total Verified Costs	Realization Rate
L10, linear fluorescent fixture retrofits	\$36	\$763,782	\$1,459,853	191%
S50, recessed LEDs	<i>Varied</i>	\$5,613,850	\$4,839,219	86%
S12, LED wall-packs	\$370	\$1,339,131	\$2,391,485	179%
L40, high-intensity fluorescent fixtures	<i>Varied</i>	\$1,282,850	\$1,010,376	79%
L15, new fluorescent fixtures	\$85	\$1,492,102	\$3,245,783	218%
X10, exit signs	\$47	\$78,819	\$45,250	57%
L20, fluorescent fixtures with reflectors	\$86	\$348,912	\$1,171,904	304%
S10, parking lot LEDs	<i>Varied</i>	\$4,385,260	\$6,136,672	140%
S40, screw-in LEDs	\$38	\$2,290,307	1,686,142	74%
S20, LED downlights	\$75	\$1,664,058	\$1,561,133	94%
S60, high-bay LEDs	<i>Varied</i>	\$8,505,757	\$5,754,492	68%
S16, LED canopy	\$350	\$1,220,600	\$1,043,422	85%
L70, occupancy sensors	\$120	\$323,001	\$3,242,253	1,004%
S22, LED flood lights	<i>Varied</i>	\$594,250	\$435,288	73%
S80, linear LEDs	<i>Varied</i>	\$153,800	\$100,910	66%
S14, parking garage LEDs	\$585	\$758,745	\$902,787	119%
L35, indirect fluorescent fixtures	\$107	\$284,389	\$438,349	154%
L30, high-efficiency fluorescent fixtures	\$92	\$106,352	\$177,088	167%
L60, high-bay occupancy sensors	\$74	\$286,158	\$282,320	99%
L25, CFL fixtures	\$72	\$3,528	\$5,598	159%
Total, weighted by incentive dollars				113%

Key observations from this analysis are summarized in Table 3-6.

Table 3-6: Prescriptive Lighting Deemed-Cost Observations

Measure Groups with Understated Costs	Measure Groups with Overstated Costs
<ul style="list-style-type: none"> Exterior LEDs LED exit signs 	<ul style="list-style-type: none"> Interior LEDs Linear fluorescent fixtures Compact fluorescent fixtures

The costs of linear fluorescent fixtures were found to be in alignment for measures that involved T8 fixture retrofits. However, the linear fluorescent measures also encompassed T5 retrofits, which were more expensive, and did not appear to be accounted for in the deemed cost.

Nexant weighted all of the measure-level realization rates according to the incentives paid out per measure. Doing this resulted in a total realization rate of 113% for all costs. Applying this realization rate to the costs in the preliminary TRC test resulted in a preliminary adjusted net TRC ratio of 1.42 (compared to 1.61 without this realization rate applied). Nexant recommends that Efficiency Maine conduct more-thorough research into deemed measure costs for all TRM measures to ensure the accuracy of cost-effectiveness testing in future program years.

3.3 Program Description and Staff Interviews

Nexant interviewed program staff as part of the process evaluation activities. This section provides a description of program operations and lessons learned during the FY 2014 and FY 2015 period.

3.3.1 Program Management

As of FY 2014 and FY 2015, the Deputy Director, formerly called the Director of Programs, at Efficiency Maine provides overarching leadership for programs and works closely with the internal Efficiency Maine BIP Program Manager, who is the primary representative of the program in interactions with the program implementer, and periodically with the QP Network, program participants, and in day-to-day guidance and implementation of the program. Both are involved in monitoring program activity, albeit on different levels. The Program Manager reviews project pipeline reports, as well as status reports that summarize energy savings, invoicing, and monitors the performance of the implementation contractor / delivery team. The Deputy Director reviews monthly high-level summary statistics for program activity. An annual update to the Technical Reference Manual (TRM) triggers a review of program energy savings assumptions and measures costs. Periodic strategy meetings between implementation and Efficiency Maine staff provide a forum for reviewing program progress and challenges to-date, as well as direction for the future and potential changes in program strategies and design.

According to staff at the time of the evaluation interviews, contracted implementation staff provides day-to-day management of BIP and answer questions from contractors and customers about eligibility, solve questions and issues that emerge from effRT tracking, manage the incentive processing, and oversee data transfers. Implementation contacts described substantial responsibilities with data tracking.

3.3.2 Program Tracking

Staff interviewees indicated that the bulk of program tracking occurs in the Efficiency Maine Reporting and Tracking system, effRT, which provides sufficient detail to monitor program activities such as project applications processes, estimated energy savings, incentive processing and overall program pipeline. The program implementation contractor prepares regularly updated status reports that summarize program progress and provide a snapshot of program activities. Data associated with the cost of program delivery (including implementation contractor costs) is obtained from invoices and reports prepared by the implementation contractor; and accepted, approved, and tracked by Efficiency Maine staff.

As key users of effRT, BIP implementation staff developed a list of additional features that would make effRT easier to use or provide more timely information. Although many of the suggestions were relatively minor, staff described ongoing issues with inaccuracies in submitted name and address fields, which could prevent customers from being able to receive or cash their incentive check. Typically, these fields are completed by the project QP, but the program does not have a way to verify the fields are accurate. According to program staff, adding a verification of customer name and mailing address would reduce the number of returned checks.

3.3.3 Program Promotion

According to staff interviewed for this evaluation, building and maintaining the QP network is a shared objective of Efficiency Maine and the implementation contractor. Contractors tend to hear about the program opportunity from the network of lighting suppliers and will reach out to the implementation team. Installing contractors may also contact Efficiency Maine after hearing about the program opportunity and wanting to access incentives for their customers. In 2015, contractors not enrolled in the QP network could complete projects, but could not access project-related features on effRT because access to these were restricted to QPs.

Program staff believes that the “E-News” newsletter keeps QPs informed of program changes and this was confirmed in the interviews with the QPs where 83% rated the Efficiency Maine E-News newsletter somewhat or very helpful.

In addition, Efficiency Maine engages in direct outreach to commercial and industrial businesses. Efficiency Maine staff attend industry trade shows and speaks at trade associations and other business groups organizing informational sessions for their members. Efficiency Maine staff also maintain the Efficiency Maine business programs web pages. Most direct customer recruitment is expected to occur through contact with QPs engaged with the Efficiency Maine and able to promote high-efficiency options.

In 2015, business customers could, with the internal expertise and capabilities, install projects themselves and access BIP incentives. Typically, there would be a QP, either a distributor or supplier, that sells qualified products and then enters the required project information into effRT, including equipment sales, and submits the invoice for BIP Incentives. Contractors not certified as QPs were able to submit applications for BIP incentives through suppliers with QP credentials however the non-QP installing contractor is required to provide their installation invoice to either the implementation team or the supplier with QP credentials who will ensure it is made part of the project information.

As of FY 2016 (beginning in July, 2015), both the supplier and the installer on a project must be a QP. Going forward, the program wants to ensure that whoever is interacting directly with the customer is a QP.

3.3.4 Qualified Partner Requirements

According to staff interviews, to be registered as a QP, contractors must have attended a required training webinar and any additional training modules based on the services contractors provide. For each module completed, the contractor is then awarded a designation for that particular service. The program also operates with affiliates that have QP-like expertise, such as engineers and electricians. These affiliates have effRT access, can submit projects, and are provided the same level of service from Efficiency Maine. Through these affiliates, it is possible to do a project without a QP, but staff reported this is uncommon and typically done by larger customers, who may still need to go through a supplier QP for materials. Program staff estimate that QPs are generally involved in about 95% of all projects. Customers are also allowed to install the measures themselves. When this occurs, the supplier QP will enter the project in effRT and indicate that the customer is a “self-installer.”

3.3.5 BIP Participation Process

According to program implementation staff, the customer or a QP helping a customer with equipment choices could identify qualified projects. If a customer has identified a project and is aware of Efficiency Maine incentives, they can find a QP on the Efficiency Maine website. Efficiency Maine recommends that customers get at least three quotes before selecting a contractor. For prescriptive projects, the selected QP will purchase the equipment and upload product cut sheets and other details into the effRT database. Prescriptive measures rely on the savings algorithms, deemed measure costs, and measure life assumptions embedded in effRT and linked to the TRM. Larger prescriptive projects require pre-approval prior to equipment purchase. Interviews with staff indicated that custom projects have additional requirements for pre-approval and energy-savings estimation.

In FY 2014 and FY 2015, the years of this evaluation, the three primary participation pathways included:

- **Small prescriptive projects:** Projects requiring less than \$10,000 in incentives could be completed without pre-approval. Efficiency Maine conducted a desk review of all projects, ensuring that the cut sheets matched the invoices, that the invoices listed labor costs, and that the invoices identified the quantity of items installed. Approximately 10% of these projects received onsite inspections.
- **Large prescriptive projects:** Projects requiring incentive payments of more than \$10,000 had to be pre-approved by Efficiency Maine. These projects represented a significant investment and Efficiency Maine required additional review to ensure that all equipment qualified, to ensure the customer understood the expected incentive payment, and to document the time frame for project completion. The estimated completion date was provided as part of the pre-approval process. Once a project received preapproval, equipment could be purchased and installed and invoices submitted through the QP. Efficiency Maine required inspection on all preapproved projects, and reviewed project documentation before distributing the incentive. Once a pre-approval letter was issued, pre-approved prescriptive projects had six months to complete the project.

- **Custom projects:** These projects had to be pre-approved, regardless of the incentive amount. If a project was not expected to save at least 35,000 kWh per year over the life of the measure, it was not an eligible project. Efficiency Maine required customers/contractors to provide information supporting their energy savings calculations. Once a pre-approval letter was issued, custom projects had up to a year to complete the project because it could be harder to get equipment needed for certain custom projects. Generally custom projects are for non-off the shelf technologies or part of a more complex system or process where a greater degree of technical information is required to determine defensible energy savings. Custom projects will become part of the Commercial and Industrial Custom Program in FY 2017.

Customers could typically expect to receive their incentive check four to six weeks after all documentation was received. Delays tended to be caused by missing or insufficient information from the customer or contractor.

Program staff estimated that 90% of incentive payments were paid to end-use customers, although customers could assign their incentive payment to their contractor by signing a letter of authorization.

3.3.6 BIP Strengths and Areas for Improvement

3.3.6.1 Program Strengths

The FY 2014 and FY 2015 program offer was relatively straightforward and it was simple for end-use customers to participate. As the program has matured, increasing numbers of QPs are participating, with a corresponding increase in both numbers of projects and associated energy savings.

As part of the FY 2014 and FY 2015 program, Efficiency Maine connected trade allies to opportunities to promote energy efficiency to their customers, empowering trade allies to identify those opportunities, but still allowing customers to work with contractors they were comfortable with. Efficiency Maine provided accountability through basic program training, defined expectations, licensing reviews, and quality assurance through project inspections.

Staff described data collection and incentive processing that was effective and improving, and relied almost entirely on the effRT database. Trade allies were able to enter information on projects and had the ability to track their project status. EffRT also allowed Efficiency Maine staff to monitor the project pipeline and support other reporting.

The number of QPs was sufficient to provide services throughout Maine and there were few constraints associated with contractor availability and distribution. A QP specific website facilitated communication between the program and the QP network. The program provided substantial support for QPs that could be ratcheted to meet the specific needs of individual contractors interfacing with the program.

The measures supported by the program were tailored to the needs of Maine businesses. The program had an extensive list of mature measures that provided substantial opportunities for customer engagement.

3.3.6.2 Program Weaknesses

A major development in the BIP in 2014 and 2015 involved the oversubscription of electric incentives driven by tremendous demand for LED equipment. A number of factors contributed to this oversubscription. It is recommended that in the future, Efficiency Maine closely monitor the price of LED equipment and the incentives being offered.

In the tracking system, BIP operated a program with incentive spending around \$4 to \$5 million. BIP began FY 2015 with a sizeable carry forward of electrical budget from the prior year. In order to invest those funds, Efficiency Maine raised incentives and ramped up marketing and outreach efforts. During the course of seeking to maximize cost-effective opportunities, staff reviewed the uptake of LED measures relative to fluorescents and determined that uptake of LEDs was lower than expected. Efficiency Maine increased the incentive for LEDs to cover approximately 50% of the measure cost, as recorded in the TRM; staff started to see an uptick in LED measure program participation. In late 2014, the market for LED measures expanded because the number of LED manufacturers increased; qualified products flooded the market and prices for the bulbs started declining. Invoices showed declining product prices at the same time as existing activity between customers and contractors was increasing. Activity increased so quickly that staff became concerned that they were going to expend the entire budget before the program year was over.

Faced with a need to either increase the program budget or decrease the incentives, Efficiency Maine announced that incentives would be reduced with two weeks advanced notice. In that two-week period Efficiency Maine received 1,600 applications for \$15 million in incentive dollars. This unprecedented surge in applications exceeded the budget for BIP. To mitigate the impact to the budget and the program, Efficiency Maine:

- Contacted customers who had applied for preapproval on or after March 19, 2015, and informed them that their proposals could not be approved. This affected approximately 470 applications. Because projects requiring preapproval involve large incentive payments, this action removed approximately \$10 million from the \$15 million project pipeline.
- Suspended acceptance of any new applications for lighting and electricity savings measures on April 20, 2015, expecting to eventually reopen the program and complete identified projects.²
- Pulled forward funding from the FY 2016 program budget to pay for prescriptive projects that were already in the pipeline in April 2015.

² In July 2015 the Trust's Board authorized \$1.5 million in new funding for reintroducing marked down prices on LED screw in bulbs. On August 1, 2015 incentives for ductless mini-split heat pumps were made available again. The suspension on other lighting, refrigeration, air compressor and electric HVAC measures remained in place for the 2015/2016 program year.

Ultimately, this spike in program applications caused the program to suspend incentives for all electricity efficiency measures on April 20, 2015. These measures remained suspended for most the 2016 fiscal year. Many measures including popular lighting measures were reinstated June 1, 2016 in advance of FY 2017. More measures are expected to be reinstated early in FY 2017.

3.3.7 Program Lessons Learned

In discussions about lessons learned in the events leading up to and including the suspension of measures in March and April of 2015, several opportunities to improve program processes and communication emerged as part of the interview process with Efficiency Maine program staff. As one contact noted, Efficiency Maine needs to be more nimble in adjusting incentive levels. For example, this could include developing the expectation on the part of contractors and customers that Efficiency Maine will be looking at incentive levels on a quarterly basis and will modify incentive levels as needed.

Program staff noted that contractors used the change date as a sales and marketing tool—encouraging customers to do projects right away to get the higher incentive. LED projects were the big driver of the oversubscription, and lighting retrofits continue to be the vast majority of prescriptive projects. One contact, describing what happened, noted:

“We knew people would submit applications, we figured the more time we gave them the more applications we would receive, and we knew we would have projects in progress. We settled on a two-week notice. The pipeline more than doubled. It was totally unanticipated.”

The need to more effectively monitor and adjust incentive levels, particularly for lighting measures, emerged as a central challenge in 2015. Staff contacts noted that this is a challenging aspect of any prescriptive program. Efficiency Maine receives invoices for equipment and labor and uses them, as well as market research and collaboration with programs in other states, to make adjustments to measure costs in the TRM. They also look at other states' TRMs and their source documents as additional points of reference. The effort starts and ends with compiling and managing as much market data as possible and incorporating all of it into the TRM. The TRM is currently updated on an annual basis and can be updated whenever new information is received about a measure. This approach is sufficient, unless, as occurred in 2015, dynamic changes are occurring in a market and prices or supply change unexpectedly.

The planning process requires Efficiency Maine to make initial assumptions based on current prices, deemed savings, and insight from the delivery team. Incentives are generally expected to be no more than 35–50% of project costs. However, in late 2014 and early 2015, as discussed above, rapid declines in prices for certain lighting products caused the portion of project costs covered by incentives to increase and triggered a higher-than-expected project volume. To help avoid this scenario in future program years, Efficiency Maine plans to:

- Review incentive levels quarterly, or at least three times a year, by examining market prices and invoices submitted for qualified projects to better track changes in costs associated with materials or labor and determine if a change in incentive levels is warranted
- Require project invoice details in a format with sufficient consistency to allow the organization to select a sample of invoices quickly and obtain the data needed to evaluate incentive levels
- Continue to monitor enrollment volumes, by measure, including total costs and rebate payments associated with each category; this will enable staff to identify measures that are not popular and reallocate budget dollars to more popular measures with similar levels of electricity or natural gas savings.

In addition to establishing enhanced monitoring activities, Efficiency Maine is also considering changes to the process by which program updates are announced. Efficiency Maine currently alerts QPs of pending changes to program incentives through monthly electronic newsletters and special bulletins. In previous program years, Efficiency Maine provided a few months' notice when changes in eligible measures or incentive levels were expected. However, notification of negative changes in eligible measures, or incentive levels, tends to cause a rush of activity towards the end of the deadline period for project enrollment, just as staff saw in 2015. In 2015, the application volume created pressure to provide a much shorter notification of pending negative change. This smaller window created a tremendous rush to get incentive applications in immediately and overwhelmed program staff and resources as a year's worth of projects were submitted in two weeks.

Ideally, Efficiency Maine will be able to avoid having to make rapid changes in program offers and be able to balance pending work with incentive monitoring. However, to better prepare the market for this scenario in the future, Efficiency Maine staff anticipate two changes in communication about program incentives:

- Setting expectations that incentives could change in response to changing market conditions to discourage contractors from promising that incentives will be available for future projects
- Implementing urgent changes rapidly
- Honoring projects with documentation or invoices showing that they were already underway without an announced grace period.

Communicating the oversubscription created ongoing challenges in 2015 and into 2016 because Efficiency Maine sought to carefully explain the situation without alienating the contractors that would be needed to promote energy efficiency in future program years. At the point of program suspension, senior staff at Efficiency Maine personally called large-volume QPs to inform them directly about the situation. Next, staff held several advisory group meetings the week following the measure suspension. QPs were invited to make suggestions for changes

for the upcoming program year and, according to key program contacts, many participated, voicing frustration about the suspension.

3.3.8 Remaining Barriers

While program oversubscription was an issue in 2015 it represented substantial increases in lighting projects. Key program contacts noted that several persistent barriers continue to prevent widespread adoption of energy efficiency and program participation, particularly for mechanical and natural gas measures:

- Awareness of program opportunities through Efficiency Maine; familiarity with the program and with the organization overall. However, Nexant noted that Efficiency Maine received news coverage in 2014 and 2015 because of a funding issue caused by a wording error in the Maine legislature.
- Resistance to higher first costs associated with some energy-efficient equipment, particularly when these resources compete with investments in business capacity or growth in sales. Factors associated with equipment cost are particularly likely to create barriers for small businesses.
- Resistance to recommendations that involve replacing equipment that is still operational, even if doing so would reduce energy bills.

Program staff contacts reported that they were unaware of unique barriers associated with different measures; barriers tended to differ by market segment. Although no specific market segment was singled out for not participating, staff noted that small businesses tend to be the hardest market to reach.

3.3.9 The Future

3.3.9.1 Program Adaptations and Enhancements

Efficiency Maine is considering a variety of adaptations and enhancements to the current suite of programs and measures. This includes a pilot program under the Innovation Program that will focus on operational savings through building controls, or building tune-ups, and examine interval data and whole-building performance to achieve operational savings.

An expanded data analytics team is expected to enable Efficiency Maine to perform increasing levels of analysis in-house. Efficiency Maine staff expect that the organization will continue to offer incentives for business customers, and expand into new markets and measures as appropriate. As one contact noted, market expansion always carries some level of risk in that it can be difficult to predict the popularity of new programs.

Future programs will likely have to adjust to widespread acceptance of many measures. As one contact put it, Efficiency Maine needs to be comfortable with the level of participation occurring—and balance the measures that are easier to promote with those that may be more difficult to promote because of complexity or higher associated delivery costs. Linking business incentives to advanced controls for lighting and thermostats may be an area that BIP moves into in the future.

More integration across programs might occur in the future as Efficiency Maine seeks to be more strategic when specific measures or delivery channels cross multiple programs. Examples of this include lighting measures that might be distributed through midstream channels, or DHPs that could be installed in buildings in a variety of sectors.

3.3.9.2 Midstream vs Downstream Program Models

Traditionally, most energy efficient incentive programs have been structured to provide rebates either directly to customers (referred to as Downstream), through retailers and distributors (Midstream) or through manufacturers (Upstream). The Downstream customer model incentivizes customers to select and install energy efficiency solutions in their homes and facilities. These programs focus on providing incentives directly to individuals or businesses to promote adoption of efficiency measures. Midstream and Upstream programs provide incentives to retailers, manufacturers and distributors who sell an assortment of different equipment directly to end use customers. There are pros and cons to each model and it is ultimately up to program managers and stakeholders to determine which model best suits the needs of the program and portfolio.

With the Midstream model, retail buyers can be motivated by the unit-based incentive amount and it can often influence their decisions in making mass purchases and stocking qualifying products. These same incentives offered through a Downstream approach may not significantly influence individual customer purchase decisions. In addition, Midstream programs can often achieve deeper market penetration and reduced administrative costs for measures such as energy-efficient lighting, HVAC equipment, motors, and pumps. Working with retailers and distributors provides economy of scale and the ability to have a large impact on the marketplace working with a relatively limited number of entities. Overall, Midstream programs currently being offered around the country (in particular for lighting measures) have been found to have numerous upsides, including; reduced program administration and transaction costs associated with rebate fulfillment, reduced upfront costs and paperwork burden for program participants, reduced incentive payments as well as mark-ups at distributor and contractor levels, encouraged stocking of efficient products by distributors, leveraging key actors in the marketplace, and the alignment with existing commercial sales and marketing practices³.

Several drawbacks of Midstream programs are the loss of participant information (such as utility account number and business type) that in a downstream program is captured on the program application. The point-of-sale nature of a Midstream program, and thus the lack of a formal participant application, means that the amount of participant data collected is significantly reduced which can be problematic for tracking and evaluation purposes. The lack of information can also lead to the inability to assess the applicability of an efficiency measure for a specific application. Additionally, the lack of business type information on participants' means that critical energy savings estimation parameters, such as Hours-of-Use, Peak Coincidence Factors, and Energy and Demand Interactive Effects are more often assigned to program participants based on a general "facility type" categorization as opposed to the actual business

³ <https://aesp.site-ym.com/general/custom.asp?page=MidstreamPrograms>

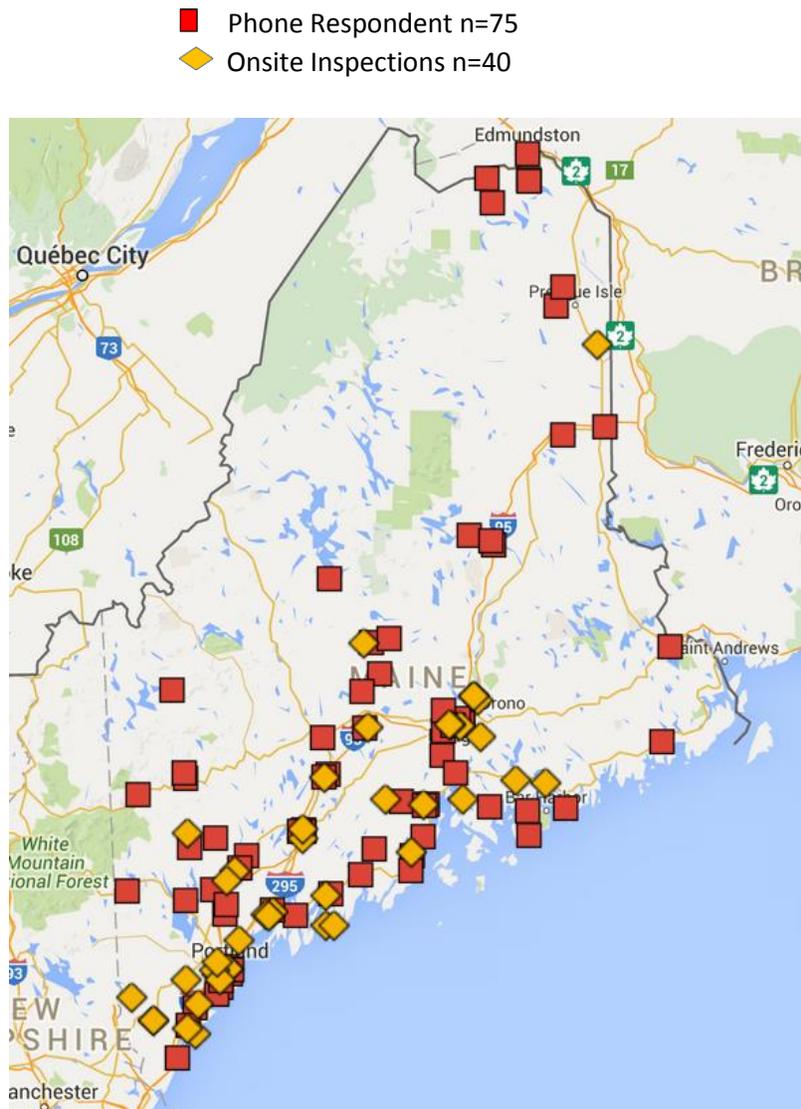
type where the equipment was installed. Program administrators can try to work with retailers and distributors to create a process that would allow them to capture, at a minimum, customer telephone numbers along with the program sales data, which would significantly aid in the ability to evaluate of these types of programs. Another primary barrier to the midstream model is having a strong tie to the applicable distributor market (either on the part of program administrator or the program implementation team).

3.4 Participant Survey

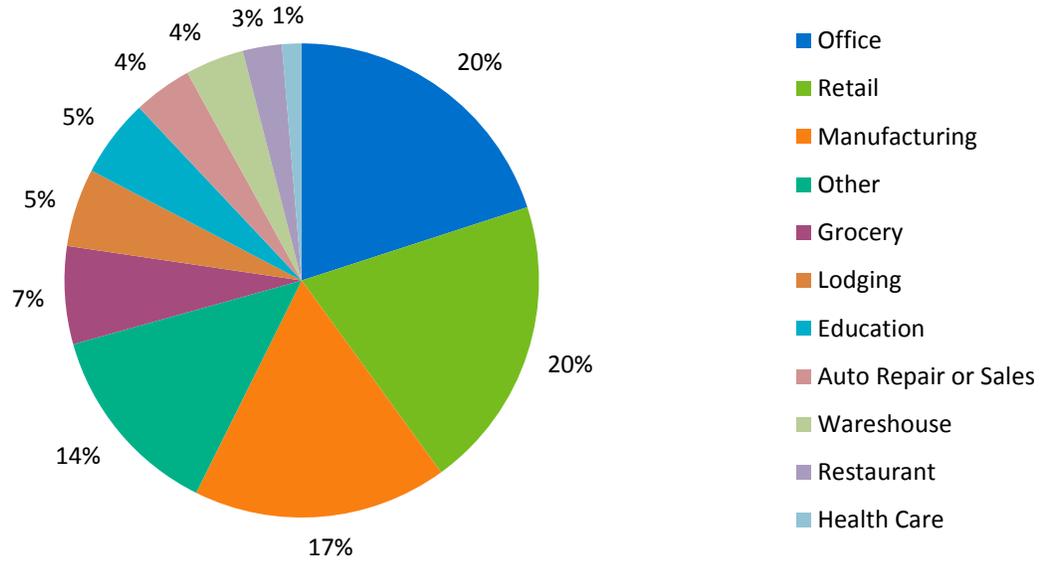
3.4.1 Firm Demographics

Nexant surveyed a total of 115 participants of BIP through phone surveys (n=75) and during the onsite inspections conducted as part of the impact evaluation activities (n=40). Survey respondents were distributed throughout the state of Maine, as shown in Figure 3-1 below. Onsite inspection respondents did not receive the full process evaluation survey, they only responded to attribution questions which sought to understand program freeridership and spillover (NTG).

Figure 3-1: Respondent Distribution Map, n=115



Survey respondents (n=75) represented more than 11 different building types, with the majority of the sample (40%) comprising retail and office establishments (15 facilities each) and manufacturing (13 facilities). The majority of phone survey respondents owned their facility (91% own and 9% rent). “Other” building types, which represented 14% of survey respondents, included two municipal utilities, a ski resort, funeral home, church, community center, refuse collection facility, a fire department, and a Department of Transportation facility. The composition of building types represented by respondents is summarized in Figure 3-2.

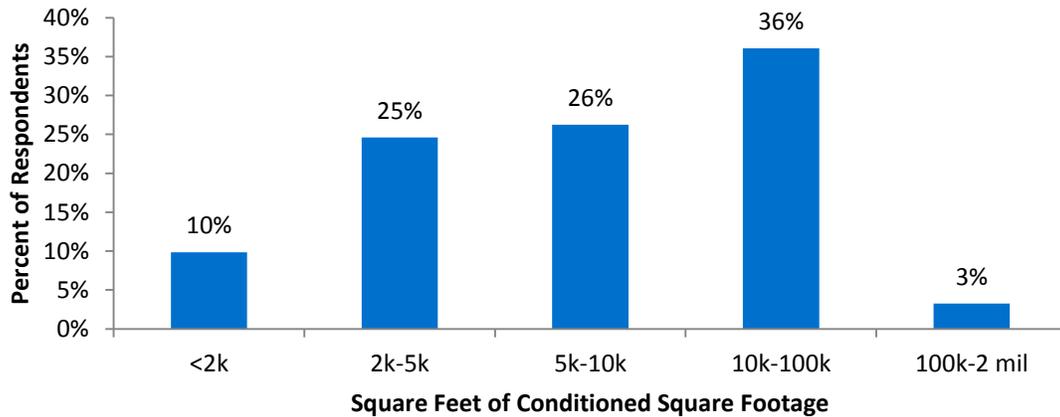
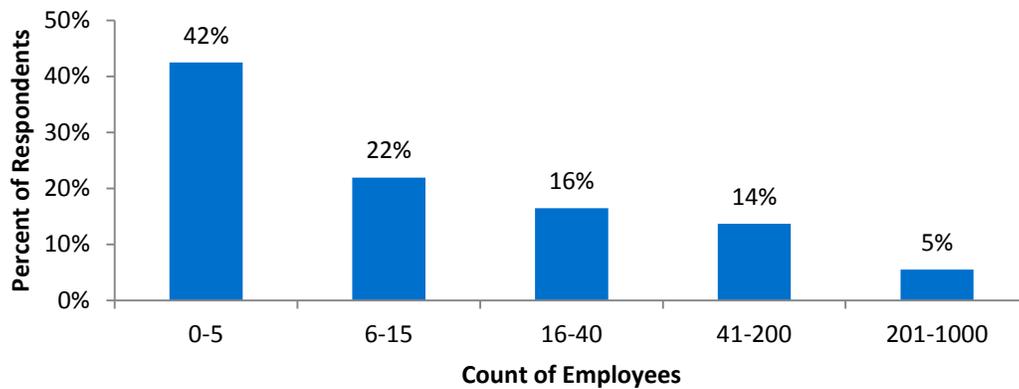
Figure 3-2: Phone Survey Respondents by Building Type (n=75)

Surveyed participants' building sizes ranged from 400 square feet to 1.5 million square feet. Education building types comprised the largest facilities. Employee counts at respondents' facilities ranged from 1 to 700, with the majority of facilities (47) having fewer than 6 employees.⁴ The majority of respondents (46) had a single location in Maine, while 4 participants reported having more than 20 locations in Maine. See Table 5-1 and Figures 5-3 and 5-4 for full detail.

Table 3-7 Participant Firm Demographics (n=75)

Category	Minimum	Maximum	Mean
Conditioned square footage	400	1,500,000	41,075
Employee count	1	700	31
Number of locations in Maine	1	25	3.6

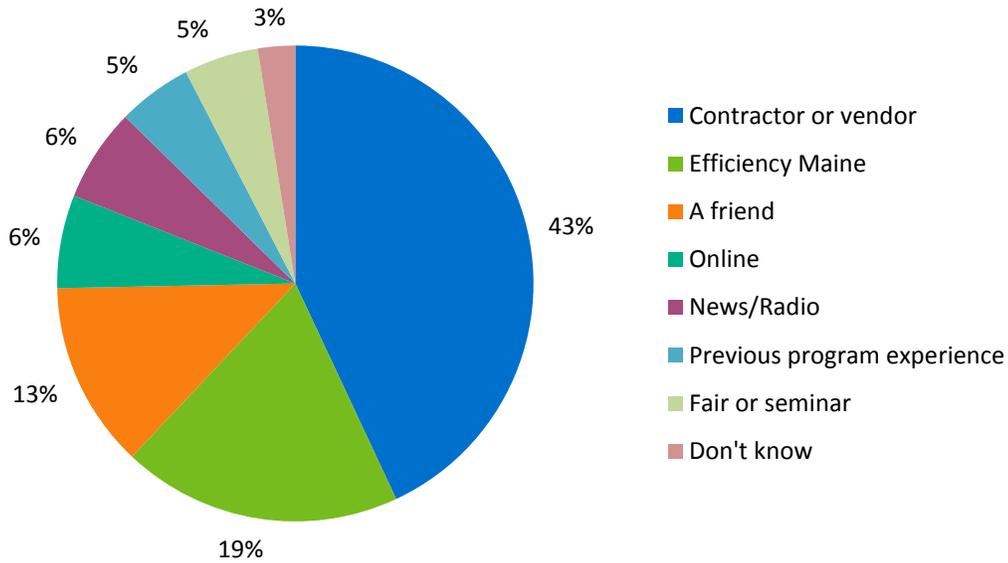
⁴ Efficiency Maine rules define small business as having less than 50 employees.

Figure 3-3: Distribution of Conditioned Square Footage**Figure 3-4: Distribution of Respondent Employee Count**

3.4.2 Awareness and Overall Experience

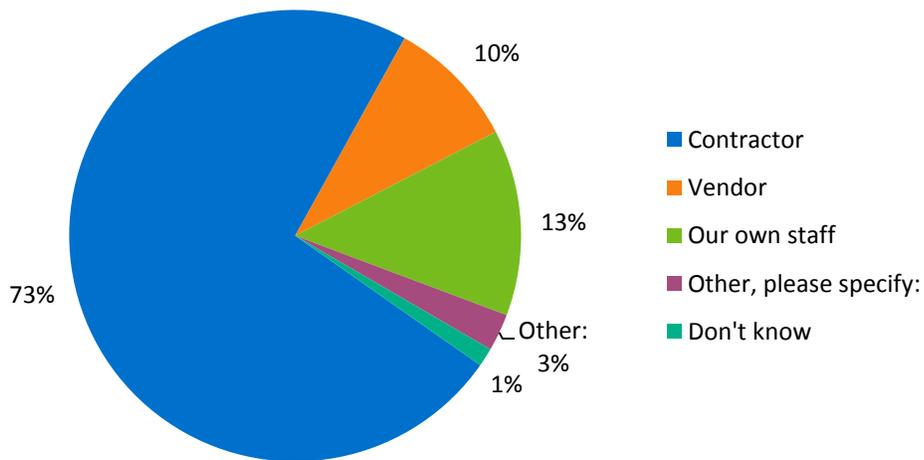
Participants most commonly heard of Efficiency Maine's BIP from a contractor or vendor, followed by direct contact with Efficiency Maine. Thirteen percent had heard about the program through a friend or colleague. Of the 13 respondents that heard of the BIP directly from Efficiency Maine, 5 reported hearing about the program through personal contact with a representative, and two each through direct mail, previous experience with Efficiency Maine, and the program website (Figure 3-5).

Figure 3-5: Participant Sources of BIP Awareness (Multiple Mentions Allowed)



Eighty-three percent of participants reported that a contractor or vendor installed their equipment, 13% reported that their own staff were responsible for project completion, and 6% did not know (Figure 3-6). Of the 62 participants reporting that a contractor or vendor installed their equipment, most (42 of 62) reported having a pre-existing relationship with the contractor, 15% relied on a recommendation from a friend or colleague, and 5% selected their contractor through a request-for-proposal process. Only one respondent reported using the Efficiency Maine website search tool to find their contractor.

Figure 3-6: Who installed the project? (n=75)



53 participants reported that their contractor/vendor prepared the application materials for them. Among the 22 participants reporting that they completed the application materials themselves, 12 stated that their contractor helped them with the application.

Nine participants (12%) reported encountering challenges in the process of completing their projects. Table 3-8 below reports these challenges.

Table 3-8: Reported Challenges to Project Completion (n=9)

Project Type	Response
Custom miscellaneous	Doing the paperwork for the federal government was daunting.
Custom compressed air	Timing and budgets.
Prescriptive compressed air	We were not aware that the room we were installing the compressor in had to be heated and cooled – that put a halt to the project for a few days.
	It got put into compressed air where it shouldn't have been and they should have gotten much more (50%) payback on the project.
Prescriptive ductless heat pump	The person who came out knew what I wanted, and they weren't knowledgeable enough to install what I found acceptable. The installer said they couldn't do it that way; they had to put it in a different spot from where I wanted it.
	We had to go through a stone wall.
Prescriptive HVAC	I was supposed to get a \$1,500 rebate. I only got \$600. I called the company and Efficiency Maine. Efficiency Maine told me it was the contractor's fault. The contractor told me that Efficiency Maine changed their standards so fast that they couldn't keep up.
Prescriptive Lighting	There were a couple places where the bulbs didn't fit. But that was it.
Prescriptive Refrigeration	Just normal renovation projects.

3.4.2.1 DHP-specific Questions

The 18 respondents with ductless heat pump (DHP) projects were asked several additional questions about awareness, motivation, and expected usage. DHP participants reported hearing about the DHP opportunity through a variety of sources. The most common sources were contractors (5) and colleagues (4). Other avenues included friends, fairs or trade shows, and online information (Table 3-9).

Table 3-9: Sources of awareness for Ductless Heat Pump Program?

Source of DHP Awareness	Count
Contractor	5
Colleague	4
Fair/trade show	2
Friend/family member	2
Web research	2
Other (advertisement, retail signage, previous participation)	3
Total	18

Ten DHP participants reported that their primary motivation for installing a ductless heat pump was to reduce heating costs. Four respondents mentioned reduced cooling costs as their primary reason, and four “other” open-ended responses reflected a desire to solve a variety of performance issues: better temperature regulation, replacing an old unit with modern equipment, improving the delivery of heat, and reducing electricity usage.

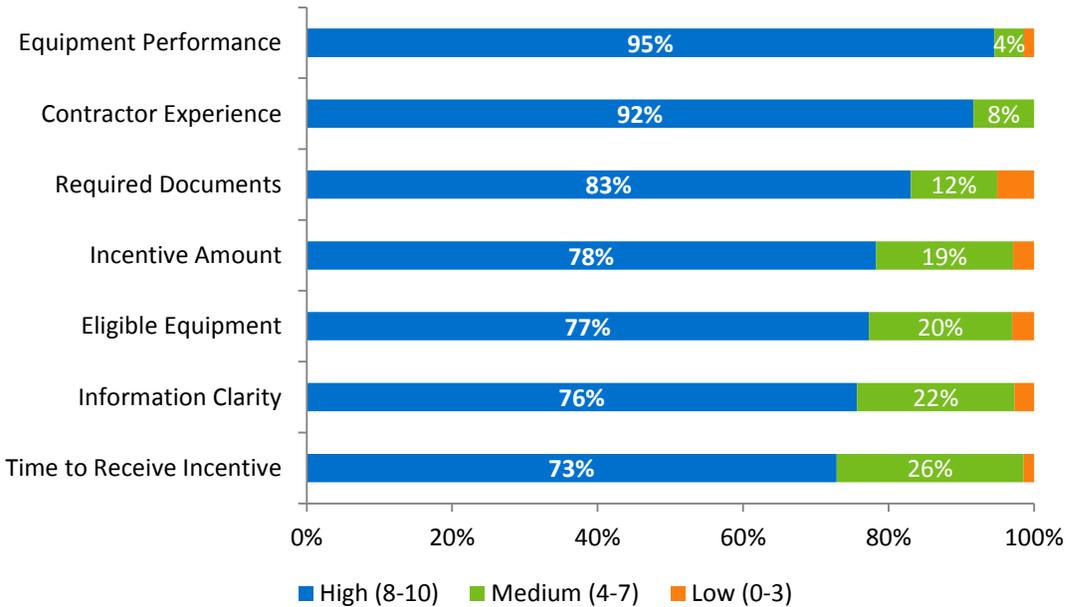
Fourteen DHP participants planned to operate their heat pump all year; four planned to operate it seasonally or were not sure. Respondents did not generally distinguish their heat pump settings from other heating equipment—only five respondents clearly stated that they keep their heat pump settings higher than their settings for other heating equipment (Table 3-10).

Table 3-10: DHP Respondent Temperature Settings (Degrees Fahrenheit)

Winter setting	Count (n=16)	Summer setting	Count (n=14)
<66	2	<66	2
68	2	66	1
69	1	68	3
70	6	69	2
71	1	70	3
>71	4	>71	3

3.4.3 Satisfaction

Respondents rated their satisfaction on several components of the program on a 10-point scale (Figure 3-7). Satisfaction scores were high for all categories, with more than 90% satisfaction for both the performance of the equipment installed and the expertise of the program contractor.

Figure 3-7: Participant Satisfaction with Program Features (n=75)

The survey provided participants with an opportunity to suggest improvements to the program for organizations like theirs. About half of participants offered no suggestions for improvement. Among the 38 that offered suggestions, the most common requests centered on improving communication from the program and reinstating program incentives (Table 3-11).

Table 3-11: Suggestions for Improvement (n=38; Multiple Mentions Allowed)

Suggestion	Number of Mentions
Improve communication	10
Reinstate program incentives	8
Increase incentives	8
Improve application process	5
Expand qualified/eligible measures	4
Improve web or electronic application process	3

Requests for improved communications included requests for more active notification of program opportunities and more clarity on which equipment models qualified. Representative comments included:

- “[I would like] a newsletter that keeps a business owner abreast of the rebates available.”
- “It would have benefited me if someone from Efficiency Maine had contacted me directly to confirm the contractor had submitted the paperwork.”
- “Be more clear!”

Most of those who mentioned the need to reinstate the program were relatively direct, saying simply “reinstate it.” Several participants offered more detail:

- “Extend the program, because I thought the governor was going to sign something about ending it. Not sure what that is about, but keep the program.”
- “I want to do more. We were planning on doing the rest of the store this summer but the program ran out of money. I’d like to finish what we started.”

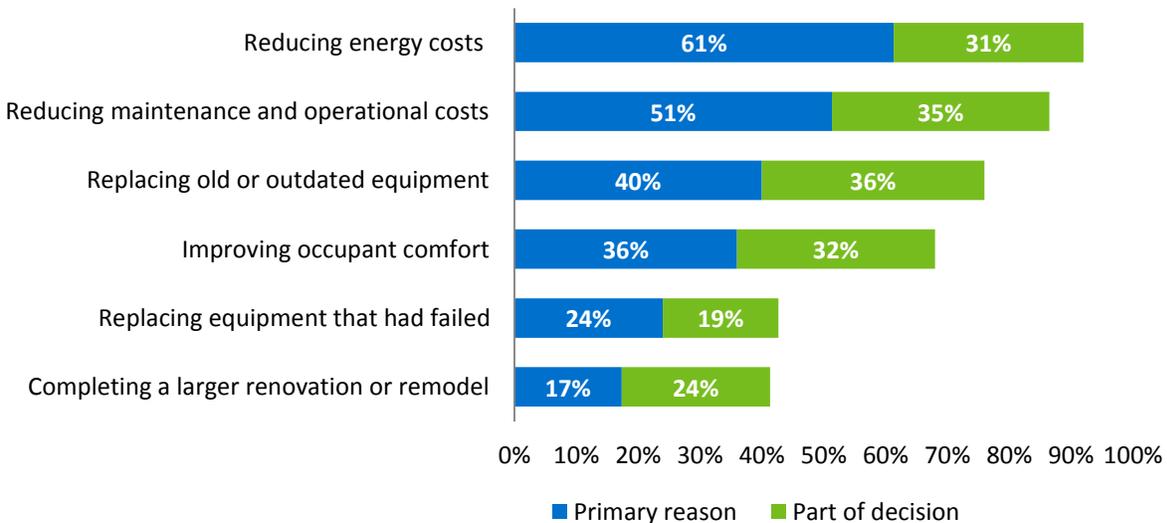
These requests were followed by requests for greater incentives and expanded measure eligibility, which are relatively common for programs like the BIP. Some of the specific requests included:

- “Qualify a wider variety of equipment, such as LED lighting for town governments or municipal utilities”
- “I need an air compressor, and all the models that are covered are too expensive for small business.”

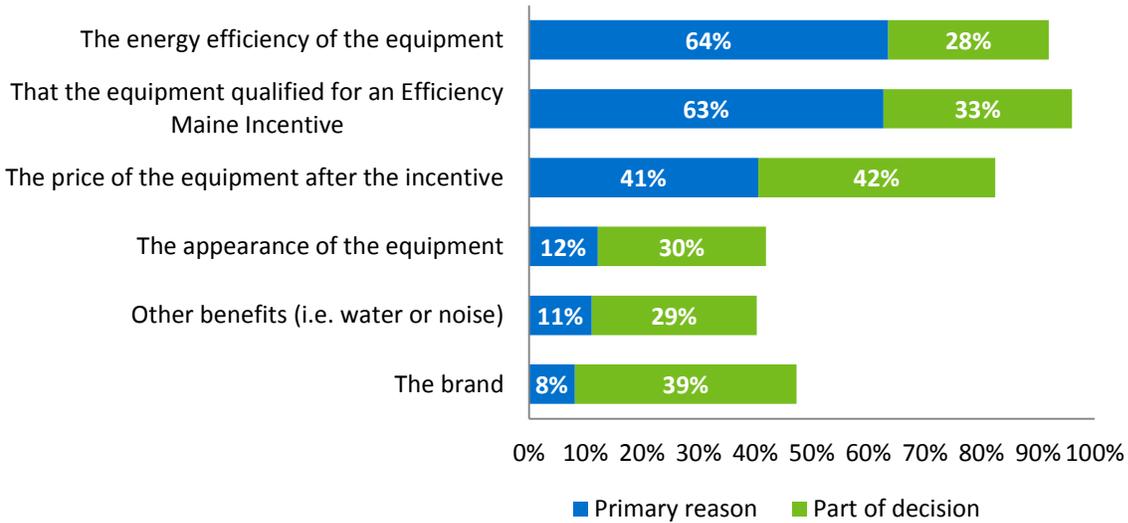
3.4.4 Motivations and Corporate Policy

Reduced energy costs, as well as reduced maintenance and operational costs, were the primary reasons that participants considered energy saving projects (Figure 3-8).

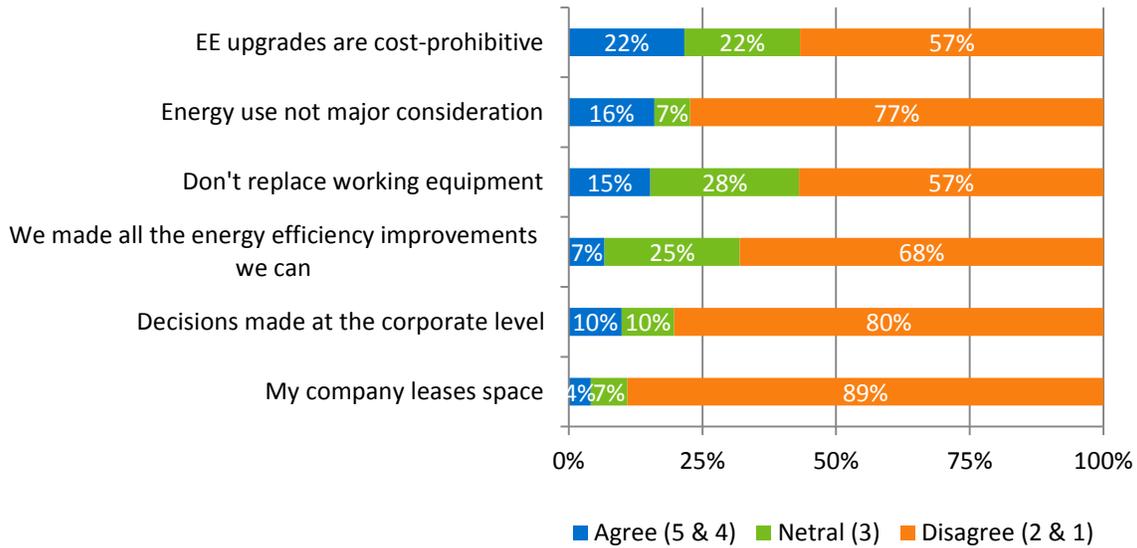
Figure 3-8: Motivations for Considering Efficiency Projects (n=75)



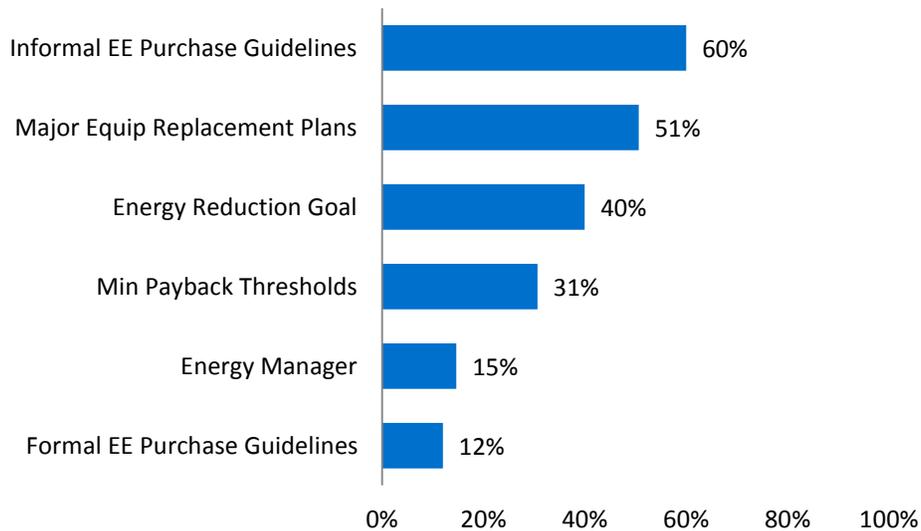
Participants reported that they selected the specific equipment that was ultimately installed based primarily on the efficiency of the equipment and the fact that it qualified for an incentive. (Figure 3-9)

Figure 3-9: Motivation for Selecting Specific Equipment Ultimately Installed (n=75)

To assess the relative strength of a variety of common barriers, the survey asked participants to rate the extent to which they agreed with a list of arguments against energy efficiency upgrades, with “0” being strongly disagreed with the argument against upgrades and “5” being strongly agreed with the argument against. To support interpretation of the results, the responses are presented in three categories (Figure 3-10). None of the barriers received ratings of “4” or “5” by more than 25% of participants. Concerns about cost and reluctance to replace working equipment received the highest barrier ratings, while leased space received the lowest (note that 9% of respondents stated that they rent their facility).

Figure 3-10: Participant Ratings of Potential Barriers

Respondents reported a variety of organizational tools to encourage and prioritize energy efficiency in purchase and upgrade decisions (Figure 3-11). Informal energy efficiency purchase guidelines were the most commonly reported tool, offered by 45 of 75 respondents. Formal energy efficiency purchasing guidelines that prioritize or encourage energy efficiency were the rarest, reported by only 9 respondents.

Figure 3-11: Prevalence of Organizational Policies to Encourage Energy Efficiency (n=75)

Twenty-seven of the 30 respondents who reported a corporate goal for reducing energy consumption provided open-ended descriptions of their company's energy reduction goal. Their explanations most commonly included obtaining as much energy savings as possible and

obtaining a specific percentage reduction. The distribution of all categorized responses are listed in Table 3-12.

Table 3-12: Categorized Description of Company’s Energy Reduction Goal

Category	Number of Mentions
As much as/what we can	10
A percentage reduction goal	7
Save money/payback	5
Specific measures identified	4
Reduce environmental impact	2

Thirteen of the 23 respondents who reported a minimum payback or return-on-investment threshold for projects under consideration stated that every project required payback calculations. The six participants who reported specific payback thresholds all mentioned two to three years as a maximum payback.

Four participants offered exceptions to the payback requirement through open-ended responses:

- “Initial cost is a huge factor.”
- “Refrigeration systems are quite costly.”
- “Level of urgency – if the project has other merits.”
- “I just replaced a kiln after 25 years; it cost \$60,000. The savings in fuel will get our money back in 10 years, depending on the price of fuel.”

In addition to payback thresholds, 39 respondents reported cost thresholds above which someone higher in the organization must approve the decision. Seventeen of these 39 respondents provided further details regarding the amounts of the cost thresholds, as summarized in Table 3-13 below.

Table 3-13: Cost Threshold at which Purchases Must be Approved

Stated Cost Threshold	Count of Respondents	% of Respondents
\$500	2	17%
\$3,500	1	8%
\$4,000	1	8%
\$5,000	4	33%
\$10,000	1	8%
\$15,000	1	8%
\$25,000	3	25%
Other	4	33%
TOTAL	17	100%

Responses coded as “other” included:

- “All capital projects must be approved by president, general manager, and parent company”
- “We look at a two-year timeline”
- “Depends on the project”
- “I have a budget and based on that I can do what I want.”

The majority of respondents (n=42) are not required to get bids from contractors before making equipment purchasing decisions. Of the 33 respondents required to get bids, 19 needed three bids, 11 needed two bids, and 2 needed five bids.

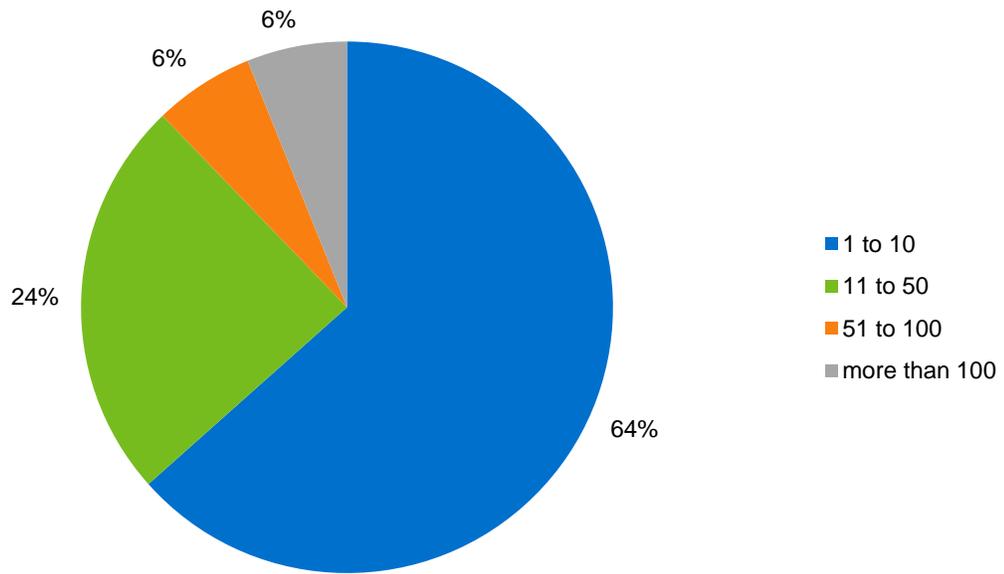
3.5 Qualified Partner Research

This section presents the results of a telephone survey of the program’s Qualified Partners (QP), trade allies who have attended training and submitted paperwork that made them eligible to submit incentive applications to the Business Incentive Program (BIP). Nexant interviewed a total of 91 QPs in January and February 2016. Phone calls lasted approximately 15 minutes and included a mix of open- and closed-ended questions designed to understand QP’s experience with the program, including how QPs promote the program, the benefits to being a QP, the utility of the QP website, the volume of projects that drop out and reasons for drop-out, and suggestions to improve the program.

3.5.1 Firm Demographics

Figure 3-12 illustrates the distribution of the number of full-time employees that QPs have in Maine. Sixty-three percent of the QPs have 10 or fewer full-time employees in their organizations.

Figure 3-12: Percentage of QPs with Numbers of Full-Time Employees



The distribution of QP respondents by zip code across Maine is shown in Figure 3-13

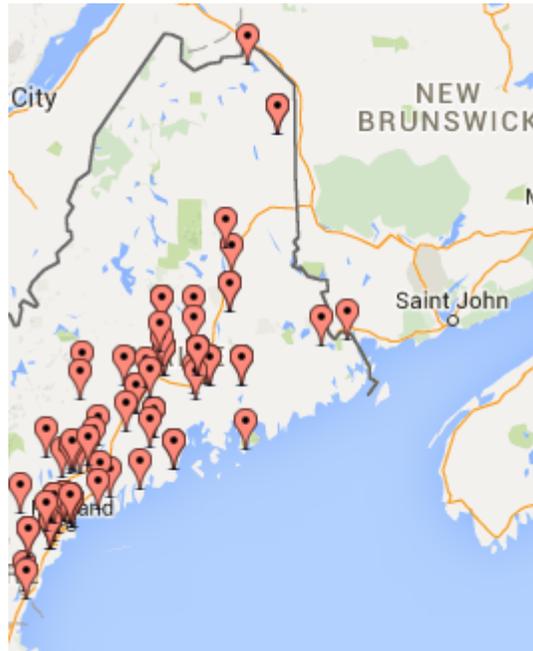
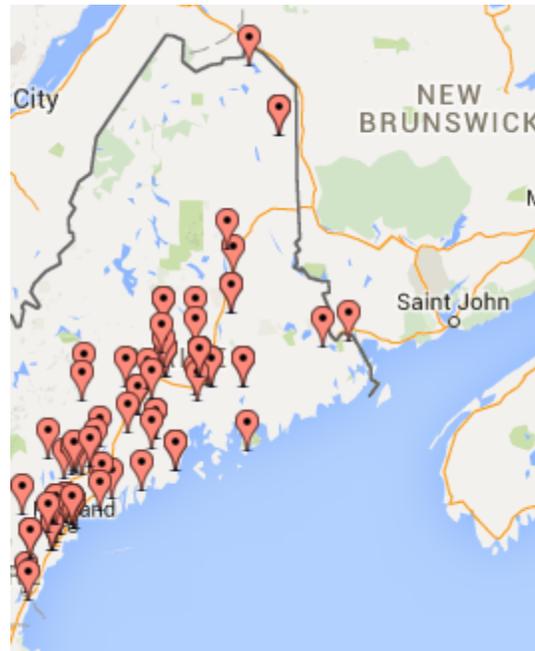


Figure 3-13: Distribution of QP Respondents by zip code across Maine



QPs reported if the number of full-time employees at their organization had increased, decreased, or stayed the same since their organization became involved in the BIP (Figure 3-14). Approximately 30% of QP firms had added employees since becoming involved with the BIP.

Figure 3-14: Change in Number of Full-time Employees since Joining BIP

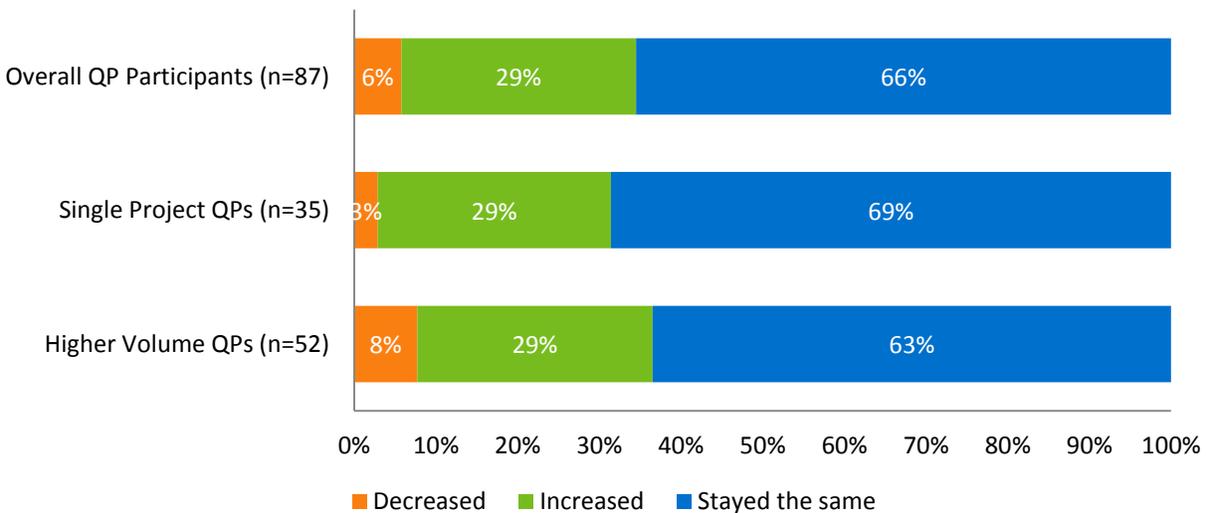


Table 3-14 shows the type of services that QPs provided.

Table 3-14: Services Provided by QPs (n=91)

Services Provided	Percent Providing
Install commercial lighting equipment	44%
Provide other mechanical or equipment services	42%
Install commercial HVAC equipment	40%
Provide building assessments or diagnostic audits	26%
Provide engineering services	16%

QPs that reported providing mechanical or equipment services were asked a follow-up question to understand which services they provided. The most commonly provided mechanical or equipment services included boilers and HVAC, plumbing, and hot water, as well as distribution or wholesale sales (Table 3-15).

Table 3-15: “Other” Mechanical or Equipment Services Reported (n=38)

Service	QPs Providing
Boilers & HVAC	10
Plumbing & hot water	8
Distributor or wholesaler	7
Service	6
Other fuels (installation of propane, solar equipment)	6
Equipment installation	5
Compressed air	2
VFD	2
Electrical (installation and distribution)	2

We asked QPs to specify their primary area of expertise (Table 3-16). Although QPs were encouraged to choose only one primary area of expertise, several contacts offered multiple specialties. Reflecting the diversity of QP trades in the survey sample, respondents reported specializing in heating and cooling; electrical contracting, sales and distribution, and lighting.

Table 3-16: QP Primary Area of Expertise (Multiple Responses Allowed)*

Primary Area of Expertise	Percent
Heating and cooling	32%
Electrical contracting/sales/distribution	30%
Lighting systems	18%
Other**	7%
Energy audits	4%
Mechanical systems and engineering	3%
Fuel sales	2%
Plumbing	2%
Agricultural equipment	1%

*Responses total more than 100%.

** "Other" includes compressed air, solar electricity, residential electrical, and hydraulics.

Thirty-seven percent of the QP respondents had 11 to 50 commercial or industrial projects implemented in a typical year. About one-third of the QP respondents had fewer than 10 commercial or industrial projects implemented in a typical year. Only 6% of the QP respondents had 501 to 1,000 projects implemented in a typical year (Table 3-17)

Table 3-17: Number of Projects Implemented per Year (n=79)

Number of Projects per Year	Percent Reporting
Less than 10	33%
11 to 50	37%
51 to 100	10%
101 to 500	8%
501 to 1000	6%
More than 1,000	12%

3.5.2 Program Experience and Expectation

QP respondents reported participating in the program for an average of 3.7 years. Table 3-18 lists the average numbers of years of tenure for single and multiple-enrollment (also noted as 'high volume') respondents. The majority of QP participants were in the program for five years or less at the time of the survey.

Table 3-18: Average Number of Years in the Program

QP Participant Type	Average Number of Years
Single enrollment	3.5
Multiple enrollment/high volume	3.9
Total	3.7

A majority of all QPs had been involved in the program for five or fewer years. Thirty-eight percent had been involved with the program for one year or reported that this was their first year with the program (Table 3-19).

Table 3-19: QP Program Tenure by Project Volume (n=84)

Years Participating	Total	Single-enrollment QPs	Multiple-enrollment QPs
One or brand new	37%	36%	37%
Two	21%	27%	18%
3 to 5	19%	9%	25%
6 to 10	18%	27%	12%
More than 10	5%	0%	8%

3.5.3 Motivations and Expectations

The survey included several questions designed to understand respondent reasons for becoming a QP, the extent to which expectations have been met, and the primary benefits obtained through program affiliation.

Accessing incentives and growing business opportunities were the top reasons for becoming a QP (Table 3-20), followed by meeting the demands of customers and being directed to enroll. Comments about accessing incentives reflected the presence of both contractors and distributors in the QP population:

Distributor comments included:

- “Because there are a lot of incentives for my customers. I sell commercial lighting supplies and they get a discount on some of the items. I do the paperwork for my customers.”
- “It’s part of my business; we deal directly with contractors that install these things and it’s our job to help with the program and processes.”
- Installation contractor comments included:
- “We are doing LED lighting conversions throughout New England, so we wanted to know what was available to customers in the area.”

Some contractors offered multiple reasons for participating:

- “It offers incentives to my customers to do lighting upgrades. We get more work out of it. The commercial customers get a better deal. It increased my work load.”

Table 3-20 Distribution of Reasons for Becoming QP (n=90; Multiple Responses Allowed)

Reasons	Count	Percent of Respondents Mentioning (n=90)	Percent of Total Mentions (n=99)
Access incentives	53	59%	54%
Grow business	19	21%	19%
Customer demand	7	8%	7%
Function of job	7	8%	7%
Other	7	8%	7%
Partner with Efficiency Maine	3	3%	3%
Reduce energy cost	3	3%	3%

QPs described the extent to which their expectations for enrolling in the BIP were met. Ninety of 91 survey participants offered 107 different comments in response. The majority (76%) expressed appreciation for the program or otherwise noted that their expectations were met. However, twenty-one respondents mentioned measure suspension and limited incentive dollars as the program incentive budgets were exceeded. Eight respondents mentioned other difficulties, including paperwork requirements, issues with the computerized tracking and incentive processing systems, and general complaints about complexity. The distribution of comments by sample and as a portion of total mentions is presented in Table 3-21.

Table 3-21 Distribution of Responses Associated with Expectations (Multiple Responses Allowed)

Comment	Number of Respondents	Percent of Respondents (n=90)	Percent of Total Mentions (n=107)
Appreciation; expectation met	68	76%	64%
Disappointment	5	6%	5%
Mentioned difficulties	8	9%	7%
Measure suspension and limited incentive dollars	21	23%	20%
Other	5	6%	5%

We asked QPs about their overall volume of work in 2014 and the first half of 2015, before Efficiency Maine suspended the measures in March 2015. QPs estimated the proportion of their jobs that included a BIP application. Approximately 30% of QPs reported that more than 50% of their jobs involved a BIP application. More than half of the single-project QPs reported that less than 10% of their jobs included a BIP application (Table 3-22). Almost 40% of single project QPs reported that 10–50% of their projects included a BIP application, potentially reflecting the way projects are attributed to QPs in effRT: QPs with a single project in effRT could be installing projects and processing the applications through a distributor QP.

Table 3-22: Portion of 2014 and Early 2015 QP work with BIP Application

Portion of Jobs with BIP Application	Single enrollment (n=34)	Multiple enrollment (n=55)	Total (n=89)
Less than 10% (not including 10%)	53%	20%	33%
10% to 29%	24%	29%	27%
30% to 49%	15%	15%	10%
50% to 69%	3%	13%	13%
70% to 89%	3%	7%	6%
90% and Above	3%	16%	11%

We reviewed the number and type of project enrollments by QP that were listed in effRT. The Prescriptive Lighting Retrofit and Prescriptive Lighting New Construction measure categories were by far the most common project path within BIP in FY14 and FY15 – accounting for approximately 7,000 of the almost 8,150 enrollments over the two-year period. Nexant found that two electric supply companies were the listed QP for approximately 50% (~3,300) of the prescriptive lighting retrofit projects. These two companies are distributors that sell efficient products to contractors rather than installation contractors themselves. Further research on a sample of the 3,300 projects, noted that the installation contractor for almost 50% of the reviewed sample projects was not a registered QP. It was therefore noted that contractors are able to work under the umbrella of a distributor QP and leverage program discounts without the enrollment processing responsibilities in effRT that come with being a QP, which could result in data gaps in the documentation process. We also reviewed in more detail the accessibility of the documentation in effRT if a project is listed under a distributor QP. As an example, during this document review, we found that the only way to see the details on the specific installation contractor was to go to the enrollment in effRT and download pdf documents and read through them, making the evaluability of the project less transparent. One possible option to address this would be to associate multiple QPs with a single enrollment. This appears possible in the ‘Trade Ally 1’ and ‘Trade Ally 2’ fields, but doesn’t appear to be used in a consistent manner, according to our review. Consistent business rules around the use of these fields in effRT would allow easier visibility into which installation contractors are performing rebated projects. Another option would be to allow users to distinguish between a self-installation performed by their own technicians or maintenance staff versus a hired contractor.

QPs also described the main benefits of being a QP. Access to incentives and business advantage again emerged as the top benefits reported by QP respondents (Table 3-23). QPs also mentioned their QP status as a way to stay informed of program changes and other technical information, and to more generally support energy efficiency. Four reported seeing limited or no benefit: two mentioned measure suspension, one did not comment, and one was equivocal. This individual noted that his firm did not benefit, but his customers did; he paradoxically indicated “we only get more work,” which would generally be a benefit for many firms.

Representative comments about access to incentives and staying abreast of program information include:

- “Being able to offer those rebates and incentives to the customer and being up to date with the requirements of Efficiency Maine and commercial properties”
- “They keep you informed of the new high-efficiency items out there today, but the main [benefit] is the rebate.”

Representative comments about obtaining business advantage included:

- “Mainly, as far as commercial business applications go, [the main benefit] would be being listed on the website. Potential customers are researching in their area; being able to have it on the site is great.”
- “We provide a service to the customer and assist them in the purchase of equipment... and we retain the customer.”

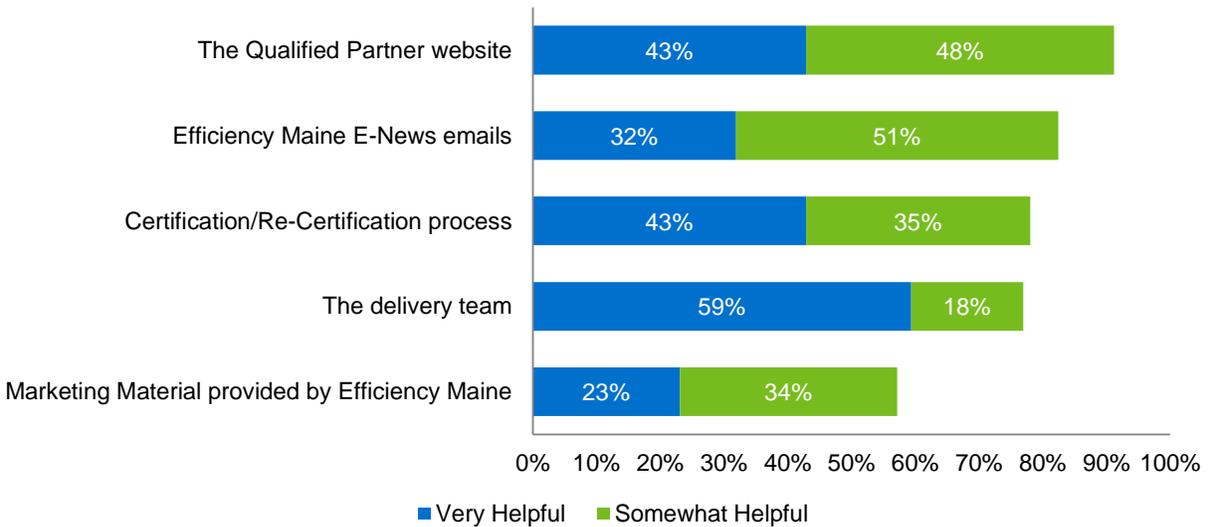
Table 3-23 Distribution of Responses for Main Benefits of Being a QP (Multiple Responses Allowed)

Comment	Count	Percent of Respondents Mentioning (n=89)	Percent of Total Mentions (n=101)
Access to incentives	37	42%	37%
Business advantage	36	40%	36%
Access program and technical information	14	16%	14%
Support efficiency in state/with customers	8	9%	8%
Limited or no benefit	4	4%	4%
Other	2	2%	2%

3.5.4 Helpfulness of Resources for QPs

QPs rated the helpfulness of several resources provided by Efficiency Maine to assist QPs in staying abreast of changes to the program and several tools to enable application and technical support from the program team.

The results shown in Figure 3-15 illustrate that 91% of QP respondents rated the QP website somewhat or very helpful, followed by 83% rating the Efficiency Maine E-News emails somewhat or very helpful. Nearly 60% gave the delivery team the highest rating of “very helpful”; when combined with those rating the team “somewhat helpful,” the delivery team earned a 77% rating. Marketing material provided by Efficiency Maine rated lowest in terms of helpfulness, receiving 57%.

Figure 3-15: QP Ratings of Helpfulness of Program Features (n=91)

The survey provided an opportunity for QPs to describe their interaction with the program implementation team. A substantial majority (82%) offered positive assessments of working with the implementation team. Among the positive responses, 16 specifically mentioned the helpfulness of the implementation team. While only five (6% of those responding) had comments about unsatisfactory experiences, six respondents (8%) added caveats to an otherwise positive rating (Table 3-24). Complaints and caveats typically centered on the time required to navigate the process or an issue with the idiosyncrasies of eligibility.

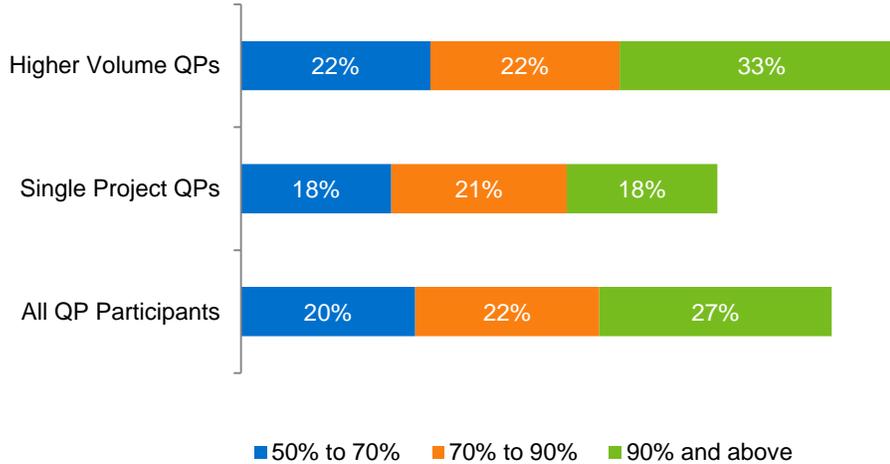
Table 3-24 Assessment of Working with the Implementation Team (n=78)

Assessment	Percentage
Positive, helpful	82%
Not satisfied	6%
Unfamiliar with the implementation team	5%
Other	5%

3.5.5 Awareness among Customers

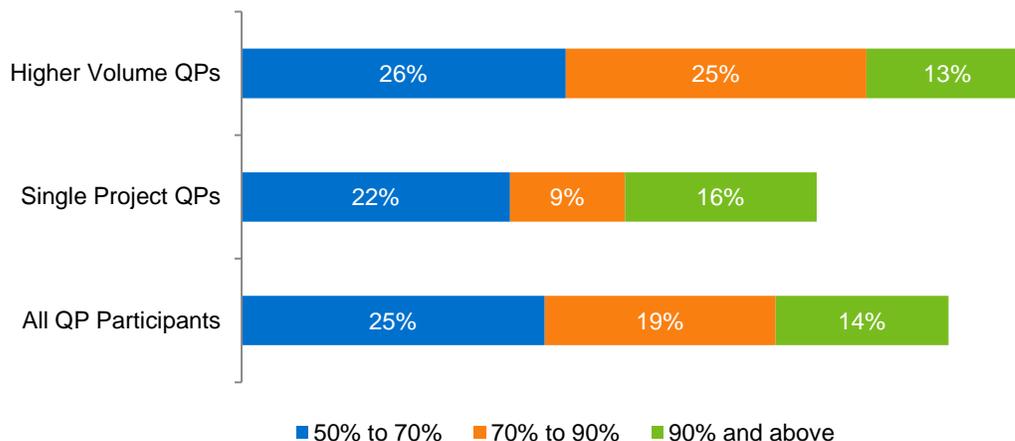
QPs were asked to estimate the portion of their customers that were aware of Efficiency Maine and BIP before the QP informed them about the program. Sixty-nine percent of QPs indicated that more than half of their customers were aware of Efficiency Maine (Figure 3-16).

Figure 3-16: Portion of Customers Aware of Efficiency Maine (n=88)



Fifty-eight percent of QPs believed that more than half of their customers were aware of the Business Incentive Program before the installation project (Figure 3-17).

Figure 3-17: Portion of Customers Previously Aware of the Business Incentive Program (n=85)



The survey provided several questions meant to examine the level of commitment to energy efficiency among the QPs' customers. Table 3-25 presents the portion of customers that QPs estimated had a variety of policies likely to affect how energy efficiency is perceived. The most commonly reported policies pertained to a goal for reducing energy consumption and minimum payback thresholds.

Table 3-25: Estimated Portion of QP Customers Policies or Personnel

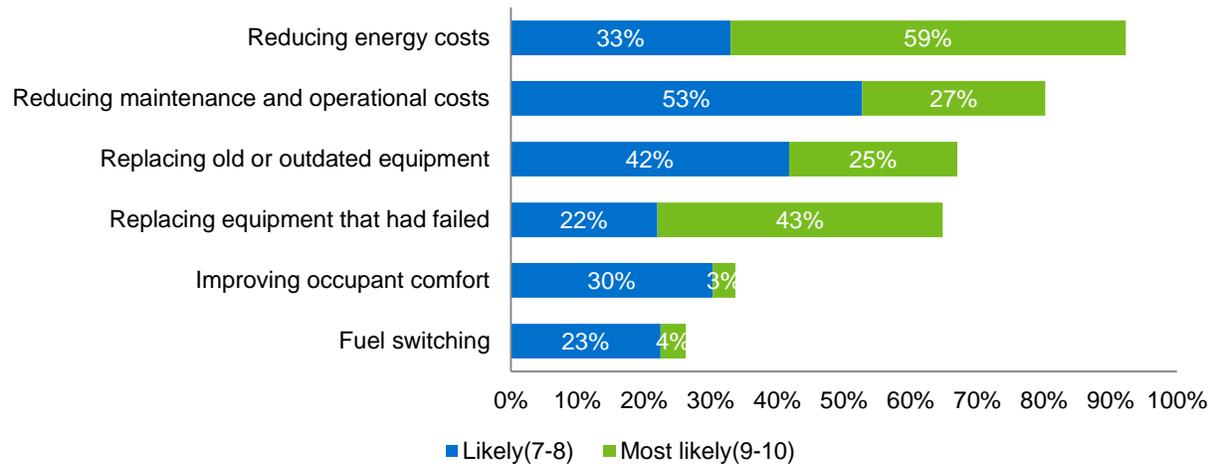
Aspect	Single enrollment	Multiple enrollment	Total
A goal for reducing energy consumption	66%	63%	64%
Minimum payback or return on investment thresholds for projects under consideration	41%	49%	46%
Long term plans for major equipment replacements	25%	38%	40%
Formal purchase guidelines that prioritize or encourage energy efficiency	29%	32%	31%
An energy manager	14%	16%	15%

QPs elaborated on the typical payback threshold their customers required. Nearly 70% of those responding indicated that their customers required payback of three years or less. Longer payback periods reported reflect the presence of HVAC and other equipment vendors in the sample as the majority of these respondents primary service area is HVAC equipment which typically has longer payback periods than other technologies such as lighting. Table 3-26 provides the distribution of payback thresholds reported. Note that the seven QPs indicating that they did not know their customers' typical payback threshold—and the three with contingent responses indicating that it depended on the customer size, business size, or comfort desired are excluded from the calculations below.

Table 3-26: Typical Payback Thresholds (n=91)

Payback Threshold	Percent Reporting	Cumulative Percent
One year or less	7%	7%
Two years or less	21%	27%
Three years or less	42%	69%
Three to five years (includes five years or less)	16%	86%
Five to six years	1%	87%
Ten to twelve years	2%	89%

The survey asked QPs to rate their agreement with a series of reasons that might make their customers decide to move forward with an energy-efficiency project on a 10-point scale, with 0 being not at all likely and 10 being very likely. The majority of QP respondents agreed that reducing energy costs was their impetus for participating; (92% rating their agreement a seven or higher on a 10-point scale) and reducing maintenance and operational costs was the second most common reason (80% rating a seven or higher). Respondents' weakest agreement for participating in the program was the desire to switch fuels, with only 26% agreeing that fuel switching was the impetus (Figure 3-18). Eighty-eight percent of QPs reported that participants returned to them for additional energy-efficiency projects.

Figure 3-18: Reasons Customers Moving Forward with Energy-Efficiency Projects*

* No significant difference occurred in the way that single-project and multiple-project QPs rated their customers' motivations.

QPs were also asked to report any strategies that they used to encourage their customers to select energy-efficient equipment when scoping projects. The distribution of responses from this question is shown in Table 3-27.

Table 3-27: Jobs in Which QPs Reported Using Strategies to Encourage Energy Efficiency

Strategy	Single enrollment QPs	Multiple enrollment QPs	All QPs
Promote the overall quality of the equipment	92.9%	93.5%	93.2%
Promote the availability of incentives	86.5%	93.8%	91%
Mention Efficiency Maine	88.2%	86.8%	87.3%
Discuss the payback from energy savings	84.6%	83.4%	83.9%
Promote potential operations and maintenance cost savings	78.9%	86.8%	83.7%
Discuss other benefits, such as water conservation or reduced noise	45.2%	40.1%	42.1%

3.5.5.1 Positioning energy efficiency

The survey sought to understand how QPs position energy efficiency when talking with customers about their equipment options. The responses from single- and multiple-project QPs are presented in Table 3-28.

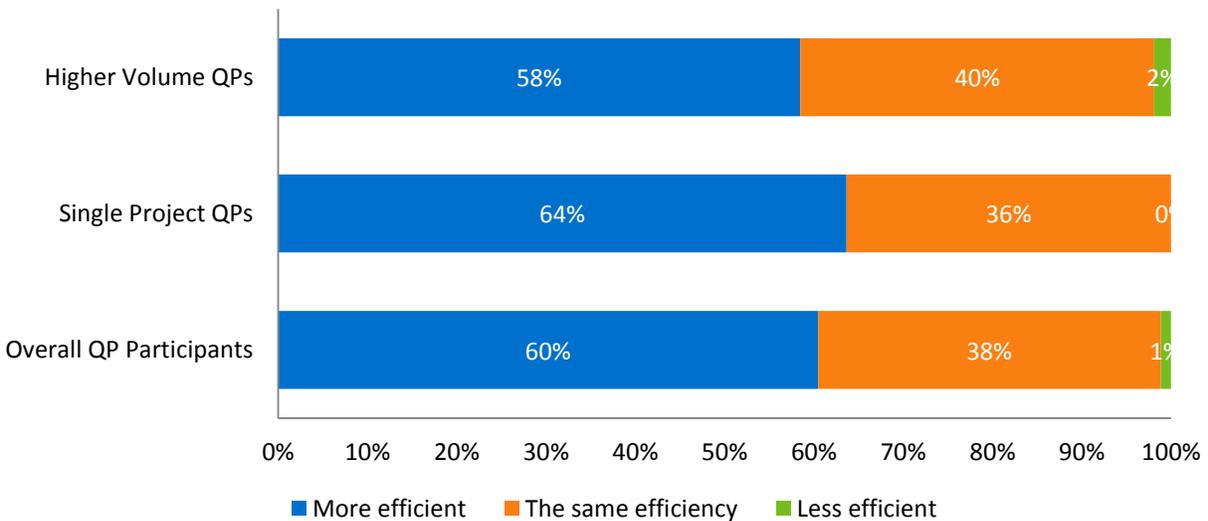
Table 3-28: How QPs Position Energy Efficiency*

Positioning of Energy Efficiency	Single enrollment QPs (n=34)	Multiple enrollment QPs (n=54)	Total (n=88)
Promote energy-efficient equipment over other alternatives	68%	85%	78%
Present energy-efficient equipment along with less efficient alternatives	32%	13%	20%
Suggest energy-efficient equipment only when the customer asks for it	0%	2%	1%
Total	100%	100%	100%

*Excludes “don’t know” answers and other unspecified responses.

The survey provided QPs an opportunity to provide a more detailed explanation for how they typically position or sell energy efficiency. Two QPs described their approach as “project by project,” indicating that they adapt their recommendations to best meet the needs of their customers.

QPs rated the efficiency of the equipment installed through the Business Incentive Program relative to equipment they installed outside of the program (Figure 3-19). Sixty percent of all QPs reported that the equipment installed through the program is more efficient.

Figure 3-19: QP Rating of Program-Supported Equipment Efficiency

3.5.5.2 Participation process

A majority of QPs did not report that any steps in the participation process caused problems for potential participants. The 28 QPs who did report that there were steps that seemed to cause problems were asked follow-on questions. Among the 27 who offered additional detail, the most common topic (offered by 13) focused on the participation process in general—including

predictability and uncertainty in application dollar availability. Specific comments about paperwork, eligible products and pricing also emerged in responses, but at a much lower rate. Many of the comments focused on the participation process from the contractor perspective, not the customer perspective, or were only tangentially linked to the customer experience. For example:

- “Data collection is very important but for Efficiency Maine to put that on the contractor is a tough sell. Time is money to contractors and it isn’t cost effective for them. There has to be some kind of balance in the paperwork.”
- “Here’s something else that happened. They changed the dates from when you can apply from 90 days since you finished the job to 60 days. They knocked off 30 days. I got caught in that. I had to eat some cost, maybe from procrastination.”

Others were more direct about the customer experience, and mentioned the time required for preapproval, the time required for “everyone to sign off on projects,” and application questions that did not apply and thus required follow-up with customers. Table 3-29 displays the topics that emerged in response to this question.

Table 3-29: Steps in the Participation Process that Caused Issues for Customers (n=27)

Sources of Participation Issues	Percent (number) Mentioning
Participation process (time required to process applications and get approval, predictability, uncertainty)	48% (13)
Paperwork (confusing or inapplicable questions, paperwork burden on QP, detail required of participant)	22% (6)
Measure-specific issues (ballast and tube requirements, fixture purchases, qualified measure list)	19% (5)
Other issues (DLC products list, lumen power density calculation)	7% (2)

3.5.6 Suggestions for improvement

The survey provided several opportunities for QPs to offer suggestions and feedback. One question asked QPs how the program could improve the experience of QPs. Sixty-eight of the 91 QPs had suggestions. The most common suggestions included comments about streamlining program applications, uploads, and paperwork, as well as reinstating the program or establishing mechanisms to avoid future program shut-downs (Table 3-30). Representative comments about streamlining the program interfaces included:

- “Instead of adding stuff to the application (it takes quite a bit of time to go through all the paperwork...it takes more time than is beneficial), streamline the paperwork.”
- “There was a lot of paperwork that needed to be done, and obviously the QP isn’t getting anything out of it. Anything that could reduce the work we do.”
- “The business rebates are cumbersome and time-consuming. If that could be simplified it would be great.”

Representative comments about reinstating the program and avoiding future shut-downs included:

- “It was positive until they shut it down. When they denied the applications I imagine some customers were disappointed if they ordered materials and then didn’t get the rebate.”
- “The most obvious thing is a steadier program. The incentives were too high and they blew the budget, which is terrible for us. Perhaps the rebates should be geared to the energy saved and not be prescriptive.”
- “Manage budgets better so they don’t run out of money.”

Other suggestions included providing more incentives and covering more equipment (including propane measures and new construction), improving communication and other points in the QP interface (such as project tracking), and changes to the contractor training and certification (including more flexible times and options for webinars, content more tailored to industry or sector, and enrolling organizations as QPs, rather than individuals).

Table 3-30: QP Suggestions for Improvements to QP Experience

Suggestion	Percent Mentioning (n=68)
Streamline program applications, processes, and paperwork	24%
Reinstate the program or establish systems to avoid future shut downs	24%
Provide more incentive dollars or incentives for more measures	18%
Improve communication processes and tracking assistance	15%
Improve aspects of contractor training and certification	12%
Make website easier to use and more intuitive	10%
Other: add field staff, have equipment specialists	3%

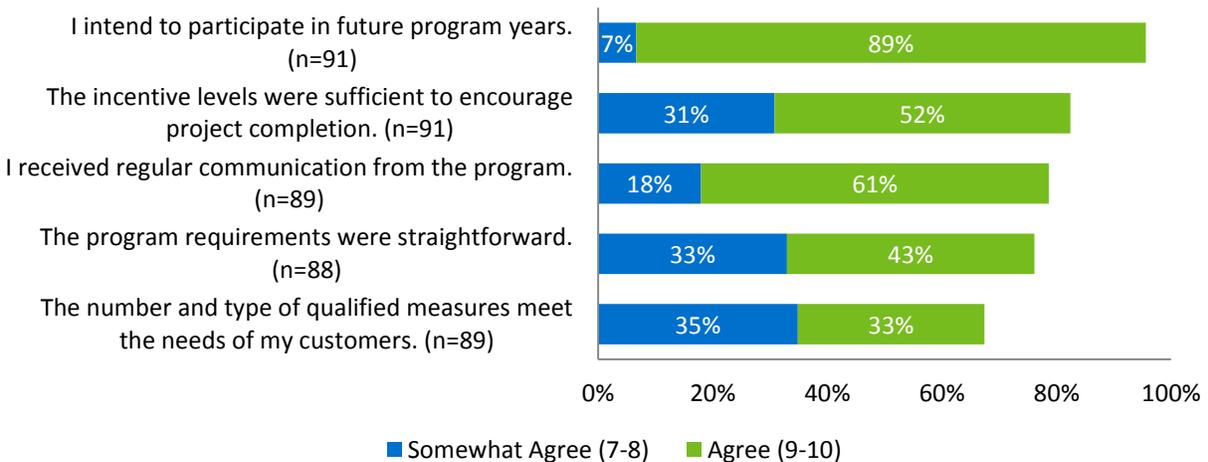
A similar question later in the survey elicited a similar distribution of suggestions for improvement (Table 3-31).

Table 3-31: QP Suggestions for Improvements for Contractors

Suggestion	Percent Mentioning (n=85)
Simplify program processes and streamline	26%
Reinstate the program	25%
Increase incentives and eligible measures	15%
Improve communication and program planning	12%
Other*	9%
Adjust rules or guidelines	6%
Improve marketing	4%

*Responses included providing more opportunities for contractors, more up-to-date information on heat pumps, more detailed information on incentives, requiring state-based QPs, and allowing contractors to pass the discounts through and receive incentive payment directly.

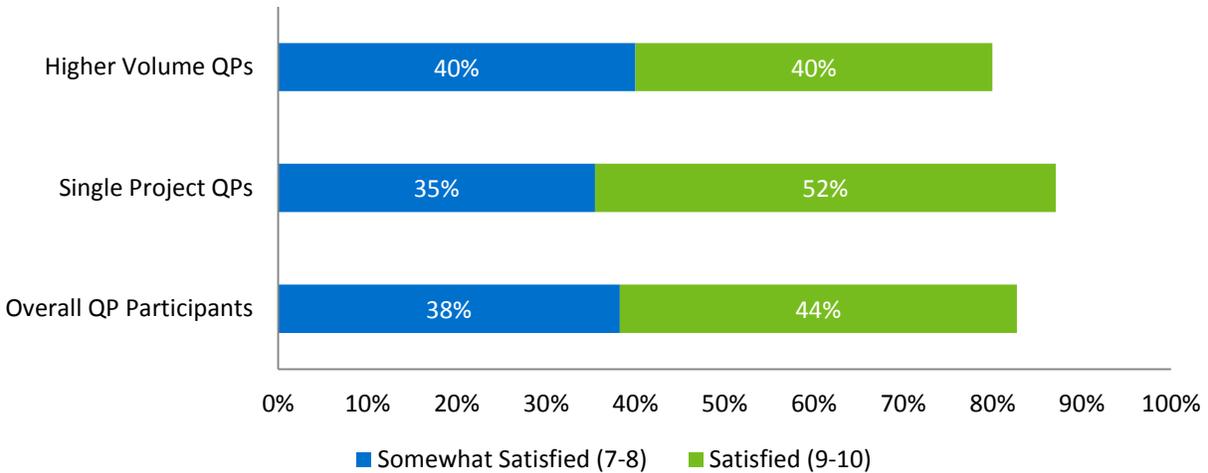
The survey asked QPs to rate their agreement with a series of statements about the BIP on a 10-point scale, 1 being disagree and 10 being agree. The majority of QP respondents agreed that they intended to participate in future program years (96% rating their agreement a “seven” or higher on a 10-point scale) and 83% indicated that the incentive levels were sufficient to encourage project completion. Although agreement was weaker concerning the statement that the number and type of qualified measures met the needs of their customers, 68% of respondents did nonetheless agree with the statement (Figure 3-20).

Figure 3-20: QP Ratings of the Business Incentive Program

Ninety percent of QP respondents indicated that they received training through the program; the survey asked them to identify the type of training they received and to rate their experience. Fifty percent of them attended webinars and 12% attended on-site training. Forty percent of the QP respondents who received training mentioned the content of the training, which included energy auditing, lighting, marketing, and application processing. When asked to rate their

training experience on a 10-point scale, 82% of the QP respondents provided a rating of seven or higher (Figure 3-21).

Figure 3-21: QP Ratings of Training Experience (n=81)



3.5.7 Program Drop-Outs

The survey included questions about the frequency with which participants with potentially qualified projects chose not to submit applications before measure suspension, which could be an indication that the program processes were considered too onerous, or that the measure list was insufficient to meet the needs of potential participants.

Thirty percent of the QP respondents reported that they had jobs that could have qualified but chose not to submit applications. (Figure 3-22) Among these QP respondents, 88% indicated that this situation occurred fewer than 10 times. When QPs were asked if they had any projects drop out of the program mid-way, 11% of the QP respondents indicated that they had (Figure 3-23).

Figure 3-22: Portion of QP Responses Indicating that Participants with Qualified Projects Chose Not to Submit Applications

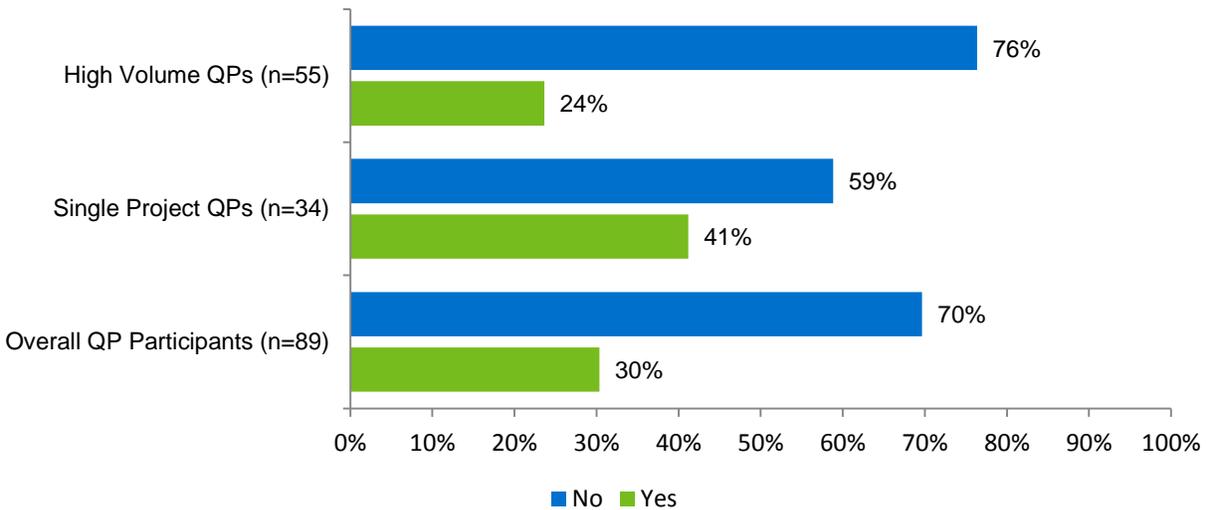
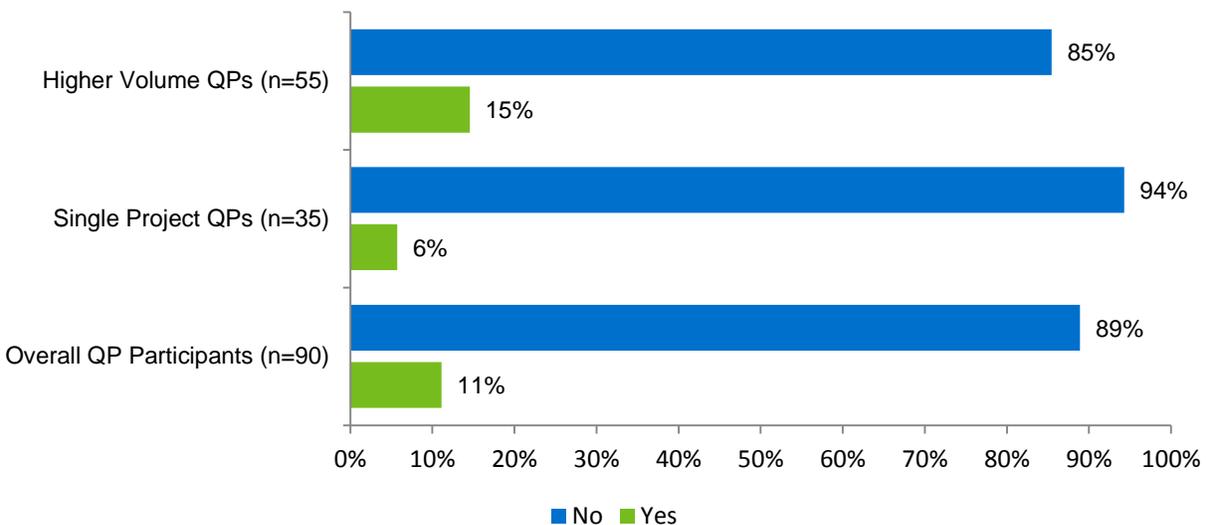


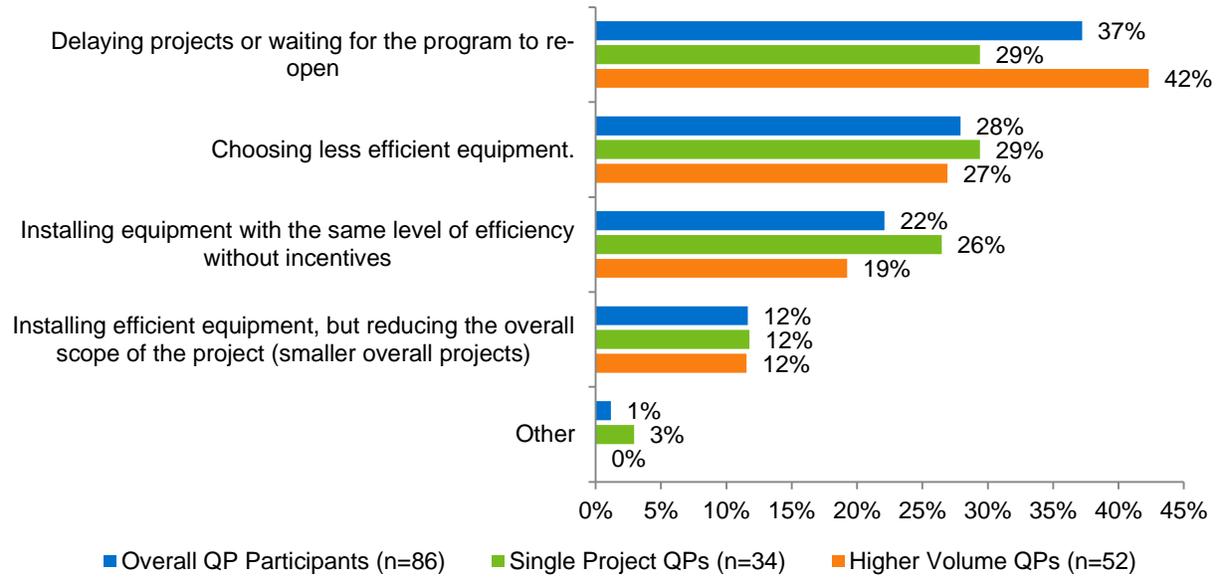
Figure 3-23: Portion of QP Responses with Projects that Dropped Out



3.5.8 Measure Suspension

The QP survey provided an opportunity for QPs to discuss how the program suspension affected their overall workload and what their customers would do without access to the BIP. Answers from those QPs who provided a response to these questions are presented in Figure 3-24. Thirty-seven percent of the QP respondents thought their customers would delay projects or wait for the program to re-open, followed by 28% thought that their customers would choose to install less-efficient equipment. Twelve percent of the QP respondents thought their customers would still install efficient equipment, but would reduce the overall scope of the project.

Figure 3-24 What Would Customers Do without Access to the Business Incentive Program (n=86)



Appendix A Participant Survey Instrument

A.1 Introduction & Screening [READ FOR ALL]

Hi my name is [Name] and I'm calling on behalf of Efficiency Maine. We've been hired to contact participants in the Business Incentive Program. This is the program [Participant/Organization Name] used to help offset costs associated with installing [Measure].

May I speak with [First Name] [Last Name] or [If No Name] the person best able to speak about the [Measure] installed in the last year or so?

S2. Repeat intro: Were you involved in making decisions about whether or not to do the equipment upgrades at this location?

S3. I need to speak with someone who was involved in making decisions about installing [MEASURE(S)] so that I can ask about that process. Who would be the best person to talk to?

When correct person is reached:

Thank you for participating in the Efficiency Maine Business Incentive Program. Your business has been randomly selected to be part of an independent evaluation of the program. Understanding your experience with the program and getting feedback from Maine businesses is very important in ensuring that the program is working for companies like yours.

My questions should take 10-15 minutes. Is this a good time?

If not: schedule a follow up call and confirm name and best contact number of the person to be interviewed.

Our records show that [Organization Name] received an incentive for equipment installed at [Address1/City]. Is this correct?

Program Experience

I'd like to start with a few questions about your experience with the program...

[ASK ALL]

Q1. How did you hear about Efficiency Maine's Business Incentive Program?

[MULTIPLE RESPONSE]

- a) Efficiency Maine
- b) A contractor or vendor
- c) A friend or colleague
- 96. Some other way: [OPEN-ENDED RESPONSE]
- 97. Not applicable
- 98. Don't know

-99. Refused

[ASK IF Q1= "EFFICIENCY MAINE"]

Q2. What type of communication from Efficiency Maine?

[SINGLE RESPONSE]

- a) An event
 - b) Radio/media
 - c) Direct mail
 - d) Website
 - e) Personal contact
- 96. Other, please specify: [OPEN-ENDED RESPONSE]
-97. Not applicable
-98. Don't know
-99. Refused

[If Respondent has the DHP measure flag]

Q3. Our records indicate that your organization installed a ductless heat pump, how did you hear about ductless heat pumps?

[SINGLE RESPONSE]

- a) Contractor
 - b) Efficiency Maine
 - c) Business Colleague
 - d) Advertisement
 - e) Other: (record verbatim)
- 96. Not applicable
-97. Don't know
-98. Refused

[ASK ALL]

Q4. Was this project installed by a contractor or vendor, or by a member of your own staff?

[SINGLE RESPONSE]

- a) Contractor
 - b) Vendor
 - c) Our own staff
- 96. Other, please specify: [OPEN-ENDED RESPONSE]
-97. Not applicable
-98. Don't know
-99. Refused

[ASK IF Q4 = CONTRACTOR OR VENDOR]

Q5. How did you find the contractor that installed the [MEASURE(s)]?

[SINGLE RESPONSE]

- a) Previous work/existing relationship
 - b) Internet search
 - c) Efficiency Maine web site or search tool
 - d) Program staff or representatives (could be Efficiency Maine or GDS)
 - e) Recommendation by friend or colleague
- 96. Other, please specify: [OPEN-ENDED RESPONSE]
-97. Not applicable
-98. Don't know
-99. Refused

[ASK ALL]

Q6. Did you complete the application materials yourself?

[SINGLE RESPONSE]

- a) Yes
 - b) No
- 98. Don't know
-99. Refused

[ASK IF Q6=YES]

Q7. Did your contractor help you?

[SINGLE RESPONSE]

- a) Yes
 - b) No
 - c) Optional for explanatory text: [OPEN-ENDED RESPONSE]
- 98. Don't know
-99. Refused

[ASK ALL]

Q8. Were there any challenges in completing your project?

[SINGLE RESPONSE]

- a) Yes
 - b) No
- 98. Don't know
-99. Refused

[ASK IF Q8=YES]

Q9. What happened?

- a) [OPEN-ENDED RESPONSE/PROBE TO OBTAIN THE CHALLENGES EXPERIENCED]
- 98. Don't know
- 99. Refused

[If Respondent has the DHP measure flag]

Q10. What was your primary motivation for installing your ductless heat pump?

- a) Reduce heating costs
- b) Reduce cooling costs
- c) Other [Record response]
- 98. Don't know
- 99. Refused

[If Respondent has the DHP measure flag]

Q11. What temperature do you set the ductless heat pump and what temperature do you set other heating or cooling equipment?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

[If Respondent has the DHP measure flag]

Q12. Do you operate the duct less heat pump all year or do you operate it seasonally?

- a) [OPEN-ENDED RESPONSE – PROBE TO SEE WHICH SEASON THE DHP IS ON OR OFF]
- 98. Don't know
- 99. Refused

[ASK ALL]

Q13. Please rate your satisfaction with the following aspects of the program.

Thinking about your experience with the Business Incentive Program, using a 10 point scale where 10 means “outstanding” and zero means “unacceptable” how satisfied are you with: [PROGRAMMER: RANDOMIZE]

Aspect	Record Rating: 0-10	98/DK /NA	99/RF
a. The performance of the equipment installed.			

b. The forms and documentation required to obtain the incentive.			
c. The time it took to receive the incentive after submitting the application.			
d. The amount of the incentive.			
e. The expertise of your contractor.			
f. The types of equipment eligible for incentive.			
g. The clarity of information provided about the program.			

[PROGRAMMING NOTE: For any item rated 6 or lower add follow up question: why did you give this rating?]

[ASK ALL]

Q14. Please provide any suggestions you have for improving the program for organizations like yours in the future:

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

Motivations and Corporate Policy

I have a few questions about how projects like this are generally handled by your organization...

[ASK ALL]

Q15. Does your organization have...

Aspect	1/Yes	2/No	98/DK	99/RF
a. An energy manager				
b. Formal purchase guidelines that prioritize or encourage energy efficiency?				
c. Informal purchase guidelines that prioritize or encourage energy efficiency?				
d. Long term plans for major equipment replacements?				
e. A goal for reducing energy consumption?				
f. Minimum payback or return on investment thresholds for projects under consideration?				

[ASK IFQ15 E = YES]

Q16. You indicated your company has a goal for energy use reduction. What is your company's energy reduction goal? [Goals can be expressed as a percentage reduction, or a number, or achieving a certification or label]:

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

[ASK Q17-Q19 ONLY IF Q15 F= YES]

You indicated your company has a minimum expected payback or return on investment threshold for projects under consideration.

Q17. Is there a price/cost threshold that requires payback calculations?

- a) Yes
- b) No, everything requires payback calculations, regardless of the amount
- c) Other response: [RECORD VERBAITM RESPONSE]
- 98. Don't know
- 99. Refused

[ASK IF Q17 = YES]

Q18. What is the payback threshold?

- a) One year or less
- b) Two years or less
- c) Three years or less
- d) Other: [RECORD VERBAITM RESPONSE]
- 98. Don't know
- 99. Refused

[ASK IF Q17 = YES]

Q19. Are there exceptions to this requirement?

- a) Yes
- b) No
- 98. Don't know
- 99. Refused

[ASK IF Q19 = YES]

Q20. Under what scenarios are exceptions considered?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

[ASK ALL]

Q21. Does your organization have a cost threshold above which someone higher in the organization must approve the decision?

- a) Yes
- b) No
- c) Everything requires approval, regardless of the amount
- d) I'm the owner/manager or person that provides approval

- 98. Don't know
- 99. Refused

[ASK IF Q21=YES]

Q22. What is the threshold?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

[ASK ALL]

Q23. Are you required to get bids from different contractors before making a decision?

- a) Yes
- b) No
- 98. Don't know
- 99. Refused

[ASK IF Q23=YES]

Q24. How many bids?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

[ASK ALL]

Q25. I'm going to list several reasons your organization might have **decided to move forward with this project**, please let me know if each was a primary reason, part of the decision, or not at all part of the decision to install [MEASURE(S)].

Reason	Primary reason	Part of decision	Not at all part	98/DK	99/RF
a. Reducing energy costs					
b. Replacing old or outdated equipment					
c. Improving occupant comfort					
d. Reducing maintenance and operational costs					
e. Replacing equipment that had failed					
f. Completing a larger renovation or remodel					

[ASK ALL]

Q26. Now I'm going to list reasons your organization might have **chosen the specific equipment ultimately installed**, please let me know if each was a primary reason, part of the decision, or not at all part of the decision.

Reason	Primary reason	Part of decision	Not at all part	98/DK	99/RF
a. The energy efficiency of the equipment					
b. The price of the equipment after the incentive					
c. The appearance of the equipment					
d. The brand					
e. Obtaining other benefits, such as water conservation or reduced noise					
f. That the equipment qualified for an Efficiency Maine Incentive					

[ASK ALL]

Q27. I'm going to read you a short list of scenarios that companies face when considering upgrading energy using equipment. Please use a 1-5 scale, where one means you strongly disagree, and 5 means you strongly agree with each statement. [PROGRAMMER: RANDOMIZE]

Scenario	Record Rating: 1-5	98/DK	99/RF
a. Making energy efficiency upgrades to this facility is cost-prohibitive.			
b. Our existing heating and cooling systems work fine, and we don't replace working equipment, even if it is not energy efficient.			
c. My company leases space, so does not want to invest in energy efficiency upgrades.			
d. Energy use is not a major consideration when choosing equipment.			
e. Decisions about equipment upgrades are made at the corporate level, and we don't have much input at this facility.			
f. My company has made all the energy efficiency improvements we can			

Counterfactual

[ASK ALL]

Q28. Did anyone talk to you about applying for the incentives before you began planning this project?

- a) Yes
- b) No
- 98. Don't know
- 99. Refused

[ASK ALL]

Q29. If you had never learned that you could get incentives to offset the cost of your project, which of the following best describes what your business would have done? Your business ...

- a) Would have put off doing the project/upgrade for at least one year or cancelled it altogether
- b) Would have done the project, but scaled back size or efficiency level
- c) Would have done the exact same upgrade anyway
- 96. We would have done something else. If so, what? [OPEN-ENDED RESPONSE]
- 98. Don't know

[ASK IF Q29= "DONE THE PROJECT BUT SCALED BACK"]

Q30. By how much would you have reduced the size, scope or efficiency?

- a) A small amount
- b) A moderate amount
- c) A large amount
- 98. Don't know

[ASK IF Q29= "DONE THE EXACT SAME UPGRADE ANYWAY"]

Q31. If your organization had not received the incentive, would it have had the funds (internal or other) to cover the entire cost of the project?

[SINGLE RESPONSE]

- a) Definitely would have
- b) Maybe
- c) Definitely would NOT have
- 98. Don't know

Influence

[ASK ALL]

Q32. I'm going to read a list of services or factors that might have influenced your business to do this project. For each one, please indicate how much of a role it

played in the decision to do the project. Please answer with a number from 1 to 5, where 1 means it played no role at all and 5 means it played a great role...

Services	Record Rating: 1-5	98/DK
a. The incentive your organization received.		
b. The support you received from your contractor.		
c. Help you received with the application or program paperwork.		
d. Knowing that Efficiency Maine was supporting the project.		
e. Information provided about the program on the Efficiency Maine website		

Spillover

[ASK ALL]

Q33. Since completing this project, have you installed any additional energy using equipment for which you did not receive a rebate?

- a) Yes, at this location
- b) Yes at a different location
- c) No
- 98. Don't know
- 99. Refused

[ASK IF Q33 = 1 OR 2]

Q34. What was installed? [INTERVIEWER: Probe for specifics—What did they do? Quantity? When?]

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
- 99. Refused

Wrap-up

I have just a few questions about your organization, to help us understand any differences in participant experiences.

Firmographics

[ASK ALL]

Q35. Please describe your company – what kind of business is it? [As needed: is this a warehouse, a grocery store, an office building...]

- a) Retail

- b) Grocery
 - c) Office
 - d) Manufacturing
 - e) Warehouse
 - f) Restaurant
 - g) Auto repair or sales
 - h) Laundromat
 - i) Health Care
 - j) Education
 - k) Lodging
 - l) Convenience Store
- 96. Something else? [OPEN-ENDED RESPONSE]
 - 97. Not applicable
 - 98. Don't know
 - 99. Refused

[ASK ALL]

Q36. Does your organization lease or own your facility?

- a) Lease
 - b) Own
- 96. Other, please specify: [OPEN-ENDED RESPONSE]
 - 98. Don't know
 - 99. Refused

[ASK ALL]

Q37. Approximately how many square feet are heated or cooled in your facility?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
 - 99. Refused

[ASK ALL]

Q38. Approximately how many full-time employees work at your current location?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
 - 99. Refused

[ASK ALL]

Q39. How many locations does your organization have in Maine?

- a) [OPEN-ENDED RESPONSE]
- 98. Don't know
 - 99. Refused

Those are all my questions, thank you very much for your time today.

A.2 Selected Survey Responses

Table A-1: Open-Ended Suggestions for Program Improvements

Category	Program Type	Suggested Improvement
Equipment	Custom Misc	qualifying a wider variety of equipment such as LED lighting for town governments or municipal utilities, retrofitting the sodium vapor lights in town
	Prescriptive Ductless Heat Pump – Retrofit	larger units should be part of the program
		review of different types of energy efficient systems, like newer oil or gas systems
	Prescriptive Lighting Retrofit	one of the disappointments I have is that I need an air compressor and the models that are covered are too expensive for small business
Forms/ Requirements	Custom VFD	Improve navigation on website, and the form, when you fill it out, you can't see the pages ahead of you. You have to fill it out before going forward, so I had to call the manufacturer to get little bits of information, and then you go forward
	Prescriptive Compressed Air	Maybe provide numbers to contact someone who can help if you have any questions. Simplify the website so we know what we need to submit. Make it easier!
	Prescriptive Ductless Heat Pump – Retrofit	the certification of the contractor was a difficult process, more laborious than anything - unclear on required documentation - once we figured that out, it was fine
		The cost of operation would be nice, if that could be reduced
	Prescriptive HVAC	the online process needs some cleaning up
Prescriptive Lighting Retrofit	I love the Home Depot thing where there's no forms to fill out. Because we're retrofitting my Belfast hotel little by little by going to Home Depot, buying up a bunch of fixtures, and installing those in the hallways. I understand that there's	
Incentives	Custom Misc	the larger an organization the more rebates should be available.
	Prescriptive Agriculture	reinstate it!!!
	Prescriptive Ductless Heat Pump – Retrofit	Increase the amount the incentives.
		if they did the incentive for more than one unit per location for ductless heat pump
		continue incentives
		more money for incentives
		Extend the program, because I thought the governor was going to sign something about ending it. Not sure about what that is about, but keep the program there.
	Prescriptive HVAC	more money
Increase the amount of incentive.		
Prescriptive Lighting Retrofit	the incentive has to be high enough - if the savings aren't substantial, it doesn't make sense	
	Having the incentive go to the contractor and just having the rebate at the point of sale.	
	I want to do more - we were planning on doing the rest of the store this summer but the program ran out of money - would like to continue to finish what we started. Wanted to do it this Fall if we can.	

Category	Program Type	Suggested Improvement
		<p>If they re-institute it, it would be fantastic.</p> <p>I hope they restart the program - it's been ended for a little while now.</p> <p>the only thing is the dates of the program and the closing</p> <p>bring it back</p>
Marketing/ Communication	Custom Compressed Air	maybe a newsletter that keeps a business owner abreast of the rebates available, like for lighting projects
	Prescriptive Compressed Air	<p>I think that it would have benefited me if someone from Efficiency Maine contacted me directly to confirm the contractor had submitted the paperwork - it would have helped to receive a phone call to know that it had been approved</p> <p>Advertise more through social media.</p>
	Prescriptive Ductless Heat Pump – Retrofit	try to make it more known. sometimes it's hard to tell what the incentives are
	Prescriptive HVAC	I've used the program on other things and I've had good luck when I did it myself. I think that the program on the website should have an expiration -- because what they say is the funds are available until the program runs -- how do you know?
	Prescriptive Lighting Retrofit	<p>prior to doing it we didn't know what was out there and when they expire so that we would know what was available.</p> <p>more clarity of information which rebates for what models</p> <p>More awareness.</p> <p>be more clear</p>
	Prescriptive VFD	My one pet peeve with the program is just that the documentation you get with your award. In other words, we get a lot of awards here at Colby, and these checks just kind of show up. And it's difficult to know which application the check is con
Other	Custom Lighting	we found that if we had taken certain conservation earlier on - if we have not done that we found that we were penalized for that because we were replacing cfls instead of incandescents - now that we're involved in the program going to LEDs to
	Prescriptive Lighting Retrofit	because I'm a contractor I believe that there probably should be an advisory board to the upper level management of efficiency Maine - since we're the ones who work for the program would know more about what can be done.

Table A-2: Described Energy Reduction Goals

Re-coded Category	Open-ended Response
A Percentage Reduction Goal	it's like 2% a year or something
	percentage
	5 year & 10 year plan - look at percentage of when we want to reduce our consumption by
	10-20% this year
	20% and it will be higher
	reduce heating costs by 25% percentage (I don't know how much)
Reduce Environmental Impact	want to be less dependent on fossil fuels - looking toward solar panels - want to minimize our carbon footprint.
Reduce Environmental Impact, Save Money / Payback	To give us all the energy we need. To be good to the environment and save us money.
Save Money / Payback	To save as much money as we can.
	Three years or less. One year or less and it's an instant blessing from the owner.
	we look at the profit loss statements at end of year, how much was saved
	I look at what's available and see what the payback is and determine if we can afford it.
As much as / what we can	Nothing formal, it's my job to get it down as much as possible
	nothing specific, just as much as we can
	just a goal to replace things to make thing as energy efficient as possible
	as much as possible
	trying to reduce as much as possible
	when we need to do something we do it right
	Doing what we can when it's time to replace equipment
	I just buy the lower watt bulbs or things that save energy, anything I buy is efficient.
	we're always looking for ways to reduce electricity use
my aim is electricity wise is to hold the line	
Specific Measures Identified	to install further heat pumps, we still have an oil furnace for part of the building and to upgrade insulation and windows
	replace rest of lights
	I don't have an exact number, but we were looking at installing solar and other energy efficient equipment. Maybe 30%?
	ballast changing

Appendix B Qualified Partner Survey Instrument

B.1 Introduction & Screening [READ FOR ALL]

Hello my name is [Name] and I'm calling on behalf of Efficiency Maine. My firm has been hired to survey Qualified Partners about their experience with Efficiency Maine's Business Incentive Program. We want to understand your experience and any feedback you may have received about the program from your customers. Efficiency Maine plans to use the information to improve the energy efficiency programs and services it offers to its business customers.

My questions will take 10-15 minutes. Is now a good time or is there a more convenient time when I could call back? [Interviewer: if not, schedule a convenient call back time.]

[Alert interviewee if the call will be recorded.]

[Note that responses will remain confidential and only be reported in aggregate with other responses.]

B.2 Program Experience

I'd like to start with a few questions about your experience with the program in general.

[ASK ALL: OPEN ENDED RESPONSES]

- Q40. When did your organization first begin participating in Efficiency Maine's Business Incentive Program?
- a) Record year: _____
 - 98. Don't know
 - 99. Refused

Q41. Why did you decide to become a Qualified Partner?

Q42. To what extent have your expectations been met?

Q43. What are the main benefits of being a Qualified Partner?

Q44. Thinking about your firms' overall volume of work in 2014 and the first half of 2015, what proportion of your jobs included a Business Incentive Program application?

Q45. I'm going to list several resources Efficiency Maine provides to assist Qualified Partners. Please tell me if you find each one "very helpful" "somewhat helpful" or "unhelpful" in supporting your work with the program?

- a) The Qualified Partner website
- b) Efficiency Maine E-News emails
- c) Marketing Material provided by Efficiency Maine
- d) The delivery team
- e) Certification/Re-Certification process

Q46. How would you describe your experience working with the delivery team (GDS)?
[OPEN ENDED RESPONSE]

Q47. How could the program improve the experience of Qualified Partners?

I'd like to turn now to some questions about your experience with specific projects

[Ask All]

Q48. Approximately what percent of your customers are aware of *Efficiency Maine* before you tell them about it?

Q49. Approximately what percent of your customers are aware of the *Business Incentive Program* before you tell them about it?

[Ask All]

Q50. When you talk to your customers about equipment options, would you say you...

[Single response]

- a) Promote energy efficient equipment over other alternatives
- b) Present energy efficient equipment along with less efficient alternatives
- c) Suggest energy efficient equipment only when the customer asks for it
- d) OPTIONAL RESPONSE OPTION: for more nuanced or detailed explanations than fit with the options above. (for example if they always promote efficient lighting in warehouses, but really never in restaurants...)

[Ask All]

Q51. Are there steps in the participation process that seem to cause problems for potential participants?

- a) Yes
- b) No
- 98. Don't know
- 99. Refused

[ASK IF Q51=YES]

Q52. If yes: What points in the process? What happens?

[Ask All]

Q53. Is equipment installed through the Business Incentive Program more efficient, less efficient, or similar efficiency as that installed outside the program?

- a) More efficient
- b) Less efficient
- c) The same efficiency
- 98. Don't know
- 99. Refused

B.3 Customer Motivations and Corporate Policy

I have a few questions about the level of commitment to energy efficiency among your customers.

[Ask All]

Q54. What percent of your customers have... (RANDOMIZE RESPONSE OPTIONS)

Aspect	Record %	DK	RF
g. An energy manager			
h. Formal purchase guidelines that prioritize or encourage energy efficiency?			
i. Long term plans for major equipment replacements?			
j. A goal for reducing energy consumption?			
k. Minimum payback or return on investment thresholds for projects under consideration?			

Q55. What is the typical payback threshold your customers want?

- a) One year or less
- b) Two years or less
- c) Three years or less
- d) Other: [RECORD VERBAITM RESPONSE]
- 98. Don't know
- 99. Refused

[Ask all]

Q56. I'm going to list several reasons your customers might **decide to move forward with an energy efficiency project**, please rate how common each reason is using a 0-10 scale, where 0 means it's an extremely rare reason, and 10 means it's an extremely common reason. (RANDOMIZE RESPONSE OPTIONS)

Reason	Record rating	98/DK	99/RF
g. Reducing energy costs			
h. Replacing old or outdated equipment			
i. Improving occupant comfort			
j. Reducing maintenance and operational costs			
k. Replacing equipment that had failed			
l. Fuel switching			

[Ask all]

Q57. Thinking about how you promote energy efficiency and convince customers to move forward with a qualified project on what portion of projects does you (RANDOMIZE RESPONSE OPTIONS)....

Reason	Record portion (0-100%)	98/DK	99/RF
g. Discuss the payback from energy savings?			
h. Promote the availability of incentives?			
i. Promote the overall quality of the equipment?			
j. Promote potential operations and maintenance cost savings			
k. Discuss other benefits, such as water conservation or reduced noise?			
l. Mention Efficiency Maine?			

[Ask all]

Q58. Do participants return to you with additional energy efficiency projects?

- a) Yes
- b) No
- 98. Don't know/Not sure

B.4 Satisfaction

[Ask all]

Q59. Thinking about the program as it operated in 2014 and early 2015, please rate your agreement with each of the following statements, using a zero-to-ten scale where zero means you disagree completely and 10 means you agree completely:

Aspect	Record Rating: 0-10	98/DK /NA
h. The incentive levels were sufficient to encourage project completion		
i. The number and type of qualified measures meet the needs of my customers		
j. The program requirements were straightforward		
k. I received regular communication from the program		
l. I intend to participate in future program years		

[PROGRAMMING NOTE: For any item rated 6 or lower add follow up question: why did you give this rating?]

[Ask all]

Q60. How could the Business Incentive Program be improved for contractors like you?

- a) [Open-ended response]
- 98. Don't know

-99. Refused

[Ask All]

Q61. Have you received any training through the Business Incentive Program?

a) Yes

b) No

-98. Don't know/Not sure

[Ask IF Q61=YES]

Q62. If yes: what type of training did you receive?

[Ask IF Q61=YES]

Q63. Please rate the quality of the information provided in this training on a scale of 0-10, where zero means very low quality and 10 means very high quality.

B.5 Program Drop outs and Measure Suspension

Q64. In 2014 and the first half of 2015, did you have jobs that could have qualified but that chose not to submit applications? (Interviewer note: these questions are about the program prior to the measure suspension that occurred in spring 2015 – later questions will ask them specifically about this. Try to keep them focused on program activities prior to the suspension of incentives.)

a) Yes

b) No (Skip to Q67)

-98. Don't know/Not sure

[ASK IF Q65=YES]

Q65. About how many times did this occur?

Q66. Why did these customers not apply to the Business Incentive Program?

[Ask all]

Q67. Have you had any projects drop out of the program mid-way?

a) Yes

b) No (Skip to Q69)

-98. Don't know/Not sure

[ASK IF Q67=YES]

Q68. Why did these projects drop out? [Probe: is there a typical reason projects drop out?]

We are aware that the Business Incentive Program suspended incentives for electric efficiency measures in March 2015.

[Ask all]

Q69. Has the Business Incentive Program's suspension of incentives for certain electric measures changed your overall workload? If so, how? [Record verbatim]

[Ask all]

- Q70. Without access to the Business Incentive Program, would you say most of your customers are...
- a) Choosing less efficient equipment.
 - b) Installing equipment with the same level of efficiency without incentives
 - c) Installing efficient equipment, but reducing the overall scope of the project (smaller overall projects).
 - d) Delaying projects or waiting for the program to re-open
 - e) OPTIONAL/OTHER: Include box for explanatory statements or responses that do not fit the options.

B.6 Wrap-up

I have just a few questions about your organization, to help us understand any differences in participant experiences.

[Ask All]

Q71. Approximately how many full-time employees does your organization have in Maine?

- a) [Open-ended response]
- 98. Don't know
- 99. Refused

Q72. Has this increased, decreased, or stayed the same since your organization became involved the Business Incentive Program?

- a) Increased
- b) Decreased
- c) Stayed the same
- 98. Don't know
- 99. Refused

[Ask All]

Q73. Which of the following services does your company provide? Does your company...

- a) Install commercial lighting equipment
- b) Install commercial HVAC equipment
- c) Provide engineering services
- d) Provide building assessments or diagnostic audits
- e) Provide other mechanical or equipment services? Which services?
- 98. Don't know
- 99. Refused

Q74. What is your company's PRIMARY area of expertise? (If more than one area is mentioned ask for the primary focus.)

- a) Electrical contracting
- b) Lighting systems
- c) Heating and cooling
- d) Refrigeration
- e) Motors

- f) Mechanical systems and engineering
- g) Agricultural equipment
- h) Other: [Record Verbatim]

Q75. Approximately how many total commercial or industrial <Main Area from above question> projects does your company implement in a typical year?

Those are all my questions, thank you very much for your time today.



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